National Park Service
U.S. Department of the Interior

Natural Resource Stewardship and Science

Plants of Tumacácori National Historical Park

Natural Resource Report NPS/SODN/NRR—2012/535

ON THE COVER

Tumacácori Mission and Santa Rita Mountains, 2008 NPS/Jeff Axel; Insets © 2012 Patrick Alexander

Plants of Tumacácori National Historical Park

Natural Resource Report NPS/SODN/NRR—2012/535

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The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado, publishes a range of reports that address natural resource topics of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

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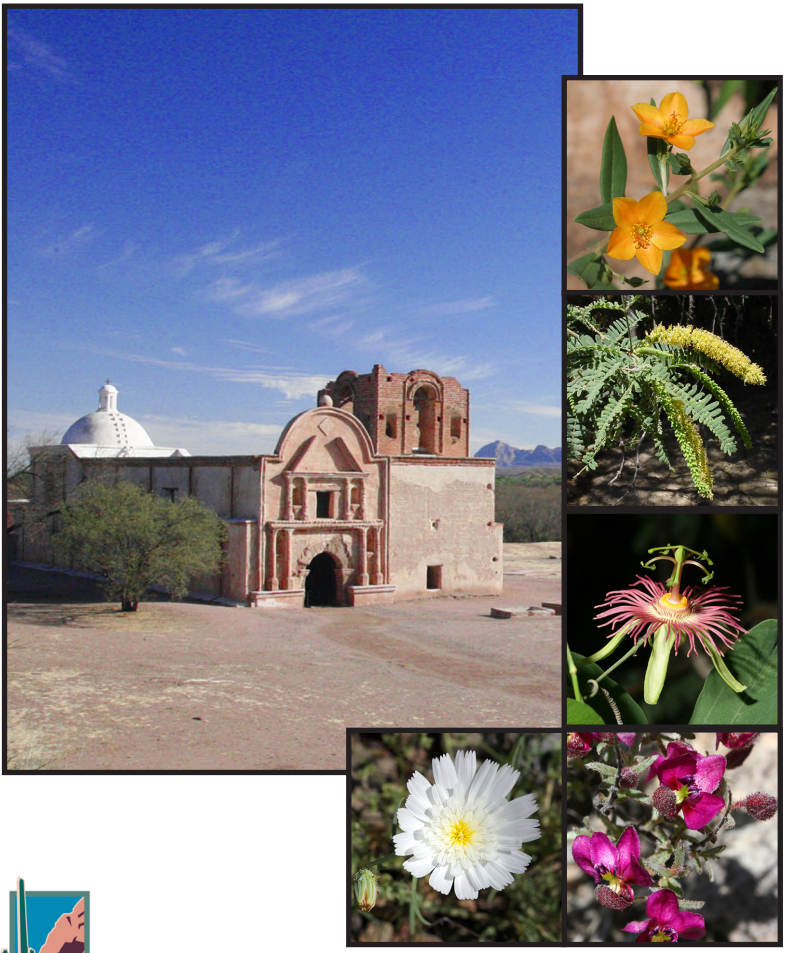

SONORAN DESERT NETWORK
Inventory and Monitoring Program

The Flora Project

Plants of Tumacácori National Historical Park

Editor:
Steve Buckley

The ethnobotanical information in this book is included for educational purposes only. No plant or plant extract should be consumed unless you are certain of its identity and toxicity and of your personal potential for allergic reactions. Self-medication with herbal medicines is often unwise and wild foods should always be used with caution. Although every effort has been made to ensure accuracy and reliability, neither the author, the Sonoran Desert Network Inventory and Monitoring Program, the National Park Service, nor the University of Arizona are responsible for the actions of the reader or liable for any effects caused by such actions.

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SONORAN DESERT NETWORK
Inventory and Monitoring Program

Arizona Remote Sensing Center
Office of Arid Lands Studies
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Plants of Tumacácori National Historical Park

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The Flora Project

This field guide is part of a larger body of work known as the Flora of the Sonoran Desert Network. The Flora Project emerged from the network's vegetation mapping program, begun in 2009. Since then, we have compiled comprehensive floristic entries on upwards of 2,000 individual species, the ultimate goal being to build a comprehensive floristic database covering the more than 2,400 species, subspecies, and varieties of plants found in the national parks of the Sonoran Desert Network (SODN). These entries will ultimately be available as an online database and also translate directly into the work presented in this guide. The goal of the project is to produce (1) a comprehensive field guide for each SODN park unit, (2) a series of regional field guides tied to specific life forms, and (3) a guide to common plants for each SODN unit. These floras range from the small (around 160 species at Casa Grande Ruins National Monument) to massive (around 1,200 species in Saguaro National Park's Rincon Mountain District).

Our methodology builds upon that of inventory efforts completed in the late 1990s and early 2000s. The intention of the project is to conduct a more detailed floristic inventory while building vegetation maps for each park. We first combine the baseline inventory data with all historical studies, then proceed to a comprehensive search of all regional herbarium records. Through this process, we have identified more than 15,000 specimens collected since the creation of the national parks in the region. The herbaria search is followed by broad research in the phylogenetic, systematic, and ecological literature to sort out problematic species and genera. Finally, we scour all agency study records to develop a comprehensive portrait of the floristic research that has been undertaken in each park through the years.

The final products of these efforts are not field guides alone, but a cross-platform floristic information system that is being developed for use by land managers, researchers, and the public. Ranging from online databases to printed field guides, to apps for mobile and handheld digital devices, to a range of other digital and print educational tools and resources, the Flora Project hopes to set a standard for floristic research on federal lands in the desert southwest. Plant species checklists for Sonoran Desert Network parks are currently available at http://swbiodiversity.org/seinet/projects/index.php?proj=5 . These versions provide interactive keys that can further help in the identification of plants and provide links to other regional park species checklists.

SONORAN
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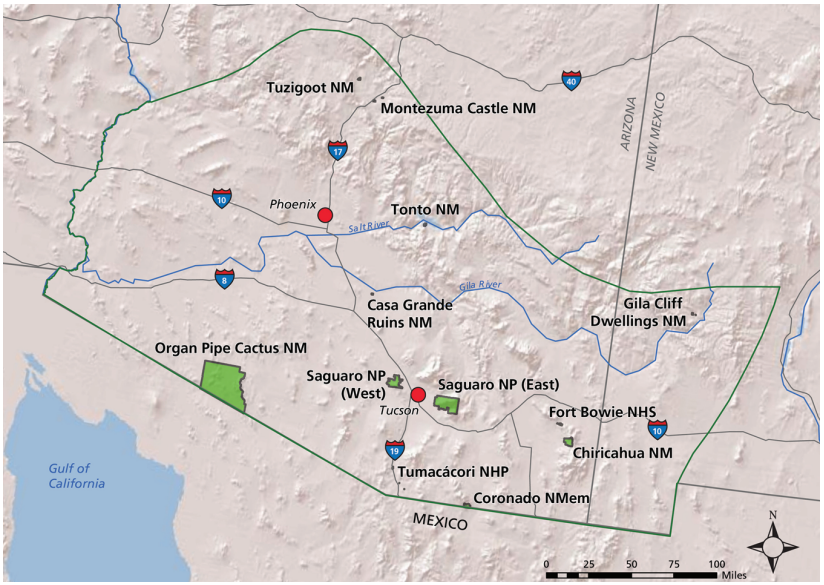
The Flora Project

2012 NPS

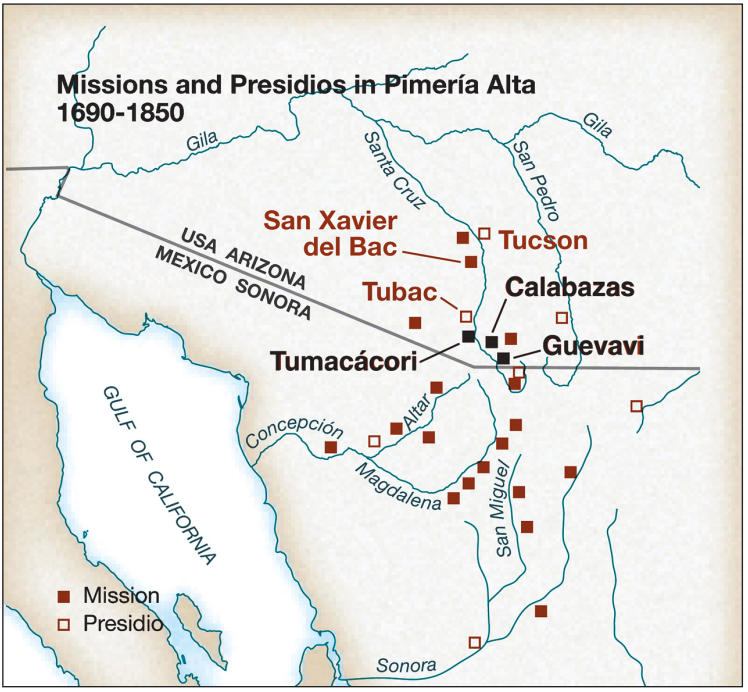


National Parks of the Sonoran Desert Network

The Sonoran Desert Network is one of 32 National Park Service inventory and monitoring networks nationwide that are implementing vital signs monitoring in order to assess the condition of park ecosystems and develop a stronger scientific basis for stewardship and management of natural resources across the National Park System.

The Sonoran Desert Network consists of 10 units in central and southern Arizona and 1 unit in southwestern New Mexico. These units are characteristic of the upper Sonoran subdivision of the Sonoran Desert Ecoregion and the Apache Highlands Ecoregion, and range in size from half a square mile to 517 square miles (147 to 133,882 hectares).

Please visit our website for more information and a full list of our active research projects, available publications, and other resources:
http://science.nature.nps.gov/im/units/sodn



National Park Service

Administrative History of Tumacácori NHP

Tumacácori National Historical Park (NHP) was designated Tumacácori National Monument on September 15, 1908, by proclamation of President Theodore Roosevelt. The four-hectare monument was originally created to protect Misión San Jose de Tumacácori, a Jesuit-established and Franciscan-constructed mission that was relocated to the present site in 1751, although construction of the building now protected was not completed until the mid-1820s. San Jose de Tumacácori was one of a line of Franciscan, although originally Jesuit, missions built in far northern Sonora beginning in 1691, with the arrival of the Jesuit Padre Eusebio Kino. Kino visited the Pimería Alta, or the "place of the upper Pimas," as this area of southern Arizona was known at the time, and established a mission on the east side of the Santa Cruz River. A more favorable site for permanent construction of the mission church and other facilities was later selected on the west side of the river. The area was chosen because of its habitation at the time by O'odham people, also known as the Papago or Pima, along that stretch of the Santa Cruz River. The word tumacácori is thought to be taken from two O'odham words, chu-uma and kakul, making reference to Saint Joseph of the flat, rocky place. Other sources suggest the name means caliche, or pepperbush (Lamb and Scott 1993).

A Brief Environmental History of Tumacácori National Historical Park

Tumacácori NHP is located in the Santa Cruz River valley of southern Arizona, which is part of the southern Basin and Range physiographic province. This physiographic province encompasses southeastern Arizona and northern Sonora and is a "terrain of alternating fault-bounded linear mountain ranges and sediment-filled basins which began to form in southeastern Arizona as the result of dominantly east–northeast/west–southwest directed crustal extension" (Powell et al. 2005). The result is a landscape of many rugged mountain ranges: to the west, the Tumacácori and Atascosa mountains; to the east, the Santa Ritas, the Patagonias, and the San Cayetano mountains. The climate of the area is marked by a bi-seasonal precipitation regime, with a monsoonal flow from the Gulf of Mexico in summer, and Pacific frontal storms in winter. "The area's hot season occurs from April through October; maximum temperatures in July often exceed 40 °C. Intense surface heating during the day and active radiant cooling at night can result in daily temperature ranges of 17° to 22° C. Winter temperatures are mild. Prevailing winds tend to follow the Santa Cruz Valley, blowing downslope (from the south) during the night and early morning, and upslope (from the north) during the day" (Powell et al. 2005).

The Santa Cruz Valley has a long history of anthropogenically driven ecological change. Prior to Spanish colonization, marked by the arrival of Kino in 1691, O'odham communities are thought to have inhabited these areas for hundreds, if not thousands, of years (Spicer 1962). These small subsistence agricultural communities were semi-nomadic and relied on the existence of permanent surface water for their survival (Robinett 1990). Although indications are that their impact was limited, suggestions as to their overall impact vary, given the uncertainty surrounding specific practices, such as firing the landscape. With the arrival of the Spanish and their livestock, conditions changed drastically. In the 1804 Spanish census, 5,000 sheep were reported at Tubac, the presidio immediately downstream of the main Tumacácori unit. These numbers were replicated at Tumacácori, with 4,000 of the mission's cattle being sold in 1821 to pay for the construction of the church (www.nps.gov/tuma).

With the 1853 Gadsden Purchase, all land south of the Gila River formerly owned by the Spanish was transferred to the United States. Following the Gadsden Purchase and the end of the Apache wars, Euro-American settlement began throughout the region in earnest, further amplifying ecological change. Along the Santa Cruz River, changes in land use included the clearing of mesquite bosque and cottonwood-willow forests along the river for agricultural purposes. Evidence also indicates that cottonwoods more than 6 meters in diameter were girdled and killed in the 1920s, in the mistaken understanding that such actions would free up more water for agriculture (Logan 2002). The area around the mission began to be converted to more extensive agricultural operations sometime in the 1940s, replacing what appears to be mesquite bosque documented in aerial photography dating to 1936. Extensive fields appear in aerial photographs from 1956 and expand further to the north in 1959, when they appear to have totally surrounded the mission and run to the edge of the riparian zone. During this same period and since (from the 1930s

onward), there has been a general increase in the obligate riparian vegetation in this reach of the river, attributed to agricultural abandonment immediately adjacent to the river; periodic flooding that helped in the germination of cottonwood, specifically; and, later, the existence of effluent water flow following the development of the Nogales International Wastewater Treatment Plant (Webb et al. 2007; Powell et al. 2005).

Beginning in the late 1970s, the agricultural fields surrounding Tumacácori began to be abandoned. In aerial photographs from 1975, fields and historic acequias (irrigation canals) are still clearly visible. However, aerial photographs dating from 1980 and 1983 clearly show these fields beginning to undergo type conversion to sparse shrubland, indicating their abandonment sometime previous to then. In aerial photographs taken in 1992, 1996, 2003, and 2004, the growth of trees and shrubs in these former fields is evident. Local cattle ranching has probably had an uninterrupted history since Spanish colonization, and continues today. Despite the park's efforts to maintain boundary fencing, trespass cattle are a recurring problem.

Cattle ranching also continues around both the park's Guevavi and Calabazas units. Guevavi was, in fact, part of a ranch until 1990, when its owner donated the land to the Archaeological Conservancy. Guevavi had small subsistence agricultural fields during the period of mission occupation, but none of the extensive fields that surrounded the main unit in the twentieth century. Calabazas was similar in this respect, although there are indications that it was used in the early 1800s as a farm for the mission at Tumacácori (www.nps.gov/tuma). Neither Guevavi nor Calabazas has the same density of riparian-obligate species as is found at the main unit, although the existence of many deceased large cottonwoods is believed to be partly a consequence of local groundwater development for Nogales, Arizona (in the case of Guevavi), and Rio Rico (in the case of Calabazas) (Webb et al. 2007).

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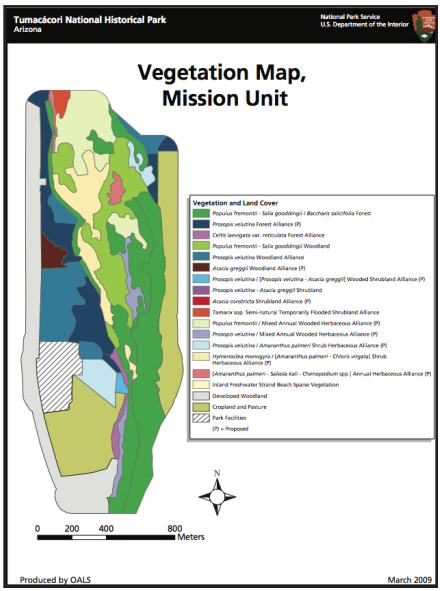
Vegetation Mapping at Tumacácori NHP

In 2007–2008, the Sonoran Desert Network, in cooperation with the Arizona Remote Sensing Center (University of Arizona, Office of Arid Lands Studies), carried out classification and mapping of vegetation at Tumacácori NHP as part of the national U.S. Geological Survey–National Park Service Vegetation Characterization Program. The primary objective of the program is to produce high–quality, standardized maps and associated data sets of vegetation and other land cover occurring within the national parks (http://science. nature. nps.gov/im/inventory/veg/index.cfm). In particular, the aim of this project was to create a vegetation map at the National Vegetation Classification alliance level or finer, with a minimum mapping unit of 0.5 hectares, thematic accuracy of 80% or better per map class, and spatial accuracy meeting U.S. National Map Accuracy Standards.

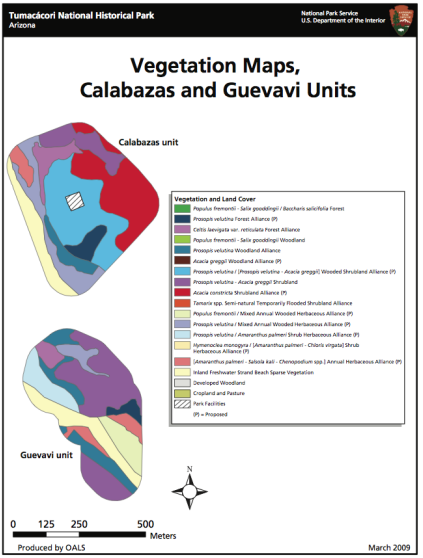
Project scoping, initiated in October 2007, involved the project team and Tumacácori NHP staff. Quickbird satellite imagery, acquired in August 2006, was used for this project, which covered the three subunits of the park plus a 100–m buffer around each one, for a total area of 238 hectares. Image preprocessing and initial interpretation to the vegetation–formation level were done at the Arizona Remote Sensing Center. The draft formation–level map was produced through limited field reconnaissance and visual interpretation of the pan–sharpened imagery and heads–up digitizing in ArcGIS to delineate polygons based on vegetation physiognomy.

Vegetation classification and mapping to the alliance level were done simultaneously, through intensive field work from November 2007 to April 2008. The field team, including the image interpreters, took the formation map as a starting point and verified or modified formation boundaries; split formation polygons into alliance– or finer–level, floristically based polygons; and characterized each alliance type with quantitative (plot– and polygon–based) data on species composition, relative cover, and other factors. Because Tumacácori is a small park, a census of the entire park was done in this way. Nineteen vegetation types were identified and mapped.



Thematic accuracy was assessed by the park's resources manager/ archeologist ("the assessor") after a thorough briefing on the methods used for classification and mapping, as well as on the map classes. The assessor was provided with tools similar to those used by the mappers, including a GPS–

linked handheld computer loaded with draft map polygon boundaries, and printed map sections with each polygon labeled with a simple identification number. The assessor completed a census of every mapped polygon, walking through each one to evaluate the lifeform and canopy cover of the dominant species, and choosing the best–fitting map class name for the polygon. Initial accuracy was 90.2%, with four classes below 80%. Because of the small area of the park and the small number of polygons, each discrepancy between the accuracy assessment data and the map data was investigated and resolved, resulting in 100% thematic accuracy. Spatial accuracy was assessed against 2006 digital orthophoto quarter quadrangle imagery, using 20 test points for each of the park's three units. The maximum absolute error measured was less than 2 m ground distance, and maximum root mean square error was 1.03 m, well within the limits of the National Map Accuracy Standards.



While the main products of this project are the vegetation classification and the vegetation map database, a number of ancillary digital geographic information system and database products were also produced that can be used independently or to augment the main products.

This field guide is designed as a companion product to the vegetation mapping project. It is designed as both an introduction to the floristic research that accompanied the vegetation mapping effort and as an introduction to the ecological community data that were collected and analyzed in the course of creating the vegetation map. For further information about the SODN vegetation mapping effort and a copy of any of our vegetation mapping reports, please visit http://science.nature.nps.gov/im/units/sodn/vegmapping.cfm .

A primer

The area of Tumacácori National Historical Park lies in the Arizona Upland division of the Sonoran Desert as designated by Brown and others (1979) and previously by Shreve and Wiggins (1964). Alternatively, this area is also known as part of the Apache Highlands Ecoregion, as developed by The Nature Conservancy (Marshall et al. 2004). The vegetation is composed primarily of cottonwood–willow (*Populus fremontii–Salix gooddingii*) riparian forest and woodland along the Santa Cruz River channel, velvet mesquite (*Prosopis velutina*) forest (bosque) and woodland on low terraces flanking the river, with a gradation to semi–desert grassland and desertscrub on the uplands away from the river. Within the dominant forest and woodland communities, netleaf hackberry (*Celtis reticulata*) and elderberry (*Sambucus nigra* ssp. *caerulea*) are common constituents, and are in some places the dominant woody species along the upland edges where woodlands give way to savannas. Other associated species include acacias (the old *Acacia greggii, Acacia constricta*, these now *Senegalia greggii* and *Vachiella constricta*), wolfberry (*Lycium* spp.), lotebush (*Ziziphus obtusifolia*), and desert broom (*Baccharis sarothroides*).

Different communities across the three park units exhibit different densities and species composition, depending not only on their site characteristics relative to the river, but also on their specific land–use histories. Although there are significant grass communities scattered throughout the park, ranging from mixed grama grass communities (*Bouteloua* spp.) to limited dominance by big sacaton (*Sporobolus wrightii*), there is a notable dominance by disturbance–tolerant species, such as carelessweed (*Amaranthus palmeri*) and Bermudagrass (*Cynodon dactylon*). Bermudagrass, in particular, defines the contemporary strand vegetation community throughout the three units. There is also a notably large amount of Russian thistle (*Salsola kali*) throughout the park, possibly a lingering consequence of agricultural development around the park units, cover, and other factors. Because Tumacácori is a small park, a census of the entire park was done in this way. Nineteen vegetation types were identified and mapped.

temporarily flooded forest alliance

This is the most consistent type at Tumacácori, following both sides of the Santa Cruz River for its length through the Mission unit of the park. Fremont cottonwood (*Populus fremontii*) is the dominant tree species of the type, while Goodding's willow (*Salix gooddingii*) is a subdominant, characteristic species found in clumps, often as a secondary canopy of 6–8 m height. The canopy of Fremont cottonwood averages 10–20 m high throughout the type and is generally open beneath, except for areas of thick tamarisk (*Tamarix ramosissima*) along the river channel that are interspersed throughout the park. Mulefat (*Baccharis salicifolia*) is widely dispersed and is not consistent in its distribution. Overall, woody species distribution in this community is a patchy mosaic, apart from the consistent Fremont cottonwood and Goodding's willow, with a mixture of mesquite, netleaf hackberry, and elderberry trees and shrubs. Other associates are desert broom and chuparosa (*Anisacanthus thurberi*). The herbaceous layer is a mosaic as well, but with Bermudagrass present consistently along the river channel, especially in areas that are flooded regularly. In areas where river debris is significant, there is little herbaceous growth, outside of a dominance of poison hemlock (*Conium maculatum*) in and around debris piles where soil has been exposed. In other areas, especially those away from persistent river flows, carelessweed and feather fingergrass (*Chloris virgata*) are generally dominant. Throughout the type there is a diversity of annual and perennial herbaceous plants, but they are sparse and widely dispersed

forest alliance

This alliance is prevalent at Tumacácori, usually occupying alluvial terraces along the outermost edges of the Santa Cruz River floodplain, outside the band of cottonwood–willow forest along the channel, in areas that are relatively moist but rarely inundated. It sometimes occurs in narrow bands along the base of cliffs and embankments bordering the floodplain, as well as at the mouths of tributary drainages as they enter the floodplain. These areas receive concentrated rainfall runoff and a steady supply of fresh alluvium from adjacent uplands, resulting in relatively deep soils and higher moisture availability without the disturbance associated with frequent flood events. Soils are sandy or sandy loam, often contain significant gravel, and have at least a thin but nearly continuous litter layer. The alliance contains several recognizable associations with different subdominant species, different structure and cover, and with mesquite stands of apparently different ages. It may occur on former agricultural fields, appearing as even–aged stands of nearly uniform velvet mesquite averaging 3–6 m in height, with individuals closely spaced and forming an interlocking canopy, with relatively little understory. Or it may be composed of older, larger mesquite with netleaf hackberry, elderberry, and occasional Goodding's willow interspersed, with a significant shrub understory of sapling trees, catclaw acacia (*Senegalia greggii*), mule's fat, lotebush, wolfberry (*Lycium andersonii*), and chuparosa. In addition, there may be a diverse herbaceous layer of annual and perennial grasses and forbs, and ground–to–crown vines, such as Santa Rita Mountain bean (*Phaseolus ritensis*), Drummond's clematis (*Clematis drummondii*), and morning glory (*Ipomoea* sp.). Big sacaton or Bermudagrass may dominate the herbaceous layer in places.

forest alliance

At Tumacácori, this alliance is found primarily on shallow slopes that run along old agricultural fencelines. This dense forest is comprised of netleaf hackberry and velvet mesquite that range in height from 8 to 12 m in the uppermost canopy, with considerable numbers of elderberry or catclaw acacia growing up underneath to a height of 4–8 m. The largest netleaf hackberry specimens are found immediately along the fencelines, which in isolated instances still receive runoff from actively cultivated agricultural land. This type is notable because of the multi–layered structure and density of the forest, from the interlocking top canopy to the dense subcanopy. In the subcanopy, there is significant recruitment of netleaf hackberry, mesquite, and elderberry, with some catclaw acacia and occasional lotebush and wolfberry shrubs. The herbaceous layer is notably sparse in areas beneath the denser canopies, where there is also considerable downed woody debris, but in openings there is a higher diversity of both forbs and occasional grasses. In isolated sections of this type there are Bermudagrass patches, often along foot trails.

woodland alliance

This type is similar in composition to the cottonwood–willow riparian forest type that spans the park, but has lower plant density and cover. The type is located in the river floodplain, between an ephemeral channel on the west and savanna types surrounding it on the south, north, and east. It is dominated by Fremont cottonwood, with a patchy canopy and the inclusion of Goodding's willow in specific areas. Mulefat is generally the dominant shrub. The entire type is on a slightly elevated sandy–silty island and has considerable downed woody debris piled up throughout. Beneath the Fremont cottonwood canopy the understory is relatively open and has more herbaceous plants than shrubs, dominated by curly–mesquite (*Hilaria belangeri*), Bermudagrass, and the annual feather fingergrass. The annual forb fewflower beggarticks (*Bidens leptocephala*) is characteristically found in dense concentrations in the shade. Shrubs are often distinctly clumped and diverse, ranging from singlewhorl burrobrush (*Artemisia monogyra*), mule's fat, and threadleaf ragwort (*Senecio flaccidus*) to specimens of cane cholla (*Cylindropuntia spinosior*). Carelessweed and Russian thistle are present throughout the type, but not in the same density as they are found in neighboring wooded–herbaceous or shrub–herbaceous types.

woodland alliance

This woodland alliance generally occurs further away from the river channel than the forest alliances, in more xeric sites. Plant canopy cover varies, up to about 50%, with significant open or nearly open patches possibly present. Velvet mesquite is usually clearly dominant in both height and canopy cover, but in places catclaw acacia, commonly the second–dominant species, is a close rival. Within this type, catclaw acacia (and, to a lesser extent, velvet mesquite) can be found as a tree lifeform, a shrub lifeform, or anything in between. The mesquite–dominated upper canopy averages 6–8 m in height, ranging to 10 m. In addition to catclaw acacia, occasional elderberry and netleaf hackberry individuals may also reach this height, and in one patch of this type, a few Fremont cottonwood and Goodding's willow exceed it. In the subcanopy, mesquite and acacia still dominate (as caespitose shrubs to sapling trees), with common associates being netleaf hackberry and elderberry saplings, lotebush shrubs, catclaw mimosa (Mimosa aculeaticarpa var. biuncifera), desert broom, mule's fat, chuparosa, singlewhorl burrobrush, wolfberry, and Warnock's snakewood (*Condalia warnockii*). The herbaceous layer is almost everywhere dominated by carelessweed, and occasionally by Bermudagrass. Important associates are sideoats grama (*Bouteloua curtipendula*), Russian thistle, lambsquarters (*Chenopodium* spp.), fewflower beggarticks, and feather fingergrass, but a variety of other grasses and forbs may occur.

woodland alliance

This type is dominated by catclaw acacia (was *Acacia greggii*, now *Senegalia greggii*) and velvet mesquite trees 6–8 m tall, and shorter catclaw acacia and lotebush shrubs. Associated shrub species, such as Warnock's snakewood, desert broom, wolfberry, singlewhorl burrobrush, and chuparosa, are scattered across the type. Most of the trees and shrubs in this alliance have such thick, dense canopies that herbaceous plants are largely confined to the interspaces between overstory canopies. The herbaceous layer is dominated by the annual forbs carelessweed and fewflower beggarticks, with a variety of other forbs and grasses possibly present and generally sparse.

Please note the name *Acacia greggii*, which is the former name of this particular species of acacia. Recent developments in systematics conserve the *Acacia* genera for only Australian species, those on our continent have variously gone into the genera *Senegalia* (as here), *Vachellia*, and *Acaciella*.

wooded shrubland alliance

This alliance covers the largest area at the Calabazas unit, including the portion surrounding the ruins. Although primarily found on gently sloped upland, this type also extends down steeper, relatively xeric slopes south and west of the ruins. These areas have very thin sandy or gravelly soils with minimal litter, except on toe slopes. Larger rocks or bedrock outcrops are usually visible. There is one stand of this type at the Mission unit adjacent to abandoned agricultural land, on deeper, loamier soil. This alliance is characterized by an open canopy of velvet mesquite shrubs, mostly 2–4 m tall but with many larger, tree–lifeform individuals up to 7.5 m. These mesquite and other trees present make up >10% cover. Catclaw acacia is common, usually but not always less abundant, in the shrub layer, also averaging 2–4 m tall. Density of the shrub layer is variable. In more xeric areas, desert broom may have significant cover and catclaw acacia may be absent or nearly so. Whitethorn acacia (was *Acacia constricta*, now *Vachellia constricta*) and catclaw mimosa are generally present. Other woody associates vary by topographic position: a few individuals of redberry juniper (*Juniperus coahuilensis*), Warnock's snakewood, and cane cholla are present on the hilltop flats and adjacent upper slopes, while lotebush, netleaf hackberry, chuparosa, and wolfberry may be found on more mesic middle– and toe slopes. Most of the larger velvet mesquite are also found in these more mesic areas. Carelessweed and fewflower beggarticks, which may be dense in localized patches, are the only abundant forbs in an otherwise grass–dominated (sideoats grama, big sacaton, feather fingergrass, bush muhly [*Muhlenbergia porteri*]) herbaceous layer.

shrubland alliance

This association is found primarily on mesa–tops and along the crest of hillslopes at the Guevavi unit. It is dominated by moderate–sized velvet mesquite shrubs 1–3.5 m tall, with catclaw acacia shrubs common on the hillslopes. In areas with greater than 5% slope, the species commingle. The slopes have a higher percentage of sideoats grama in the herbaceous layer compared to the flats of the mesa–tops, where there is far more of the annual forb carelessweed and needle grama (*Bouteloua aristidoides*) in addition to other mixed grama species (likely including Rothrock's grama [*B. rothrockii*] and sixweeks grama [*B. barbata*]), which were not reliably identifiable due to seasonal dormancy. Other woody species associated with this type include whitethorn acacia, cane cholla, cactus apple (*Opuntia englemanii*), desert broom, and candy barrelcactus (*Ferocactus wislizeni*), although there are rarely more than a few individuals of these species present. This type includes the adobe ruins at the center of the Guevavi unit (including the entrance trail, an interpretive ramada, and the church ruins), which accounts for some disturbance. There also appear to be other subsurface modifications that may account for distributional differences among some species in the areas immediately adjacent to the ruins, including the presence of big sacaton. The exotic invasive Lehmann lovegrass (*Eragrostis lehmanniana*) and threeawn (*Aristida* spp.) may also be significant in the understory. The indication is that the mesa–top is more mesic than the slopes, as well as having more sandy soils in areas, while the slopes are rockier.

shrubland alliance

This alliance is found on steeper, well–drained slopes in the eastern portion of the Calabazas unit. These sites have thin, gravelly soils, often with exposed bedrock. Prevailing winds appear to seriously reduce retention of moisture, topsoil, and litter. Whitethorn acacia, catclaw acacia, and velvet mesquite shrubs are all usually present, average 1.5–2.5 m tall, and compose a moderately open shrubland, but may form dense thickets. Some velvet mesquite may attain tree size, especially where slopes are not as steep. Whitethorn acacia is dominant overall, but in patches either catclaw acacia or velvet mesquite may be the dominant species. The understory is notable for its diversity, usually composed of a mixture of native bunchgrasses, such as sideoats grama, bush muhly, purple threeawn (*Aristida purpurea*), and foxtail (*Setaria* spp.). Several other species rare in the Calabazas site are found in limited numbers in this type, including desert ceanothus (*Ceanothus greggii*) , catclaw mimosa, candy barrelcactus, soaptree yucca (*Yucca elata*), hedgehog cactus (*Echinocereus* spp.), and cane cholla. This type maintains a high percentage of native species and relatively low levels of human and livestock disturbance due to its rugged topographic position, thorny shrub cover, and protection within National Park Service fencelines.

wooded herbaceous alliance

This type occupies portions of the floodplain at the Mission unit and at Guevavi. Fremont cottonwood is found singly or in small to large patches throughout the type, often with Goodding's willow and clumps of tamarisk in some places. Elderberry and/or velvet mesquite may be found in this type. Large Fremont cottonwood may reach 16–18 m, willow somewhat less, and mesquite usually 3–6 m. Shrubs are generally sparse. Associated species include singlewhorl burrobrush, velvet mesquite, mule's fat, catclaw acacia, desert broom, and threadleaf ragwort. The herbaceous layer is dominated by carelessweed, with significant patches of Russian thistle and lambsquarters widely dispersed throughout the type. Annual grasses are also commonly present, including feather fingergrass, purple threeawn, and needle grama, frequently in conjunction with sandier, sloped areas, indicating slightly more xeric conditions. The topography of this type is undulating, with 1–3 m relief and braided flood channels or swales dominated by herbaceous vegetation and occasional shrubs (mule's fat, desert broom, singlewhorl burrobrush), and sandbars dominated by trees. Associated herbaceous species include scarlet spiderling (*Boerhavia coccinea*), creeping spiderling (*Boerhavia spicata*), Bermudagrass, morning glory, Arizona sunflowerweed (Tithonia thurberi), sand dropseed (*Sporobolus cryptandrus*), sideoats grama, and Lehmann lovegrass.

wooded herbaceous alliance

This type is often found in wide, shallow drainages between mesa–top shrublands or on long, narrow alluvial terraces above the river's floodplain. Where a single herbaceous species dominates, it is usually carelessweed, though there are areas dominated by Bermudagrass (found in most of the open areas of the type) or big sacaton. In addition, there are significant areas without a single dominant species, with the herbaceous layer comprising a diverse mosaic of annual and perennial plants, including some combination of the aforementioned species and purple threeawn, feather fingergrass, curly–mesquite, sand dropseed, spike dropseed (*Sporobolus contractus*), cane beardstem (*Bothriochloa barbinodis*), and spidergrass (*Aristida ternipes*). The overstory usually has 5–25% cover of velvet mesquite trees, sometimes clumped, usually interspersed with elderberry, netleaf hackberry, catclaw acacia, and Fremont cottonwood. Velvet mesquite and catclaw acacia can appear as both trees and shrubs. Other associated shrubs include lotebush and singlewhorl burrobrush. Average height of the overstory is commonly 3–6 m, with some larger individuals possibly present. Fremont cottonwood specimens can reach 14 m. In areas within this type, elderberry may be the dominant tree, or nearly so. This variant of the type is likely to be dominated in absolute terms by weedy (often non–native) annual forbs, such as carelessweed, Russian thistle, lambsquarters, sunflower (*Helianthus annuus*), and feather fingergrass. Closer to the active channel, Bermudagrass and rough cocklebur (*Xanthium strumarium*) may also be abundant. Shrub and tree cover are sparse. There is often abundant evidence of cattle grazing and trampling, which combines with flood events to chronically disturb the topsoil and maintain the dominance of the invasive forbs.

shrub herbaceous alliance

This type is found at both the Mission unit and at Guevavi. At Guevavi, the area is an alluvial terrace in the floodplain beside the Santa Cruz River, where it is notable because of the significant amount of dead and downed wood that litters this portion of the river channel, as well as the numerous large Fremont cottonwood snags, some as tall as 14 m. In addition to the velvet mesquite shrubs, there are a number of trees in this area, including velvet mesquite, netleaf hackberry, elderberry, and Fremont cottonwood, but they are often solitary individuals with numerous shrubs of these species interspersed between, predominantly found in small clumps along the upper ridges of the sandbars. Netleaf hackberry appears to be using the dead and down cottonwood as a nurse/mulch. The type overall is dominated by carelessweed, with other tall annuals and big sacaton interspersed throughout. One location at the Mission unit supporting this type is an abandoned agricultural field. According to information provided by the National Park Service, this field has not been mowed or cultivated in the last 3–4 years. As a result, the dominance of carelessweed is apparently giving way to a mixture of annual and perennial grasses: Bermudagrass, needle grama, sand dropseed, sideoats grama, curly–mesquite, purple threeawn, and spidergrass. Scattered throughout are numerous small velvet mesquite and desert broom shrubs, ranging from 0.5 m–1.5 m tall. The absence of disturbance and grazing has apparently allowed the widespread growth of woody species, still small and shrubby. Carelessweed, present throughout the area, constituted a plurality of roughly 30% of the total cover here.

shrub herbaceous alliance

This alliance is generally found in the 100–year floodplain adjacent to the west side of the Santa Cruz River at Tumacácori. It consists of sandy to silty soils with a diversity of annual and perennial herbaceous species, though these are widely dispersed across a large area and do not account for much cover. The herbaceous layer is dominated by carelessweed and feather fingergrass. Singlewhorl burrobrush is the dominant shrub throughout the type, appearing to have grown up within the last five years, as indicated by repeat photographs from an earlier inventory. Singlewhorl burrobrush shrubs range from 2 to 4 m in height, and are generally clumped together, leaving large, more open areas in between. Associated shrubs interspersed throughout the type include mule's fat, desert broom, velvet mesquite, and threadleaf ragwort. Some trees may be present, commonly Fremont cottonwood or elderberry, but making up less than 10% cover.

herbaceous alliance

This annual forb–dominated community is found on sandy soils adjacent to the Santa Cruz River at all three units. Use of brackets in the type name indicates that these species should be considered co–dominant overall, and their relative abundance may differ spatially within the type. There are areas of fairly homogeneous distribution of both carelessweed and Russian thistle as co–dominants (with or without some lambsquarters species), and areas where one of the three species is clearly the single dominant, with more or less of the others possibly present. This alliance is apparently highly dependent on seasonal precipitation for its local abundance and perhaps composition, which may vary significantly from year to year. The type is made up almost entirely of non–native vegetation. The bulk of associated species grow beneath the upper layer of tall forbs. Grasses, both annual and perennial, grow sparsely in patches in this community: feather fingergrass, needle grama, sand dropseed, big sacaton, spidergrass, and curly–mesquite. The forb fewflower beggarticks may be prominent in patches. Along the edges of the herbaceous type, sparse low shrubs are often found, including mule's fat, singlewhorl burrobrush, and velvet mesquite, and occasionally trees, such as Fremont cottonwood, elderberry, or Goodding's willow. Climbing vines, such as morning glory, may be found in this type growing up from the ground around the taller annual forb vegetation.

sparsely vegetated alliance

Mostly bare sand in the Santa Cruz River's active channel. Some forbs may be present in areas colonized since the last flood event. Seedlings or saplings of Fremont cottonwood and Goodding's willow may also be present. The position of strand beaches tends to shift with flood events in the fluvial system. These beaches are often covered in Bermudagrass as a consequence of periodic flood events.

temporarily flooded shrubland alliance

This alliance is found along the northern boundary of the Mission unit, with the bulk of the stand found in the study–area buffer outside the park boundary. The topography of the area is notable because of two elevated sand bars with north–south channels running between them. On top of the sand bars are dense stands of 2–3–m tall tamarisk shrubs with small annual forbs scattered in openings where there is less litter cover. Along the margins of the dense tamarisk patches are found occasional Fremont cottonwood, infrequent mule's fat and desert–broom recruits, moderate growth of carelessweed, and often feather fingergrass, with less common Bermudagrass and sand dropseed patches. This type may radically change inside the park boundary because of a tamarisk–eradication project conducted by NPS in the spring of 2008. The portion inside the park boundary would be herbaceous–dominated without the tamarisk.

How to use this guide

This guide is designed as a comprehensive companion volume to the vegetation mapping inventory for Tumacácori National Historical Park. More generally, it is an entry point to understanding basic plant systematics, the science that underlies the description, organization, and interpretation of plant diversity. Prior knowledge is neither required nor expected. The guide is divided into five general categories based on broad categories of plant lifeforms: ferns, graminoids, flowering trees and shrubs, cacti, and forbs. An explanation of each category appears on the first page of each section.

Within these lifeform categories, the plants are arranged alphabetically, first by plant family and second by genera and species. This frontispiece contains a few basic floral diagrams for flowers and grasses, along with some common leaf shapes, flowers, and inflorescence types. A glossary is also provided to aid in defining technical terms. The index includes the common and scientific names of all plants in this guide.

This field guide is not an effort to rewrite plant descriptions, but instead attempts to standardize descriptions in a way that facilitates field identification. It combines descriptions from floras, field guides, monographs, and the current scientific literature in an edited, standardized format. This work is intended to serve as an opening for an expanded awareness of the unique floristic biodiversity that the national parks conserve and preserve for future generations. There are thousands more plants in the ten other National Park units in the Sonoran Desert Network. We hope this work inspires its users to visit all these amazing parks and come to appreciate the vital work of the National Park Service in preserving these landscapes for the future.

Notes

The basis of plant systematics

The science of plant systematics organizes plants according to their evolutionary relationships. In plant systematics, those relationships are characterized by the unique traits of groups of plants, which are aggregated into what are known as orders. Immediately below the order is the family, which is the organizational foundation of this field guide. The order is the largest organizational category and can consist of several to many different families.

The family is a grouping of related plants connected by some or several specific characteristics. In systematics, some of these characteristics are called synapomorphies, or character states that developed in the ancestors of the family and can be found in all family members. For example, all plants in the Mint Family, or Lamiaceae, have opposite leaves, square stems, and ethereal oils that excrete the familiar minty smell.

Below the family level, each species has a Latin genera (or genus) name (e.g., Prosopis), followed by what is known as the specific (i.e., species) epithet (e.g., velutina). This way of organizing scientific names, known as the binomial nomenclature system, dates to the 18th century and the Swedish naturalist Carl Linnaeus. Although even generally accepted Latin names sometimes have recognized alternatives (synonyms) and, as such, are subject to a limited amount of regional variation, the Latin (or scientific) names are far more stable than common names—which, especially relative to plants, are notoriously unreliable.

The organization of plants in this guide is based on the Angiosperm Phylogeny Group III (APG III), which the Sonoran Desert Network staff considers to be the most recent and up-to-date plant systematics research. The Angiosperm Phylogeny Group III provides guidance for current information about relationships among plants and which genera are found in specific families. For more information, visit the Angiosperm Phylogeny poster at http://www2.biologie.fu-berlin.de/sysbot/poster/poster1.pdf. Further information about plant systematics can also be found in the Works Cited section of this guide.

Notes

Note on nomenclature

The science of plant systematics is undergoing considerable change due to the rise of phylogenetics (the study of plant genetics and plant evolutionary history). As a consequence, name changes from the level of family down to genera and even species are common.

The Flora of the Sonoran Desert Network project utilizes the Missouri Botanical Garden's Tropicos system (www.tropicos.org) as the standard for plant nomenclature. Tropicos is the preferred standard for this guide because it reflects the most recent scholarship in phylogenetic systematics for nomenclature and organization. As noted above, the Flora Project also follows the APG III. In some instances, specific phylogenetic literature is used to distinguish a newly recognized or newly re-named species. All scientific names are italicized as per usage in the literature. Complete citations for the literature and opportunities for further investigation can be found in the works cited section.

Notes

Recent systematic changes

Botany is undergoing considerable change as a consequence of phylogenetic study. As mentioned, this guide is organized according to the work of the Angiosperm Phylogeny Group III. Our treatment of the family structure is based on this organization because it is comprehensive and best supported by the literature. See the APG III website for continually updated information: http://www.mobot.org/mobot/research/APWEB/

Outside of this basic structure, the Flora Project relies heavily on the systematic literature to guide our placement of genera within families and even species within genera. The following is a key to some recent and well supported changes along with their relevant references. For complete references, refer to the Works Cited page in the back of the guide.

Adoxaceae: Absorbed some genera from Caprifoliaceae
Genera: Sambucus
Authority: Eriksson and Donoghue 1997

Amaranthaceae: Absorbed all of the Chenopodiaceae
Genera: Atriplex, Bassia, Chenopodium, Dysphania, Kochia, Krascheninnikovia, Monolepis, Nitrophila, Salsola, Suaeda
Authority: Muller and Borsch 2005

Amaryllidaceae: Absorbed all of the Alliaceae and some other Liliaceae
Genera affected: Allium, Nothoscordum, Zephyranthes
Authority: Chase et al. 2009

Apocynaceae: Absorbed most of the Asclepidaceae
Genera affected: Asclepias, Funastrum, Sarcostemma
Authority: Endress and Stevens 2001

Asparagaceae: Absorbed all the Agavaceae, much from the Liliaceae, and genera that at various times were placed in Nolinaceae and Ruscaceae
Genera affected: Agave, Yucca, Nolina, Dasylirion, Dichelostemma, Echeandia, Hesperocallis, Maianthemum, Milla, and Polygonatum.
Authority: Chase et al. 2009

Boraginaceae: Absorbed all of Hydrophyllaceae, but remains inconclusive
Genera affected: Emmenanthe, Eriodictyon, Eucrypta, Nama, Phacelia, and Pholistoma
Authority: Weigend 2010

Cannabaceae: Absorbed some of the Ulmaceae
Genera: Celtis
Authority: Whittemore 2005

Convolvulaceae: Absorbed Cuscutaceae
Genera: Cuscuta
Authority: Stefanovic et al. 2003, Stefanovic et al. 2002, Neyland 2001

Notes

Euphorbiaceae: No big changes or inclusions
Genera affected: All Chamaesyce is Euphorbia
Authority: Steinmann and Porter 2002

Fabaceae: *Lotus* moved to *Acmispon*, *Acacia* disintegrated to *Senegalia* and *Vachiella*
Authority: Brouillet 2008, Maslin 2003

Malvaceae: Absorbed some of the Sterculiaceae
Genera affected: Ayenia
Authority: Whitlock and Hale 2011

Montiaceae: Absorbed some of the former Portulacaceae
Genera affected: Calandrinia, Cistanthe, Claytonia, Phemeranthus
Authority: Nyffler and Eggli 2009

Onagraceae: Saw considerable generic reorganization
Genera affected: Camissonia, Camissoniopsis, Chylismia, Eremothera, and Oenothera
Authority: Wagner et al. 2007

Orobanchaceae: Absorbed some of the Scrophulariaceae
Genera: Castilleja, Cordylanthus, Pedicularis
Authority: Olmstead et al. 2001, Oxelman et al. 2005, Bennett and Matthews 2006, Tank et al. 2009

Phrymaceae: Absorbed some of the Scrophulariaceae
Genera: Mimulus
Authority: Beardsley and Olmstead 2002, Olmstead et al. 2001, Oxelman et al. 2005

Plantaginaceae: Absorbed some of the Scrophulariaceae
Genera: Penstemon, Nuttallanthus, Keckiella, Maurandella, Sairocarpus, Schistophragma, Stemodia, and Veronica
Authority: Olmstead et al. 2001, Albach et al. 2005, Oxelman et al. 2005, Wolfe et al. 2006

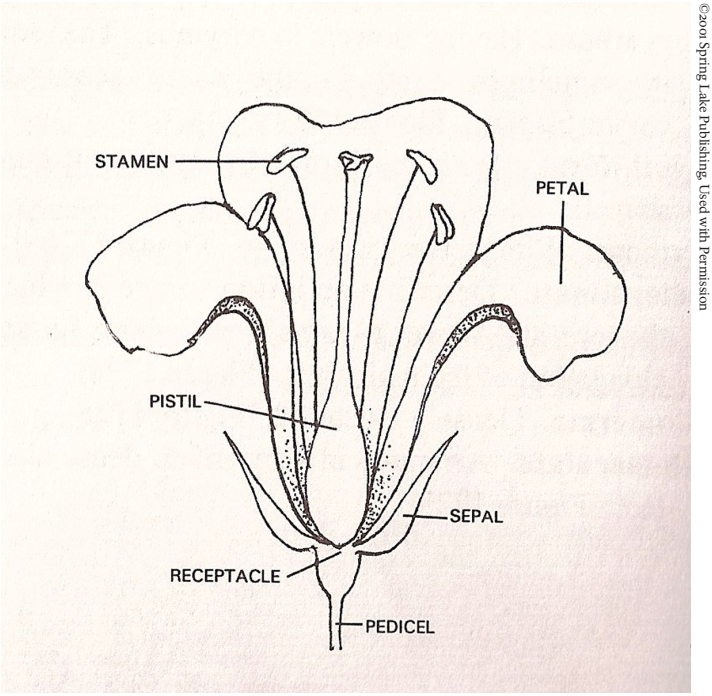
Poaceae: Several changes at the generic level
Genera: Cenchrus, Festuca, Muhlenbergia
Authority: Chemisquy et al. 2010, Columbus and Smith 2010, Peterson et al. 2010

Santalaceae: Absorbed some of the Viscaceae
Genera: Phoradendron
Authority: Der and Nickrent 2008

Talinaceae: Absorbed some of the old Portulacaceae
Genera: Talinum
Authority: Nyffler and Eggli 2009

Notes

General flower structure



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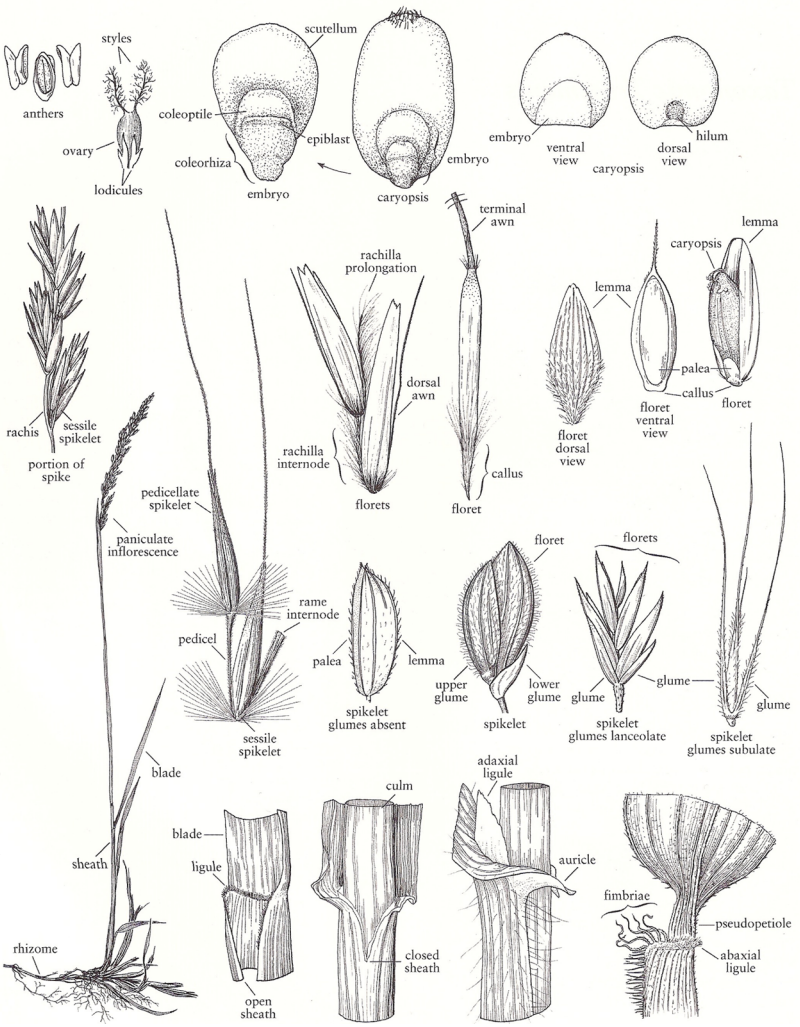
Basic diagram of a flower with its various parts.

Notes

Grass structures



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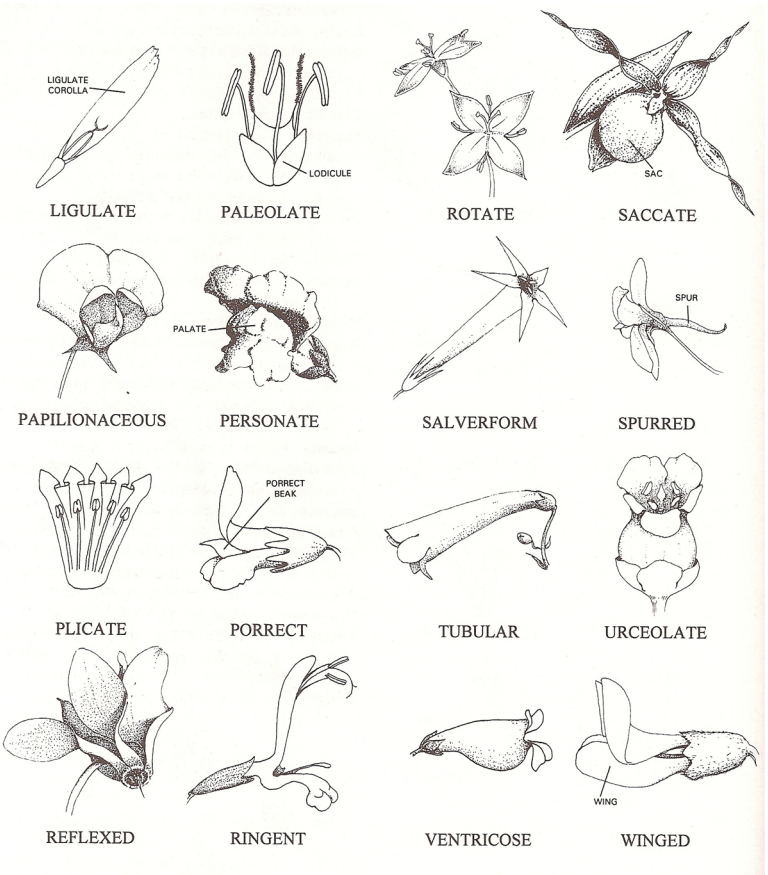
Notes

Flower types



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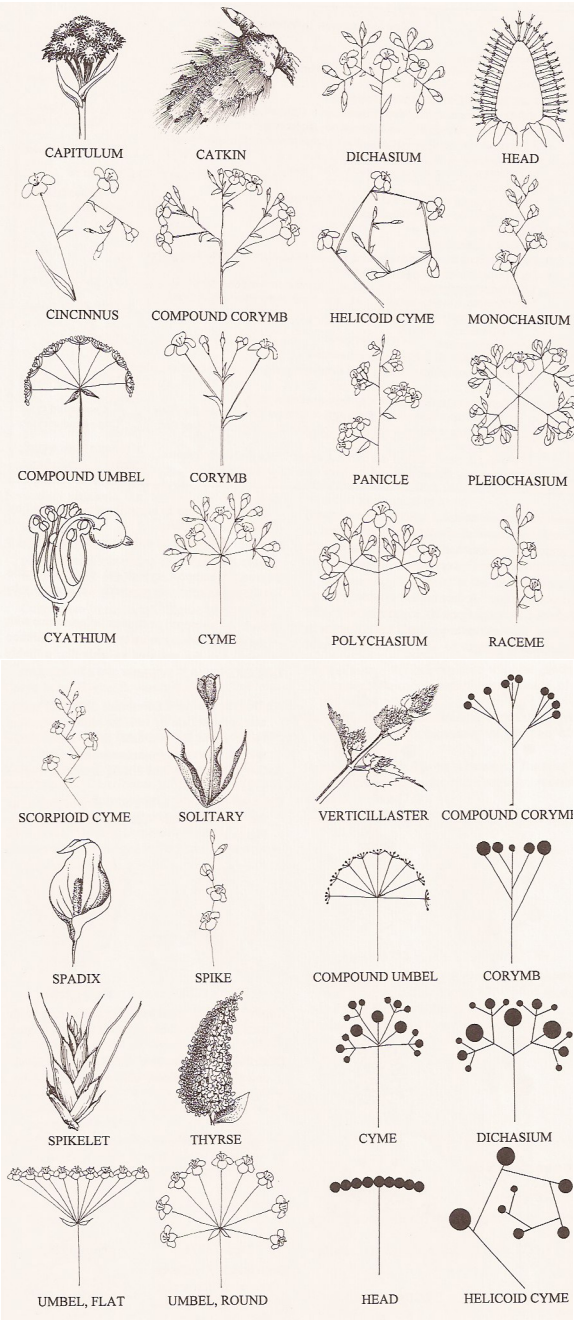
Notes



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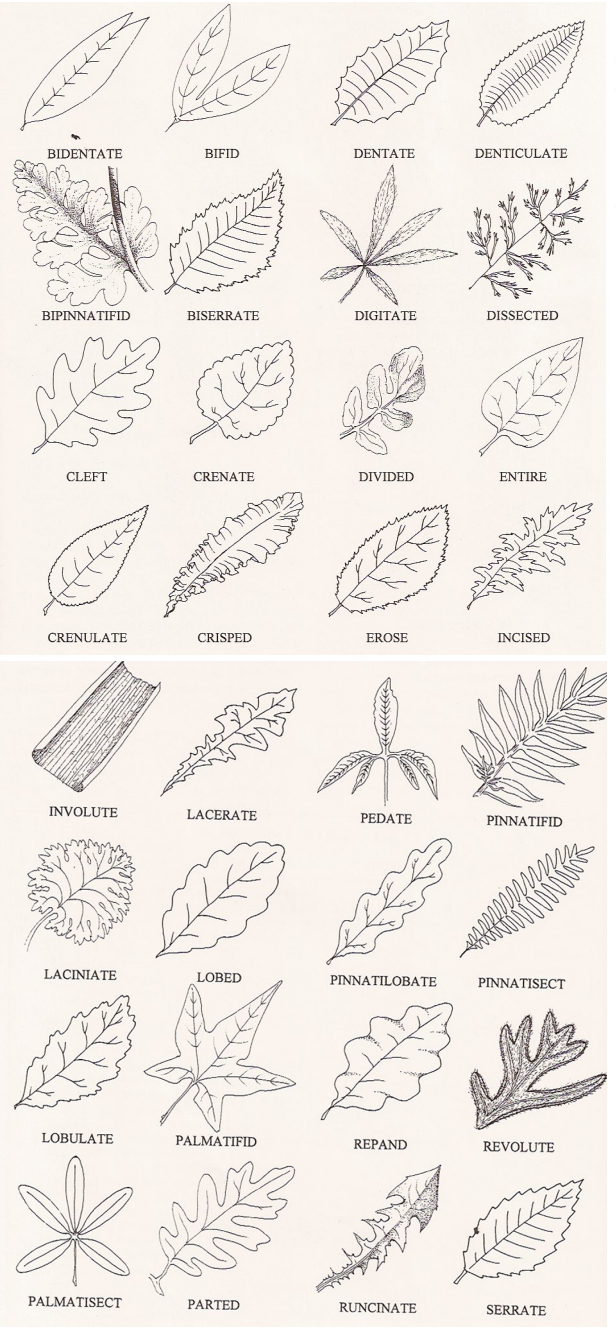
Notes

Leaf margins



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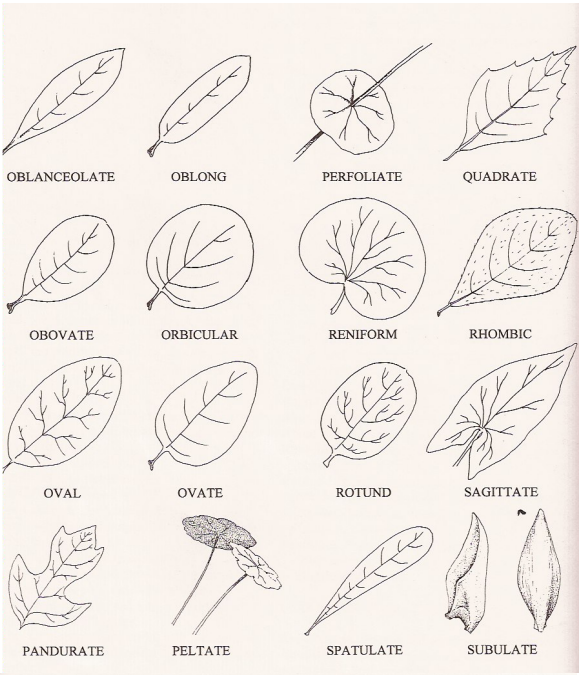
Notes

Leaf shapes



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Notes

Key to non-native species boxes

The high, medium, and low coding identifies the level of risk for impacting wildlands and natural resources.

H M L

Impact risk level

Eragrostis lehmanniana

Lehmann lovegrass

General: Tufted perennial, erect or ascending, sometimes decumbent and geniculate at lower nodes, 45–60 cm tall; stems bent at lower nodes. **Vegetative:** Sheaths one–third to one–half the length of the internodes, open, glabrous except for sparse pilose apex of margins; blades involute, about 1 mm wide, 2–10 cm long, stiffly ascending, sometimes grossly flexuous, 5–15 cm long; ligule ciliate, 0.5–1 mm long; collar pilose at the margins. **Inflorescence:** Narrowly oblong to lanceolate, open, 10–15 cm long, 4–8 cm wide, rachis glabrous to slightly scabrous, branches ascending to slightly spreading; spikelets slightly compressed, often dark gray–green to straw colored, several to 12–flowered, rachilla disrticulating; glumes hyaline, keeled, scarcely compressed, first lanceolate 1–1.2 mm, second ovate–lanceolate 1.4–1.6 mm long; lemmas oblong, obtuse, very little compressed or keeled; caryopsis ellipsoidal. **Ecology:** Introduced widely beginning in the 1930s, now widespread in grasslands and along roadsides from 3,000–4,500 ft (914–1372 m); flowers June–August. **Notes:** One of the most charismatic of the African introductions from earlier in the century, it was used extensively as an erosion control and range revegetation plant, but now it is changing fire–regimes and altering greater areas every year. **Etymology:** Eragrostis is from Greek eros, love and agrostis, grass, lehmanniana is named for German botanist Johann Georg Christian Lehmann (1792–1860). **Synonyms:** None

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The shaded box indicates that this species is non-native, introduced, or an invasive exotic.

Contact the Sonoran Institute for a set of field identification cards for all invasive non-native plant species in the region. http://sonoran.org/

Notes

Ferns

Ferns may not be the first plant that comes to mind when you think of the Sonoran Desert. But there they are, everywhere. In patches of damp shade beneath overhanging rocks, tracing springs out of vertical faces of rock, or covering dry slopes in the oak woodlands. Some even prefer the lack of moisture and the full sun. Desert generally evokes images of endless hot plains and emptiness, not steep slopes of palo verde and brittlebush or the vibrant speckled color of spring in wet years. Wet years and wet places; apparent misnomers in the talk of deserts. But wetness abounds, from minor seeps to creeks to runoff to even the fleeting moisture and shade beneath rocks.In all of these wet places, there are ferns.

Getting to know the ferns is one part getting to know where to find them, being careful not to disturb the rattlesnake sleeping under a rock. It is one part knowing to look for the characteristic and distinctive pinnate form, to begin to see in the trim fronds and hairs the evolutionary history of plants coming out of swamps in the Cretaceous and eventually into the age of flowering plants. Ferns are genuinely from a simpler time, when there were not seeds and flowers, but only gametophytes and spores.

When we talk of ferns we are talking specifically about the roots (no pun intended) of land plants and about vasculature. The land plants all have vascular tissue; it is what marks their evolutionary emergence from the swamps and it is vascular tissue that distinguishes them from the non-vascular plants, such as the liverworts, hornworts, and true mosses. Vascular plants eventually developed the simple, spore-based reproductive systems found in ferns, which would later diversify into the woody plants and the seed plants.

What distinguishes ferns from other vascular plants is that they not only have vascular tissue, but also reproduce by spores and were the first plants to evolve prototypical leaves approximately 400 million years ago. The lycophytes, one group of early fern relatives were so-named for their lycophylls, one of the earliest prototype leaf structures. This structure evolved into more specialized ones and eventually into the euphyll structure, an early true leaf whose single mid-vein and branching system of veins represented the evolutionary separation into an increasing variety of vascular structures.

Ferns include a remarkable diversity of plants. Across the desert southwest they range from the club-mosses, such as *Selaginella*, to the diminutive whisk ferns in *Psilotum,* to the broad range of species in *Cheilanthes* and the other Pteridophytes, to the related but very different horsetails in *Equisetum.* This unique group of plants often requires closer attention than it receives, for ferns lack the showy wonder of the flowering plants. But you will nevertheless be amazed, so get yourself a good handlens and look a little closer.

Equisetum laevigatum

smooth horsetail

©2007 WNMU, Zimmerman Herbarium

General: Perennial rhizomatous graminoid with slender aerial stems, often flexuous to 75 cm tall, simple or verticillately branched at base, basal branches sterile. **Stems:** Stems annual, 20–30–ridged, ridges have transverse, sharply projecting bands of silica, hollow internodes with toothed sheaths narrowly funnelform to campanulate, green or with dark basal ring, teeth horny, blackish, incurved, especially with age. **Flowers:** Strobili small, 1–2 cm long, obtuse or acute but not markedly apiculate at apex. **Fruits:** Greenish sporangia born in terminal cones. **Ecology:** Found in damp seeps, along streams and at the bottom of canyons from 3,000–8,000 ft (914–2438 m). **Notes:** Fairly common horsetail along streams in Arizona. **Ethnobotany:** Many medicinal uses, including: hair wash, contraceptive, for bladder ailments, for hemmoroids, high blood pressure, backaches, for lightning infections, lumbago, colds, to stimulate the kidneys, and as a wash for those parts of the body affected by poison ivy. **Etymology:** Equisetum is from equus, horse and seta, bristle, while laevigatum means smooth or slippery. **Synonyms:** *Equisetum funstonii, E. kansanum, E. laevigatum* ssp. *funstonii, Hipphochaete laevigata*

Graminoids

Graminoids are herbaceous plants, meaning that they are not woody and die back to their roots at the end of each growing season. They share the same plant structures as other flowering plants, in modified form. The grasses notably lack the vibrant color of flowers, as well as what we might recognize as petals, but once pollinated, produce seed the same as other plants do. Grasses have reduced flowers with names like florets, spikelets, and glumes instead of tepals. While sedges have spikelets and achenes, their structures are different from grasses. Rushes are altogether different again, with reduced tepals and a capsule.

Sedges have edges and rushes are round; grasses are hollow right down near the ground, goes a simple mnemonic taught to botany students. More scientifically, plants in the family Cyperaceae (sedges) have three sides and so have edges, while the family Juncaceae (rushes) are round, but not hollow like grasses. These first two families are often found in moist soils or along the margins of ponds and rivers, while grasses are widespread in moist and dry soils alike.

Grasses (Poaceae) are the single most important plant family to human beings. If you had cereal this morning, or enjoyed bread with your sandwich, or really liked that corn tortilla you ate, then you have grasses to thank. In fact, a fairly limited number of grasses account for the majority of our food calories as a human family.

Wild grasses, on the other hand, are more diverse and constitute a significant proportion of the biomass found in forests, woodlands, and grasslands. While we might easily recognize a ryegrass or a corn plant, we are less likely to recognize purple threeawn (*Aristida purpurea*) or even the highly invasive buffelgrass (*Cenchrus ciliaris* or *Pennisetum ciliare*).

Grasses are vital to the stability of a huge percentage of the world's surface area. Prior to the onset of human civilization, this family may have covered as much as 25% of Earth's land area. Although we have radically altered a huge percentage of this land, huge reservoirs of land are still maintained in grasses. Sedges and rushes often indicate the presence of water, as well as health in riparian systems. Either way you split the culm—square, round, or hollow, you've got in your hands a hugely important example of the world's plants.

Cyperus esculentus

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chufa flatsedge, yellow nut–grass

General: Stout, sharply triquetrous, 10–70 cm tall, arising singly, with many slender rhizomes terminating in small tubers; herbage sweet–scented. **Vegetative:** Leaves clustered at base, elongate blade mostly 3–8 mm wide; involucral bracts elongate, unequal, sometimes wider than proper leaves. **Inflorescence:** Spikelets borne in open (seldom short and congested), cylindric spikes with more or less elongate rachis, the terminal spike or cluster of spikes sessile, others borne singly or in small groups at the ends of rays up to 7 cm long; slender spikes 0.5–5 cm long, only 1–2 mm wide, scales mostly 2.5–3 mm long, several–nerved, broad and much overlapping laterally, but not closely set, tip of each scale surpasses one next below by 1.1–1.7 mm; Rachilla narrowly hyaline–winged, persistent. **Ecology:** Found on moist, low ground along streams and ditches below 6,000 ft (1829 m). **Notes:** Sometimes found on drier ground away from streams, becoming weedy; often weedy in fields and pastures. **Ethnobotany:** Used as a ceremonial emetic, roots were chewed for cold, the tubers were eaten raw, and the also baked or boiled like potatoes. **Etymology:** Cyperus is from the Greek word meaning sedge, while esculentus means edible. **Synonyms:** None

Cyperus odoratus

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fragrant flatsedge

General: Tufted annual or short lived perennial with three sided culms 10–50 cm tall by 1–4 mm in diameter. **Vegetative:** Leaves flanged v or inversely w–shaped, 5–30 cm long by 4–12 mm wide. **Inflorescence:** Bracts 5–9, subtending inflorescence, longer than inflorescence branches, 10–25 cm by 1–14 mm wide, inflorescence a single dense capitate cluster of closely imbricate spikes; rays 6–12, 10–100 mm; 20–60 linear spikelets, cylindric or slightly flat, in ovoid spikes, flower bracts 6–24 per spikelet, 2–3.5 mm, elliptic to ovate, light brown splotched reddish; conspicuous midvein; achenes unequally 3–angled, 1.5–2 mm, slightly flat front–to–back. **Ecology:** Found in wet soils below 4,500 ft (1372 m); flowers July–October. **Notes:** Easily distinguished by the cylindric to subcylindric spikelets, with the rachilla of the mature spikelet disarticulating at the base of each scale. **Ethnobotany:** Cocopa ate the seeds, while Pima ate the tubers. **Etymology:** Cyperus is from the Greek word meaning sedge, while odoratus means fragrant or sweet smelling. **Synonyms:** Many, see Tropicos

Eleocharis montevidensis

sand spikerush

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General: Perennial 10–50 cm tall, long reddish rhizome, stem generally round, not glaucous. **Vegetative:** Leaf purplish brown, becoming straw–colored above, truncate tip, 1–toothed. **Inflorescence:** Spikelet 3–8 mm about as wide as stem, oblong to ovate, generally 10–many–flowered, tip obtuse to acute; flower bract brownish to yellowish, margin translucent, tip obtuse; style three branched; perianth bristles 2–6, generally less than fruit; body about 1 mm, obovate, weakly 3–sided, yellowish brown, shiny, short tubercle, conic, base slightly narrowed. **Ecology:** Found in moist, often sandy openings below 3,500 ft (1067 m). **Notes:** Distinguished from Cyperus by the solitary spikelet. **Etymology:** Eleocharis is from Greek heleos or helos, a marsh, low ground, meadow and charis, grace, beauty, hence marsh grace, while montevidensis means of Montevideo, Uruguay. **Synonyms:** *Eleocharis arenicola*

Schoenoplectus acutus

hardstem bulrush

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General: Stout perennial from rhizomes forming large colonies, 1–3 m tall, culms terete, thick below the middle and to the base, firm. **Vegetative:** Few leaves, borne toward the base of the culm, with well developed sheath and short poorly developed blade. **Inflorescence:** Solitary involucral bract, 2–10 cm long, erect or nearly so, appearing like a prolongation of the culm, subsidiary bracts small and inconspicuous; spikelets dull gray–brown, mostly 8–15 mm long, open or compact, subumbellately branched inflorescence, all nearly sessile in small clusters at ends of stiff ascending or horizontal branches of inflorescence; scales 3.5–4 mm long, thin and hyaline–scarious, linear, margins lacerate or arachnoid–ciliate with firm midrib, scabrous and exserted as a short awn–tip; bristles fragile, retrorsely barbellate, equaling or exceeding achene, style bi–trifid; achene 2–2.5 mm long, completely hidden by scales. **Ecology:** Found in water and in marshy ground from 3,500–8,000 ft (1067–2438 m); flowers June–August. **Notes:** There is some question as to whether this species and *S. tabernaemontani* are in fact separate species. The latter is actually of Eurasian descent, where this species is from North America. Either way, they are a challenge to tell apart outside of the relative stoutness of the stems. **Ethnobotany:** Used to stop bleeding, as a ceremonial emetic, as a pediatric aid, the inner part of the stems were eaten raw, especially the tender stem base, the seeds were used for food, the young shoots were eaten, used in basketry and for bedding, hats, houses, instruments, sandals, for clothing, and anything woven. **Etymology:** Schoenoplectus coms from Greek schoinos for rush, reed or cord and plektos, for twisted or plaited, **Synonyms:** *Scirpus acutus*

Juncus bufonius

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toad rush

General: Caespitose annual, 5–40 cm tall, no rhizomes. **Vegetative:** Culms erect, procumbent or ascending, terete, smooth, 0.5–1.5 mm in diameter, with foliar shoots in leaf axils, cataphylls absent to rarely one, membranous 7–12 mm long; foliar leaves 1–5 basal and 1–3 cauline to each culm, 4–15 cm long, scariose margins not extended into auricles, blade flat with raised margins, slightly channeled above, 0.5–1.5 mm wide. **Inflorescence:** Usually more than half the total plant height, compound, several unilateral cymes with flowers inserted individual and removed from one another, rarely 2–4 flowers clustered together; lower inflorescence bract resembling cauline leaf, 4–15 cm long, distal bracts progressively shorter, ultimate ones 5 mm long and scarious; 2 bracteoles, greenish tepals, lanceolate 3.5–7 mm, inner series slightly shorter, apex sometimes obtuse; capsule ellipsoid, trigonous, truncate and mucronate, 3–4 mm by 1.5–2 mm with persistent style 0.1–0.3 mm long. **Ecology:** Found in moist soils along meadows, stream banks, roadsides, usually in open sites. Widespread, weedy species; flowers early spring to fall. **Notes:** Very cosmopolitan species that is also highly polymorphic. **Ethnobotany:** Taken as an emetic, and used as a body wash. **Etymology:** Juncus comes from the Latin jungere, to join or bind, while bufonius pertains to toads, or refers to the habit of growing in moist places. **Synonyms:** None

Aristida adscensionis

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sixweeks threeawn

General: Small annual, erect bunchgrass; round, frequently branched stem. **Vegetative:** Blades flat, narrow and short; 3–4 veins on each side of midrib (ribs not prominent), glandular hairs at base of blade; sheaths have occasional hairs, papery margin, ligule ciliate, 0.5 mm, some long hairs 2–3 mm, collar with hairy margin, glandular. **Inflorescence**: Dense panicles, contracted, often interrupted, 5–15 cm long, with spikelets aggregated on short, widely–spaced branches; first glume 1–nerved, most unequal, 5–8 mm, rough–textured on nerve, broad, second glume 8–11 mm, narrow; lemma 6–9 mm long, pubescent on callus, rough textured on the keeled midnerve, about as long as second glume, 3 awns, 7–15(20) mm long, flattened at base, lateral awns slightly shorter. **Ecology:** Found on dry, sandy or rocky slopes, deserts, dry mesas, often on disturbed soils from 1,000–6,000 ft (305–1829 m); flowers June–October. **Notes:** It is often small with long awn branches (10–15 mm) to distinguish it from *A. schiedeana*. Unlike *A. purpurea*, it lacks the 2–3 mm white tufts of hairs at the apical margins of the sheaths. Provides good forage, especially during summer. **Etymology:** Aristo is Greek for best. **Synonyms:** *Aristida fasciculata, A. adescensionis* var. *abortiva, A. adescensionis* var. *modesta.*

Aristida purpurea

purple threeawn

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General: Erect, small, annual/perennial bunchgrass, elliptical stem, can be (but not often) branched at lower nodes, 30–60 cm tall. **Vegetative:** Blades 0.5 mm wide, 2–8 cm long, rolled, curved, rough, ribs indistinct, margin occasionally hairy, sheath smooth, round, open, ligule ciliate, about 0.5 mm long, collar with hairy margin, bearded. **Inflorescence:** Panicles 10–25 cm long, flexuous and curving in fruit, weighed down, spikelets reddish–violet; glumes very unequal, lower glume 6–7 mm long, upper 12–15 mm. Lemma 10–11 mm to base of awns; awn column 1–2 mm long, awn 3–4.5 cm long, fine and delicate, deeply colored. **Ecology:** Rocky or sandy plains and slopes, found commonly along roadsides from 1,000–7,000 ft (305–2134 m); flowers April–October. **Notes:** Blades rolled, thread–like, curved, short collar bearded; ligule has conspicuous hairs, purple awns 2–5 cm long. Awns can cause abscesses to the mouths and nostrils of grazing animals and injury to skin when caught on fur. Of note is *Aristida purpurea* var. *purpurea*, a species that is similar but distinct and can be told apart chiefly by its smaller spikelets; the first glume is 4–5 mm long; lemma 7–8 mm long, and awns about 2 cm long. *A. purpurea* var. *purpurea* is formerly referred to as *A. roemeriana*. Another notable variety is var. *parishii*, which is distinguished by the lower glumes being three–quarters to equaling the upper glumes. All these varieties intergrade, so take a sample. **Etymology:** Aristo is Greek for best. Purpurea is Latin for purple. **Synonyms:** None

Aristida purpurea var. *nealleyi*

blue threeawn

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General: Dense, tufted perennials with slender culms often 30–60 cm, with well–developed fibrous roots. **Vegetative:** Sheaths glabrous or scabrous, usually with tufts of hairs on either side of the collar; blades narrow, tightly involute, mostly 5–15 cm long. **Inflorescence:** Contracted panicle, slender, relatively few–flowered, never dense and bushy, 8–20 cm long; spikelets mostly appressed along main panicle axis, occasionally on short, erect–spreading branches, glumes unequal, upper usually one–third longer than lower; lemma 8–13.5 mm; awns nearly equal, 2–3 cm; awn column often twisted, 1–2 mm, lighter in color than the lemma body and slightly narrowed to form the neck, light colored, slightly blotched with purple. **Ecology:** Found on dry, rocky or sandy slopes and plateaus below 6,000 ft (1829 m); flowers March–September. **Notes:** Drought stressed plants tend to have short culms. **Etymology:** From Latin arista for awn, while purpurea is Latin for purple, nealleyi is named for Greenleaf Cilley Nealley (1846–1896) a Texas botanist. **Synonyms:** *Aristida glauca, A. nealleyi, A. purpurea* var. *glauca, A. reverchonii, A. stricta* var. *nealleyi*

Aristida ternipes

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spidergrass

General: Coarse, tufted perennials .5–1 m, flowers in first season; roots tough and wiry. **Vegetative:** Leaf blades firm, narrow, involute on drying; upper surface glabrous or with short, rough hairs; ligules glabrous or with a sparse tuft of loose hairs. **Inflorescence:** Openly branched panicles, branches spreading to approximately 90 degrees, glumes subequal (spikelets at first often showing only one glume, lower glume develops with age); branchlets and spiklets conspicuously appressed along the primary branches; lemma tapering to short, stout, scabrous, straight or only slightly twisted awn column. **Ecology:** Found on rocky slopes and plateaus, as well as disturbed soils from 2,500–5,500 ft (762–1676 m); flowers summer. **Notes:** This species is recognized by two species at Tumacácori: var. *gentilis* and var. *ternipes*. *Aristida ternipes v*ar. *gentilis* has an upper glume 12–14.5 mm, lemma 10–12 mm; 3 well developed awns, 12–20 mm. Var. *ternipes* has an upper glume 10–15 mm, lemma 13–19 mm, often moderately curved, with one well–developed awn, straight or sometimes curved, 11–14 mm. **Etymology:** From Latin arista for awn, while purpurea is Latin for purple, ternipes is from Latin terni, three and the suffix –pes referring to the stalk. **Synonyms:** Var. *gentilis: Aristida hamulosa, A. ternipes* var. *hamulosa, A. ternipes* var. *minor.* Var. *ternipes: None*

H M L Impact risk level

Arundo donax

giant reed, carrizo

General: Tall and mostly rhizomatous perennials, thick and knotty rhizomes; culms hard and fibrous, almost woody, mostly 2–5 m tall and 15–40 mm in diameter. **Vegetative:** Blades numerous, elongate, flat, glabrous or scabrous, mostly 2–6 cm broad, evenly spaced along the culm, scabrous margin. **Inflorescence:** Dense panicle, erect, much–branched, mostly 30–60 cm long, spikelets 10–15 mm long, three–to–six flowered, disarticulating above the glumes and between florets; glumes lanceolate, thin, three–or–five nerved, about as long the spikelet; lemmas lanceolate, mostly five–nerved, the nerves often extended as short awns, internerves membranous, back long–pilose at least on lower half, hairs mostly 6–8 mm long. **Ecology:** Found as an ornamental, along irrigation ditches, and on stream banks and in disturbed habitats; flowers in late summer. **Notes:** Plant introduced, reminiscent of bamboo; can grow in saline soil. **Etymology:** Arundo is the Latin name for a reed grass, while donax is a Greek name for a kind of weed. **Synonyms:** *Arundo donax* var. *versicolor, A. versicolor*

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Bothriochloa barbinodis

cane beardstem

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General: Robust tufted perennial from 0.75–1 m, usually villous with dense tufts of long, white hairs at nodes, at ligules and on inflorescences. **Vegetative:** Leaves drying reddish–brown, the bases semipersistent, flat. **Inflorescence:** Panicle cottony and white, 7–11 cm, with numerous branches clustered at the top of the tail, nearly naked stems; rachis joints and pedicels with hairs to 6–8 mm. Glumes equal but different shapes, lower glume broad, green and flat to concave on the back, upper glume markedly humpbacked or V–shaped with a blunt keel. **Ecology:** Found in open range lands, on dry, rocky or sandy slopes and plains, abundant on some graded roadsides from 1,000–6,000 ft (305–1829 m); flowers August–September. **Notes:** The dense tuft at the nodes is diagnostic. This plant responds very well to fire and is a prolific seed producer. The reddish tint of the cured herbage is notable. **Ethnobotany:** Other species in the genera have medicinal uses. **Etymology:** Botriochloa is from the Greek bothros, a pit or hole, and chloe or chloa, grass. **Synonyms:** *Andropogon barbinodis, A. perforatus, Bothriochloa barbinodis* var. *palmeri, B. barbinodis* var. *perforata, B. palmeri*

Bouteloua aristidoides

needle grama (Arizona needle grama)

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General: Annual, low tufted, weak stemmed, and short–lived; variable in size, fast growing with weakly developed roots. **Vegetative:** Blades thin, 1–2 mm broad, flat or folded, often with few long stiff hairs at the base and occasionally extending up the axial surface of the blade; ligule a fringe of short hairs. **Inflorescence:** One–sided raceme of usually four to fifteen, occasionally twenty, short, unilateral spicate branches, these readily deciduous from the culm at a sharp–pointed callus; spicate branches 1–2 cm long including the extended rachis tip with one to four slender spikelets; rachis densely pubescent, at least near the base, flattened, extending beyond the insertion of the terminal spikelet 5–10 mm or more, conspicuously curving away from the spikelets; lowermost spikelet closely appressed to the rachis, awnless or minute awned lemma, upper spikelets with conspicuously three–awned rudiment and three–awned lemma; glumes very unequal, narrowly acute or acuminate, larger one often as long as larger glume, with three awns. **Ecology:** Found on dry mesas, washes, and disturbed areas below 6,000 ft (1829 m); flowers summer and fall. **Notes:** This is one of the most widespread and abundant annual grasses in the region. **Ethnobotany:** Unknown, check other species in genera for many uses. **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists, while aristidoides means like Aristida, with the three–awned lemma. **Synonyms:** None

Bouteloua barbata

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sixweeks grama

General: Tufted annual with numerous geniculate, spreading culms, typically 25 cm or less, often much less, rarely taller; weakly developed roots, branching from base. **Vegetative:** Leaves sometimes pilose around margins of throat; glabrous sheaths, margins often scarious or hyaline; ligule dense fringe of hairs, 0.5–1.2 mm long, blades mostly flat with a loosely involute tip, 1–2 mm broad, scaberulous above, often with narrow whitish margins. **Inflorescence:** Spikes mostly 1–2 cm long and 2 mm broad excluding awns, occasionally larger; 4–12 per stem, comb–shaped, nearly straight to moderately arched; lemma and rudiment awns often less than 2 mm long. **Ecology:** Found in open, rocky or sandy slopes and washes, often weedy on disturbed soils below 6,000 ft (1829 m); flowers summer and fall. **Notes:** *Bouteloa rothrockii* differs from *B. barbata* in perennial habit, hard knotty bases, and well–developed roots; *B. rothrockii* usually is the higher elevation species. **Ethnobotany:** Used as fodder, in ceremonial settings, and medicinally. **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists, barbata is from Latin barba, beard. **Synonyms:** Many, see Tropicos

Bouteloua chondrosioides

2008 NPS/Beth Fallon

sprucetop grama

General: Tufted perennial, culms firm but not rhizomatous and hard at the base, mostly 30–60 cm tall. **Vegetative:** Rounded sheaths, blades glaucous, short, flat, 1–2.5 mm broad, mostly in a basal clump; not curled. **Inflorescence:** Usually three to seven broad, dense, erect or slightly spreading, more or less pectintate spicate branches mostly 1–1.5 cm long, excluding the awns, these borne on the upper 2–6 cm of the culm axis; spicate branches with a flattened, densely hairy rachis and numerous closely placed spikelets, deciduous as a whole; all exposed structures of the spikelets more or less hairy; fertile lemma three–cleft, the divisions with short awns; rudiment large, long–awned, cleft nearly to the base, the middle awn broadly winged below. **Ecology:** Found on dry rocky slopes and rolling desert grassland with fine–textured soils from 2,500–6,000 ft (762–1829 m); flowers August–October. **Notes:** Good for forage, distinguishable from the similar *B. repens* by the pubescence on all surfaces of the spikelets. **Ethnobotany:** Unknown, see other species in genera for other uses. **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists. **Synonyms:** *Chondrosum humboldtianum, Dinebra chondrosioides*

Bouteloua curtipendula

sideoats grama

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General: Large, erect, perennial, tufted bunchgrass; elliptical–round stem, rarely branched, 35–100 cm tall; fibrous roots with short rhizomes (slender or stout), solitary or in large groups. **Vegetative:** Blades evenly distributed, flat or folded when dry, long, drooping, rough above, pustular–based hairs on margin of blade near collar, 2–7 mm wide, 2–30 cm long, sheath with papery margin, open, rounded, ligule thin and translucent, truncate, irregularly toothed, 0.2–0.6 mm long, collar with hairy margin and occasionally glandular. **Inflorescence:** Panicle with 20–50 short, deciduous spicate branches (1 cm long) that hang off main inflorescence stem, branches 10–30 mm with 2–7 short awned spikelets; spikelets with 1 perfect floret and 1 rudimentary floret; glumes unequal, half as long as upper glume, upper glume as broad and long as lemma, lemma 4–7 mm, with short awns or awnless; usually short awns on glumes and lemmas, palea unawned, slightly shorter than lemma; anthers red to yellow. **Ecology:** Found on limestone outcrops, rocky slopes, woodlands and forest openings from 2,500–7,000 ft (762–2134 m); flowers June–November. **Notes:** There are generally two varieties in Arizona: var. *curtipendula* and var. *caespitosa*. Var. *curtipendula* can be distinguished by being long–rhizomatous, with culms solitary or in small clumps. Var. *caespitosa* are not long–rhizomatous, bases sometimes knotty with short rhizomes, culms in large or small clumps. A third variety, var. *tenuis* is endemic to Mexico, but a single collection has been made in the Huachuca Mountains. This variety does not have very long rhizomes, and has conspicuously curled blades. **Ethnobotany:** Tewa made dried grass bundles into brooms, and brushes. **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists, Curtipendula is Latin for shortened hanging pendant. **Synonyms:** None

Bouteloua gracilis

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blue grama, eyelash grass

General: Tufted perennial, semi–sod or ring grass, 25–60 cm tall; smooth or minutely pubescent on the stem nodes; with short, stout rhizomes. **Vegetative:** Blades 2–12 cm long, 0.5–2.5 mm wide, rough–textured/short pubescent on top, often sparsely hirsute, clasped in "bud", flat to involute, narrow, drooping; old blades curled; sheaths rounded, smooth or with sparse long and stiff hairs; ligule 0.1–0.4 mm fringe of short hairs, often with marginal tufts of longer hairs. **Inflorescence:** Panicle of 1–4 curved racemose secund branches, bearing 40–130 spikelets per branch; disarticulation above the glumes, glumes hairy on midnerve; lowest lemma 3.5–6 mm long, pubescent basally, central lobes veined and 3–awned from apical and lateral clefts (1–3 mm long); rachilla with tufts of hair at base of perfect floret. **Ecology:** Common on open rocky slopes, forest openings, grasslands from 4,000–8,000 ft (1219–2438 m); flowers mostly July–October. **Notes:** Diagnostic characteristics include, bluish–green foliage, dried leaves often curled; inflorescence branches often curled; branch rachis scabrous on back, tuft of hair at base of perfect floret. **Ethnobotany:** Used as a life medicine, roots chewed and blown on cuts, taken as a postpartum medicine, as fodder, the seeds were ground and used as mush and flour, the stems made combs and brooms, basketry, as hay, some tribes used them as predictors of coming seasonal severity (one spike=mild winter, more=severe winter), and it was used ceremonially. **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists, Gracilis is Latin for thin, small, or graceful. **Synonyms:** *Bouteloua oligostachya, Chondrosum gracile, C. digostachyum*

Bouteloua repens

slender grama

2009 NPS/Steve Buckley

General: Tufted perennial, culms firm but not rhizomatous and at base, mostly 30–60 cm tall. **Vegetative:** Sheaths rounded, not becoming conspicuously flattened; blades glaucous, short, flat, 1–2.5 mm broad mostly in a basal clump. **Inflorescence:** Four to twelve spicate branches on the upper 3–10 cm of the culm axis, these with five to numerous spikelets on a flattened, ciliate rachis mostly 1.5–2 cm long; glumes subequal, both broadly lanceolate and with a scabrous or scabrous–ciliate midnerve; fertile lemma glabrous or nearly so, the nerves usually extending into short awns; palea as long as the lemma; rudiment about as long as the fertile floret, usually staminate, with two lateral short–awned lobes and a large central lobe bearing a stout scabrous awn. **Ecology:** Found by dry rocky slopes, below 5,000 ft (1524 m); flowers August–December. **Notes:** Similar to both *B. radicosa* and *B. chondrosioides*. **Ethnobotany:** Unknown **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists, repens means having creeping and rooting stems. **Synonyms:** *Bouteloua filiformis*, *B. heterostega*, *Dinebra repens*

Bouteloua rothrockii

Rothrock's grama, cuchillo

General: Short lived perennial, culms wiry, 25–60 cm tall and in small clumps. **Vegetative:** Leaves glabrous or sparsely pillose–hirsute, the blades 1–2, occasionally 3 mm broad, often loosely involute. **Inflorescence:** Spicate branches four, occasionally three to eight per culm, mostly 1.5–3 cm long and about 3 mm broad excluding the awns, rachis and glumes not hispid or ciliate, glabrous or minutely pubescent; lemma pubescent below with long white hairs, broad and lobed above, three nerves evident, extending from the notches as awns mostly 1.5–3 mm long. **Ecology:** Found on dry rocky hillsides and sandy mesas from 2,500–5,500 ft (762–1676 m); flowers summer. **Notes:** This species is difficult to discern from *B. barbata*. Several characteristics are diagnostic: awns are longer, the stems are usually less branched and the glumes more noticeably scaberulous rather than glabrous and shiny. **Ethnobotany:** Unknown, other species in this genera have uses. **Etymology:** Bouteloua named for brothers Claudio (1774–1842) and Esteban (1776–1813), Spanish botanists and horticulturalists, rothrockii is named for Dr. Joseph Trimble Rothrock (1839–1922), surgeon on the Wheeler expedition of 1873–1875. **Synonyms:** *Bouteloua barbata* var. *rothrockii*

H M L Impact risk level

Bromus catharticus

rescuegrass

General: Winter annual or biennial, sheaths glabrous or retrosley soft pubescent, erect to spreading 0.2–1 m tall. **Vegetative:** Blades flat, thin, mostly 4–8 mm broad, usually glabrous, ligules long, 2.5–5 mm, erose, glabrous to pilose, small auricles. **Inflorescence:** Open panicle with stout bunches, spikelets large, mostly 2–3 cm long and with 5–10 florets, first glume three to five nerved, second glume seven to nine nerved; lemma strongly compressed laterally, glabrous, scabrous, or occasionally short pubescent, awnless or with an awn 3 mm or less long. **Ecology:** Found mainly as a weed in laws, gardens, roadsides; flowers spring and summer. **Ethnobotany:** Seeds parched, ground into flour and used for flour for bread and to make mush, and as a fodder. **Etymology:** Bromus is from Greek bromo, for stinking, while catharticus is from Greek katharos, pure, or kathartes, a purifier, cleanser. **Synonyms:** Many, see Tropicos

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H M L Impact risk level

Bromus tectorum

cheatgrass

General: Highly invasive erect to spreading annual, slender, 30–60 cm tall, a round stem not branched with shallow roots, the sheath closed to within a few cm of ligule and with soft pubescent (woolly). **Vegetative:** Blade 2.5–6 mm wide, 5–12 cm long, pubescent, flat, twisted, drooping, blunt pointed; soft hairy on both sides; 2–3 veins each side of hairy midrib, which is prominent on upper leaf surface, ligule thin and translucent, irregularly toothed or edges appear torn, 1–2.5 mm long, collar usually narrow and pubescent; smooth and divided. **Inflorescence:** Open panicle, dense, soft, drooping, often purple, spikelets 12–20 mm long, nodding, first glume 4–6 mm long, villous, second glume 8–10 mm long, villous; lemma 10–12 mm long, lance–shaped, with long and soft hairs, teeth 2–3 mm long, convex on back; awn 12–14 mm long, straight to twisted. **Ecology:** Widespread on roadsides and open waste ground, is a weedy plant of overgrazed lands from 4,000–8,000 ft (1220–2440 m); flowers May–September. **Notes:** Annual introduced with awns 1–2 cm long, the sheath closed and ligule very thin, obtuse–lacerate; woolly (soft to touch) with early spring growth, it is purplish brown inflorescence at maturity with relatively long awns. Highly invasive weed. **Etymology:** From Greek bromo for stinking. Tectorum is Latin, meaning "of the roof." **Synonyms:** *Anisantha tectorum*, *Bromus tectorum* var. *glabratus*, *B. tectorum* var. *hirsutus*, *B. tectorum* var. *nudus*

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Cenchrus longispinus

mat sandbur

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General: Loosely tufted, often prostrate and mat forming annuals; culms 10–40 cm long, branched at the base, sometimes rooting at the nodes, geniculate, glabrous, leafy. **Vegetative:** Sheaths compressed–keeled, the collar sometimes puberulent, otherwise glabrous, margins scarious, sometimes extended as membranous auricles, sometimes diverging from the culm; ligule a dense fringe of hairs, 0.5–1.5 mm long, marginal hairs sometimes up to 2.5 mm long; blades flat to folded, 3–6 mm broad, scabrous, at least above. **Inflorescence:** Panicle 3–6 cm long, bearing 4–12 burs, rachis geniculate, flattened and angled, scabrous to glabrous; bur urceolate to globose, the body 3–5 mm broad when pressed, enclosing 2 sessile spikelets and covered with 45–55 spines, upper spines large, flat, spreading to ascending. **Ecology:** Found in open ground and waste places, weedy in disturbed areas, often in sandy soil. **Notes:** This is a terrifically gnarly weed. **Etymology:** Cenchrus is though to be from Greek kenchros, millet, and longispinus means long spines. **Synonyms:** *Cenchrus carolinianus*

Impact risk level H **M** L

Cenchrus spinifex

coastal sandbur, field sandbur

General: Perennial or facultative annual with weak, spreading stems 10–90 cm long, often freely branching and forming mats; deep, well–developed roots. **Vegetative:** Blades flat or folded, 2–7 mm broad, ligule densely ciliate, membranous portion very short; collar margins villous. **Inflorescence:** Compact, spikelike 2–8 cm long, usually little–exserted from the sheath, mostly with 12–27 burs; burs variable, puberulent, 2.5–4 mm diameter, shorter to longer than wide, spines highly variable, long and slender to short and broad, longest 4–5.7 mm; first glume short, lanceolate–acuminate; second glume and sterile lemma lanceolate; lemma and palea lanceolate–acuminate, 4–5 mm long. **Ecology:** Found on roadsides and waste places, mostly in sandy soil below 6,000 ft (1829 m); flowers June–October. **Notes:** The bristles on the bur do not form a ring on this species, marking a diagnostic characteristic. **Etymology:** Cenchrus is thought to be from Greek kenchros, millet, spinifex refers to its bearing spines. **Synonyms:** *Cenchrus incertus, C. parviceps, C. pauciflorus*

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Chloris virgata

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feather fingergrass

General: Tufted annual with weak, decumbent culms, 10–80 cm, shallow roots. **Vegetative:** Sheaths smooth, keeled, leaves glabrous or with few long hairs, ligules membranous, 0.2–1 mm long, truncate, lacerate, ciliate; blades flat or folded, weak, 2–8 mm broad, sometimes sparsely pilose near collar. **Inflorescence:** Panicles of 6–14 digitately arranged spikes, 4.5–8 cm long densely aggregated at culm apex, erect or slightly erect–spreading, whitish to tawny with silky hairs, glumes narrowly–lanceolate, 1–nerved, first glume 1.5–2.5 mm long, sometimes aristate, second 2.5–4 mm long, tapering to short awn; fertile lemma obovate, body 3 mm long, pubescent on keel and margins, with tuft of hairs 2–4 mm long laterally near apex, abruptly contracted to awn 5–10 mm long. **Ecology:** Found in sandy–silty soils, washes, roadsides, and other disturbed habitats below 5,500 ft (1676 m); flowers July–September. **Notes:** Often prolific on disturbed soils, can be confused with *Hilaria belangeri* when vegetative. **Etymology:** Chloris is named for the Greek goddess of flowers, virgata means wand–like. **Synonyms:** None

Cottea pappophoroides

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cotta grass

General: Tufted perennial without rhizomes, culms 30–70 cm tall, softly pilose below panicle, bearded nodes. **Vegetative:** Sheaths longer than internodes, leaves thinly pilose, blades 3–7 mm broad, flat or folded, pilose on both surfaces; ligule of hairs. **Inflorescence:** Narrow but open panicle with stout erect–spreading branches, 6–20 cm long, 2–6 cm wide; spikelets 7–10 mm long, six to ten florets, upper ones reduced, disarticulating above glumes and between florets; self–fertilizing spikelets produced in axils of lower leaf sheaths; glumes subequal, 4–5 mm long, broadly lanceolate, seven to thirteen fine but distinct nerves; midnerve sometimes continues as short awn; lowermost lemma as long as glumes, hairy near base, nine to thirteen nerves; caryopsis oblong, about 1.5 mm long. **Ecology:** Found on rocky slopes, hillsides, and plains below 5,000 ft (1524 m); flowers late summer and fall. **Notes:** This grass is recognized often by its persistence in the landscape, with the persistent glumes that are papery which make it easy to identify. **Etymology:** Pappohphoroides comes from Latin for with pappus, and Greek oeides, like something else. **Synonyms:** None

Impact risk level H M L

Cynodon dactylon

Bermudagrass

General: Perennial with stolons and rhizomes, obvious internodes that forms extensive mats, culms mostly creeping and stoloniferous, short internodes. **Vegetative:** Leaves 2–ranked, flat, short, narrow, usually 1–3 mm broad, ligule a fringe of short hairs and lateral tufts of long stiff hairs. **Inflorescence:** Spikes 4–7, digitate, slender, often 2.5–6 cm, purplish to green, spikelets sessile and closely appressed, in two rows on narrow, triangular rachis. **Ecology:** Found everywhere, very widespread weed below 6,000 ft (1829 m). **Notes:** One of the most common introduced grasses in Arizona. In many places it has been planted as a pasture grass, which makes it particularly common along the Santa Cruz River and other waterways in southern Arizona. **Etymology:** Cynodon is from Greek meaning dog tooth, and dactylon is from Greek daktylos, finger or toe. **Synonyms:** *Capriola dactylon, Cynodon aristiglumis, C. incompletes, Panicum dactylon*

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Impact risk level H M L

Dactyloctenium aegyptium

Egyptian grass

General: Decumbent annual, often rooting at lower nodes, weak culms 10–50 cm tall, often forms radiating mats. **Vegetative:** Blades flat, 2–8 mm broad, pustulate–ciliate on margins near base, occasional stiff hairs on one or both surfaces, ligule membranous, minutely erose, 0.3 mm long. **Inflorescence:** Spikes 2–6, short and stubby, paired or digitate at the culm apex, tuft of hair at point of union; spicate branches 2–6 cm long, 5–8 mm wide, spikelets numerous; glumes unequal in size and shape, lower glume awnless, upper glume with awn 0.5–3.2 mm; disarticulation between glumes, first remaining on rachis; caryopsis glistening red–brown with thin, evenly spaced ridges. **Ecology:** Widely naturalized weed found on roadsides, sandy washes, and disturbed soils. **Notes:** Introduced, but not as aggressive as *Cynodon dactylon*, widely naturalized. **Ethnobotany:** Cocopa said to have used the grain for food, widely used as such in other parts of the world. **Etymology:** Dactylocteniumis from Greek daktylos, finter and ktenion, little comb, aegyptium refers to its being Egyptian. **Synonyms:** *Cynosurus aegyptius*

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Dasyochloa pulchella

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fluffgrass

General: Dwarf, tufted perennial, appears annual, numerous culms, 5–14 cm, wiry, mainly of single elongated internode bearing clustered fascicle of leaves and spikelets at apex; fascicle bends over to ground and rarely takes root. **Vegetative:** Blades 1–5 cm long, .5 mm wide, involute, margins firm and often white; ligule a low ciliate fringe 0.3–0.5 mm long, sheath open, striate, margins ciliate, collar glabrous except for long marginal hairs. **Inflorescence:** Compact and dense, capitate clusters of sessile or short–pedicelled spikelets, exceeded in length by subtending leaf blades; spikelets 7–13 mm long, 6–12 flowered, glumes subequal, acuminate, scarious, as long as spikelet but spreading, glumes and lemmas papery, sometimes purple–tinged, glumes with green midvein; lemmas 3–5 mm, densely pilose with long hairs on each of the 3 green veins, tip deeply 2–lobed with stout awn 1–2 mm long between lobes. **Ecology:** Found on dry rocky slopes and flats below 6,000 ft (1829 m); flowers summer and fall. **Notes:** This is one of the most hardy of the small perennial grasses, it responds to very little rainfall and is often found on overgrazed or denuded soils. **Etymology:** Dasyochloa is from the Greek dasys, shaggy, thick, hairy, rough, while pulchella is derived from the Latin for beautiful. **Synonyms:** *Erioneuron pulchellum, Tridens pulchellus, Triodia pulchella*

Digitaria californica

Arizona cottontop

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General: Erect culms from swollen, knotty base, 40–100 cm tall, glabrous. **Vegetative:** Sheaths longer than internodes, open, lower ones pubescent; blades flat or folded, glaucous, bluish–green, 3–4 mm wide, 8–12 cm long, pustulate hairs on upper side near ligule, sometimes sparse; ligule membranous, obtuse, erose, 1.5–2.5 mm long. **Inflorescence:** Contracted panicle 8–20 cm long with few branches, these erect, appressed; spikelets 3–4 mm long, excluding hairs, second glume narrow densely villous with soft white–silky, hairs tinged with purple, 2–4 mm long; sterile lemma broad, three–nerved, villous on margins but glabrous on internerves; caryopsis ovate–lanceolate, narrowing to short awn. **Ecology:** Found on open, well–drained soils, often on steep, rocky slops from 1,000–6,000 ft (305–1829 m); flowers August–November. **Notes:** Cottony spikelet, along with its upright habit and erect culms help to distinguish this species. **Etymology:** Digitaria is from Latin digitus, a finger and californica is for California. **Synonyms:** *Trichachne californica*

Digitaria sanguinalis

hairy crabgrass

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General: Annual with spreading–decumbent culms, often rooting at lower nodes, 10–130 cm. **Vegetative:** Sheaths and blades pilose to thinly pubescent; blades broad, flat, thin, 4–10 mm wide, 5–10 cm long; ligule membranous, truncate, erose, 0.5–1.5 mm long; collar divided, somewhat pilose. **Inflorescence:** Branches 6–10 cm long, usually digitate or clustered at culm apex but occasionally scattered along the culm; spikelets in pairs, one subsessile, the other on a pedicel half as long as the spikelet; spikelets 2.5–3.5 mm long; first glume a minute scale, second glume pubescent, mostly one–half or less as long as spikelet, leaving back of fertile lemma exposed. **Ecology:** Common weed of lawns, open waste ground, and cultivated areas from 2,500–6,000 ft (762–1829 m); flowers June–October. **Notes:** Low habit helps differentiate it from *D. californica*. **Etymology:** Digitaria is from Latin digitus, a finger, while sanguinalis pertains to blood. **Synonyms:** *Panicum sanguinale, Syntherisma sanguinalis*

H M L Impact risk level

Echinochloa colona

jungle rice

General: Tufted annual, culms slender 20–100 cm. **Vegetative:** Blades 3–6 mm wide, with purple bands, flat, glabrous, sheath compressed, open, glabrous; no ligule; glabrous collar. **Inflorescence:** Panicle 6–15 cm long, with short, simple, subspicate branches, widely spaced, single or occasionally paired at nodes, appressed or spreading; spikelets 2.5–3 mm long, subsessile and crowded in two to four regular rows; second glume and sterile lemma short–pointed, hispid–scabrous to glabrous, loosely enclosing mature caryopsis; fertile lemma abruptly cuspidate. **Ecology:** Found on moist, disturbed soils, ditchbanks, irrigated fields below 5,500 ft (1676 m); flowers May–October. **Notes:** Similar to *Panicum* species, however, the large caryopsis and the ranked spikelet separates it. **Ethnobotany:** Cocopa parched the seeds, ground them into flour for mush. **Etymology:** Echinochloa is from Greek echinos for hedgehog or sea–urchia and chloe or chloa for grass, while colona is from Latin colonus for colonist. **Synonyms:** *Panicum colonum*

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H M L Impact risk level

Echinochloa crus–galli

barnyard grass

General: Introduced annual, stout, tufted culms 30–200 cm tall, genticulate and decumbent below, ascending above, glabrous. **Vegetative:** Glabrous sheaths, ligules lacking, blades flat 4–12 mm broad, a few papillae on margins near collar, sometimes with hairs; scabrous margins. **Inflorescence:** Panicles 5–21 cm long, erect or nodding, consists of 5–12 racemosely arranged lateral branches; spikelets 2.8–3.5 mm long, more or less laterally compressed, first glume, 1.2–1.6 mm long, broad, clasping, 3–nerved; second glume 2.5–3.2 mm long, 5–nerved, awned, awn .7–1.5 mm long, plano–convex lemma. Caryopses 1.3–2.2 mm long, 1–1.8 mm wide, ovoid, brownish. **Ecology:** Seepages, moist waste places, disturbed sites, frequently in trampled pasturelands up to 7,000 ft (2134 m), flowers July–September. **Notes:** Eurasian species, very variable. Densely flowered with one sided panicle. **Ethnobotany:** Seeds harvested pounded, winnowed, ground, parched and eaten as mush, porridge, and as a meal. **Etymology:** Echinochloa is from Greek for hedgehog or sea–urchin and chloe or chloa grass, referring to bristly spikelets, while crus–gallis is from Latin crus, the leg or thigh and gallus, a cock. **Synonyms:** *Panicum crus–galli*

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Elymus elymoides

western bottle–brush,
bottlebrush squirrel–tail

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General: Native Semi–erect, moderately–bunching perennial; round stem, not branched, 15–50 cm. **Vegetative:** Leaves evenly distributed on glabrous sheaths, scabrous to densely white–villous; auricles to 1 mm, often purplish; ligules shorter than 1 mm, truncate, entire or lacerate; blades 2–4 mm wide, often involute, abaxially surfaces glabrous to puberulent, adaxial scabrous, puberulent to hirsute. **Inflorescence:** Spikes 3–20 cm long, 5–15 cm wide, erect to subflexuous, 2–3 spikelets ber node, 10–20 mm spikelets, divergent, sometimes glaucous at least one spikelet at a node with 2–4 florets, 1–4 fertile; disarticulate at rachis nodes, then beneath each floret; glumes subequal, 20–135 mm, including undifferentiated awns; sometimes they split into 2–3 unequal divisions, flexuous to outcurving from base at maturity; fertile lemmas 6–12 mm, glabrous, scabrous, or appressed–pubescent. **Ecology:** Found in dry, often rocky, but wide–ranging habitats from open woods to grasslands, to disturbed areas from 2,000–11,500 ft (610–3505 m); flowers March–September. **Notes:** Distinctive spikelets with their arrangement like a bottlebrush help to identify this species. Widespread species in the Intermountain West. Host plaint for Garita Skipperling and Nevada skipper butterflies. Can be good fodder when young. **Ethnobotany:** Used as forage, although mature fruits irritate animals' mouths. **Etymology:** Elymus is from the Greek elymos for millet, while elymoides means like the genus Elymus. **Synonyms:** *Sitanion hystrix, S. glabrum*

H M L Impact risk level

Eragrostis barrelieri

Mediterranean lovegrass

General: Introduced, tufted annual, culms erect to spreading, geniculate or decumbent at the base, branching at base, rings or patches of shiny yellow, pink, or purplish glandular tissue on stems, and inflorescence axes and branches. **Vegetative:** Sheaths one–half the length of the internodes, glabrous except for pilose apex of margins; ligule a dense row of white hairs about 0.4 mm long; blades flat to involute, glabrous below, scabrous and scattered pilose above, 3–10.5 cm long, 1–5 mm wide. **Inflorescence:** Panicles ovoid, open 5–16 cm long, 2–8 cm wide, rachis scabrous towards tip, branches ascending to spreading often bearing spikelets nearly to the base, glabrous; spikelets linear to oblong, straw–to–lead colored, flattened 5–11 mm long, 1–1.5 mm wide, 6–15 flowered, rachilla persistent; glumes ovate, acute to acuminate, hyaline, scabrous on keels; lower glume 1–1.5 mm, upper glume slightly longer; lemmas 2 mm; caryopsis cylindric, oblique at one end, pointed at other. **Ecology:** Found on roadsides and on disturbed ground; flowers August–October. **Notes:** A common weedy species, introduced from Europe. The prominent glandular rings or patches are unique among the grasses in Arizona and Sonora. **Etymology:** Eragrostis is from Greek eros, love and agrostis, grass, while barrelieri is named for the French botanist Jacques Barrelier (1606–1673). **Synonyms:** None

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Impact risk level H M L

Eragrostis cilianensis

stinkgrass

General: Highly variable annual, culms tufted, erect to prostrate, branching at base and above, ring of glands below nodes, to 45 cm but usually smaller. **Vegetative:** Sheaths overlapping, bearded at throat, leaves otherwise glabrous, 2–7 mm wide, 6–25 cm long, flat to v–shaped, often with wartlike glands along margins; ligule ciliate, truncate, 0.5 mm long. **Inflorescence:** Panicles ovoid to oblong, open, usually densely flowered, 5.5–16 cm long, 2–8.5 cm wide, rachis scabrous, branches stiffly ascending to spreading, sometimes flexuous and slender, scabrous, spikelets and inflorescence branches pale green when fresh, turing straw colored at maturity, spikelets 3.5–21 mm by 2–3 mm; lemmas 2–2.5 mm; rachilla persistent; glumes broadly to narrowly ovate, acute to subacute, sometimes three–nerved, compressed; caryopsis ellipsoidal to subspherical, striate. **Ecology:** Found on roadsides, in disturbed ground and other waste places from 3,500–7,000 ft (1067–2134 m); flowers May–October. **Notes:** Also known as stink grass because it is said to smell like cockroaches, but it really just stinks. **Etymology:** Eragrostis is from Greek eros, love and agrostis, grass, cilianensis comes from and estate in Italy, Ciliani, where the type specimen was collected. **Synonyms:** *Eragrostis major, E. megastachya, Poa cilianensis*

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H M L Impact risk level

Eragrostis curvula

weeping lovegrass, Boer lovegrass

General: Tufted perennial, culms erect or ascending, 75–150 cm tall. **Vegetative:** Sheaths shorter than internodes, open, keeled, lower ones hispid; basal sheaths numerous and spread out, densely villous on back and less so on margins, upper glabrous; ligule ciliate, truncate, about 1 mm long; blades involute, setaceous, flexuous, usually glabrous below and scabrous above, 20–30 cm long; collar margins pilose. **Inflorescence:** Panicles oblong or ovoid, open 25–40 cm long, 8–12 cm wide, rachis scabrous, flexuous 8–15 cm long, lower axils densely pubescent, upper less so; spikelets oblong–lanceolate, 6–12 flowered, 4–10 mm long, compressed, grayish–green, rachilla disarticulating; glumes acuminate, lanceolate, compressed, keeled, first 1.8 mm long, second 2.8 mm long; lemmas narrowly ovate, acute, lateral nerves conspicuous; caryopsis ellipsoidal, striate, 1.4 mm. **Ecology:** Found on sandy soils, roadsides, burns below 7,000 ft (2134 m); flowers June–August. **Notes:** Introduced from Africa, used as a reseeding grass in the early 20th century along with *E. lehmanniana*. **Etymology:** Eragrostis is from Greek eros, love and agrostis, grass, while curvula refers to its curved habit. **Synonyms:** *Eragrostis chloromelas*, *E. curvula* var. *conferta*, *E. curvula* var. *curvula*, *E. robusta*

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Eragrostis intermedia

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plains lovegrass

General: Densely tufted erect perennial, culms 55–90 cm tall. **Vegetative:** Sheaths rounded on the back, keeled, lower compressed, one margin ciliate; blades involute, 1–3 mm wide, 10–25 cm long, flat, glabrous except for few long hairs above ligule; ligule a dense row of white hairs .4 mm long; collar pilose, margins pilose. **Inflorescence:** Panicles broadly pyramidal, open, decompound, 20–40 cm long, 15–30 cm wide, branches ascending to spreading, lower sometimes reflexed, slender, flexuous, solitary or sub–opposite, 10–25 cm long, axils pilose; spikelets oblong to narrowly lanceolate, compressed, grayish–green to purple tinged, 4– mm long, 1.6–1.8 mm wide, 5–11 flowered, rachilla disarticulated; glumes hyaline, compressed, keeled, scabrous on the keel, first acuminate, lanceolate second acute, ovate; lemmas ovate, acute, rounded on back, loosely imbricate, inconspicuous lateral nerves; caryopsis oblong, striate. **Ecology:** Found on sandy and rocky slopes and plains, from 4,000–5,000 ft (1219–1524 m); flowers June–October. **Notes:** The combination of the open, broadly pyramid–shaped, and reddish inflorescence are diagnostic. Panicles will break loose and roll in the wind after anthesis. **Etymology:** Eragrostis is from Greek eros, love and agrostis, grass, intermedia means intermediate. **Synonyms:** None

Impact risk level H M L

Eragrostis lehmanniana

Lehmann lovegrass

General: Tufted perennial, erect or ascending, sometimes decumbent and geniculate at lower nodes, 45–60 cm tall; stems bent at lower nodes. **Vegetative:** Sheaths one–third to one–half the length of the internodes, open, glabrous except for sparse pilose apex of margins; blades involute, about 1 mm wide, 2–10 cm long, stiffly ascending, sometimes grossly flexuous, 5–15 cm long; ligule ciliate, 0.5–1 mm long; collar pilose at the margins. **Inflorescence:** Narrowly oblong to lanceolate, open, 10–15 cm long, 4–8 cm wide, rachis glabrous to slightly scabrous, branches ascending to slightly spreading; spikelets slightly compressed, often dark gray–green to straw colored, several to 12–flowered, rachilla disrticulating; glumes hyaline, keeled, scarcely compressed, first lanceolate 1–1.5 mm, second ovate–lanceolate about 1.5 mm long; lemmas oblong, obtuse, very little compressed or keeled; caryopsis ellipsoidal. **Ecology:** Introduced widely beginning in the 1930s, now widespread in grasslands and along roadsides from 3,000–4,500 ft (914–1372 m); flowers June–August. **Notes:** One of the most charismatic of the African introductions from earlier in the century, it was used extensively as an erosion control and range revegetation plant, but now it is changing fire–regimes and altering greater areas every year, often the first and sometimes only grass greening up in the landscape. **Etymology:** Eragrostis is from Greek eros, love and agrostis, grass, lehmanniana is named for German botanist Johann Georg Christian Lehmann (1792–1860). **Synonyms:** None

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Eriochloa acuminata

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tapertip cupgrass

General: Annual, culms 20–100 cm, long, weak, usually decumbent or geniculate below, herbage typically pubescent to villous or hirsute, infrequently glabrous. **Vegetative:** Bright green blades, glabrous or rarely thinly pubescent, thin, 3–10 mm broad; ligule of soft hairs; sheaths glabrous or occasionally hirsute. **Inflorescence:** Panicle 6–18 cm long, with appressed or erect–spreading branches; inflorescence branches and pedicels flattened or angular, densely pubescent with hairs to 4 mm long, long hairs often interspersed with shorter hairs, latter often glandular; second glume and sterile lemma abruptly acuminate, mostly 3–4 mm long, appressed pubescent; fertile lemma oblong, finely reticulate, abruptly cuspidate at the apex. **Ecology:** Found in sandy washes and depressions, along streams, and on disturbed soils from 2,500–5,500 ft (762–1676 m); flowers August–October. **Notes:** There is a distinct variety documented at Tumacacori, var. *minor*: told apart from the species by the short–acuminate spikelets, the pedicels have only a few long hairs, mainly at the summit, while the culms are shorter. **Etymology:** Eriochloa from Greek erion, wool, and chloe or chloa, grass, while acuminata means having a long tapering point. **Synonyms:** None, but for var. *minor* (*Eriochloa gracilis* var. *minor, E. punctata* var. *minor*)

Festuca octoflora

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sixweeks fescue

General: Erect annual, 15–30 cm tall. **Vegetative:** Blades 1–2 mm wide, 2–10 cm long; narrow, margins rolled upward. Sheath smooth to puberulent. Ligule 0.5 mm long. Vernation folded. **Inflorescence:** Narrow panicle, 2–10 cm long. Spikelets 6–8 mm long, 5–13–flowered. 1st glume 3–4.5 mm long, lance–shaped, 1–nerved. 2nd glume 3–4.5 mm long, lance–shaped, 3–nerved. Lemma 4–5 mm long, firm, lance–shaped, smooth or rough–textured. Awn 3–5 mm long. **Notes:** Annual; >5 florets per spikelet. **Ecology:** Sterile, rocky, open ground around <6,500 ft (1981 m) throughout the state; flowers May–July. Species has little forage value, with low palatability. Roots are commonly pulled from soil due to livestock trampling. Seeds collected in caches and eaten by mice. Provides poor cover for wildlife. **Etymology:** Vulpi is Latin for fox. Octoflora is Latin for 8–flowered. **Synonyms:** *Vulpia octoflora*

Hilaria belangeri

curly–mesquite

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General: Low tufted perennial 25–30 cm or less, culms stoloniferous and sod–forming, curving over and rooting at nodes, usually only upper one or two internodes erect, nodes with dense tufts of long white hairs. **Vegetative:** Blades flat and thin, 2 mm wide, 5–20 cm long, flat to arcuate with some pustulate hairs; sheath open, margins overlapping; ligule membranous, obtuse to truncate, lacerate, 0.5–1 mm long; collar glabrous, occasionally margins with 1–2 long hairs. **Inflorescence:** Spikes exserted on slender, filiform culm apices, less than 5 cm long with 4–9 spikelet clusters; glumes of lateral spikelets variable, inner reduced, outer broadened above, notched or lobed, midnerve extended into short awn; glumes of the central spikelet subequal, usually glabrous or scabrous, deeply notched, awns mostly 4–5 mm; lemmas thin, awnless, about as long as glumes; caryopsis free from palea, mostly 1.5–2 mm long, flattened and oblong. **Ecology:** Found on rocky slopes, dry hillsides and sandy plains from 3,000–6,000 ft (914–1829 m); flowers July–November. **Notes:** Often develops in large colonies, usually in swales or heavy–textured soils. **Etymology:** Hilaria is named for Auguste St. Hilaire, a French naturalist. **Synonyms:** None

Hopia obtusa

vine mesquite

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General: Stoloniferous perennial, sod–forming, 20–80 cm tall, wiry culms, glabrous with swollen and densely hairy nodes; rhizomes to 1 m or more. **Vegetative:** Sheath open, glabrous occasionally villous at base; blades light blush green, flat, 2–7 mm wide, 5–20 cm long, midvein prominent and white; ligule membranous, 1–2 mm long, obtuse, entire or sometimes lacerate. **Inflorescence:** Contracted raceme 13 mm or less broad, 3–14 cm long with short, mostly simple and appressed branches; spikelets oblong or obovate, mostly 3.5–4 mm long, glabrous, subsessile on one side of branches; first glume equaling or slightly shorter than second; fertile lemma 3 mm long, smooth, obovate. **Ecology:** Found on swales, mud flats, heavy–soiled lowlands, marshlands from 1,000–6,000 ft (305–1829 m); flowers May–October. **Notes:** Cures light reddish then grayish tan; large brown seeds help set it apart. **Ethnobotany:** Plant was used as fodder, while roots were used as shampoo, and the seeds were eaten. **Etymology:** Panicum is a classical Latin name for millet, obtusum means blunted. **Synonyms:** *Panicum obtusum*

H M L Impact risk level

Hordeum murinum ssp. *glaucum*

smooth barley

General: Small annual, 20–60 cm, culms geniculate at the base. **Vegetative:** Sheaths glabrous, ligules short 0.2–0.7 mm long, truncate, erose or entire, ciliolate; blades flat, 1.5–4 mm broad, scabrous to pilose, auricles well developed, 1–2.5 mm long. **Inflorescence:** Spikes linear–oblong, 5.5–7 cm; rachis disarticulating; central spikelets 16–36 mm including awns, three spikelets appear pedicellate; glumes 11–22 mm long, those of central spikelet and inner glumes of the lateral spikelets broadened at the base and ciliate, with 3 scabrous nerves, outer glumes of the lateral spikelets awn–like; lemma of central spikelet 6–10 mm long, fertile, glabrous. glabrous. **Ecology:** Found in disturbed areas; flowers May–June. **Notes:** Common weedy annual species in the desert. **Etymology:** Hordeum is the Latin name for barley, murinum means of mice, mouse–gray, like a mouse. **Synonyms:** *Critesion glaucum, C. murinum* ssp. *glaucum, Hordeum glaucum, H. stebbinsii*

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Hordeum pusillum

little barley

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General: Annual with erect culms mostly 15–40 cm tall. **Vegetative:** Blades 2–5 mm wide, 2–10 cm long, flat to u–shaped, scabrous; open sheath, glabrous to short pubescent, with small auricles or lacking; ligule membranous, truncate, almost entire, 0.3–0.5 mm long. **Inflorescence:** Spicate raceme linear–oblong, 4–8 cm long, outer glumes of the lateral spikelets awnlike, without expanded bodies, other glumes broadened and flattened above the base, scabrous, with awns 7–12 mm long; florets of lateral spikelets irregularly reduced, usually pediceled above the glumes, about half to one–third as large as fertile floret of the central spikelet; lemma of central floret 4–6 mm long with an awn 2–7 mm long. **Ecology:** Found on roadsides and disturbed soils below 6,000 ft (1829 m); flowers May–August. **Notes:** Most widespread native barely. **Etymology:** Hordeum is the Latin name for barley, while pusillum means small, weak, or insignificant. **Synonyms:** *Critesion pusillum, H. pusillum* var. *pubens*

Impact risk level H M L

Hordeum vulgare

common barley

General: Introduced; large cultivated annual; erect grass up to 60–120 cm tall; glabrous. **Vegetative:** Blades flat, 5–16 mm wide; sheaths smooth; auricles well developed, up to 6 mm long. Ligule 0.5–1.2 mm, erose–lacerate, ciliolate. **Inflorescence:** Spike stout, up to 10 cm long (excluding the awns) with 2–6 rowed spikelets. All 3 spikelets of the triad sessile and fertile. Glumes subequal, 6.5–20 mm long, 3–nerved, tapering into scabrous awns. Lemmas of the 3 spikelets subequal, faintly 5–nerved, glabrous, tapering into a long, stout, flattened, scabrous awns 6–16 cm long. **Ecology:** Widely cultivated and most often found as a roadside weed; flowers May–June. **Notes:** Large introduced annual; auricles well–developed up to 6 mm long; spikes with very long awns (6–16 cm long) arising from fertile lemmas. **Ethnobotany:** Papago, Pomo, and Cocopa all used the seeds for pinole and flour for food. **Etymology:** Hordeum is the Latin name for barley, vulgare means common. **Synonyms:** Many, see Tropicos

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Leptochloa dubia

green sprangletop

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General: Tufted perennial with tough, knotty base and well–developed roots, 40–100 cm, often with a purple tinge. **Vegetative:** Sheath open, glabrous, keeled and flattened, purple–tinged; blades 4–5 mm wide, 15–25 cm long, flat, glabrous, scabrous, or sparsely pilose; ligule membranous, ciliate, about 0.5 mm long, occasionally appearing ciliate. **Inflorescence:** Spicate branches 2–15, flexible and drooping, 4–12 cm long and well spaced on upper 5–20 cm of culm, triangular in cross–section, bases of branches with minute hairs; spikelets 6–10 mm long and four to seven flowered; glumes lanceolate, awnless, second usually 4–5 mm long, the upper longer and broader than lower, persistent; lowermost lemmas 3.5–5 mm long, glabrous or with appressed pubescent nerves, ovate or oblong, dorsally compressed; spikelets breaking apart above glumes and between florets, each floret falling with its segment of the rachis. **Ecology:** Found on dry slopes, plateaus, rocky slopes from 2,500–6,000 ft (762–1829 m); flowers July–October. **Notes:** Only perennial *Leptochloa*, prolific seeder and early establishment and greening up in early summer. **Etymology:** Leptochloa taken from Greek leptos, slender, and chlose or chloa, grass, while dubia means doubtful. **Synonyms:** *Chloris dubia, Diplachne dubia*

Leptochloa panicea

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mucronate sprangletop

General: Annual, caespitose, erect, compressed culms, 13–150 cm long. **Vegetative:** Sheaths sparsely or densely hairy; ligule a ciliate membrane .6–3.2 mm long; blades elongate 3–25 cm long, 1.5–7 mm wide, glabrous or sparsely pilose on both sides, apex attenuate. **Inflorescence:** Numerous racemose panicles borne along a central axis, straight, unilateral, 8–30 cm long; branches 1–19 cm long, ascending to reflexed; rachis semiterete, spikelet packing broadside to rachis; spikelets 2–4 mm, distant to imbricate, green, magenta, or maroon with 2–5 florets; glumes sometimes exceeding florets, linear to narrowly elliptic, acute, attenuate, or aristate; lemmas 0.9–1.7 mm, glabrous or sericeous; paleas glabrous or sericeous; caryopsis ellipsoid, 0.5 mm long, dark brown. **Ecology:** Found in moist habitats of wetlands, swamps, and open lowland soils, cannot tolerate either too dry or too wet soils, weed of cultivated lands from 1,000–5,000 ft (305–1524 m); flowers May–September. **Notes:** Ssp. *mucronata* has been vouchered at Tumacacori and is told apart by its linear to narrowly lanceolate glumes, exceeding the florets; lemmas 0.9–1.2 mm long, and caryopses without a ventral groove and somewhat coarsely rugose with broadly obtuse apices. **Etymology:** Leptochloa is from Greek leptos, slender and chloe or chloa, grass. **Synonyms:** *Leptochloa attenuata, L. filiformis* var. *attenuata, L. mucronata*

Muhlenbergia fragilis

delicate muhly

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General: Delicate annual, culms much branched below, 10–30 cm, forms erect or spreading tufts, strigose below the nodes. **Vegetative:** Sheaths longer than internodes, scaberulous, with hyaline margins; blades to 5 cm long, 1.5–2 mm wide, flat or folded, scabrous, with prominent, white, thickened midnerve and margins; ligule hyaline, truncate, 0.5–1 mm long, decurrent margins of sheath extending as prolongations 1–2.5 mm long. **Inflorescence:** Panicles often purple, very diffuse and open and readily breaking off at maturing; numerous usually solitary slender branches becoming stiffly spreading or even reflexed, branchlets divergent, spikelets 1–1.1 mm long, glumes obtuse to subacute, glabrous, 0.6–0.9 mm long; lemma obtuse, glabrous or densely pubescent on keel and margins; palea equaling lemma in length, caryopsis elliptic, 0.7 mm, reddish brown. **Ecology:** Found on moist sandy soil and rocky hills from 2,500–6,500 ft (762–1981 m); flowers August–October. **Notes:** Told apart from the other small muhlys by its being awnless. **Etymology:** Muhlenbergia is named for Gotthilf Heinrich Ernst Muhlenberg (1753–1815), fragilis means delicate, or fragile. **Synonyms:** None

Muhlenbergia microsperma

littleseed muhly

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General: Soft and delicate annual 10-70 cm, erect or spreading culms, much branched at lower nodes, often suffused with purple, stems weak, growing through other plants. **Vegetative:** Sheaths shorter than internodes, glabrous or scabrous; leaves scabrous to pilose with short hairs, early deciduous, flat, 1-8 cm long, soon drying; ligules membranous, translucent white, 1 mm, decurrent. **Inflorescence:** Panicles numerous, narrow, loosely flowered, 5-20 cm long, branches usually ascending or spreading but appressed in early stages, longer than wide, filmy, usually purplish; spikelets on short, rather stout, scabrous, spreading pedicels; glumes broad, covering only base of lemma, body of lemma narrow, 1.5-2.5 mm, tapering into slender awn 14-28 mm, easily opening to release golden-brown caryopsis. **Ecology:** Found on rocky slopes, in canyons, and other favorable microsites below 5000 ft (1524 m); flowers March-August. **Notes:** Very responsive to moisture, growing quickly, told apart by its awned seed. **Etymology:** Muhlenbergia is named for Gotthilf Heinrich Ernst Muhlenberg (1753-1815), microsperma means small seed. **Synonyms:** *Muhlenbergia debilis*

Muhlenbergia porteri

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bush muhly

General: Perennial from a hard, knotty base with slender, wiry, geniculate, much–branched stems, often weak 10–40 cm; numerous nodes and short internodes, often swollen, mostly scabrous or minutely puberulous. **Vegetative:** Sheaths open, spreading away from culms, blades short, flat or folded 0.5–2 mm broad, usually scabrous; ligule membranous, translucent white, truncate, lacerate, occasionally longer on the sides, 1–2 mm. **Inflorescence:** Numerous fine, many–branched terminal panicles, mostly 4–10 cm long and nearly as broad, spikelets maturing purple; glumes thin, membranous, glabrous, narrowly lanceolate, acute or acuminate, the second two–thirds as long as lemma; lemma more or less puberulous, body 3–4.5 mm long, awn 5–10 mm long; palea awnless, glabrous or puberulent. **Ecology:** Found on rocky slopes and dry mesas from 2,000–6,000 ft (610–1829 m); flowers August–November. **Notes:** Often found growing in and around shrubs and trees, as clambering bushy plant. **Etymology:** Muhlenbergia is named for Gotthilf Heinrich Ernst Muhlenberg (1753–1815), porteri is named for Thomas Conrad Porter (1822–1901) an American botanist. **Synonyms:** None

Panicum hallii

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Hall's panicgrass

General: Tufted perennial, culms 20–70 cm, in small dense clumps with glabrous or pubescent nodes. **Vegetative:** Sheath open, with pustulate hairs, sometimes sparse; blades flat 1.5–5.5 mm wide 4–15 cm long, glabrous on upper surface, sparsely ciliate near base, old dry blades curled and shavings–like; ligule ciliate with membranous base, 0.3–1.5 mm long. **Inflorescence:** Panicle 6–20 cm long with few, stiff, erect–spreading branches and mostly appressed branchlets and pedicels; spikelets appressed and closely placed in small clusters, often imbricate and overalapping, 3–4 mm long; first glume one–third to two–thirds as long as spikelet, second glume and sterile lemma ovate–lanceolate, somewhat pointed, glabrous; fertile lemma smooth and shiny, about 2.5 mm long. **Ecology:** Found on sandy plains and rocky slopes from 2,500–7,500 ft (762–2286 m); flowers March–October. **Notes:** Caryopsis has the appearance of small nutlets, often associated with grama grasses; papery, shaving–like blades are one diagnostic. **Etymology:** Panicum is a classical Latin name for millet, while hallii is named for Harvey Monroe Hall (1874–1932). **Synonyms:** None

Impact risk level H M L

Panicum hirticaule

Mexican panicgrass

General: Annual, culms branching or not, simple from 20–80 cm tall, much–branched, spreading from base. **Vegetative:** Sheaths typically papillose–hispid with spreading hairs but glabrous or nearly so; blades flat 4–12 mm broad, hispid, pubescent, or ciliate, rarely glabrous; ligule of stiff hairs, more or less connate and membranous below. **Inflorescence:** Panicle large, diffuse, one–third to one–fourth length of culm with erect–spreading capillary branches and short–pediceled, appressed spikelets, mostly 3–3.7 mm long, green or purple; first glume mostly one–half to two–thirds as long as spikelet, second glume and sterile lemma acute to acuminate, glabrous, 5–7 nerved; fertile lemma smooth, shiny, 1.7–2 mm. **Ecology:** Found on dry slopes and plains, sandy washes, and open woodlands below 7,000 ft (2134 m); flowers July–October. **Notes:** This species has several other closely related varieties that should be double–checked against when making any determinations. **Ethnobotany:** Seeds were ground into a meal and used for making flour and bread by the Cocopa. **Etymology:** Panicum is a classical Latin name for millet, hirticaule means hairy–stemmed. **Synonyms:** None

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H M L Impact risk level

Paspalum dilatatum

dallis grass

General: Introduced perennial from hard, knotty base, culms 50–150 cm tall. **Vegetative:** Basal sheaths often open soft–hairy below, above usually glabrous compressed; blades flat 3–12 mm wide, glabrous or pubescent, with few long hairs on axial surface above ligule; ligule membranous 1.5–3 mm long. **Inflorescence:** Usually 3–5 spicate branches, mostly 5–8 cm long, single at the nodes, rachis broad and thin; spikelets 3–3.5 mm long about 2 mm broad, acute, abruptly pointed; first glume absent; second glume three–nerved, pubescent with long, soft hairs on margins and at base, glabrate on back; sterile lemma flat, glabrous or minutely puberulent, three–nerved; grain nearly orbicular. **Ecology:** Found on open ground, mostly in moist or marshy soils, roadsides, and disturbed ground below 4,500 ft (1372 m). **Notes:** Appears to have been introduced in our area to the Agua Caliente Ranch originally. **Etymology:** Paspalum is from the Greek paspalos for millet, while dilatatum means spread out. **Synonyms:** None

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Paspalum distichum

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knotgrass

General: Perennial from extensive creeping stolons, erect culms 5–65 cm, nodes of both erect culms and stolons usually pubescent, sheaths glabrous but sparsely pubescent above. **Vegetative:** Blades to 14 cm long, 1.5–11.5 mm wide, flat to conduplicate, glabrous to hairy on upper surface, involute apices; ligules short membranous, 1–2 mm. **Inflorescence:** Terminal panicles, composed of spicate and digitate pair of branches, third branch sometimes present below; branches 1.5–7 cm, diverging, often arcuate, not more than 1 cm apart at the culm apex, rachis very thin, to 1 mm or more, terminating n spikelet; spikelets 3–4.5 mm long, 1 mm wide, solitary, appressed to the branch axes, elliptic lanceolate, glabrous; lower glume absent, upper glume and lemma glabrous to sparsely puberulous, 3–veined, fertile lemma smooth, shiny, pointed, slightly shorter than the spikelet. **Ecology:** Found in moist soil along streams or lakes, or in shallow water from 200–6,000 ft (61–1829 m); flowers June–October. **Notes:** This species can be distinguished by its growing in moving water, distinctive are its reddish culms and stems that are covered in long pubescence. **Ethnobotany:** Unknown **Etymology:** Paspalum is from the Greek paspalos for millet, while distichum means in two ranks. **Synonyms:** *Digitaria paspaloides, Paspalum distichum var. indutum, P. paspaloides*

Poa bigelovii

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Bigelow's bluegrass

General: Tufted annual, culms 15–45 cm tall, delicate and erect. **Vegetative:** Sheaths open, slightly keeled at bottom, broad; blades flat, soft, light green, 2–4 mm wide, 4–12 cm long, tips boat shaped, median lines present; ligule membranous, acute, lacerate, 1–3 mm long. **Inflorescence:** Contracted panicle, branches strictly erect; spikelets broadly ovate, pale green 4.5–8 mm, with 3–8 florets, overlapping and compressed against each other, spreading apart at maturity; glumes glabrous, first one to three nerved, second three–nerved, lemmas 3–4 mm long, margins white hairy and membranous, base with dense cottony tuft or web. **Ecology:** Found on rocky slopes and sandy desert washes from 1,000–5,000 ft (305–1524 m); flowers spring. **Notes:** Contracted panicle, lemma webbed and pubescent at base are diagnostic for this annual grass. **Etymology:** Poa is classical Greek name for grass, while bigelovii is named for Dr. John Milton Bigelow (1804–1878) a botanist on the Whipple expedition. **Synonyms:** None

Impact risk level H M L

Polypogon monspeliensis

annual rabbitsfoot grass

General: Introduced annual with glabrous or scabrous herbace, culms geniculate and decumbent at base, 8–100 cm. **Vegetative:** Sheaths open, smooth to scaberulous; blades flat, 3–6 mm wide, 2–15 cm long; ligule membranous, acute, lacerate at tip, 2–6 mm long. **Inflorescence:** Dense panicle, often spikelike, mostly 2–15 cm, densely flowered with tawny awns, terminal on long stem, spikelike and short, dense branches below; glumes narrow one nerved with straight awn 4–7 mm long from entire or slightly notched apex; lemma and palea thin, translucent, slightly exceeding grain, lemma with delicate, deciduous awn 1 mm long, caryopsis plump, 1 mm long. **Ecology:** Found on sandy soil along streams, moist ditches and waste places from 500–8,000 ft (152–2438 m); flowers March–October. **Notes:** Closely related to *Agrostis*, so its appearance is similar. **Etymology:** Polypogon is from Greek polys, many and pogon, beard, while monspeliensis is thought to be derived from Montpellier in southern France. **Synonyms:** *Alopecurus monspeliensis*

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Impact risk level H M L

Schismus arabicus

Arabian schismus

General: Low tufted annual, 10–20 cm tall, glabrous, erect to spreading or semiprostrate. **Vegetative:** Leaves mostly basal, blades soft, bright green, narrow, sheath with membranous border above, often broad and truncate at apex; ligule a ring of short and long hairs. **Inflorescence:** Compact panicle, many flowered 1–6 cm long; spikelets 5–7 flowered; glumes 3.5–5.5 mm, often tinged with purple, lemmas 1.5–2.4 mm, margin and back hairy, apex shallowly to deeply notched, lobes acute; palea shorter than lemma, usually not reaching notch; caryopsis shiny golden brown. **Ecology:** Found on dry open ground, often in disturbed soil below 4,000 ft (1219 m); flowers January–May. **Notes:** *S. arabicus* and *S. barbatus* are thought to possibly intergrade, the only difference is in the glume size, and the lemmas being more hairy in *S. arabicus*. **Etymology:** Schismus is from Greek schismos, cleaving, referring to split lemma, arabicus refers to being Arabian in origin. **Synonyms:** None

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H M L Impact risk level

Schismus barbatus

common Mediterranean grass

General: Low tufted annual, 10–20 cm tall, glabrous, erect to spreading or semiprostrate. **Vegetative:** Leaves mostly basal, blades soft, bright green, narrow, sheath with membranous border above, often broad and truncate at apex; ligule a ring of short and long hairs. **Inflorescence:** Compact panicle, many flowered 1–6 cm long; spikelets 5–7 flowered; glumes 2.5–4.5 mm long, acute or acuminate, five–nerved; lemma glabrous on back or with hairs on margin or occasionally near base, apical notch shallow or minute, palea about as long as lemma. **Ecology:** Found on dry open ground, often in disturbed soil below 4,000 ft (1219 m); flowers January–May. **Notes:** *S. arabicus* and *S. barbatus* are thought to possibly intergrade, the only difference is in the glume size, and the lemmas being more hairy in *S. arabicus*. **Etymology:** Schismus is from Greek schismos, cleaving, referring to split lemma, barbatus means barbed. **Synonyms:** *Festuca barbata, Schismus calycinus*

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Setaria grisebachii

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Grisebach's bristlegrass

General: Annual, culms 15–50 cm tall, often geniculate–spreading and branching below, nodes microscopically pilose, internodes glabrous or pubescent. **Vegetative:** Sheaths densely ciliate, pubescent or pilose on collar; blades to 20 cm long, thin, flat, 4–10 mm broad; hairy ligule. **Inflorescence:** Panicle spike–like 3–15 cm long, typically loosely flowered and tapering to a point, often lobed or interrupted below, branches 2 cm long, occasionally panicle contracted and dense flowered, 5–10 mm long; bristles 5–15 mm long, 1–2 below each spikelet, flexuous, scabrous, green or purplish; spikelets 2 mm long; glumes strongly nerved, blunt, first very short, second equaling or slightly shorter than sterile and fertile lemmas; caryopsis acute, finely cross–wrinkled. **Ecology:** Found on rocky slopes, washes, and in open woodlands from 2,000–6,500 ft (610–1981 m); flowers August–November. **Notes:** Told apart form *S. leucopila* by its being an annual. **Etymology:** Setaria is from Latin saeta, a bristle or hair. **Synonyms:** None

Setaria leucopila

streambed bristlegrass

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General: Tufted perennial, 20–100 cm, usually pale or glaucuous, erect culms or geniculate from cespitose base, compressed, scabrous below panicle and nodes, often pubescent below nodes. **Vegetative:** Sheaths compressed–keeled, glabrous except near scabrous summit and keel, villous along upper margins; ligule 1–2.5 mm long, densely ciliate; leaf blades 2–5 mm wide, flat or folded, 8–25 cm long, scabrous on both surfaces or nearly glabrous beneath. **Inflorescence:** Densely flowered panicle, 6–15 cm long, pale green, columnar, often interrupted below, axis scabrous or villous; bristles mostly solitary below each spikelet, three–fourths to nearly equaling spikelet, 5–nerved; sterile lemma and fertile one about equal; fertile lemma apiculate, finely rugose transversely, sterile palea one–half to three–fourths as long as fertile palea. **Ecology:** Found in grasslands and open ground from 3,000–7,000 ft (914–2134 m); flowers May–October. **Notes:** One of the most common of the perennial plains bristlegrasses. Pay particular attention to the interruption on the lower part of the stem. **Etymology:** Setaria is from Latin saeta, a bristle or hair, leucopila is from Greek leukos and Latin pilus, a hair. **Synonyms:** *Chaetochloa leucopila*

Impact risk level H M L

Setaria pumila

yellow bristlegrass

General: Introduced tufted annual, culms branching at base, usually geniculate, 30–100 cm tall. **Vegetative:** Sheath open, keeled, only slightly compressed, one margin ciliate; ligule dense fringe of stiff, white hairs, 0.2–1.2 mm long; blades flat, 4–12 mm wide, 5–25 cm long, loosely twisted, long hairs near throat, these pustulate, 3–4 mm long. **Inflorescence:** Panicle well exserted from sheath, dense, spike–like, cylindrical, 2–10 cm long, mostly 5–7 mm thick, excluding awns; bristles 5–20 in cluster, mostly 4–8 mm long but occasionally longer, yellow, golden, or purple, antrorsely scabrous; spikelets 2.5–3 mm long; glumes shorter than sterile lemma and fertile lemma, first glum one–third as long, the second half or slight more as long; fertile lemma coarsely transverse rugose, usually more or less short–beaked at apex. **Ecology:** Found in lawns, irrigated lands, waste places, in disturbed soils from 4,500–7,000 ft (1372–2134 m); flowers July–October. **Notes: Etymology:** Setaria is from Latin saeta, a bristle or hair, pumila means dwarf. **Synonyms:** *Setaria lutescens*

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H M L Impact risk level

Setaria viridis

green bristlegrass

General: Introduced, tufted annual with rolled vernation, culms decumbent, branching, glabrous 15–50 cm tall. **Vegetative:** Sheaths open, keeled, only slightly compressed, one margin ciliate, often on collar also; blades flat, mostly 4–10 mm broad, 5–20 cm long, gradually tapering to a slender tip, scaberulous, margins wavy; ligule densely ciliate, 1–2 mm long. **Inflorescence:** Dense, spikelike panicle, cylindrical, 2–8 cm long and 5–8 mm broad excluding the bristles, rarely lobed or interrupted, rounded at the apex; bristles green or purple, antrorsely scabrous, mostly 5–8 mm long, occurring 1–4 at the base of each spikelet, spikelets 2–2.5 mm long; first glume short, second equaling sterile and fertile lemmas; fertile lemmas minutely reticulate or finely rugose, rounded at apex. **Ecology:** Found in lawns, along roads, waste places, irrigated lands, and disturbed ground from 2,000–8,000 ft (610–2438 m); flowers June–October. **Notes:** This is an aggressive species. **Etymology:** Setaria is from Latin saeta, a bristle or hair, viridis means green. **Synonyms:** None

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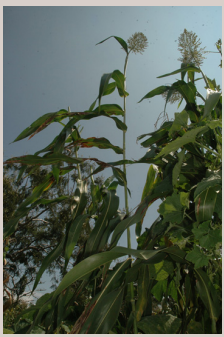
H M L

Sorghum bicolor

sorghum

General: Robust annual, culms 1–3 m tall. **Vegetative:** Sheaths glabrous, ligules membranous 1.5–5.5 mm long; blades flat, 20–40 mm broad. **Inflorescence:** Panicles 10–25 cm long, dense and compact, pedicel of the spikelet 0.7–2 mm long with hairs 0.5–0.7 mm long; spikelet usually sterile, rarely staminate, usually shorter than sessile spikelet, 3.8–5 mm long, narrow–lanceolate; glumes subequal, first 9–11 nerved, flat to sulcate on back, clasping second glume, second glume narrow, 3–nerved, appressed–hirsute near margins; sessile spikelet spreads apart at maturity. **Ecology:** Found in cultivation and rarely escaped from cultivation. **Notes:** The size of the seeds is one indicator, but another is the reddish tinge found on *S. halepense*. Two subspecies, one being the base species of all cultivated sorghums (ssp. *bicolor*), while the other being more specifically that of sudangrass (ssp. *drummondii*). Sudangrass is typically used as a cover crop and has slightly reddish caryopsis, while being slightly smaller than other sorghums. **Etymology:** Sorghum is from Italian sorgo, for a tall cereal grass, bicolor means two–colored, often the case of the caryopsis. **Synonyms:** Many, see Tropicos



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Impact risk level H M L

Sorghum halepense

Johnsongrass

General: Perennial from stout, scaly rhizomes, culms 1–2 m tall, culm nodes glabrous or finely pubescent. **Vegetative:** Sheaths glabrous, puberulent across the collar; ligules membranous, truncate, ciliate 1.5–3 mm long; blades large, flat, 4–15 mm broad, 20–50 cm long, margins white, midvein white and prominent. **Inflorescence:** Panicle usually large, densely flowered, variable, mostly 15–35 cm long; spikelets and pedicels more or less hirsute; sessile spikelets 4.5–6 mm long, glumes broad, coreaceous, nerveless and shiny except at tip; glumes of sessile spikelet subequal, first glume smooth and shiny on back, hispidulous on the margins or sometimes all over, 5–7 nerved, second glume glabrous, smooth and shiny below and hispidulous toward apex; fertile lemma membranous, usually with a twisted, once–geniculate awn 1–1.5 mm long, this readily deciduous; pediceled spikelet staminate, awnless, lanceolate, usually as long or longer than the sessile one. **Ecology:** Common weed on moist roadsides, ditchbanks, cultivated fields, and wastelands below 5000 ft (1524 m); flowers April–November. **Notes:** Gnarly rhizomatous weed that spreads with seemingly every effort to control it. Best bet is to continually cultivate it, exhausting its rootstock; or burn it continually. **Etymology:** Sorghum is from Italian sorgo, for a tall cereal grass, and halepense refers to being of or from Allepo, northern Syria. **Synonyms:** *Holcus halepensis, Sorghum milaceum*

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Sporobolus airoides

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alkali sacaton

General: Semi–decumbent perennial with firm and tough culms, found in large, dense clumps from a hard, knotty base, mostly 50–100 cm. **Vegetative:** Sheaths rounded, open, glabrous, or short–ciliate on upper margin, with few hairs on either side of collar; ligule usually a minute crown of short hairs, often bordered by small tufts of long hairs; blades firm and fibrous, involute, 2–6 mm wide, 5–25 cm long, smooth on lower surface, scabrous above, tapering to a long slender tip. **Inflorescence:** Panicle 12–40 cm long, typically open and with widely spreading branches, branchlets, and spikelets; spikelets 2–3 mm long, brownish or lead–colored; glumes thin and rounded, first about half the length of lemma, second two–thirds or more the length of the lemma; lemma thin, rounded, blunt to narrowly acute; palea about as long as the lemma and usually broader at apex. **Ecology:** Found on sandy plateaus, washes, heavy soils, often alkaline, bottomlands and flats from 2,500–6,500 ft (762–1981 m); flowers from May–October. **Notes:** Rolled, drooping leaves and large cresting, fountain–like habit help to identify this grass. **Ethnobotany:** Seeds used as famine food, ground and mixed into a porridge with corn meal and for flour. **Etymology:** Sporobolus is Greek for "seed–caster" while airioides means it is like the genus Aira. **Synonyms:** *Agrostis airoides*

Sporobolus contractus

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spike dropseed

General: Tufted perennial, culms 40–120 cm tall and 2–4 mm in diameter at the base, in small clusters to large clumps. **Vegetative:** Sheaths rounded, open, glabrous with one pubescent margin; leaves 2–5 mm wide,10–30 cm long, flat or involute, tapering to a slender tip, glabrous; ligule a dense fringe of short hairs 0.5–1 mm. **Inflorescence:** Dense contracted, spikelike or moderately lobed, 1 cm or less thick and 15–50 cm long; basal portion of spike and sometimes entire spike remain enclosed in sheath; spikelets light brownish or lead–colored, 2–3 mm long; glumes thin, membranous, unequal, first usually about half as long as second; second equaling the lemma or slightly shorter; caryopsis 1 mm in length, broad and flattened. **Ecology:** Found in dry, open, sandy or rocky slopes and washes, frequent along roads from 2,500–6,500 ft (762–1981 m); flowers August–October. **Notes:** This species is notable for its tightly compact, dense spike. **Etymology:** Sporobolus is Greek for "seed–caster" while contractus means contracted. **Synonyms:** *Sporobolus cryptandrus* var. *strictus*

Sporobolus cryptandrus

sand dropseed

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General: Erect, tufted perennial; round stem, not branched, 0.3–1 m tall. **Vegetative:** Blades 2–5 (3–8) mm wide, 5–15 (15–20) cm long; flat, margins becoming rolled upward towards tip; 3–4 veins each side of midrib; margin toothed. Sheaths open, one margin ciliolate; strongly overlapping; smooth; panicle more or less covered by sheath. Ligule densely ciliate, 0.5 mm long; hairy; hairs 2–3 mm on margin. Collar broad; conspicuous 2–3 mm long hairs at margins. Vernation rolled/curled. **Inflorescence:** Terminal panicle, somewhat included in sheath, to 25 cm long and 16 cm wide. Spikelets pale to leaden, 2–2.5 mm long, 1–flowered.1st glume 1/3 to 1/2 as long as lemma and palea. 2nd glume as long as lemma and palea. **Ecology:** Widespread; sandy soils of dry plains and slopes and on sandy open ground from 3,500–6,500 ft (1065–1980 m); flowers May–September. **Notes:** Perennial; panicle included in sheath; conspicuous tuft of hairs at ligule and collar; culms not branched, sheaths strongly overlapping with pubescent margins. Species is greatly harmed by fire. Re–establishment is from on or off–site. Forage value is fair to good for livestock and poor for wildlife, with quality decreasing rapidly upon maturity. Important desert winter forage, although not preferred by elk , pronghorn, or deer. Rodents eat seeds. **Etymology:** Sporobolus is Greek for "seed–caster." Cryptandrus is Greek for hidden–male. **Synonyms:** *Agrostis cryptandra*

Sporobolus wrightii

big sacaton

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General: Large, coarse stemmed perennial bunchgrass 1–2 m tall, culms 4–6 mm thick at base. **Vegetative:** Sheath open, rounded, glabrous, one margin occasionally slightly ciliolate near collar; collar glabrous, a few hairs at margins; blades 3–6 mm wide, 20–60 cm long, sparsely pilose at base behind ligule, midvein prominent, flat to involute; ligule ciliate, 1–2 mm long. **Inflorescence:** Open, loosely branched panicle mostly 35–60 cm long, narrow, densely flowered, secondary branches closely appressed to primary branches; densely flowered nearly to base, spikelets 2–2.5 mm long; first glume about one–half as long as spikelet, second one–half to two–thirds as long as floret. **Ecology:** Found on river banks, in sandy washes, plains, valley flats, and floodplains from 2,000–6,500 ft (610–1981 m); flowers March–November. **Notes:** One of the largest grasses in the region, often found in clumps more than 1 m in diameter. Had much more extensive range historically, covering the valley bottoms that were overgrazed and often plowed up for agriculture. **Etymology:** Sporobolus is Greek for "seed–caster" while wrightii is named for William Greenwood Wright (1831–1912) a Californian lepidopterist. **Synonyms:** *Sporobolus airioides* var. *wrightii*

Tridens muticus

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slim tridens

General: Small perennial bunchgrass 20–50 cm tall, stout. **Vegetative:** Sheaths open, rounded, upper ones glabrous, lower usually pilose; blades mostly 8–15 cm long, involute or occasionally flat, often glaucous; collar and ligule mostly long–hairy, ligule ciliate with fused base, .5–1 mm long, with membranous lateral auricles. **Inflorescence:** Paniculate or racemose inflorescence 6–20 cm, narrow and spikelike, spikelets rather distant, not crowded; spikelets 9–13 mm long and 5–10 flowered; glumes broadly lanceolate or ovate, very thin and hyaline, one–nerved, second rarely with short lateral nerve stubs; lemmas about as long as glumes, thin, hyaline or deeply tinged with purple, broadly rounded apex, occasionally notched or mucronate. **Ecology:** Found on dry plain, rocky slopes, grasslands, and woodlands below 5,500 ft (1676 m); flowers May–September. **Notes:** When mature, seeds drop off, leaving a pair of paper–like scales that persist through year. **Etymology:** Tridens means three–toothed, while muticus means blunt or without a point. **Synonyms:** None

Urochloa arizonica

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Arizona signalgrass

General: Annual, culms 15–60 cm tall, much–branched at base, glabrous or sparsely hispid at the nodes and below the panicle. **Vegetative:** Sheaths glabrous to papillose–hispid, loose; blades 5–15 mm broad, glabrous or scabrous, ciliate on margins at least near the base. **Inflorescence:** Panicle 7–20 cm long with appressed or erect–spreading hairs, branches scabrous; spikelets mostly 3–4 mm long, on pedicels 1–3 mm long, paired, appressed, glabrous or pubescent; first glume half or slightly less as long as the spikelet; second glume and sterile lemma puberulent or glabrous, abruptly pointed at apex, without fine cross–veins or those present only near apex; grain reticulate or finely rugose, abruptly short–beaked or cuspidate, 2–3 mm long. **Ecology:** Found on sandy ground, rocky slopes, and canyon bottoms from 1,000–5,500 ft (457–1676 m); flowers June–October. **Notes:** Pubescent spikelets, reticulate–veined only at apex, its green color are all diagnostic. **Etymology:** Urochloa is from Greek oura, a tail and chloe or chloa, grass, while arizonica refers to Arizona. **Synonyms:** *Brachiaria arizonica*, *Panicum arizonicum*

Urochloa fusca

browntop signalgrass

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General: Annual, culms erect or decumbent and spreading below, 30–100 cm tall. **Vegetative:** Sheaths glabrous to papillose–hispid; blades glabrous or thinly pubescent, 15 mm broad, rarely if ever ciliate margins; ligule a tuft of stiff white hairs. **Inflorescence:** Panicle 6–15 cm long, with appressed or erect–spreading, mostly simple branches; main panicle axis and branches scabrous or with scattered long, stiff hairs, short branchlets and pedicels usually hairy; spikelets 2.6–3 mm long, yellowish–brown or golden–tinged at maturity; first glume thin, one–third to one–fourth as long as the spikelet; second glume and sterile lemma mostly reticulate with fine cross veins to well below middle, rounded at apex; fertile lemma rugose, nearly as long as the spikelet, the apex blunt, not short–beaked or cuspidate. **Ecology:** Found on sandy washes, open rocky slopes, often as a weed in disturbed soils; flowers July–October. **Etymology:** Urochloa is from Greek oura, a tail and chloe or chloa, grass, fusca means dark or brown. **Synonyms:** *Urochloa fasciculata*, many others, see Tropicos

Flowering Trees and Shrubs

The best way to start thinking about the flowering plants (or angiosperms) is to start with the big stuff—the trees. A conventional definition is "a woody plant with a single trunk." More specifically, trees are defined by the presence of a single main trunk that is upright, with a crown of either leaves or needles that fall (deciduous trees) or needles or even leaves that do not fall (evergreen). Think of an elm tree or a willow.

In the Sonoran Desert region, however, trees may not have just a single stem, nor a definite crown. Trees in this region often have many stems growing from one root, giving them a downright shrubby appearance, quite unlike the single-stemmed pine tree, with its single, straight trunk and pointed crown on top.

To this end, we will consider the shrubs. Conventionally, shrubs are "woody plants, shorter than a tree and with many stems." Problematically, some trees can be shrubs and some shrubs can be trees. For our purposes, it is best to simply consider trees and shrubs to be the woody plants—those which persist long after the rains have gone in the fall, whose leaves fall, and whose trunks and stems remain throughout the year. Trees and shrubs are the most common of the common plants; their sheer size and number are what we see when we look at a large landscape.

Anisacanthus thurberi

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Thurber's desert honeysuckle, chuparosa

General: Perennial, cold-deciduous shrub 1–2 m (3–6 ft) high, leaves reappear in early spring; bark exfoliating, brown to gray with two vertical lines of pubescence. **Leaves:** Opposite lanceolate, sparsely hairy, entire, 4–6 cm long, 1–1.5 cm wide, to 2 cm rarely, puberulent to glabrous. **Flowers:** Usually brick red, occasionally yellow or orange, tubular, 2–3.5 cm long. **Fruits:** Dehiscent, 2-valved capsule 12–14 mm long, flattened with a long stalk. **Ecology:** Rocky canyon bottoms and gravelly or sandy washes from 2,000–5,000 ft (610–1524 m); blooms March–June, rarely in Fall (October–November). **Notes:** Summer rains stimulate stem growth, with flowers that are well adapted for hummingbird pollination. One of the better browse plants in the desert. Often found growing in shade. **Ethnobotany:** Potential use of nectar as sweet, but no documented use. **Etymology:** Anisacanthus is from Greek anisos 'unequal', while Thurberi is for Dr. George Thurber (1821–1890) a botanist on the Mexican Boundary Survey in 1850–1854. **Synonyms:** *Drejera thurberi*

Sambucus nigra

common elderberry

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General: Shrubs or small trees, deciduous; shrubs to 2 m tall, thicket-forming; trees to 6 m; trunk to 0.3 m diameter; crown rounded and compact; **bark** gray or brown, furrowed; twigs stout, angled, with thick, soft pith; lateral buds green, scaly. **Leaves:** Opposite, pinnately compound, 13–18 cm long; leaflets 3–5, elliptical with serrated edges, 3–13 cm long, base often oblique, margins coarsely serrate, apex pointed; green and glabrous above, paler, glabrous or pubescent beneath. **Flowers:** Inflorescence in flat-topped clusters with or without a stalk; many-branched, commonly 10–25 cm wide. Flowers bisexual, yellowish-white, fragrant, 4–7 mm wide, corolla 5-lobed. **Fruits:** Berries in clusters; dark blue with whitish coating, 6 mm diameter, juicy, 3–5 seeded; maturing in summer and autumn. **Ecology:** Moist soils along streams, in canyons, and loamy bottomlands; 2,500–5,000 ft (762–1524 m); flowers June–August. **Notes:** Diagnostic characteristics include its thick, pithy twigs; opposite, pinnately compound leaves; flat-topped cluster of flowers; dark blue berries with whitish coating. This species is still in a bit of systematic netherland regionally, with a measure of uncertainty as to the correct placement and taxonomic separation. There are a few questions about the taxonomy of this species. An effort should be made at TUMA to collect specimens to clarify the precise identity. Note the new family name. **Ethnobotany:** Elderberries were often eaten when cooked, as some species are poisonous in raw form. They were often used in preserves, wine, or liquor (Sambuca). Washes made from bark were used to soothe external sores. Berries dried, mashed for cakes and mush, beverages including wine by the Gila River Pima, but it was important as winterfood. Stems used for orange dye, while berries make black or purple dye. Flowers stimulate sweating in dry fevers, while leaves have a mild laxative effect. Flowers and dried berries are diuretic and is useful in rheumatism and arthritis. **Etymology:** Sambucus comes from the Greek Sambuke, referring to an ancient instrument, however there seems to be some debate as to the construction and use of this instrument; nigra refers to the dark berries. **Synonyms:** See Tropicos

Atriplex canescens

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fourwing saltbush

General: Shrub, frequently 1.5–2 m, moundlike, much branched and drought deciduous. **Leaves:** Alternate, simple, gray-green, entire, narrowly spatulate to narrowly oblong, 5 cm long or less, salty tasting. **Flowers:** Inconspicuous, tiny, yellow, in clusters on stem; dioecious. **Fruit:** Small seeds enclosed by 4-winged bracts, often 1–2 cm and nearly as wide. **Ecology:** Found on sandy or gravelly soils, from desert scrub to pinon-juniper communities from 300–6,500 ft (100–2400 m) **Notes:** Browse for livestock, deer and antelope; seeds eaten by birds and rodents; very tolerant of salty soils. **Ethnobotany:** Seeds used for meal, yellow dye. Havasupai used it to make soap for hair washing and to treat itches and rashes. Hopi used the ashes as a substitute for baking soda. Navajo used it as an emetic, to treat ant bites, cough, and as a hair tonic. They also used it as feed for cattle, sheep and goats. **Etymology:** Atriplex is an old Latin name for this plant, canescens means covered with short gray or white hairs. **Synonyms:** None

Atriplex linearis

thinleaf saltbush

General: Shrub 1–2 m high and wide. **Leaves:** Linear to narrowly oblong, the larger leaves often 1–3 cm by 2–4 mm. **Flowers:** Dioecious, enclosed in a sepal-like accrescent bracts. **Fruits:** Fruiting bracts 4-winged, often 5 mm and about as wide. **Ecology:** Found in dry places, sandy soils, dunes, flats, often saline soil below 3,000 ft (914 m); flowers May–July. **Notes:** Most floras identify this species as being below 2,500 ft (762 m), the specimen was documented in inventory work at Tumacácori. **Ethnobotany:** Seeds used for meal, yellow dye. Havasupai used it to make soap for hair washing and to treat itches and rashes. Hopi used the ashes as a substitute for baking soda. Navajo used it as an emetic, to treat ant bites, cough, and as a hair tonic. They also used it as feed for cattle, sheep and goats. **Etymology:** Atriplex is an old Latin name for this plant, linearis mean linear, or parallel sided. **Synonyms:** *Atriplex canescens* ssp. *linearis, Atriplex linearis*

Rhus aromatica var. *trilobata*

skunkbush sumac, squaw bush, lemonade berry

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General: Upright shrubs, deciduous; to 3 m tall, thicket-forming. Branchlets brown, becoming gray with age. **Leaves:** Alternate, ternately compound or simple; leaflets 1–4.5 cm long, lobed, often 3-lobed, margins coarsely toothed; shiny, dark green above, paler green beneath, glabrous or puberulent on one or both sides, turning red in fall. **Flowers:** Inflorescence in dense, spikelike clusters; lateral, arising from twigs of the previous years; 1–1.5 cm long; sessile. Ovate pinkish sepals, obovate pale yellow petals, to 3 mm long. **Fruits:** Drupes crowded in clusters; reddish-orange, rounded, 5–8 mm diameter, covered with short, sticky, red hairs. **Ecology:** Dry hillsides, canyons, and mesas from 2,500–7,500 ft (762–2286 m); flowers March–June. **Notes:** Ternately compound leaves; clusters of sticky, reddish-orange, hairy drupes; flowers appearing before leaves; strong citrusy odor when bruised. There is a bit of uncertainty surrounding this species. Anderson 2007 suggested that all species of *R. trilobata* and its varieties be subsumed under *R. aromatica*. Anderson treated the species as polymorphic, suggesting our species differed from those in the East by virtue of its sparsely pubescent fruits; secondly, he indicated that var. *trilobata* is more ill-smelling than its citrusy eastern counterpart. Anderson indicated several varieties of this species, but that the species be treated as one complex. **Ethnobotany:** Fruit is eaten raw. Leaves are chewed to alleviate stomachache. Oil from fruit is used to treat hair loss. Wild and tended forms very dfferent, so that tended shrubs have long, straight shoots used in basketry. Extensively tended in CA, AZ, for basketry materials (hats, baskets). Fruit sour but edible, often mixed with water for a refreshing beverage. Also ground into a meal, after drying in the sun. Fruits, leaves and bark used in making dye. Navajo used it to treat skin problems and stomach problems. Different parts are used for dying wool and baskets. **Etymology:** Rhus is derived from rhous, an ancient Greek name for Sumac, Trilobata refers to three lobed. **Synonyms:** *Schmaltzia anisophylla, Schmaltzia trilobata* var. *anisophylla*

Rhus lanceolata

© 2000 Wynn Anderson

prairie sumac, flame-leaf sumac

General: Deciduous large shrub, can grow as single trunked tree to 10 m or from suckers forming colonies. **Bark:** Bark light brown to gray, smooth with numerous lenticels when young, later large, thin scales. **Leaves:** Alternate, pinnately compound, lanceolate up to 12 inches long, 7 to 15 leaflets per leaf; leaflets narrowly lance-shaped and somewhat hooked, entire margins; rachis have prominent wings between the leaflets, shiny, dark green above, paler, slightly fuzzy below. **Flowers:** Monoecious, greenish-yellow to white and small, borne on 3–5-in wide, terminal, pyramidal panicle in mid to later summer. **Fruits:** Dark red drupe, borne on terminal cluster, covered with short, sticky, red hairs. Matures in fall, present through winter. **Ecology:** Found on rocky hillsides in limestone and calcareous soils; blooms July–August. **Notes:** Sumacs often thrive in the poorest soil and tolerate extremes of heat, cold, and drought. Larval host and nectar source for Hairstreak butterfly. **Ethnobotany:** Female plants produce berries that can be soaked in water for a tart but high in Vitamin C tea. **Etymology:** Rhus is derived from rhous, an ancient Greek name for Sumac, lanceolata 'lance-like' refers to the shape of the leaves. **Synonyms:** *Rhus copallina* var. *lanceolata*, *R. copallinum* var. *lanceolata*

Dasylirion wheeleri

sotol, desert spoon

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General: Large, succulent shrub emerging from a central thick, woody, subterranean caudex. Leaves: Linear, basally clumped, elongated about 1 m long, 3–4 cm broad, margins armed with sharp, curved spines. **Flowers:** Dense racemes in elongated panicles, stalk 1.5–5 m tall. Perianth about 2–2.5 mm long, sepals and petals thin, whitish, stamens longer than perianth, slender filaments. Catkinlike spikes. **Fruits:** Capsule 7–9 mm long, 6–8 mm broad, 1-celled, 3-winged. **Ecology:** Found on rocky or gravelly hillsides and slopes from 3,000–6,000 ft (914–1829 m); flowers May–July. **Notes:** Known to be eaten by livestock in years of extreme drought. **Ethnobotany:** Crowns pit-baked, crushed, and fermented for use as a beverage. Stalks roasted, boiled, eaten raw. Stalks used for cradleboard backs, as a source for material for basketry, mats, and for ceremonial purposes. **Etymology:** Dasylirion comes from the Greek root dasys 'shaggy, thick, hairy, rough', while wheeleri is named for George Wheeler (1842–1905) an early American explorer. **Synonyms:** None

Yucca elata

soaptree yucca

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General: Native shrub with definite trunk, rarely up to 9 m tall, not often over 1 to 2 m, simple with a few branches. Stalk can reach 9 m **Leaves:** Rigid linear leaves, sharp-pointed white margined, with curly filaments 2-5 cm long, about 5 mm wide, plano-convex. **Flowers:** Inflorescence a spreading panicle that extends well above foliage; closed to open, uppermost flowers racemose. Flowers campanulate to globose, 4-6 cm long, white to cream, pendant on slender to stout pedicels. **Ecology:** Mesas, desert washes, sandy plains, and grasslands from 1,500-6,000 ft (457-1829 m); flowers May-July. **Notes:** Plant arborescent. Fruits indehiscent and erect. Inflorescences racemose. Oblong-cylindric capsule, 4-7 cm long. Seeds dull black, with or without marginal wing. High drought tolerance, no fire tolerance. Bare-root and seed propagation. Livestock use leaves as secondary or seasonal food source. Woodrats, jackrabbits, and cottontails consume leaves and seeds. Mule deer consume leaves and inflorescence stalks, while pronghorn consumes inflorescence. It is cover for small mammals and birds, while birds also use it for perching. **Ethnobotany:** Flowers and buds were used as food. Roots used as substitute for soap, leaves used for basketweaving. **Etymology:** Yucca comes from Haitian for uuca, or manihot, because young inflorescences are sometimes roasted for food, while elata means tall. **Synonyms:** None

Ambrosia monogyra

2011 NPS/Steve Buckley

singlewhorl burrobrush

General: Slender shrub to 2.5 m, with multiple, slender, mostly erect stems branching above. **Leaves**: Sparse, drought deciduous, mostly 2–7 cm; young leaves of vigorous shoots often pinnately divided into several segments, upper leaves reduced and mostly entire. Leaves 0.5 mm wide, grooved above (involute) grooves filled with short, white, elongate-conical hairs. **Flowers:** Wind-pollinated, inconspicuous and monoecious, disk florets only, pistillate heads below staminate heads clustered in upper axils of branches. Membranous, spreading bracts of the fruiting head distinctive. **Fruits:** Fruiting bur spindle shaped 3.5–4 mm wide, bract wings in a single whorl, wings 0.8–1.4 mm wide, longer than wide. **Ecology:** Found on floodplains and along arroyos and washes from 1,000–4,000 ft (305–1219 m); flowers September–November. **Notes:** Thrives on disturbance created by occasional floods, seeds are transportable by flood making it an early successional floodplain species. **Ethnobotany:** Used as a remedy for abdominal pains, while the Seri used the seeds for food. **Etymology:** Hymenoclea is from hymen 'membrane' and kleio 'to encose, while monogyra refers to being in or with one circle. **Synonyms:** *Ambrosia monogyra*

Baccharis salicifolia

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mule's fat, seep willow, batamote

General: Perennial deciduous shrub 1–4 m tall. Willow-like branches grow long, tan, and wandlike. **Leaves**: Mostly 8–15 mm wide, alternate, strongly serrate, only sometimes denticulate to entire, sticky or resinous to glabrous, three-nerved. **Flowers:** Whitish-yellow, without petals, tubular-filiform pistillate heads in terminal, flat-topped clusters. **Fruits:** Small achenes have copious pappus 8–10 mm long, off-white. **Ecology:** Found along streams and drainages, often forms thickets, from sea level to 5,000 ft (0–1524 m); flowers April–October. **Notes:** Characteristic of riparian areas and often increases in degraded riparian areas, not grazed by livestock or wildlife, it is good erosion control. Readily reproduces from stem cuttings along stream channels, tends to form thickets. **Ethnobotany:** Used as a hair wash to prevent baldness, as an infusion it was used as an eyewash, while the young shoots were roasted and eaten as a famine food. The stems were used in house construction when mixed with adobe, and also for arrows to hunt small game. **Etymology:** Baccharis is named for Bacchus, the god of wine, salicifolia means salix-leaved. **Synonyms:** *Baccharis glutinosa, B. viminea, Molina salicifolia*

Baccharis sarothroides

desert broom

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General: Woody shrubs often 2–2.5 m with broomlike green branches, often nearly leafless. Twigs angled or striate-ridged. **Leaves:** Few, quickly deciduous leaves linear to linear-lanceolate reaching 1–3 cm, larger leaves often minutely toothed, most leaves much smaller or reduced to scales. **Flowers:** Cylindroid pistillate heads about 1 cm long, 5 mm in diameter, erose to ciliate membranous, outer phyllaries broadly ovate, inner ones linear. **Fruits:** Achene, 1.5–2.7 mm, 10-ribbed, pappus 7–11 mm. **Ecology:** Found in sandy-gravelly washes, watercourses, shallow drainages, flats, and low hills, sometimes in saline soil from 1,000–5,500 ft (305–1676 m); flowers September–December. **Notes:** Because of its evergreen nature often used as an ornamental, not particularly palatable to livestock or grazing. **Ethnobotany:** Infusions were used for coughs and stomach aches, while many stalks were tied together to make brooms and single stalks made arrows. **Etymology:** Baccharis is named for Bacchus, the god of wine, sarothroides means broom-like. **Synonyms:** None

Ericameria nauseosa

rubber rabbitbrush

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General: Native perennial shrub up to 2 m tall. Stem twigs flexible, covered with dense, felt-like tomentum. **Leaves**: Alternate, linear to filiform, up to 8 cm long; glabrous to tomentose. **Flowers**: Heads numerous in terminal clusters involucres 6–14 mm high; phyllaries in more-or-less vertical rows; flowers generally 5 per head, 6–12 mm long. **Fruits:** Achene **Ecology:** Open places in valleys, plains, and foothills from 2,000–8,000 ft (610–2440 m); flowers July–October. **Notes:** Larger than similar *Gutierrezia sarothrae*, with pale green stems and longer leaves. It has more and longer involucre bracts and flexible fleshy stems with more white pubescence on leaves. Two subspecies in Arizona; a total of 22 varieties, 10 of these in Arizona. Poisonous to mammals. **Ethnobotany:** Numerous uses as utilitarian items such as brooms, brushes, baskets, dye and arrows, and sometimes provide windbreaks. Bark makes green dye and flowers make yellow dye. Navajo used this plant for coughs, colds, fever, rheumatism, internal injuries, headach and menstrual pain. **Etymology:** Eric- is ancient root for heath or broom, amari means bitter and nauseosa means to vomit or be nauseous. **Synonyms:** *Chrysothamnus nauseosus*

Isocoma tenuisecta

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burroweed

General: Shrub to sub-shrub, .3–1 m tall and 1 m wide. Bark of larger branches gray. **Leaves:** Alternate, dark-green to gray, glandular, pinnately cleft into four to eight linear acute lobes. Main axis of leaves 2–3.5 cm long, about 1 mm broad, divisions .2–2 cm long, about 1 mm broad. **Flowers:** Yellow, discoid, with no ray flowers, arranged into dense terminal clusters. Flowers dry and turn a light brown but remain on stems. Bracts are glandular as well. **Fruits:** Achene with pappus of many coarse persistent bristles of uneven length. **Ecology:** Found on dry slopes, mesas, and alluvial plains from 2,000–5,500 ft (610–1676 m); flowers from August–October. **Notes:** Significant invader of depleted rangelands, often coming to constitute the principle cover. Susceptible to drought and is not fire tolerant. This plant is toxic to livestock. **Ethnobotany:** No known uses. **Etymology:** Isocoma is from the greek meaning 'an equal hair-tuft' referring to flowers, while tenuisecta means thinly or narrowly cut. **Synonyms:** *Happlopappus tenuisectus*

Chilopsis linearis

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desert willow

General: Native tree or shrub reaching 10 m at maturity. Bark is dark and ridged on older stems. **Leaves:** Whorled, opposite or alternate; simple, deciduous; very long linear less than 15.2 cm long, 10 mm wide, curved. **Flowers:** Large, 2-lipped, showy, 2.5 cm long; white to purplish, fragrant; in clusters of several. Fruit: Long slender capsule 10.2–20.3 cm long, 6 mm diameter; two halves persistent in winter, seed flat with 2 hairy wings. **Ecology:** Found along washes in deserts and foothills from 1,500–5,500 ft (457–1740 m); flowers April–August. **Notes:** Diagnostic characters of this plant are its very long slender and whorled leaves, long, slender pod, and the strikingly beautiful bilabiate flowers. The Flora of Arizona project identifies the only extant subspecies in the state as ssp. *arcuata*, which is characterized by its arcuate, drooping leaves. **Ethnobotany:** Havasupai used in basketry. Hualapai used to make cradleboards. It is a good anti-fungal and general antimicrobial. **Synonyms:** None

Celtis ehrenbergiana

spiny hackberry

2011 NPS/Steve Buckley

General: Densely branches shrub 1–6 m high. Paired, straight spines and short, lateral thorn-tipped branches. Leaves: Subentire to serrate, ovate to elliptic, 1–3 cm long, 0.6–2 cm wide. **Flowers:** Perfect, staminate, and pistllate, greenish yellow flowers in small cymes growing at leaf base. **Fruits:** One seeded drupe, yellow or orange 5–8 mm in diameter. **Ecology:** Common along washes and on rocky and gravelly slopes, occasionally dominates bajadas, grows in Sonoran desertscrub and semidesert grassland from 1,500–4,000 ft (457–1219 m); flowers March–April and again July–October. **Notes:** Paired spines at node distinguish this shrub from other thorny, simple-leaved shrubs in the region. **Ethnobotany:** Wood is used for fuel and fence posts, many birds and animals eat drupes and use shrub for cover. **Etymology:** Celtis is a Greek name for the tree, while its old name pallida means pale. **Synonyms:** *Celtis pallida, C. spinosa* var. *pallida, C. tala* var. *pallida, Momisia pallida*

Celtis reticulata

netleaf hackberry

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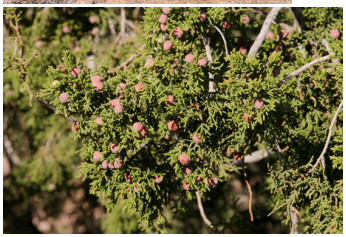
General: Trees or shrubs with a rounded crown up to 10 m, bark is smooth or warty with age, gray to whitish. **Leaves**: Alternate, simple, deciduous, two-ranked, ovate, less than 5 cm long, asymmetrical; thick with 3 primary veins but numerous cross veins (hence reticulate); scabrous above. **Flowers:** Small, greenish. **Fruits:** Orange-red drupe 6 mm diameter; dry, sweet, 1 hard seed. **Bark:** Smooth, gray becoming rough with large corky warts on trunk. **Ecology:** On dry slopes, often on limestone or basalt, ravine banks, rocky outcrops, 1,000–7,500 ft (300–2300 m); flowers March–May. **Notes:** Diagnostics include: asymmetrical, scabrous leaf; corky warts on bark; witches brooms and galls; reticulate venation undersurface. **Ethnobotany:** Fuel, posts, wildlife food; Navajo–Kayenta use medicinally to treat indigestion. **Etymology:** Celtis is a Greek name for the tree, while laevigata means smooth or slippery, lustrous or shining, reticulata means net-veined. **Synonyms:** *Celtis douglasii, C. occidentalis* var. *reticulata, C. reticulata, C. reticulata* var. *vestita*

Juniperus coahuilensis



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redberry juniper

General: Evergreen small tree or large shrub 1–4.5 m with spreading branches forming an irregular, open crown; bark is shreddy but formed close to trunk, ashy gray to brown; multi–trunked at base. **Needles:** Erect branchlets with tricussate, scalelike, appressed leaves green to light green, abaxial glands obvious and elliptic to ovate. **Cones:** Dioecious terminal pollen cones, 3–4 mm long, oblong; seed cones terminal, 10–12 mm long, spheric to ovoid, bluish but maturing blue–brown to reddish–brown the second year; dry, hard, and fibrous. **Seeds:** Ovulate cones contain 1–3 seeds per, ovate to pyriform, grooved, tip acuminate. **Ecology:** Found on dry, well–drained soils in full sun, from 4,000–6,500 ft (1372–1981 m); flowers October–November. **Notes:** The complex of *Juniperus* can be confusing in the field, but with fruit this species stands apart. Absent that, it can be difficult to distinguish it from *J. monosperma* in the field, the only apparent point of departure between the two is the glands on *J. coahuilensis* are covered (more than 25 percent) by conspicuous white resin. **Ethnobotany:** Used for fuelwood and posts, mats, saddles, fleshy cones were ground for flour. Seeds when dried used for beads, often as measure of protection. **Etymology:** Juniperus is the Latin name for Juniper, Coahuilensis is named for the type specimen from Coahuila, Mexico. **Synonyms:** None

Editor's Note: The junipers are actually gymnosperms, or plants with naked seeds. But because this is the only species from the gymnosperms, we have included it here. Please note that this species does not have flowers and has cones with a naked seed, rather than a seed enclosed by an ovule as is found in the angiosperms.

Calliandra eriophylla

fairyduster

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General: Spreading shrub growing to 1 m high, with unarmed light gray to whitish stems. Young stems and twigs densely to moderately pubescent with short white hairs. **Leaves:** Widely spaced leaves twice-pinnate with 2–4 pairs of pinnae, each with 7–9 (occasionally 10) pairs of leaflets 2–3 mm long. Generally cold deciduous. **Flowers:** Showy, dense spherical heads 4–5 cm in diameter. Corollas 5–6 mm long and inconspicuous; stamens showy, pink, rose, or reddish purple up to 1.5 cm long. **Fruits:** Linear velvety pods 5–7 mm wide and 3–7 cm long with thickened margins. **Ecology:** Grows along washes, on slopes and mesas, typically low and creeping, from 2,000–5,000 ft (762–1676 m); flowers February–April, occasionally September–October. **Notes:** Readily identifiable because of its stamens. **Ethnobotany:** Decoction taken as a gynecological aid after childbirth by Yavapai. **Etymology:** Calliandra is from Greek kallos 'beautiful' and andra 'stamen', while eriophylla is from Greek erion 'wool' and phyllon 'leaf' referring to matted white hairs that cover the plant when young. **Synonyms:** *Calliandra eriophylla* var. *chamaedrys, C. eriophylla* var. *eriophylla*

Mimosa aculeaticarpa

catclaw mimosa, wait-a-minute bush

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General: Shrub or small tree 0.6–2 m with paired recurved thorns at the nodes. **Leaves:** Twice pinnate leaves with 4–7 pairs of pinnae, each with 6–13 pairs of leaflets 2 mm long. **Flowers:** Capitate cluster about 15 mm broad, pink or white. **Fruits**: Pod 4 mm wide, curved, valves not jointed, with marginal prickles. **Ecology:** Grows in thickets on hills and canyon slopes and along washes from 3,000-6,000 ft (1067–1981 m). **Notes:** Common shrub in thickets, chaparral, good honey plant, soil binder; eatable pods. Diagnostics include: stout recurved spines in pairs, broadened far above base; round flower head; fruit NOT jointed. Taxonomists recognize var. *biuncifera* as a distinct species, found in the semidesert grassland and Madrean evergreen woodlands, while *M. aculeaticarpa* is a more widespread species in the Sonoran Desert. Both are documented at Tumacácori. **Ethnobotany:** Pods of this plant were ground into a meal. **Synonyms:** *Mimosa biuncifera*

Parkinsonia aculeata

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Mexican palo verde, Jerusalem thorn

General: Trees with well-developed trunk smooth, green bark on upper branches and brown, rough bark on trunk and main limbs, to 12 m tall. Young twigs have paired nodal, spines with small white hairs, soon becoming glabrous. **Leaves:** Leaves obscurely twice-pinnate, with reduced primary rachis, 1–3 flattened pinnae, up to 30 cm long, with 10–40 pairs of ephemeral leaflets 2–8 mm long. **Flowers:** On racemes 10–16 cm, relatively few-flowered; showy, 27–35 mm wide, sepals and petals yellow, banner petal at first with basal red-orange spots or flecks, anthers pale orange to somewhat rose colored. **Fruits:** Pods few seeded, more or less indehiscent or tardily semidehiscent. **Ecology:** Found along arroyos, sandy plains, or other low-lying areas where water accumulates in the low desert from 3,000–4,500 ft (914–1372 m); flowers March–May, occasionally post-monsoon. **Notes:** The flattened pinnae and the brown bark on the trunk and main branches set *P. aculeata* from the other *Parkinsonia*. Not considered a native, instead it is widely planted and its range is expanding as a consequence. **Ethnobotany:** Many tribes to seeds winnowed, parched, dried, cooked and stored them for food. **Etymology:** Parkinsonia is named after John Parkinson (1567–1650), while aculeata means prickly. **Synonyms:** None

Parkinsonia florida

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blue paloverde

General: Large shrubs to small trees reaching 7–10 m tall with a well-developed trunk. Small straight spines borne singly at nodes. Bark of twigs and branches bluish green, while older trunks are often gray. **Leaves:** Leaves are pinnate with single pair of pinnae, with 2–4 pairs of obovate leaflets 4–8 mm long, darkening when dried. **Flowers:** Found in terminal racemes, 22–28 mm wide, calyx green to yellow-green, lobes reflexed; Petals bright yellow, banner with small orange-red spots basally. **Fruits:** Straw colored oblong pods 4–10 cm long moderately flattened, mostly indehiscent, seeds 1–6. **Ecology:** Generally found along washes, plains, and canyons, sometimes on slopes from sea level to 4,000 ft (1219 m); flowers March–April. **Notes:** Larger than most other species of this genus. **Ethnobotany:** The seeds were dried and roasted before being ground into meal for mush or cakes. Green pods can be eaten raw, similar to edamame (soybean) in texture. The wood was used for carving ladles. **Etymology:** Parkinsonia is named after John Parkinson (1567–1650), florida refers to either free-flowering, abundant flowers or bright. **Synonyms:** *Cercidium floridum, C. floridum* ssp. *floridum*

Prosopis velutina

velvet mesquite

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General: Common, shrub or tree, reaching to 17 m. **Leaves:** Alternate, deciduous, bipinnately compound, with 1 or 2 pairs of pinnae each with 9–30 pairs leaflets; leaflet 4–13 mm long, oblong, closely spaced on stalk; paired straight stipular spines 1–2 cm borne at nodes. **Flowers:** Greenish yellow flowers in spikelike racemes 5–12 cm long. **Fruits:** Legume 7.6–20.3 cm long, pubescent, non-dehiscent, sweetish pulp. **Bark:** Dark brown, thick, long narrow strips. Hard, heavy, reddish-brown, yellow sapwood. **Ecology:** Common along washes, in bottomlands, slopes and mesas from 3,000–5,500 ft (914–1675 m). **Notes:** Diagnostic features include: bipinnate leaf with 1 or 2 pairs of pinnae, always with hairs; stout, straight stipular spines; pubescent leaves, twigs, pods. **Ethnobotany:** Excellent fuel, charcoal, posts, novelties, cattle eat the pods, browse, honey; grassland invader; pods make highly edible flour. **Etymology:** Prosopis was a Greek name for burdock (seemingly misnamed), while velutina refers to velvet-like. **Synonyms:** *Neltuma velutina*, *Prosopis articulata*, *P. chilensis* var. *velutina*, *P. juliflora*, *P. juliflora* var. *articulata*, *P. juliflora* var. *velutina*

Senegalia greggii

catclaw acacia

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General: Native shrub or tree reaching to 6 m or more. Leaves: Alternate, deciduous, bipinnately compound; 2.5–7.6 cm long, with 2 or 3 pairs of pinnae, each with 4–6 pairs leaflets; pinnae 1–1.5 mm long. **Flowers:** Cream colored, fragrant, spikes 5.1 cm long, 13 mm diameter; summer. **Fruits:** Legume 5.1–12.7 cm long, 13 mm wide, flat, often twisted and narrowed between seeds; persists into winter. **Wood:** Hard, heavy, sapwood cream to yellow; heartwood, reddish-brown. **Ecology:** Found on flats, washes, and slopes below 5,000 ft (1524 m). **Notes:** Diagnostics include: small double-compound leaves less than 7.6 cm long; very stout recurved solitary spines; flat twisted pod constricted between seeds. **Ethnobotany:** Disagreeable because of stout spines, tool handles, fuel, good honey plant, quail, ground up into a meal. Used as an astringent, emollient, disinfectant, antiinflammatory. Havasupai used in basket making. **Etymology:** Acacia is from Greek akakie taken from ake or akis, 'a sharp point, greggii is reference to Josiah Gregg (1806–1850), a frontier trader and author who worked with Dr. George Engelman. **Synonyms:** *Acacia greggii*

Vachellia constricta

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whitethorn acacia

General: Spreading shrubs to 3 m, symmetrical with generally straight branches. Bark smooth, light gray to mahogany-colored, lower branches spreading near ground level. Stipular spines in pairs at the nodes of the stems, usually white, 1–3 cm. **Leaves:** Winter deciduous and tardily drought deciduous, even-pinnate, 3.5–4 cm long, the pinnae 3–9 pairs, leaflets many 1.5–3 mm. Petioles with a prominent nectary gland. **Flowers:** Fragrant, bright yellow in rounded heads about 1 cm in diameter. **Fruits:** Pods 4.5–13.5 cm long by 4–6 mm width, constricted between each seed, moderately compressed, reddish with viscid glands, gradually dehiscent. **Ecology:** Found along washes, on slopes and mesas from 2,000–6,500 ft (610–1981 m); flowers April–June. **Notes:** Specimens are thought to be var. *paucispina*, which is described as one with few or no spines and less glandular leaves. Many taxonomists reject this taxon because it is not clear because spininess is variable. **Ethnobotany:** Seri made a tea from the mashed seeds and leaves to relieve diarrhea or upset stomachs. Powdered, dried pods and leaves have been used to treat skin rashes, medicinal tea can be made from the roots. **Etymology:** Acacia is from Greek akakie taken from ake or akis, 'a sharp point, while constricta refers to constricted or contracted. **Synonyms:** *Acacia constricta*

Fouquieria splendens

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ocotillo

General: Long-lived desert "shrub" 3–5 m tall, with slender wandlike spiny branches from reduced trunk. Adults have 12 or more branches. **Leaves**: Short-shoot leaves appear after ground-soaking rain, turning yellow with hot weather or high soil moisture. Flowers: Dense panicles at branch tip, often 19–24 cm, with conspicuous leafy bracts falling at about anthesis. Bright red-orange, the corolla lobes reflexed. **Fruits:** Capsule with 6–15 flat, papery-winged seeds. **Ecology:** Found on dry, rocky or gravelly slopes and sandy plains from sea level to 5,000 ft (0–1524 m); flowers February–March. **Notes:** Very distinct plant in our region, particularly good for hummingbirds. **Ethnobotany:** Blossoms soaked for a summer drink, as a blood purifier and tonic, while seeds were parched and ground into flour for mush or cakes. Papago pressed the nectar out of blossoms, hardened it like rock candy and chewed. Flowers sucked for nectar. Stems used for fences and houses. Apache use it powdered root paste to ease swelling and a gum from the bark used to wax leather. **Etymology:** Fouquieria is named for Pierre Eloi Fouquier (1776–1850) a French physician, professor of medicine and naturalist, while splendens means splendid. **Synonyms:** *Fouquieria splendens* ssp. *splendens*

Juglans major

Arizona walnut

2009 NPS/Beth Fallon

General: Tree up to 15 m tall, with a trunk diameter of 1 m or more, but usually much less. Bark is grayish-brown, furrowed on mature trees. **Leaves:** Alternate, 15–30 cm long, odd-pinnate with mostly 9–15 leaflets, coarsely serrate, acuminate at apex, cuneate, rounded or somewhat asymetrical at the base, pubescent when young, later glabrous or nearly so, yellowish-green. **Flowers:** Greenish catkins. **Fruits:** Round, brown-haired husks about 2–3 cm in diameter, with deeply grooved. **Ecology:** Along streams and in canyons in all counties in Arizona from 3,500–7,000 ft (1000–2100 m). **Notes:** Diagnostic characteristics include large alternate, odd-pinnate, fragrant leaves, and 2–3 cm diameter dark brown husks that surround the fruit. Monoecious. **Ethnobotany:** Nutshells were used to make brown dye. Nuts eaten by Chiricahua and Mescalero Apache, Hualapai, and Navajo. The Yavapai make a decoction of purverised nut juice as a drink, trees used in building lodges by Mescalero. **Etymology:** Juglans is Latin for walnut. **Synonyms:** *J. elaeopyren, J. microcarpa* var. *major, J. rupestris* var. *major*

Krameria erecta

littleleaf ratany

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General: Low shrub often 0.3–0.5 m, usually less than 1 m across, with many short, crowded, spreading branches. Stems tough and woody with gray bark, upper branches knotty due to many short spur branches. Densely pubescent herbage and grayish with short white hairs, stems root at nodes. **Leaves:** Alternate, linear 3–9 long by 0.8–1.3 mm wide, drought deciduous, sessile. **Flowers:** Showy, about 1.5 cm in diameter, solitary or in short racemes with leafy bracts. Sepals bright magenta-purple inside, white hairy outside. Filaments whitish, anthers dull cream colored, styles magenta-purple. **Fruits:** Globose and moderately compressed, about 6 mm wide, with spines about 3.5 mm with small barbs more or less evenly distributed along upper part of shaft. **Ecology:** Found on sandy, gravelly plains adjacent to mountains and rocky hills from 500–5,000 ft (152–1524 m); flowers at various times during the year. **Notes:** Plant is in part a root parasite on other species. Palatable to both livestock and wildlife. **Ethnobotany:** Used predominantly as a red dye and as a poultice of root for sores. **Etymology:** Krameria named after Johann Georg Heinrich Kramer (1684–1744) and Austrian physician and botanist, while erecta means upright. **Synonyms:** *Krameria glandulosa, K. imparta, K. parvifolia, K. parvifolia* var. *glandulosa, K. parvifolia* var. *imparata*

Morus microphylla

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Texas mulberry, littleleaf mulberry

General: Shrub or small tree with smooth, light gray bark, up to 11 m tall. **Leaves**: Smaller than other *Morus*, blades up to 7 cm long, roughly ovate, frequently lobed, with toothed margins, extended tip, rounded or slightly lobed base. **Flowers:** Inconspicuous, drooping clusters. **Fruits:** Cluster of minute, fleshy, berrylike fruits from red to black. **Ecology:** Found on hillsides, slopes, in canyons from 3,500–5,000 ft (1067–1524 m); flowers March–April. **Notes:** Eaten by many birds, leaves are a favorite food for worms. **Ethnobotany:** Berries eaten raw, dried and used as a spread, or pressed into pulpy cakes, dried and stored. Twigs split in half lengthwise to make baskets. **Etymology:** Morus is the classical name for mulberry, microphylla refers to being small-leaved. **Synonyms:** *Morus confinis, M. crataegifolia, M. grisea, M. radulina* to make bows, and as a sharp tool for gathering mescal agave. **Etymology:** Velutina refers to velvety. **Synonyms:** *F. pennsylvanica* ssp. *velutina, F. velutina* var. *coriacea, P. velutina* var. *glabra, P. velutina* var. *toumeyi*

Fraxinus velutina

velvet ash

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General: Small to medium sized trees, 8–9 m tall, occasionally reaching 12–15 m tall; 30–45 cm in diameter; rounded crown composed of many thin, spreading branches. Bark is gray to grayish-red, furrowed and zig-zagged. Opposite branching twigs light gray and covered with small, fine hairs, becoming shiny gray and hairless with age; buds approximately .3 cm in length, comprised of three slightly hairy, oval-shaped scales; large, dark chocolate buds with fine, dark hairs. **Leaves:** Leaves opposite, pinnately compound, 10–13 cm in length; 3–5 elliptical or oval leaflets with pointed tips; leaflet margins may be finely round toothed; pale green and shiny above, green and slightly hairy below; young leaves covered with velvety hairs. **Flowers:** Flowers covered by bud scales with dense hairs; clusters of inconspicuous flowers on thin stalks. **Fruits:** Samara flat, paddle shaped 2 cm in length and 0.75 cm wide; paddle end may be slightly notched. **Ecology:** Moist soils along streams and riparian areas from 3,000–7,000 ft (914–2134 m); flowers March–May. **Notes:** Characterized by opposite leaves, with 3–5 leaflets having pointed tips, and winged fruits. Low palatability for livestock, deer will browse and over browse when other preferred species not available. Provides habitat for wild ungulates and small rodents, as well as nesting sites for songbirds and other avian species. Host plant for Two-Tailed Swallowtail butterfly. **Ethnobotany:** Hualapai used wood to make bows, and as a sharp tool for gathering mescal agave. **Etymology:** Velutina refers to velvety. **Synonyms:** *F. pennsylvanica* ssp. *velutina, F. velutina* var. *coriacea, P. velutina* var. *glabra, P. velutina* var. *toumeyi*

Platanus wrightii

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Arizona sycamore

General: Fast growing deciduous tree to 25 m, trunks erect to inclined or basally reclined or prostrate, white bark, plated appearance with older brown bark and younger whitish bark beneath. Branches are lateral buds hidden by leaf petiole. **Leaves:** Alternate, simple, 3–5 lobed less than 25 cm long, older leaves paler undersurface. **Flowers:** Male and female in clusters of 2–5 balls each. **Fruits:** Brownish ball (multiple of achenes) 2.5 cm diameter, in clusters of 2–4 per stalk; gradually break up through fall to winter. **Ecology:** Found in canyons and along riparian streams from 2,000–6,500 ft (610–1981 m); flowers April–May. **Notes:** Ornamental, shade tree, stream bank erosion control. Diagnostic character is the mottled bark, which is brown with whitish and greenish patches. Needs to have its feet wet, usually indicative of good riparian habitat. Older growth *P. wrightii* indicative of excellent Elegant Trogon habitat in southeastern Arizona sky islands. **Ethnobotany:** Fuel, shelter for small mammals and birds. **Etymology:** Platanus is Greek platanos for the long-lived oriental plane tree, wrightii is for Charles Wright (1811–1885) an American botanical collector who was on the Mexican Boundary Survey. **Synonyms:** *Platanus racemosa* var. *wrightii*

Ceanothus greggii

2009 NPS/Beth Fallon

desert ceanothus

General: Intricately branched shrubs 0.5–2 m tall. Bark is gray with branches opposite, stiff but not spiny. **Leaves**: Opposite, petioles only 1–3 mm long, blades narrowly ovate to elliptic or obovate, 5–18 mm long, 3–10 mm wide, entire to dentate, dark green above, paler and distinctly pinnate-veined beneath. **Flowers:** Infloresence in small umbel-like clusters, clayx lobes about 2 mm long, whitish, petals white slightly longer than the calyx. **Fruits:** Capsule globose, slightly 3-lobed, 3–5 mm in diameter. **Ecology:** Grows on dry, rocky slopes, foothills, canyons, gullies and in erosion channels from 3,000–7,000 ft (915–2135 m); flowers March–April. **Notes:** Diagnostic characteristics include its lack of thorns, grayish bark, and leaves that are distinctly pinnate veined beneath. Some nitrogen fixation. Provides cover for wildlife, while small mammals and quail eat seeds. Host plant for Hedgerow Hairstreak butterfly. **Ethnobotany:** Important medicinal root for cleansing lymphs and blood. Berries eaten once sweetened with sugar, inner bark also edible. Used for tonsil inflammation, sore throats and enlarged lymph nodes. **Etymology:** Named after Josiah Gregg (1806–1850), frontier trader and author, who sent many specimens to Dr. George Engelmann in St. Louis from little known areas of the southwest. **Synonyms:** None

Condalia globosa

bitter snakewood

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General: Shrubs to small trees 1–4.5 m, more or less symmetrical and densely-branched, often with short, thick trunks. Branches and twigs rigid, twigs thorn-tipped. **Leaves**: Spatulate, entire, 3–12 mm long and 1.6–5 mm wide, may be alternate or fasciculate, lower surface has 3–4 pairs of prominent veins. Larger leaves petioled, the smaller leaves subsessile. **Flowers:** In small axillary clusters, yellowish green , about 3 mm wide, the disk at anthesis awash with sticky glistening nectar, no petals. **Fruits:** Globose drupes 3–5 mm long, black and very bitter at maturity. **Ecology:** Occasional to common in sandy washes, rare on rocky slopes, grows below 4,500 ft (1372 m); flowers March–May and October–December. **Notes:** To tell apart from *C. mexicana*, *C. corelleii* one need only look at the spatulate, dull green leaves. The presence of this and a petiole, combined with a more diffusely branched architecture help to diagnosis it. **Ethnobotany:** Papago ate the fruits raw. **Etymology:** Condalia is named after Antonio Condal, and 18th century Spanish physician and botanist, globosa refers to the globose fruits. **Synonyms:** None

Condalia correllii

Mexican bluewood

General: Shrubs or small trees, openly branched, 1–2 m tall, 1–1.5 m wide. Several stems, bark light gray to whitish, primary lateral branches spreading to divergent, secondary lateral branches thorn-like. **Leaves:** Obovate, 8–16 mm long, 4–6 mm wide, acute to mucronate, bright green, sparsely hispidulous; veins inconspicuous. **Flowers:** Borne on delicate elongate, secondary shoots; sessile or with pedicels less than 0.5 mm long. **Fruits:** Drupe with stone distinctly longer than wide, 5–7 mm long, 3–5 mm wide. **Ecology:** Found on dry slopes, drainages, canyons, from 4,000–5,000 ft (1219–1524 m); flowers July–September. **Notes:** Confusion! Usual systematic madness. The collection from Tumacácori has been identified as *C. correllii* under a 1962 revision of the genus and the Flora of Arizona project does not even include *C. correllii* as a possibility, although *C. mexicana* is identified only from collections in Cochise county. Some consider *C. correllii* to be a segregate of *C. mexicana*, even the revision considers that *C. correllii* could be easily considered a variety of *C. mexicana*. **Ethnobotany:** Unknown for this species, although the berries of other species in the genus are eaten. **Etymology:** Condalia is named after Antonio Condal, and 18th century Spanish physican and botanist, mexicana refers to the type specimen being from Mexico. **Synonyms:** None

Ziziphus obtusifolia

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lotebush

General: Shrubs to 4 m tall, armed. Stems green to gray, or brown, canescent to glaucous, branchlets thorn-tipped, occasionally with axillary recurved thorns, thorn tips glabrous and brown. **Leaves:** Thin or thick, deciduous; stipules triangular, petioles 0.5–5 mm long, blades linear to narrowly elliptic to oblong or ovate, 5–20 mm long, 2–15 mm wide, green to pale green, glabrous to canescent, margins entire to serrate or crenate. **Flowers:** Inconspicuous, 2–15 per inflorescence, hypanthium 1–2 mm long, glabrous to canescent, sepals yellowish green, glabrous to canescent, petals about 1 mm, white to light green, stigma 2-lobed. **Fruits:** Blue to purple to black with white waxy bloom, 5–8 mm wide, pedicles become thicker in fruit, flower cup persistent. **Ecology:** Found on mesas, canyon slopes, desert grasslands and along drainages from 1,000–5,000 ft (305–1524 m); flowers May–September. **Notes:** To discern from *Condalia*, the following characteristics are found in *Ziziphus*: inflorescence a cyme, three nerved basal venation, no thorn tipped branches, ovate or oblong branches, stipular spines, easily falling seeds. Two varieties in the region: var. *obtusifolia* and var. *canescens*. Var. *obtusifolia* is found on gypsum soils in Cochise Co., about 3 m tall, thin, glabrous leaves, with a glabrous hypanthium, and fruits 7–8 mm wide. *Ziziphus obtusifolia* var. *canescens* is more widespread, to 4 m tall, leaves thick, mostly canescent, hypanthium canescent, fwith fruits about 5–8 mm wide. **Ethnobotany:** A decoction from the roots of var. *canescens* was used to treat sore eyes by the Pima and roots have been used in place of soap. **Etymology:** Ziziphus comes from the Persian word zizufun or Arabic zizouf, the Arabian name for a shrubby Mediterranean tree, obtusifolia means obtuse- or blunt-leaved. **Synonyms:** None for *Z. obtusifolia*, several for both varieties, see Tropicos

Populus fremontii

Fremont cottonwood

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General: Trees up to 30 m tall with open crown, whitish, smooth bark, that is deeply furrowed at maturity and twigs stout, glabrous or nearly so. **Leaves**: Leaves glabrous, the blades deltoid 4–7 mm long and about as wide or wider, slightly cordate or cuneate at base, sharbly pointed at the tip, coarsely and irregularly dentate, bright green. Petioles flattened laterally, nearly as long as the blades. **Flowers:** Catkins 4–5 cm long, stamens 60 or more. **Fruits:** Capsule up to 12 mm long. **Ecology:** Found along streams banks and near lakes and ponds from 6,500 ft (1981 m) and lower; flowers March–June. **Notes:** Identified by its coarsely-toothed, delta-shaped leaves, larger size, and spreading crown. Good nesting habitat for birds, especially cavity nesters. Beavers, elk, deer, and squirrels feed on it, horses eat inner bark, but only fair to poor livestock palatability. Host plant for Red-spotted Admiral, Viceroy, and Swallowtail butterflies. There is potential that ssp. *mesetae* (which may simply be ssp. *fremontii*) enters Arizona but would require more taxonomic investigation. **Ethnobotany:** Hopi frequently use this specific species for Katsina dolls. For the Navajo many household game pieces were made with cottonwood. **Etymology:** Populus is Latin for "people" because the many moving leaves in a breeze resemble a moving populace. **Synonyms:** None

Salix gooddingii

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Goodding's willow

General: Deciduous, medium to large sized trees to 25 m or more. Bark is thick and gray; split into many furrows and ridges. Twigs yellowish and hairy; smooth buds with a single conspicuous bud scale margin. **Leaves:** Leaves linear to very narrowly elliptical, but widest at the base, 6–13 cm long and 0.8–1.6 cm wide; margins finely toothed; upper and lower surfaces green to yellow green and hairless. **Flowers:** Catkins yellowish, 2–8 cm long. **Fruits:** Short stalked and hairy capsules 3–7 mm long, containing many cottony seeds. **Ecology:** Along streams, and in canyons and wet meadows up to 7,500 ft (2286 m); flowers March–June. **Notes:** Can be distinguished by its lance shaped, entirely green leaves, hairy yellowish twigs and its conspicuous bud scale margins. A similar species *S. laevigata* has wider leaves, whitish leaf undersides and more reddish twigs. Rapid growth and resprout ability. Coppice potential. High fire, medium drought tolerance. Propagated with cuttings, bare roots, and seeds. Preferred food for beavers, and is used in beaver dams. Stands provide habitat for many types of wildlife, as well as providing shade for streams and ponds. Major source of browse for elk and deer, while shoots buds, and catkins eaten by birds and small mammals. Highly palatable to livestock and wild ungulates. Host plant for Mourning Cloak butterfly. **Ethnobotany:** Not a valuable commercial species in Arizona. Its close relative *S. nigra* has been harvested comercially in the southeast U.S. for furniture and building materials. Pima used this species in basket making. **Etymology:** Salix is the Latin name for willow, meaning 'to leap or spring', while goodingii is named after Leslie Newton Gooding (1880–1967), botanist and collector, one of the first to explore the southern Arizona area. **Synonyms:** None

Salix taxifolia

yewleaf willow

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General: Slow growing large shrub or tree up to 12 m tall, trunk 50–70 cm diameter, bark rough and fissured. **Leaves:** Linear or linear-lanceolate, entire or dentate with few obscure teeth toward apices, 2–4 mm long by 1–4 mm wide, sessile or subsessile. **Flowers:** Catkins, yellow, deciduous, 2 separate stamens, stigmas 0.5–0.7 mm long, slender. **Fruits:** Capsule, densely appressed-hairy, silky, reddish brown. **Ecology:** Found along streams and washes from 3,500–6,000 ft (1067–1829 m); flowers May–July. **Notes:** Easily identifiable by its remarkable similarity to yew leaves, and almost silvery gray cast. **Ethnobotany:** Inner bark can be dried and ground into a powder made into bread, very bitter flavor, only considered a famine food. Bark contains salicin, which decomposes into salicylic acid (aspirin), used as anodyne, febrifuge, and as remedy for malaria. **Etymology:** Salix is the Latin name for willow, meaning 'to leap or spring', while taxifolia refers to the leaves being like yew, from the genus Taxus. **Synonyms:** *Salix taxifolia* var. *lejocarpa*, *S. taxifolia* var. *limitanea*, *S. taxifolia* var. *seriocarpa*

Impact risk level H **M** L

Ailanthus altissima

tree of heaven

General: Highly invasive tree, native of China, reaches 15 m in only 25 years. Bark is smooth and light gray, often becoming rougher with light tan fissures. **Leaves**: Large, odd or even pinnately compound arranged alternately on stem, from 30–90 cm in length with 10–41 leaflets in pairs, largest leaves found on vigorous young sprouts. Rachis is light to reddish green with swollen base. Leaflets are ovate-lanceolate with entire margins. **Flowers:** Dioecious, small, appear in panicles up to 50 cm long, flowers yellowish green to reddish, five petals and sepals. **Fruits:** Samara, twisted at tips, to aid in wind dispersal, 2.5 cm long, 1 cm broad. **Ecology:** Found widespread in US, highly invasive; flowers April–July. **Notes:** Host plant for the ailanthus silkmoth, brought to US in 1784. Allelopathic, so it spreads quickly as it colonizes disturbed areas. Thought to be the fastest growing tree in North America. **Ethnobotany:** Used in Chinese medicine as an astringent, wood can be used for cabinetry, the dried bark is actually a listed Chinese medicine, some treatments listed as antimalarial agent, for cardiac palpitation, asthma, and epilepsy. **Etymology:** Ailanthus is form a Moluccan name ailanto meaning 'sky tree', while altissima means very tallest. **Synonyms:** *Ailanthus glandulosa*

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Lycium andersonii

© 1998 Larry Blakely

wolfberry, water jacket

General: Thorny rounded shrub 0.5-3 m high with densely branched, spinose ridgid branches and flexuous, silvery-white to tan barked twigs. **Leaves:** Alternate or clustered, sessile or on petiole 1-3 mm, mostly linear to linear-spatulate, 1-2 mm wide, 3-16 mm long, rounded to acute at apex, tapers to base. **Flowers:** Pedicel 3-9 mm long, filiform; calyx shallowly campanulate, glabrous to sparsely puberulent, 1-2.5 mm long, irregularly 4-5 toothed, teeth one-fourth as long as tube, sparsely ciliolate, stamens equaling corolla tube or exserted 2-3 mm, dingy-lavender; filaments adnate to basal one-third of corolla tube, sparsely pilose on lower part of free portion; style about equaling stamens. **Fruits:** Berry ellipsoid to ovoid, bright orange-red, 3-9 mm, juicy, with multiple seeds. **Ecology:** Found along arid washes and arroyos, bajadas, rocky slopes, mesas and foothills up to 5,500 ft (1676 m); flowers February-May, rarely August-September. **Notes:** Three recognized varieties in the area: var. *wrightii* whose leaves are broadly spatulate to obovate; var. *andersonii* whose leaves are 3-16 mm, linear terete to narrowly spatulate; and var. *deserticola* whose leaves are 20-35 mm, narrowly spatulate to spatulate. Some taxonomists place var. *deserticola* and var. *andersonii* as probably indistinct. Var. *andersonii* is the most widespread of the three species. Clarity is necessary for the genus, take a specimen and get identification. Similar to *L. exsertum* in stamens and adnate hairy filament bases, differs in non-pendulous flowers. Told apart from *L. berlandieri* by the lighter colored bark. **Ethnobotany:** Berries were eaten fresh and dried, dried for winter use, boiled into mush or ground into flour, or made into a drink. **Etymology:** Lycium is from Greek name Lykion used to describe a thorny tree or shrub, andersonii is named after Robert Clark Anderson (1908–1973) a USFS forest ranger or Dr. Charles Lewis Anderson (1827–1910) a physician and naturalist. **Synonyms:** None, just three varieties.

Lycium berlandieri

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Berlandier's wolfberry

General: Thorny shrub, reclining or spreading, glabrous to hairy to 2.5 m. **Leaves:** Finely hairy or glabrous, linear to linear-spatulate, leaves 10-30 mm long, 1-2.5 mm broad. **Flowers:** Wide as to wider than long, corolla tube campanulate, corollas whitish to pale lavender, filaments densely hairy at base of free portion, stamens usually protruding, rarely enclosed by corolla. **Fruit:**Nearly spherical berry about 4 mm in diameter, red, fleshy and many seeded. **Ecology:** Found on alluvial plains and rocky foothills slopes below 3,000 ft (914 m); flowers March-September. **Notes:** Told apart from other *Lycium b*y the minute puberulent or glabrous leaves, and often expanded funnelform corolla. The leaves of *Lycium berlandieri* are much less succulent and often larger. **Ethnobotany:** Unknown **Etymology:** Lycium is from Greek name Lykion used to describe a thorny tree or shrub, berlandieri is named after Jean Louis Berlandier (1805-1851) a Belgian botanist. **Synonyms:** None

Nicotiana glauca

Impact risk level H M L

tree tobacco

General: Common weed, originally from Bolivia and Argentina, naturalized, much branched shrub to small tree growing to 8 m tall. **Leaves:** Thick and rubbery to 20 cm long, lance-shaped, smooth on short stalks, opposite on lower branches. Upper leaves lack stalks and lie on upward angle against branch. **Flowers:** Small, tubular, cream-colored, greenish white flowers form at branch ends, corolla flares at apex, 5-cleft, unequally toothed calyx. **Fruits:** Capsules contain many small brown seeds, sticky. **Ecology:** Found on disturbed soils, vacant lots, roadsides, along stream banks, washes and drainages below 4,500 ft (1372 m); flowers March–November. **Notes:** Found through the range, escaped cultivar in many cases, spreads by prolific seeds. **Ethnobotany:** Plant is toxic. Contains anabasine, an alkaloid similar to nicotine which can be extracted to be used as an insecticide. **Etymology:** Nicotiana is named for Jean Nicot (1530–1600), the French ambassador to Portugal responsible for introducing tobacco to France in 1560, glauca comes form Greek meaning bluish-gray, referring to leaves. **Synonyms:** None

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Tamarix ramosissima

Impact risk level H M L

salt cedar, tamarisk

General: Invasive, exotic shrubs and trees 1–7 m tall with many slender branches. **Leaves:** Minute, alternate, scale like leaves. **Flowers:** Pale pink to white, small, perfect and regular, arranged in spike-like racemes. Distinct petals occur in fours or fives. **Fruits:** Capsule with many, many, many, many seeds that have feathery hairs. **Ecology:** Found just about anywhere, this thing spreads like, well, a weed along any disturbed riparian area below 5,000 ft (1524 m); flowers January–October. **Notes:** Tamarisk systematics is in a perpetual state of confusion because the members of the genus have few constantly differentiating features. Hybridization is a real potential, which may account for why there were thought to be eight introduced species that now really cannot be told apart. **Ethnobotany:** You can burn it, but it is stinky. **Etymology:** Tamarix comes from the Latin name derived from the Tamaris River in Spain, ramosissima means very branched. **Synonyms:** None

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Larrea tridentata

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creosote bush

General: Aromatic, much branched evergreen shrub up to 3.5 m, growing from at or just above ground. **Leaves:** Alternate, persistent, composite (2 leaflets) 13–25 mm long; elliptical, dark "varnished" green, strong-scented (especially after rain). **Flowers:** Yellow, showy, 7–11 mm long. **Fruits:** Five-segmented, white silky pilose. **Ecology:** Widespread and common on dry plains and mesas below 5,000 ft (1676 m); flowers any time after adequate rain. Needs minimum 12 mm for flowering. **Notes:** Most common and widespread shrub in warm deserts of North America, ordinarily untouched by livestock; causes dermatitis in some people. Diagnostics include: sympodial stems, dark green, lustrous and paired leaves, 13 mm long; leaves 2-pinnate; strong "creosote" odor. **Ethnobotany:** Used to treat arthritis and allergies. As a salve it is a strongly antimicrobial and a moderate sunblock. **Etymology:** Larrea is named for Bishop Juan Antonio Hernandez Perez de Larrea (1731–1803) in Valladolid, Spain, while tridentata means three-toothed, the appearance of the leaves being three-toothed. **Synonyms:** None

Cactaceae
Known for their tiny leaves, which are usually deciduous and absent, these plants produce spines. Their axillary buds (called areoles) are flattened and usually spine-producing. Each areole gives rise to leaf tissue, which constitutes the spines. Solitary inflorescences occur at the top of each branch. The flowers are bisexual (or perfect) and some have a well-developed hypanthium (a fused floral cup). They have numerous tepals that are spirally arranged, with the outer ones sepaloid and inner ones petaloid, and each flower has numerous stamens.

The ovary is distinctly inferior (or borne below the flowers) and sunken into the stem tissue that bears more areoles. The ovary is comprised of two or more carpels (count styles to know), with one locule that has parietal placentation. The fruit is considered to be a berry.

Subfamilies:
Pereskoideae: Leaves broad, flat; no glochids; seeds black, nor aril (leaf cacti)
Opuntioideae: Leaves small, terete; minute glochids, almost invisible to the naked eye, spines at the base of big ones; seeds with pale aril or winged
Cactoideae: Leaves none or very small; no glochids; seeds black, no aril
(the touchy feely cactuses with no glochids).

Quick guide to the genera:
Carnegia: Large columnar cacti, many–ribbed stems and branches, crowded areoles bearing spines with tuft of brown felt. Flowers borne singly, often in crown at apex.

Cylindropuntia: The genus of the true chollas. Taxonomists recently separated this out of the Opuntia, to only include those species with the jointed chain structure familiar to the genus.

Echinocereus: Stem with ridges and grooves on surface, flowers produced within the spine bearing areoles at side of plant or slightly below apex of branch, length of stem 15–100 times the diameter

Ferocactus: Simple-stemmed, ovoid to cylindric, often large. Areoles large, tomentose or woolly, spines large and strong, in three distinct series, ribbed.

Escobaria: Escobaria is a small North American genus extending from the southwestern U.S. into northern Mexico. It is closely related to Coryphantha and somewhat more distantly to Mammillaria. Escobaria spp. have small, funnel-shaped flowers in the spring and summer. The flowers are generally yellow, pink, or brownish.

Mammillaria: Solitary or few-branched, with globose, short, cylindrical stems with watery to milky juice. Terete or angled tubercles, areoles crowning tubercles, central spine or spines like radials.

Opuntia: Stem a series of cylindroid or flat joints, areoles with glochids.

Cylindropuntia leptocaulis

Christmas cactus

2009 NPS

General: A bushy cactus 0.5–1 m tall but sometimes spreading to more than 1 m, sparingly to densely branched with long cylindrical joints that are 3–6 mm diameter, usually bearing similar spineless terminal branchlets that are arranged at right angles along major axes. The stems are glabrous and yellow green, gray–green, or purplish, with riblike wrinkles. The areoles are broadly elliptic, wool white to yellow and aging to gray. **Spines:** The areoles usually have one short (less than 1 cm) or long (2.5–5 cm) spine, usually in apical areoles or well distributed, the spines are erect and flexible, reflexed or deflexed, red–brown to gray, yellow, or white, aging red–brown, with sheaths gray to purple–gray with yellow to red–brown tips or yellow throughout. The glochids are in an adaxial tuft or crescent to encircling areole, yellow to reddish–brown. **Flowers:** Inner tepals are pale yellow to greenish yellow, cream, or bronze, sometimes tipped red, 1–1.5 cm wide, the tepals are narrow obovate, with yellow anthers, a yellow style, and green–yellow stigma lobes. **Fruits:** Fruits yellow to scarlet, obovoid and up to 12 mm long when ripe, fleshy, covered in minute glochids or smooth, occasionally proliferating. **Ecology:** Found on sandy, loamy, or gravelly soils in deserts, grasslands, chaparrals, woodlands, flats, bajadas, and slopes from 200–5,000 ft (61–1524 m); flowers March– August. **Notes:** Notable red fruits are usually the dead give away of this plant along with the very narrow stems. This plant grows much taller when growing within nurse association with mesquite or palo verde. **Ethnobotany:** Fruits were eaten, crushed and mixed with a beverage to produce narcotic effects; the small fruits were also eaten raw. **Etymology:** Cylindropuntia is from Greek kylindros or a cylinder, leptocaulis is Greek leptos for slender and caulis meaning stemmed. **Synonyms:** *Opuntia leptocaulis*

Cylindropuntia spinosior

cane cholla, walkingstick cactus

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General: Small trees or shrubs 1-2.5 m, trunk short, rarely up to 12 cm, joints growing at right angles to stem, 10-20 cm long about 3-5 cm wide. **Spines:** Numerous and closely arranged tubercules cover stems, 10-20 spines per areole, spreading in every direction, barbed. **Flowers:** Purplish generally, but color varies considerably, 1-2 cm long, 0.2-1 cm broad, emarginated with tooth in notch. **Fruits:** Berry, bright lemon-yellow, fleshy at maturity, spineless, obovoid, strongly tubercled, falling off in March. **Ecology:** Found in desert grasslands from 2,000-6,500 ft (610-1981 m); flowers May-June. **Notes:** Distinctive with its grey to purplish-grey spines and whorls of short joints growing a right angles to stem. **Ethnobotany:** Papago pit baked buds, fruits and joints considered a staple food. **Etymology:** Cylindropuntia is from Greek kylindros or a cylinder, spinosior is from the Latin for spiny. **Synonyms:** *Opuntia spinosior, O. whipplei* var. *spinosior*

Ferocactus wislizeni

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candy barrelcactus, compass barrel cactus

General: Barrel cactus is about as tall as wide, to columnar plant, ribs 20-28, not markedly tuberculate. **Spines:** Hooked central spines obscure the stem, central spines red, or the surface layer of ashy gray, 4 per areole, forming cross, not flattened against the stem, strongly cross-ribbed 3-8 cm long. Radial spines ashy gray, mostly 12-20 per areole, spreading, curling irregularly back and forth, not cross-ribbed. **Flowers:** Yellow-reddish cup-shaped, perianth parts narrowly lanceolate, apically sharply acute and mucronate, borne on crowns of stem, distinct purplish middle stripe. **Fruits:** Yellow, barrel-shaped, flesh, covered by numerous almost circular, shallowly fimbriate scales. **Ecology:** Found on sandy desert soils, gravelly slopes and in grasslands from 1,000-4,500 ft (305-1372 m); flowers July-September. **Notes:** Called the compass cactus because it tends to lean south toward sun, species can live up to 100 years. Spines are said to cripple a horse unless they are treated the same day. **Ethnobotany:** The top of the cactus was lopped off and the interior pulp was crushed as a source of water in extreme circumstances; the seeds were parched, ground, and boiled into a mush; the spines were used as fish hooks by the Pima, and the fruit was made into a candy. **Etymology:** Ferocactus from Latin ferus, fierce and cactus referring to spines, while wislizeni is named after Frederick Adolf Wislizenus (1810-1889) and Army surgeon, explorer, and botanist. **Synonyms:** *Echinocactus wislizeni*

Opuntia macrorhiza

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twist-spine pricklypear

General: Prickly-pear cactus; clump forming, with clumps 0.5-2 m wide and 8-13 cm high; joints 6-10 cm long, 5-7 cm wide. **Spines:** Mainly on the uppermost aereoles; 1-6 spines per aereole, to 6 cm long, mostly pointing downward, straight or slightly curved. **Flowers:** Yellow, sometimes with reddish centers; 5-6 cm wide, 5-6 cm long. **Fruits:** Purple or reddish purple; fleshy, with sparse glochids; 2-4 cm long, 2-3 cm wide, with a shallow cup at the top. **Ecology:** Sandy or rocky soils in grasslands, pinon-juniper woodlands, and ponderosa pine forests from 2,000-8,000 ft (610-2440 m); flowers April-June. **Notes:** Our plants belong to var. *macrorhiza*. This species hybridizes or intergrades freely with *O. martiniana* and *O. phaeacantha*, producing plants intermediate in characters and very difficult to key. **Ethnobotany:** Fruit was traditionally eaten raw or dried and used as thickening agent for soups. Inner stems were boiled and fried. Inner stems were used as wound dressings or made into a drink to treat diarrhea. Cacti juice has also been shown to reduced blood sugar. **Etymology:** Opuntia from ancient root puncti- for prickled. **Synonyms:** None

Opuntia phaeacantha

tulip pricklypear

2008 NPS/Beth Fallon

General: Prickly-pear cactus; prostrate or sprawling, with clumps 0.5-2.5 or even 6 m wide and 30-90 cm high; joints 10-25 cm long, 7.5-20 cm wide. **Spines:** Usually covering at least the upper third to quarter of the joint; 1-5 or 9 spines per aereole, 3-7 cm long; straight or curved, spreading or pointed downwards. **Flowers:** Yellow, sometimes with reddish centers; 6-8 cm wide, 6-8 cm long. **Fruits:** Purple or reddish purple; fleshy and smooth; 3-6 cm long, 2-4 cm wide, with a shallow cup at the top. **Ecology:** Sandy or rocky soils in pinon-juniper woodlands, grasslands, and ponderosa pine forests from 1,000-7,500 ft (305-2285 m); flowers spring and early summer. **Notes:** Very common in the pinon-juniper woodlands. Hybridizes or intergrades freely with *O. macrorhiza* and *O. martiniana*, producing plants intermediate in characters and very difficult to key. **Ethnobotany:** Fruit was traditionally eaten raw or dried and used as thickening agent for soups. Inner stems were boiled and fried. Inner stems were used as wound dressings or made into a drink to treat diarrhea. Cacti juice has also been shown to reduced blood sugar. **Etymology:** Opuntia from ancient root puncti- for prickled. Species name from Greek roots phaeo- for dark or dusky and cantharo for beetle. **Synonyms:** None

Opuntia santa-rita

Santa Rita pricklypear

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General: Sprawling shrub, violet or purple-hued, basal portion of plant often takes trunk-like from, with nearly circular segments. **Spines:** Few, if any spines along margins of pads, those present are 1 cm or less. **Flowers:** Bright yellow, found along upper margins of pads. **Fruits:** Barrel shaped, 3-5 cm long. **Ecology:** Found on sandy or rocky soils in plains or grasslands, canyons, oak woodland edges from 3,000-5,000 ft (914-1524 m); flowers April-June. **Notes:** Distinctive purple hue of pads make this a particularly notable species. Vulnerable to both drought and to overgrazing. **Ethnobotany:** Used widely as an ornamental plant because of its coloration. **Etymology:** Opuntia is Greek from the name used by Pliny for a different plant that grew around the town of Opus, santa-rita is named for the Santa Rita for the location of the type-locality. **Synonyms:** *Opuntia chlorotica* var. *santa-rita, Opuntia violacea* var. *santa-rita*

Forbs

Forbs are non-grasslike herbaceous plants, neither woody nor persistent, that die back at the end of a growing season. Herbaceous plants can be either annual (short-lived), perennial (living longer than a single season), or biennial (living two years and only flowering in the second), but they will never grow into trees or shrubs because they lack any kind of persistent woody stem.

Forbs can take a variety of physical forms. They can be upright, tall, tiny, bushy, even vines. Most forbs have a consistent structure of roots and stems, leaves, and an inflorescence (flower-bearing part) of flowers and fruits enclosed in an ovary. The structures vary widely between families but tend to be similar within families. For example, all plants in the family Caryophyllaceae, the Pink family, share a common characteristic of swollen nodes with opposite leaves.

Forbs are part of a larger grouping of plants known as the angiosperms, demarcated by the presence of a seed contained within an enclosed ovary. Flower types and structure are as diverse, occur in many different colors, and all sorts different numbers of petals, seeds, and even leaves.

Carlowrightia arizonica

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Arizona wrightwort

General: Subshrub 15–30 cm, or up to 1 m in the protection of a spiny shrub, much branched, often leafless. Stems slender and brittle, herbage densely pubescent with minute hairs and inconspicuous understory of minute glands. **Leaves:** Quickly drought deciduous, sessile to petioled, blades mostly lanceolate, entire. **Flowers:** Corollas 1 cm in diameter, pealike, fall as unit, white with yellow eye and purple guide lines on upper lip, formed by 2 fused petals. **Fruits:** Capsule about 1 cm, glabrous, 4 seeds. **Ecology:** Found on dry rocky slopes from 2,500–4,000 ft (762–1219 m); flowers April–May. **Notes:** Grazed by rabbits and rodents, livestock. There is considerable variation in appearance in different seasons or at different stages of growth. Corollas open at sunrise and fall by late morning with the heat of the day. **Ethnobotany:** No uses. **Etymology:** Carlowrightia is named for American botanist Charles (Carlos) Wright (1811–1885), and arizonica refers to Arizona. **Synonyms:** None

Dicliptera resupinata

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Arizona foldwing

General: Perennial, ascending to erect herb to 80 cm tall, stems branching, glabrous or sparingly puberulous about nodes, hairs curved. **Leaves:** Petioles to 2 cm long, blades lanceolate to lance–oblong or ovate to 8 cm long, blunt tip, narrowed at base, glabrous or nearly so, inconspicuously ciliolate. **Flowers:** Peduncles short or elongate, bibracteate at apex, 3–5–branched, branches to 3 cm long; involucral bracts cordate, deltoid–subcordate, or rarely round–obovate to 7 mm long and 8 mm wide, rounded or obtuse at apex, often emarginated, sometimes subapiculate, very flat, veiny, glabrous or nearly so; corolla purple with darker purple dots about 1.5 cm long, lips obovate. **Fruits:** Capsules about 5 mm long, glabrous, flat. **Ecology:** Found on dry wooded slopes or flats from 3,000–6,000 ft (914–1829 m); flowers September–May. **Notes:** With age the plants are usually leafless and the bracts become papery and white. **Ethnobotany:** Unknown **Etymology:** Resupinata means upside down due to twisting of the pedicel. **Synonyms:** *Diapedium resupinatum, D. torreyi, Dicliptera pseudoverticillaris, D. torreyi, Justicia resupinata*

Elytraria imbricata

purple scalystem

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General: Acaulescent or leaves crowded at tip of a glabrous or sparingly pilose stem to 30 cm long. **Leaves:** Blades ovate to oblong or obovate, rarely linear–lanceolate, usually 3–12 cm long, 1.5–4 cm wide, blunt or acute at apex, narrowed at base to a slender winged petiole, both surfaces appressed–pilose or glabrate, margins undulate. **Flowers:** Numerous scapes, axillary, usually 5–24 cm long, simple or branched, covered by tightly appressed, ovate to subulate scales; spikes 1 to several to 6 cm long, bracts oblong to elliptic, 3–6 mm long, 1–2 mm wide, firm, awn–tipped and bearing near apex a pair of triangular or rhombic hyaline teeth; bractlets 3 mm long, calyx segments thin, upper bidentate; corolla narrowly funnelform blue, 5–8 mm long. **Fruits:** Glabrous capsule. **Ecology:** Found on dry rocky slopes, banks, or ledges from 3,500–5,000 ft (1067–1524 m); flowers September–May. **Notes:** Widely distributed species, extremely variable in its growth habit. **Ethnobotany:** Unknown **Etymology:** Imbricata means overlapping, closely put together, referring to the calyx lobes. **Synonyms:** *Justicia imbricata*

Ruellia nudiflora

violet wild petunia

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General: Erect perennial forb from a woody caudex, 30–50 cm; sparsely pubescent with flexuous trichomes about 2.5 mm long, sometimes with dense understory of straight trichomes and glands. **Leaves:** Opposite, petiolate, ovate to broadly ovate 10–17 cm long, long attenuate to truncate–attentuate at base, rounded to subacute at apex, margin undulate–crisped, surfaces pubescent. **Flowers:** Tubular, purple, slightly irregular, 3 cm long, in loose, open terminal panicles; corolla 30–50 mm long, lobes 10–12 mm long. **Fruits:** Capsule ellipsoid, 12–22 mm long, glandular. **Ecology:** Found in sandy washes and ditches:, in desert scrub and desert grassland from 1,500– 4,500 ft (457–1372 m); flowers April–September. **Notes:** Note the ovate leaves, quite unlike the other species in Acanthaceae which are more lanceolate. **Ethnobotany:** Unknown **Etymology:** Nudiflora means bare flower. **Synonyms:** None

Tetramerium nervosum

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hairy fournwort

General: Herb to 30 cm high, stems terete, branched, brittle, pilosulous or glabrous. **Leaves:** Blades lanceolate to ovate–lanceolate 1–7 cm long, 0.5–2.5 cm wide, obtuse at apex, rounded to cuneate at base, pilose; petioles to 8 mm long, slender, pilose. **Flowers:** Borne in terminal and lateral spikes to 9 cm long and about 8 mm in diameter, rachis glabrous or sparingly pilose; bracts lanceolate to ovate–lanceolate, 7–15 mm long, about 4 mm wide, acute, ending in spine .5 mm long, ciliate, 3–5–nerved, closely imbricate; corolla bilabiate 1 cm long, white to deep yellow with occasional purplish markings, glabrous, tube slender, lips 5 mm long, entire upper lip, lower 3–lobed, lobes elliptic, 3 mm long. **Fruits:** Capsule 4.5 mm long, pubescent or glabrate. **Ecology:** Found on dry open ground and slopes from 3,000–5,000 ft (914–1524 m); flowers September–June. **Notes:** Often found sprawling. **Ethnobotany:** Unknown **Etymology:** Tetramerium is from tetras, four and meris, part, meaning four parts, while nervosum means having distinct veins or nerves. **Synonyms:** *Tetramerium hispidum, T. nervosum* var. *hispidum*

Trianthema portulacastrum

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desert horsepurslane

General: Annual forb, hot weather ephemeral, semisucculent, usually reddish green. Stems first ascending then spreading, relatively weak and prostrate, often 15–60 cm, glabrous. **Leaves:** Opposite, 3–4.5 cm on robust, young plants, older plants usually thicker around 2 cm, prominent petioles, blades obovate to orbicular. Stipules and expanded leaf bases form membranous sheath around stem. **Flowers:** Solitary, perianth sessile, enclosed by sheathing leaf bases. Calyx lobes petal–like, 2.3–12.5 mm, pink with a green horn, anthers pink–violet. Stamens 6–10. **Fruits:** Several seeded, crested capsule. **Ecology:** Common in disturbed areas, fields with sandy, gravelly, or rocky soils from 1,00–4,000 ft (305–1219 m); flowers June–October. **Notes:** Host plant of the beet leafhopper. **Ethnobotany:** Plants are cooked and eaten as greens in summer. **Etymology:** Trianthema is from Greek treis for three and anthemon for flower, portulacastrum comes from a combination of Portulaca and astrum meaning star to indicate a portulaca–like plant with star shaped flowers. **Synonyms:** None

Impact risk level H M L

Alternanthera pungens

khakiweed

General: Introduced herbaceous perennials with thick, woody, vertical root, stems prostrate or procumbent, forming mats. **Leaves:** Opposite leaves, oval or obovate, the pairs unequal, pilose, glabrate. **Flowers:** On short axillary spikes with conspicuous white bracts, 5 perianth segments, pubescent with stiff, jointed hairs, minutely barbed at apex. **Fruits:** Utricles compressed within tepals, brown 1.8 mm, apex truncate. Seeds lenticular 1.3–1.5 mm. **Ecology:** Common weed, spreading mat–like from 2,500–5,500 ft (762–1676 m); flowers July–September. **Notes:** Resembles *Guilleminea densa* but *A. pungens* has larger leaves and flower spikes. **Ethnobotany:** None regionally, but in Africa where this plant is native it is used for a variety of internal disorders, including worms and other stomach troubles. **Etymology:** Alternanthera is from Latin alternus, alternate and anthera, anthers which refers to alternating stames and staminodia, while pungens means spiny, sharp–pointed. **Synonyms:** *Achyranthes leiantha, A. repens, Alternanthera achyrantha, A. repens*

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Amaranthus palmeri

carelessweed

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General: Annual forb, 0.2–3 m tall, usually erect with a well–developed main axis, highly variable depending on soil moisture; glabrous or sparsely pubescent but not glandular. **Leaves:** Mostly lanceolate, highly variable in size, the lower stem leaves largest and soon deciduous, often with petioles 1.5–7.5 cm and blades 3–12 cm. **Flowers:** Dioecious, inflorescence terminal, indeterminate, long and slender, tips usually drooping, and also with short axillary clusters. Floral bracts and sepals still and spinescent, 5 pistillate sepals. **Fruits:** Cicumscissile, seeds less than 1 mm, obovoid–lenticular, red–brown to blackish when fully ripe. **Ecology:** Widespread weed, grows quickly in disturbed areas, abundant in river bottoms and irrigated land below 5,500 ft (1676 m); flowers June–October. **Notes:** Usually top–killed with first frost in the fall. Grows quickly and prolifically where present in the seed bank. **Ethnobotany:** *Amaranthus* spp. all have similar medicinal qualities. Tea made from leaves is used to relieve stomach pain. Herb stimulates mucous membranes. Leaves mixed with lavender may be steeped in milk for infants that are undergoing continuous vomiting. Seed can be ground into meal for food. Leaves are highly in vitamins and minerals, excellent as greens or cooked like spinach. **Etymology:** Amaranthus is ancient word for unfading, palmeri is an honorific for Edward Palmer (1829–1911) an American explorer and botanical collector. **Synonyms:** None

Atriplex elegans

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wheelscale saltbush

General: Annual, rarely perennial 5–45 cm tall, stems ascending or procumbent to erect, stramineous or whitish, simple or much branched at base, obtusely angled in age, slender or stout, scurfy to glabrate. **Leaves:** Many, subsessile or shortly petiolate; blade elliptic to spatulate, oblanceolate, oblong, or obovate 5–30 mm long by 2–8 mm wide, base cuneate to attenuate, margin entire or irregularly dentate, densely scurfy abaxially, usually green and glabrate adaxially. **Flowers:** Staminate flowers with 3–5 parted perianth; pistillate flowers intermixed with staminate in small axillary clusters. **Fruits:** Bracteoles subsessile or short stipulate, orbiculate, strongly compressed, 2–4 m and as wide, united except at thin margin, margin dentate, terminal teeth often prominent, faces smooth or with appendages; seeds brown, 1–1.5 mm wide. **Ecology:** Found in alluvial soils, ditchbanks, field edges, roadsides, washes, generally disturbed soil below 3,500 ft (1067 m); flowers March–August. **Notes:** This species can be distinguished readily when fruiting because of the two bracts deeply toothed all around the margins that enclose the seed. Two varieties are recognized: var. *elegans* whose bracteole margin is dentate to incised with teeth 0.5–1 mm, found from Chihuahuan to the Sonoran; and var. *fasiculata* with a finely toothed bracteole margin, 0.3–0.5 mm, and a strongly samaralike bracteole, found from Mohavean to the Sonoran. **Ethnobotany:** Gila Pima ate as a famine food, or rarely boiled the plant with mean. **Etymology:** Atriplex is the Latin name for the plant, while elegans means elegant. **Synonyms:** None

Atriplex wrightii

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Wright's orach

General: Native, bushy annual with erect to ascending stems, sparsely branched 1.5–10 dm, scurfy when young. **Leaves:** Sessile or short petiolate, blade white abaxially, green adaxially, linear to lanceolate, elliptic, or oblong, 2.5–6 cm, irregularly toothed margins. **Flowers:** Staminate flowers in glomerules, forming dense, naked terminal paniculate spikes, panicles 6–30 cm, with small 2–3 mm thick, beadlike glomerules. Pistillate flowers in axillary clusters. **Fruits:** Bracteoles, short stipitate, compressed 2–2.5 mm, basally united. **Ecology:** Found on alkaline or saline soils, often along roadsides and in other disturbed ground from 1,000–4,000 ft (305–1219 m); flowers in summer. **Notes:** One of the few annuals that commonly grows through the hot early summer (Felger). **Ethnobotany:** Unknown, plants of the genus have many uses. **Etymology:** Atriplex is the Latin name for the plant, while wrightii is named for Charles Wright (1811–1885), an American botanical collector. **Synonyms:** None

Chenopodium berlandieri

pitseed goosefoot

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General: Stems erect to ascending, much–branched to simple, 1–10.5 dm, farinose. **Leaves:** Nonaromatic; petiole 0.2–9 cm; blade narrowly to broadly lanceolate, rhombic, ovate, or triangular, 1.2–12 cm long by .5–7.5 cm long, base cuneate to truncate, margins serrate, irregularly dentate, or entire, often with 2 basal lobes, apex acute to acuminate, farinose. **Flowers:** Glomerules in compound spikes, 5–17 cm; glomerules irregularly rounded, 4–7 mm diameter; bracts absent; perianth segments 5, distinct nearly to base, lobes ovate to deltate 0.7–1.5 mm by 0.7–1.3 mm, apex obtuse, farinose, often prominently keeled, covering fruit at maturity, stamens 5, stigmas 2. **Fruits:** Achenes or utricles, depressed–ovoid; pericarp adherent or nonadherent near base of style, alveolate–rugose; round seeds 1–2 mm diameter; brown to black. **Ecology:** Widespread, often in disturbed habitats below 8,000 ft (2438 m). **Notes: Ethnobotany:** Edible leaves, many other uses for species in this genera. **Etymology:** Chenopodium is goose foot in Latin, berlandieri is named after Jean Louis Berlandier (1805–1851) a Belgian botanist. **Synonyms:** None

Chenopodium incanum

mealy goosefoot

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General: Stems erect to spreading, branched profusely from base, 6–75 cm, farinose. **Leaves:** Petiole 0.5–1 cm, blade broadly triangular to broadly ovate, distal leaves narrowly triangular to narrowly ovate, 1–1.5 cm by 0.5–1.6 cm, thin or thick, base cuneate to subtruncate, margins usually with two basal teeth or lobes, acute to acuminate, obtuse or rounded, farinose abaxially. **Flowers:** Perianth segments 5, distinct nearly to base, lobes ovate, 0.8–1.1 mm by 0.7–1 mm, apex acute to obtuse, keeled or not, smooth, completely covering fruit at maturity, 5 stamens, 2 stigmas. **Fruits:** Ovoid utricles, nonadherent pericarp, smooth, round seeds, 0.9–1.25 mm diameter, rounded margins with narrow rim, dark black and wrinkled. **Ecology:** Found on sandy soils, disturbed, and waste areas from 1,500–8,000 ft (457–2438 m); flowers May–September. **Notes:** Uncertain if this species is at Tumacacori, single specimen collected in 1951 along road near park. **Ethnobotany:** Stem used ceremonially, seeds ground and eaten, young shoots boiled, as were leaves all eaten as greens. **Etymology:** Chenopodium is goose foot in Latin, incanum means grayish or hoary. **Synonyms:** None

Chenopodium pratericola

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desert goosefoot

General: Strictly erect stems, simple or branching above, 20–80 cm tall, moderately to densely farinose. **Leaves:** Petiole 0.4–1 cm, blade linear to narrowly lanceolate, or oblong–elliptic, 3–veined, 1.5–4.2 cm by 0.4–1 cm, thick and somewhat fleshy, cuneate base, margins entire or with pair of lobes near base, apex acute, abaxial surface densely to sparingly white–mealy. **Flowers:** Glomerules in terminal and axillary panicles, 1–13 cm by 0.15–0.5 cm; densely disposed, maturing irregularly, bracts leaflike; perianth segments 5, distinct nearly to base, lobes oblong–ovate, 0.8–1 mm by 0.5–0.7 mm, apex obtuse, rounded or emarginated, strongly keeled along midvein, densely farinose, usually spreading from fruit; stamens 5, stigmas 2. **Fruits:** Ovoid utricles, pericarp nonadherent, smooth; round seeds, black, 0.9–1.3 mm diameter, rounded margins. **Ecology:** Open sandy soils, often in saline or alkaline places from sea level to 8,000 ft (2438 m); flowers May–September. **Notes: Ethnobotany:** Leaves boiled and eaten by the Gila Pima. **Etymology:** Chenopodium means goose foot, pratericola is from Latin partum, a meadow, meaning it dwells in meadows. **Synonyms:** *Chenopodium albescens, C. desiccatum* var. *leptophylloides, C. pratericola* ssp. *eupratericola, C. pratericola* var. *leptophylloides*

Chenopodium rubrum

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red goosefoot

General: Annual, 20–60 cm tall; erect, glabrous. **Leaves:** Leaves triangular to rhombic, cuneate base, dentate margins or entire; glabrous; toothed, 15–90 mm. **Flowers:** Axillary spike, flowers inconspicuous, generally 3 sepals, glabrous to sparsely powdery, calyx green in fruit. **Fruits:** Utricle (0.5–1 mm). **Ecology:** Found in open, saline places, drying mudflats old fields below 3,500 ft (1067 m); flowers June–September. **Notes:** Difficult to distinguish from *C. capitatum* which has a bright red calyx in fruit; cannot be distinguished from the introduced *C. murale*. Low drought, no fire tolerance. Low browse and graze potential. **Ethnobotany:** Seeds are staple in Gosiute diet. **Etymology:** Chenopodium means goose foot. Rubrum means red. **Synonyms:** None

Gomphrena sonorae

Sonoran globe amaranth

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General: Annual or short–lived perennial with erect, sparingly branched, sparsely villous to glabrate stems with conspicuously swollen nodes. **Leaves:** Short–petiolate or upper sessile, narrowly elliptic, oblong, or oblanceolate, 3–21 mm wide, 2–9 cm long, acute to acuminate at apex, gradually attenuate at base, entire, green, sparsely villous when young, often glabrate with age. **Flowers:** Solitary or in few–headed glomerules and the end of branches and sessile in some axils, subglobose to short–cylindric, about 10–12 mm in diameter; ovate bracts, short–acuminate, 2.5–4 mm long, scarious, white or bright stramineous, bractlets ovate–acuminate, 5–6 mm long, carinate but not cristate, white or tinged with red, perianth lobes lanceolate–acuminate, almost equals bractlets, densely woolly below. **Fruits:** Utricle ovoid, 1.5–2 mm long, membranous, reddish brown seed, obovoid–lenticular, 1.5 mm long. **Ecology:** Found on stony hills and plains, occasionally on grassy slopes, from 3,000–5,500 ft (914–1676 m); flowers August–March. **Notes:** *Gomphrena* is identifiable by the globose heads which are consipuously subtended by cream to pale orange, scarious bracts. **Ethnobotany:** None **Etymology:** Sonorae means of or from Sonora, Mexico. **Synonyms:** None

Guilleminea densa

small matweed

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General: Prostrate mat–forming perennial herb with densely lanate stems, much branched 3–30 cm from woody root. **Leaves:** Basal leaves short lived, other leaves opposite, oblanceolate to elliptic, blades 4–9 mm wide, 1–2.5 cm long, petioles about equaling blades, woolly pubescent underneath, asymmetric, 3–15 mm long, 2–10 mm wide, abruptly narrowed at base, acute or rounded at apex. **Flowers:** In dense axillary glomerules, bracts ovate–acute, white, scarious, glabrous, 1–1.5 mm long; calyx 2–2.5 mm long, lobes lance–ovate, actue, glabrous, white–scarious. **Fruits:** Glabrous utricle, compressed–ovate, about equaling perianth tube, seeds ovoid–lentiular, .5 mm long, brown, lustrous. **Ecology:** Found on dry soil, from 2,500–6,000 ft (762–1829 m); flowers May–October. **Notes:** Flora of North America rejects calling this species var. *densa* but this it is considered to be the most widespread species in our region by most taxonomists. **Ethnobotany:** None **Etymology:** Guilleminea is named for Jean Baptiste Antoine Guillemin (1796–1842) a French botanist and author, densa simply means compact or dense. **Synonyms:** *Brayulinea densa*, *Illecebrum densum*

Impact risk level

H M L

Salsola kali

Russian thistle

General: Annual 5–50 cm tall, papillose to hispid, occasionally glabrous, stems erect to ascending, branched from base, arcuate, occasionally prostrate. **Leaves:** Alternate, blade linear, mostly 1–2 mm wide, fleshy, apex acuminate into firm 1–1.5 mm spine. **Flowers:** Interrupted inflorescence at maturity, usually 1–flower per axil of bract, bracts alternate, not imbricate at maturity, reflexed, not distinctly swolled at base, apex narrowing into subulate spine; bracteoles free or becoming connate and adnate to perianth base; perianth segments with comparatively narrow wing or in lower flowers occasionally wingless. **Fruits:** Fruiting perianth 4–6 mm diameter. **Ecology:** Found widespread in disturbed areas. **Notes:** Widespread agricultural weed, told apart from *S. tragus*, by the reddish, longitudinal striations in *S. tragus*. **Ethnobotany:** Used medicinally against bee stings, smallpox, and for influenza; the seeds were roasted and eaten as were the young sprouts. **Etymology:** Salsola is from Latin salsus, for salty, and kali which is thought to be a derivation of alkali. **Synonyms:** None

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Tidestromia lanuginosa

woolly tidestromia

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General: Procumbent, ascending, or prostrate but much branched annual, yellowish green to gray–green or reddish, to 50 cm, densely rough pubescent to glabrate with age. **Leaves:** Opposite on petiole 2.5 cm long, ovate–orbicular to lanceolate 1–3 cm each direction, densely pubescent. **Flowers:** Minute and perfect in axillary glomerules, the perianth yellow 1.5–3 mm long, the segments oblong, acute to obtuse, 5 stamens, filaments united at base, glabrous or villous perianth segments, with globose ovary, stigma capitate or 2 lobed. **Fruits:** Utricle subglobose, glabrous, indehiscent, brown globose seeds. **Ecology:** Found on dry plains, hillsides, and often on disturbed soils below 5,000 ft (1524 m); flowers August–October. **Notes:** Two species are found in the area, generally *T. languinosa* is a slightly more common higher elevation species, while *T. oblongifolia* is found in more true desert. Generally, this species as an annual is clearly distinguishable from the others in the genus. **Ethnobotany:** Unknown **Etymology:** Tidestromia is named for the American botanist Ivar (Frederick) Tidestrom (1864–1956) who wrote the Flora of Arizona and New Mexico, while lanuginosa means woolly or downy. **Synonyms:** *Achyranthes lanuginosa, Alternanthera lanuginosa, Cladothrix lanuginosa, Tidestromia lanuginosa* ssp. *eliassoniana*

Nothoscordum bivalve

crowpoison

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General: Perennial scapose herb with a globose to subglobose bulb, to 1–1.5 cm with brown membranous coats. **Leaves:** Narrowly linear, 1–4 mm wide, acute to obtuse at apex, equaling scape or shorter. **Flowers:** The scape is solitary and terete, 20–40 cm tall by less than 3 mm wide, the sheaths envelop the neck of the bulb, topped by 6–12 flowered asymmetrical umbel, the unfragrant flowers white 10–12 mm long, the outer ones with a red or purplish red midvein, elliptic, the apex acute.**Fruits:** Capsule subglobose or obovoid, 6–8 mm long and wide, obtusely 3–lobed. **Ecology:** Found in sandy soil and open sites from 2,500–8,000 ft (762–2438 m), flowers April–May. **Notes:** FNA folds the former *N. texanum* under one single taxonomic entity as done here. Notably there is no onion–like smell. Nearly identical to higher elevation *Allium* species minus the tell–tale onion smell. **Ethnobotany:** Unknown, but probably eaten. **Etymology:** Nothoscordum is from Greek nothos for false and scordum for garlic, while bivalve means two sides. **Synonyms:** *Nothoscordum texanum*

Bowlesia incana

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hoary bowlesia

General: Delicate winter–spring annual with stellate hairs throughout; stems weak 4–45 cm, slender, prostrate and dichotomously branching. Leaves: Simple, petioled, wider than long, 10–23 mm wide with 5 or 7 broad lobes, entire to dentate. Flowers: Borne in simple umbels, sepals and petals scalelike 0.5 mm, peduncles 2–6 flowered, shorter than petioles, sometimes vestigal, inconspicuous corolla greenish white with prominent calyx teeth. **Fruits:** Sessile or nearly so, ovate, 1–1.5 mm, stellate–pubescent, turgid. **Ecology:** Found under bushes and canopies from 100–3,500 ft (30–1067 m); flowers January–June. **Notes:** Distinguished by habit, basal and opposite leaves, and its tendency to form extensive mat; whole plant is covered in downy, star–shaped hairs. **Ethnobotany:** Unknown **Etymology:** Bowlesia is named for William Bowles (1705–1780) an Irish naturalist, while incana means grayish or hoary. **Synonyms:** *Bowlesia septentrionalis*

H **M** L Impact risk level

Conium maculatum

poison hemlock

General: Tall, hairless biennial herb; 0.5–3 m tall; stems streaked or spotted with purple blotches; large taproot; pungent odor. Introduced from Eurasia. **Leaves:** Leaves pinnately compound, finely divided, and sometimes toothed. **Flowers:** Loose inflorescence of umbels; flowers white. **Fruits:** Seeds ribbed (crenulate), about 2 mm long. **Ecology:** Widely distributed in moist disturbed areas, streams, and canyons from 5,000–7,500 ft (1525–2285 m) and lower; flowers June–September. **Notes:** The purple streaked/spotted stems and habitat of moist areas leads to poison hemlock. Also look for the finely dissected leaflets and loose axillary and terminal umbels. Host for Black Swallowtail butterfly. No effective biological control techniques are known, but mechanical removal (hand pulling, grubbing, or mowing) is effective if done prior to flowering. **Ethnobotany:** All parts of this plant are highly toxic. Notorious from ancient times as the poison that Socrates drank. Differentiated from many other members of Apiaceae by the purple–spotted stems. **Etymology:** Name from "koneion," ancient Greek name for this species. Maculatum refers to spotted, referring to purple splotches on the stems of leaves or on petals. **Synonyms:** None

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Impact risk level H M L

Cyclospermum leptophyllum

marsh parsley, slender celery

General: Exotic annual, erect to spreading stems 30 cm, rather coarse, grooved. **Leaves:** Pinnately 3 or 4 times divided into linear–filiform segments, 3–8 cm. **Flowers:** Petals 0.3–0.4 mm, white, often fading pink. **Fruits:** Broadly ellipsoid to globose, 1.5–2 mm, mericarps each with 5 prominent narrow ribs. **Ecology:** Widespread weed, thrives in lawns, where it becomes knotty or spreading. **Notes:** Very widespread weed, thought to be from Brazil. **Ethnobotany:** Some in this genus (and old genus *Apium*) used for flavoring, for tuberculosis, and as potherb. **Etymology:** Cyclospermum from Greek kyklos, circle or ring and sperma, seed, referring to the shape of the fruit and seeds. **Synonyms:** *Apium leptophyllum, A. tenuifolium, Cyclospermum ammi*

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Daucus pusillus

American wild carrot

General: Winter–spring ephemeral with stiff white hairs sometimes papilla–based on stems and inflorescence branches, the stems slender, 7–50 cm. **Leaves:** Highly dissected into small, narrow segments. **Flowers:** Densely flowered umbels, on stout peduncles 3.5–2.7 cm, the bracts leafy. Sepals absent, petals 0.6 mm, pale yellow. **Fruits:** Burlike, body dark colored, 3 mm, intricately sculptured with yellow barb–tipped spines. **Ecology:** Common in disturbed habitats from 5,000 ft (1524 m) and lower; flowers spring. **Notes:** Its cultivated relative *D. carota* ssp. *sativa* is similar and much larger. **Ethnobotany:** Decoction of plant taken to clean the blood, as a remedy for colds, itching, fevers, and snakebite. Roots were gathered and eaten both raw and steamed. **Etymology:** Daucus is a Greek name, while pusillus means weak, small, or insignificant. **Synonyms:** None

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Spermolepis echinata

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bristly scaleseed

General: Taprooted annual, low spreading 5–40 cm. **Leaves:** Leaves ternately decompuond, ovate with petiole 3–20 mm, blade 7–25 mm wide, segments 2–18 mm, thread–like. **Flowers:** White, on peduncle 1–5 cm, few bractlets, thread–like to linear, entire or toothed; rays 5–14, 1–15 mm generally ascending, very unequal, pedicels generally less than 7 mm. **Fruits:** Widely ovate 1.5–2 mm wide, prominent ribs, short bristles. **Ecology:** Found on rocky slopes and sandy flats from 1,000–5,000 ft (305–1524 m); flowers February–May. **Notes:** Mature fruit is critical for identification. **Ethnobotany:** None **Etymology:** Spermolepis is from Greek sperma, seed and lepis, scale, for scale seeded, while echinata means covered with prickles like a hedgehog. **Synonyms:** *Apium echinatum*

Funastrum cynanchoides var. *hartwegii*

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Hartweg's twinevine

General: Stems numerous, from woody root, slender, herbaceous above, 1–3 m long or more, somewhat glaucescent. **Leaves:** Linear to lanceolate, sometimes auriculate–lobed or even cordate–hastate at base, 1–5 mm wide, 2.5–6 cm long, short–petiolate, glabrous to puberulent. **Flowers:** Peduncles slender, 1–5 cm long, few to many flowered, pedicels 5–12 mm long, sparsely puberulent with spreading hairs; calyx lobes ovate, 1–1.5 mm long, puberulent, corollas purplish, 8–10 mm broad, lobes acute to slightly acuminate, sparsely puberulent to subglabrous without, ciliate on margins, glabrous within, corona ring rectanguloid, widest below middle, 0.5–0.8 mm high, free from vesicles. **Fruits:** Follicles slender 6–9 mm in diameter, attenuate at each end, 7–11 cm long. **Ecology:** Found along arroyos and in arid valleys below 5,500 ft (1676 m); flowers February–September. **Notes:** Leaves can be diagnostic for this species, as can its drier habitat. **Ethnobotany:** Plant was eaten raw, the sap secretions were heated over coals and eaten like gum by the Papago. **Etymology:** Funastrum is from funis, a rope, cord, or sheet and astrum, incomplete resemblance, while cynanchoides refers to being like the genus *Cynanchum*. **Synonyms:** *Funastrum cynanchoides* ssp. *heterophyllum, F. heterophyllum, F. lineare, Philibertia heterophylla, Sarcostemma cynanchoides* ssp. *hartwegii, S. cynanchoides* var. *hartwegii*

Aristolochia watsonii

Watson's dutchman's pipe, Indian piperoot, birthwort

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General: Perennial from a single, thickened, carrot–shaped rook, dying back to root in drought or with freeze. Stems slender, training, herbaceous, often less than 30 cm or vining to 1–1.5 m in shaded, moist habitats. **Leaves:** Alternate, larger leaves 3.5–12 cm, blades narrowly triangular–hastate, with lower leaves often broadly triangular to triangular–hastate under favorable conditions, lobes as long as or longer than the petioles. **Flowers:** Solitary in leaf axils, calyx tube slightly inflated surrounding style and stamens, just above ovary, narrowed at the throat, curved, deciduous, limb somewhat tooth–shaped (1–lobed), yellow–green with brown–purple spots mostly along 5 prominent veins, margin and tip dark maroon. **Fruits:** Capsule, ovoid, 1.6–2.5 m, with narrow ridge or wing along the midrib of each of 5 valves; seeds flattened, blackish. **Ecology:** Widespread in gravelly soils, along rocks in drier areas from 2,000–4,500 ft (610–1372 m); flowers July–September. **Notes:** Easily identifiable by its maroon leaves with prominent central vein of light green and its triangular–hastate shape. **Ethnobotany:** Used as a snakebite remedy, as a decoction it was medicinal for fever, and as a toxin for the removal of afterbirth (hence name birthwort). **Etymology:** Aristolochia is from Greek, aristos, the best, most excellent and locheia or lochia, childbirth, hence name birthwort and watsonii for Sereno Watson (1826–1892) an assistant to Asa Gray. **Synonyms:** *Aristolochia porphyrophylla*

Hydrocotle verticillata

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whorled marshpennywort, water pennywort

General: Glabrous perennial, floating or creeping stem or rootstock. **Leaves:** Round, peltate on petioles 3–10 cm, blades 18–35 mm wide, shallowly lobed. **Flowers:** Sessile to short stalked, axillary; greenish white, petals 0.5–0.8 mm. **Fruits:** Ribbed 2 mm wide, 1.5 mm high, ovoid to ellipsoid. **Ecology:** Aquatic or wet ground, widespread; flowers May–August. **Ethnobotany:** Other species in this genus used for shortness of breath and cough, while some species used for greens. **Etymology:** Hydrocotyle is from Greek hydor, water and kotyle, a small cup, while verticillata means whorled. **Synonyms:** None

Dichelostemma capitatum ssp. *capitatum*

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bluedicks

General: Perennial herb with large underground deep–seated corm (bulb), scape 20–80 cm tall. **Leaves:** Slender 2–4 mostly shorter than scape, 2–15 mm wide, scaberulous margins. **Flowers:** Bracts 8–15 mm long, broadly ovate, abruptly acuminate; slender pedicels 2–10 mm long, perianth deep violet–purple, rarely reddish purple or white, 12–18 mm long, thin tube 4–8 mm long, constricted at throat. Umbels are open with 2–12 flowers. **Fruits:** Capsule 6–10 mm long with persistent style. **Ecology:** Found on dry open ridges and grassy plains, especially on heavier textured soils such as clays and heavy loams below 5,000 ft (1524 m); flowers February–May. **Notes:** Obvious plant in spring with its violet–colored flowers. **Ethnobotany:** Corms were eaten raw or cooked and eaten. **Etymology:** Dichelostemma comes from Greek dicha, bifid, and stemma, a garland or crown, refers to appendages on the stamens, while capitatum refers to the way the flowers form in a head–like cluster. **Synonyms:** *Brodiaea capitata, B. pulchella, Dichelostemma lacuna–vernalis, D. pulchellum, D. pulchellum* var. *capitatum, Hookera pulchella*

Acourtia nana

dwarf desertpeony

2009 NPS/Beth Fallon

General: Low perennial herb 5–30 cm tall from a woody, platform–like rootstock 1–5 cm below soil, densely covered with a thick brownish tomentum and bearing several to many tough woody roots 1–2 mm in diameter on lower side; stems erect or ascending, simple or moderately branched, finely scabrous with simple and gland–tipped hairs. **Leaves:** Sessile or short–petioled, leathery, pale green, obovate–suborbicular or suborbicular, 2–5 cm long and nearly or quite as wide, coarsely and unequally spinulose–dentate, scaberulous, veins conspicuous on both surfaces. **Flowers:** Solitary heads at ends of branches on stoutish peduncles 4–10 mm long or subsessile, campanulate involucre about 1.5 cm high, 9–12 mm high; broadly ovate bracts and abruptly attenuate to lance–linear and acute to apiculate in 4–5 series, inner ones narrow, often purplish, slightly scarious margins and lanate–ciliate below, fragrant pale pink flowers 10–14 mm long, glabrous. **Fruits:** Linear achene 5–6 mm long, strongly ribbed, pappus of numerous slender silky hairs 10–15 mm long, silvery white to tawny. **Ecology:** Found on mesas, arid plains, and slopes, usually under shrubs below 6,000 ft (1829 m); flowers March–June. **Notes:** Simple, grayish green leaves clasp the stems, are leathery and holly–like with rippled, spiny–toothed margins. **Ethnobotany:** Cottonlike material at root base place on a newborn's umbilicus. **Etymology:** Acourtia is named for Mary Elizabeth Catherine Gibbes A'Court (1792–1878), nana is from Greek nannos, dwarf. **Synonyms:** *Perezia nana*

Agoseris heterophylla

annual agoseris

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General: Annual from slender taproot. **Leaves:** Oblong, spatulate or linear, entire, denticulate or sinuate–pinnatifid, 0.2–3 cm wide, 5–15 cm long, sparsely villous or glabrous, lobes on pinnatifid blades ovate to oblong, spreading or ascending, nearly as wide as long. **Flowers:** Slender scapes 5–40 cm tall, often several from single root, glabrous or very sparsely villous, involucres 10–18 mm high, often nearly as broad, bracts lance–acuminate, inner ones glabrous and hyaline–margined, outer ones shorter and arachnoid–villous to glabrate; inconspicuous ligules, barely surpassing involucres and withering early; yellow corolla. **Fruits:** Fusiform achenes, body smooth or longitundinally 10–ribbed, 3–4 mm long, glabrous to villosulous, slender beak 5–8 mm long; pappus bristles white, 5 mm long. **Ecology:** Found on grassy hillsides and openings in brush from 2,500–5,000 ft (762–1524 m); flowers March–May. **Notes:** Overlaps with *A. glauca* in the transition zones in our region. **Ethnobotany:** Unknown for this species, other species in this genera have medicinal and edible uses. **Etymology:** Agoseris is from Greek name for goat chicory, heterophylla means the leaves are different on the same plant. **Synonyms:** None

Ambrosia artemisiifolia

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annual ragweed

General: Annual herb that is variously pubescent; mostly branching above but sometimes below; 10–100 cm tall. **Leaves:** Leaves all cauline; opposite below but alternate above, once or twice pinnatifid, 3–10 cm long, middle and lower leaves petiolate. **Flowers:** Staminate heads nodding in terminal racemes, 3–5 mm wide; involucre 2–3 mm high, only scarcely lobed and with coarse hairs, no thickened dark stripes; lobes on staminate corolla notably dark–lined on margins. Pistillate heads in sessile clusters, involucres 1–flowered, 3–5 mm long, with one whorl of spines that are about 1 mm long. **Fruits:** Burs globose to pyriform, 2–3 mm, 3–5 spines. **Ecology:** Weed on roadsides, old fields, or other waste places; but not common; 5,000–8,000 ft (1524–2438 m); flowers August–September. **Notes:** Probably a native to eastern U.S. and similar in appearance to *A. acanthicarpa*, but with generally more dissected leaves. Host plant for Bordered Patch butterfly. **Ethnobotany:** Various non–regional tribes use this plant. **Etymology:** Ambrosia is Greek for food of the gods, artimisiifolia means having leaves that resemble Artemisia. **Synonyms:** None

Ambrosia confertiflora

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weakleaf burr ragweed

General: Herbaceous perennial from a hard, knotty base, with stout, deeply buried, woody taproots, stems often 40–75 cm, erect, and leafy with white, mostly appressed hairs. **Leaves:** Green, often 6–17 cm, 2 or 3 times pinnately divided. **Flowers:** Heads small, numerous, in terminal panicles; corollas pale yellow, puberulent; pistillate heads disposed singly or in small clusters near base of racemes, 1–2 flowered. **Fruits:** Burs 3–4 mm with small, terete, hooked spines. **Ecology:** Found on hillsides, slopes, mesas, and sometimes a weed in fields and along roadsides from 1,000–6,500 ft (305–1981 m); flowers March–October. **Notes:** Pinnately divided leaves are one diagnostic for this species. **Ethnobotany:** Unknown for this species, other species in this genera have many uses. **Etymology:** Ambrosia is Greek for food of the gods, while confertiflora means crowded flowers. **Synonyms:** *Franseria confertiflora, F. strigulosa, Gaertneria tenuifolia*

Ambrosia cordifolia

Tucson burr ragweed

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General: Shrubby perennial with several slender ascending branches from a woody base; minutely but densely white–tomentose branches when young, growing to sparingly floccose or gabrate, striate; silvery in appearance. **Leaves:** On slender petioles, nearly or quite equaling blades, ovate–cordate in outline 1–5 cm broad, 1.5–6.5 cm long, moderately 3–7 lobed and coarsely dentate, densely cinereous–tomentulose beneath, deep green and often scaberulous above. **Flowers:** Heads in terminal racemes to 15 cm long, saucer–shaped staminate involucres 4–5 mm in diameter, densely puberulent in youth, later subglabrate, lobes broader than long; staminate corollas finely puberulent on brownish lobes; pistillate heads solitary or in small clusters at base of raceme, sessile or on short axillary branches to 2.5 cm long, 2–flowered. **Fruits:** Bur–like ellipsoidal, 6–8 mm long, densely glandular–puberulent, conical beaks, united below, somewhat hooked. **Ecology:** Found in canyons, arroyos, and on rocky slopes from 1,500–3,500 ft (457–1067 m); flowers January–April. **Notes:** The leaves of this plant help identify it: heart–shaped, bluntly toothed and lobed, with silvery veins. **Ethnobotany:** Unknown for this species, but many other uses for species in this genus. **Etymology:** Ambrosia is Greek for food of the gods, cordifolia means heart–shaped leaves. **Synonyms:** *Franseria cordifolia*

Ambrosia psilostachya

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Cuman ragweed

General: Colonial perennial herb arising from deep, creeping rhizomes; rough–pubescent; 20–100 cm tall. **Leaves:** Leaves all cauline, opposite below but alternate above, thick and firm, pinnatifid with broad midstripe; 2–15 cm long, 1–8 cm wide. **Flowers:** Staminate heads nodding and numerous, involucre 2–3 mm high, moderately hispidulous, only shallowly lobed. Pistillate involucres 1–flowered, 4–6 mm long, with one set of short tubercles (or tubercles obsolete). **Fruits:** Burs obpyramidal to globose, 2–3 mm, hirsutulous, spines 1–6. **Ecology:** Disturbed places and streamsides from 4,000–7,000 ft (1300–2100 m); flowers July–October. **Notes:** The leaves generally appear narrower, firmer, less dissected and less petiolate than *A. artemisiifolia*. Species may have moderate forage value, seed is eaten by upland game birds, and plant is used in habitat of small mammal communities. Also used as nesting material and habitat by small mammals and non–game birds. Although species is an invader it is native and may be used in prairie restoration. Post–fire regeneration strategy is mostly from rhizomes. **Ethnobotany:** Cheyenne used leaves and stems to remedy painful digestion, as a laxative, for labor pain and as a cold treatment. Keres, Kiowa and Deguena tribes used stem and leaf tonic for dandruff. Plant also rolled with sage in Kiowa sweatlodge. **Etymology:** Species name from ancient word psilo for smooth or bare and stachy for spike–like. Ambrosia is the word depicting food of ancient Greek gods. **Synonyms:** None

Ambrosia trifida

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great ragweed

General: Large annual, 2–3 meters tall; stem sometimes glabrous below. **Leaves:** Leaves always opposite, petiolate, up to 20 cm long, serrate, and palmately 3–5 lobed (small leaves sometimes not lobed). **Flowers:** Staminate heads nodding, involucre shallowly or obscurely lobed with 3 dark strips extending from the center to the margin. Pistillate involucres 5–10 mm long, several ribbed with each rib ending in short spine, the spines form a cycle around the stout, cone–shaped beak. **Fruits:** Burs pyramidal 3–5 mm, glabrous or glabrate, spines 4–5. **Ecology:** Weed in waste places, usually in moist soil but not particularly common; ranges from 2,500–8,000 ft (760–2400 m); flowers July–October. **Notes:** Distinguished from other ragweeds by its palmately lobed leaves. **Ethnobotany:** Numerous non–regional tribes have uses. **Etymology:** Ambrosia is Greek for food of the gods, while trifida means cleft into three parts. **Synonyms:** *A. aptera*

Artemisia ludoviciana

white sagebrush, wormwood

2011 NPS/Steve Buckley

General: Perennial herbs arising from rhizomes; stems 20–100 cm tall; glabrous to tomentose. **Leaves:** Mostly cauline, entire to lobed to pinnately divided (mostly at tip), white tomentose on lower surface, green glabrous to tomentose on upper surface, 0.8–9 cm long, 0.1–2 cm wide. **Flowers:** Paniculate to spicate; heads numerous, small, sessile to short pedunculate, somewhat pendulous; involucres 2.5–4.5 mm long, 3–7 mm wide, the bracts glabrous to tomentose, with broad scarious margins; corolla with disk flowers only, marginal. **Fruits:** Achenes glabrous **Ecology:** Found on exposed slopes, hillsides, rocky slopes, and flat plaints from 2,500–8,500 ft (760–2590 m); flowers August–November. **Notes:** Easily confused with *A. carruthii* but leaves are larger with wider, more robust lobes (vs. smaller leaves with thin linear lobes in *A. carruthii*). These two species may hybridize. Used in sweathouses. Five subspecies are found in AZ: *ssp albula*, ssp. *ludoviciana*, ssp. *mexicana*, ssp. *redolens* (rare) and ssp. *sulcata*. **Ethnobotany:** Branches used in sweathouses. Often found in moist waterways but can be found in many zones in Arizona. Widely distributed and used throughout the Intermountain west as a medicinal bitter, purifying and cleansing plant, and in making towels. **Etymology:** Named after queen Artemisia of Caria, Asia Minor. Ludoviciana means of or from Louisiana. **Synonyms:** None

Baileya multiradiata

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desert marigold

General: Annual or short lived perennial with floccose stems and leaves, stems branch at base, decumbent to ascending, 20–40 cm tall, leafy on lower portion only. **Leaves:** Basal, 3–5 cm long, spatulate, 3–lobed and crenate early in season, later ones deeply 3–cleft and lobed, all densely white–floccose; upper cauline leaves linear to spatulate, entire, 2–4 cm long. **Flowers:** Peduncles 10–30 cm long, involucres 7–8 mm high, 10–15 mm broad, lanate; one head per stem; phyllaries 5.5–6.5 mm, linear–lanceolate 20–35; flower heads 3.5–5.3 cm wide including rays; rays many, bright yellow, 15–20 mm by 5–8 mm, the apex conspicuously 3–toothed, style branches truncate to slightly rounded at tips. **Fruits:** Achenes cylindrical–truncate, 3–4 mm long, evenly striate. **Ecology:** Found on arid plains, arroyos, outwash slopes, sandy plains and roadsides below 5,000 ft (1524 m); flowers March–October. **Notes:** Not always readily distinguishable from *B. pleniradiata*, but when sampled in the correct time of year the shape of the style is diagnostic. **Ethnobotany:** Rubbed under the arms as a deodorant, or mixed with clay and used in making adobes and in plaster. **Etymology:** Baileya is named for Jacob Whitman Bailey (1811–1857) an early American microscopist, multiradiata comes from the Latin for multi–radiata. **Synonyms:** *Baileya multiradiata* var. *thurberi*

Bidens laevis

smooth beggartick

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General: Annual or perennial herb, up to 100 cm tall, glabrous. **Leaves:** Leaves sessile, lanceolate to elliptic, up to 20 cm long, glabrous, and coarsely serrate. **Flowers:** Heads erect at anthesis, not so consistently nodding in fruit as *B. cernua*; rays yellow and showy, 1.5–3 cm long; disk corollas yellow; outer phyllaries 5–9, green, oblong and ciliate, up to 25 mm long; inner phyllaries ovate to 10 mm long, brownish with hyaline margins; receptacular bracts often reddish at tip. **Fruits:** Achenes 6–9 mm long, brown or purplish–brown with 2–4 retorsely barbed awns. **Ecology:** Low, wet places or in shallow water from 4,000–9,000 ft (1220–2740 m) ; flowers July–October. **Notes:** The ray flowers are larger and more showy than in *B. cernua*, and the inflorescence is not so consistently nodding in fruit. Very similar to *B. cernua*, except this species has showier rays that are 1.5–3 cm long. **Ethnobotany:** Used by Paiute for food. **Etymology:** Bidens is derived from the Latin bis, twice and dens, tooth, hence meaning 2–toothed. **Synonyms:** *B. elegans, B. nashii, Helianthus laevis*

Bidens leptocephala

fewflower beggarticks

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General: Herbaceous annual with moderately branched, quadrangular, striate, slender stems 10–50 cm tall. **Leaves:** Sparsely ciliate–hispid petioles, connate at base, 0.3–4 cm long, leaf blades 1.5–5.5 cm wide, 2–10 cm long, once or twice pinnately divided into linear to ovate segments, hispid to glabrate, margins and lower surfaces of veins more or less hispid–ciliate. **Flowers:** Heads obscurely radiate or sometimes apparently discoid, 4–8 mm wide, 3–5 mm high at anthesis, on slender peduncles 2–8 cm long, exterior involucral bracts 4–6, linear, marginally ciliate, 1–2.5 mm long, inner ones half as long, lanceolate, puberulent at apices; ray flowers usually 2–3, ligules 2.5 mm long, one–half as wide, pale yellow to white. **Fruits:** Achenes 5–13, linear, hispidulous above, glabrous below, all bearing 2 retrorsely barbed awns 1–3 mm long. **Ecology:** Found in moist soil, usually in shaded, sandy soil from 3,000–6,000 ft (914–1829 m); flowers August–October. **Notes:** These little buggers will attach their little retrorsely barbed angles to everything in fall. **Ethnobotany:** Unknown for this species, others in genus have many uses. **Etymology:** Bidens is derived from the Latin bis, twice and dens, tooth, hence meaning 2–toothed, leptocephala means thin headed. **Synonyms:** None

Calycoseris wrightii

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white tackstem

General: Plant simple and erect to much branched with spreading–ascending branches, 5–30 cm tall. **Leaves:** Lower leaves pinnately cleft to midrib in linear divisions, 0.5–2 mm wide and 2 cm long, whole blade 10 cm long, central rachis 5 mm wide or less, glabrous or essentially so, upper leaves linear and entire or with 1–3 subbasal lobes; upper one have of stems, branches, and involucres with glandular hairs, pale reddish, brownish, tack–shaped. **Flowers:** Involucres 9–15 mm long at anthesis, bracts to 2.5 mm wide, acute to slightly acuminate, ligules white with pinkish or pinkish–brown spots or streaks on under side and turning purplish or reddish when dry. **Fruits:** Achenes about 6 mm long, including beak, usually 1–1.5 mm long, body of achene dark brown, shallowly sulcate between ribs and bearing row of low, rounded bumps; pappus bristles 7–8 mm long. **Ecology:** Found on sandy plains, rocky mesas, and slopes from 500–4,000 ft (152–1219 m); flowers from March–May. **Notes:** Often growing up through shrubs. **Ethnobotany:** Unknown **Etymology:** Calycoseris is from Greek kalux, cup and seris, a chicory–like genus, while wrightii is named for Charles Wright (1811–1885) an American botanical collector. **Synonyms:** None

Chaetopappa ericoides

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rose heath

General: Native perennial herb from a branching woody caudex and deep–seated rhizomes; stems numerous, much–branched, 5–15 cm tall; more–or–less pubescent with appressed hairs, and sometimes glandular. **Leaves:** Numerous, all cauline, linear to oblanceolate, 6–20 mm long, up to 2.5 mm wide, entire, ascending to more–or–less appressed to the stem; pubescent with short, rough hairs on the surface and margins. **Flowers:** Heads solitary on numerous slender branches, forming a flat–topped inflorescence across the top of the plant; involucre 5–7 mm high, with phyllaries imbricated in 3–7 vertical series; rays 8–25, white or vaguely pinkish, 4–8 mm long; disk flowers yellow. **Fruits:** Achenes more–or–less pubescent, with a pappus of copious white bristles. **Ecology:** Open, dry sites from 3,000–7,500 ft (914–2285 m); flowers March–October. **Notes:** The linear leaves on wiry, much–branched stems make this plant distinctive. **Ethnobotany:** Havasupai use for gastrointestinal benefit. Hopi use as panacea, stimulant, for divining sex of baby. Zuni use as cold remedy, Navajo use for kidney remedy. **Etymology:** From chaeto– meaning hair–like and ericoides meaning heath–like. **Synonyms:** *Aster arenosus, A. hirtifolius, A. leucelene; Inula ericoides; Leucelene ericoides*

Cirsium neomexicanum

New Mexico thistle

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General: Native biennial herb from a stout taproot; stems stout, 30–200 cm tall; pubescent with tangled, wooly hairs. **Leaves:** Basal and cauline; basal and lower cauline leaves lanceolate to elliptic or oblong, up to 40 cm long and 7 cm wide, shallowly and regularly pinnately lobed, the lobes further toothed and with spines 2–8 mm long, or rarely almost entire with spiny margins; stem leaves reduced and scattered above, sometimes with short (about 1 cm) downward extensions of the leaf bases; pubescent with tangled, wooly hairs. **Flowers:** Heads solitary or a few at the ends of stems and branches; involucre 2.5–5 cm high, pubescent with tangled, woolly hairs, with outer and middle phyllaries spine–tipped and reflexed, inner phyllaries appressed, with long, tapering tips; flowers white to lavender or pink. **Fruits:** Achenes 5–6 mm long; pappus bristles 20–25 mm long. **Ecology:** Dry, exposed slopes from 1,000–6,500 ft (305–1980 m); flowers March–September. **Notes:** Characterized by the few or solitary white to lavender or pink flower heads with spine–tipped and reflexed outer and middle phyllaries. Products of the plant provide food for some insects and some bird species. Second season plants may be killed by fire. Post–fire regeneration process is via seed. Seeds favorite of Goldfinches and other birds while flowers provide nectar and pollen for bees. Host plant for Painted Lady butterfly. **Ethnobotany:** Taproots of young plants are eaten raw or roasted. They are often sliced, fried, mashed or ground into flour. Flowers may be eaten raw or cooked and have high nutrition content. Navajo use for chills, fever. Used also as a panacea as root infusion, especially for colds. **Etymology:** Cirsium is Greek for thistle, while neomexicanum means of or from New Mexico. **Synonyms:** None

H M L Impact risk level

Conyza bonariensis

asthmaweed

General: Introduced annual 10–40 cm tall with 1 to several stems from base and corymbosely branching above, herbage hirsute and slightly scabrous, grayish. **Leaves:** Linear, numerous, 1.5–4 mm wide, 1.5–9 cm long, shallowly dentate to entire. **Flowers:** Heads 6–8 mm in diameter, numerous, corymbosely arranged, peduncles 3–20 mm long, involucral bracts lance–subulate to linear–subulate, 4–6 mm long, greenish, hirsutulous, margins slightly scarious; inconspicuous ray flowers, ligules barely equaling or slightly surpassing pappus, 3–4.5 mm long, disk corollas 3–3.5 mm long, greenish yellow, slender tube 1.2 mm long, lobes narrowly lance–triangular, 0.2–0.3 mm long. **Fruits:** Brownish achenes, 1.2 mm long, faintly compressed, minutely and sparsely strigulose to glabrate, pappus bristles capillary 3–4 mm long, tawny or shining white in youth, reddish in age. **Ecology:** Found along irrigation ditches, river bottoms and occasionally as a roadside weed below 3,500 ft (1067 m); flowers June–September. **Notes:** This is a widespread weed, generally on disturbed, urban sites. **Ethnobotany:** Unknown, but *C. canadensis* has many uses. **Etymology:** Name used by Theophrastus, Pliny, and Dioscorides, presumably from the Greek konops (flea), bonariensis means of or from Buenos Aires. **Synonyms:** *Erigeron bonariensis, E. crispus, E. linifolius, Leptilon bonariense, L. linifolium*

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Conyza canadensis

Canadian horseweed

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General: Native annual herb; stems simple below inflorescence, 50–150 cm tall; glabrous to spreading–hairy. **Leaves:** Alternate, numerous; basal leaves up to 10 cm long, reduced above; mainly oblanceolate and petiolate below, increasingly linear and sessile above; serrate. **Flowers:** Inflorescence terminal, open, with numerous flower heads; involucres 2–4 mm high, 3–7 mm wide; inconspicuously radiate. **Fruits:** Achene **Ecology:** Disturbed soil from 1,000–8,000 ft (305–2440 m); flowers July–October. **Notes:** Characterized by its numerous alternate, serrate leaves and its terminal, open inflorescence with many small flower heads. Often weedy especially in disturbed and moist areas. **Ethnobotany:** Dried parts used as astringent for face. Used by Hopi as a poultice of rubbed plant on temples for headaches. Used by navajo for pimples, earaches, stomaches. **Etymology:** Name used by Theophrastus, Pliny, and Dioscorides, presumably from the Greek konops (flea). **Synonyms:** *Erigeron canadensis*

Diaperia verna var. verna

spring pygmycudweed

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General: Annual, diffusely branched from base with leafy, decumbent branches 5–15 cm long, these bearing small, densely crowded glomerules of heads nearly hidden by bractlike leaves. **Leaves:** Cauline leaves broadly spatulate 1.5–3.5 mm wide, 5–12 mm long, sessile, arachnoid–tomentose. **Flowers:** Heads subglobose, 2–3 mm high, bracts of fertile flowers oblong, scarious below, densely inflexed–woolly at apex, those of sterile flowers wooly farther down. **Fruits:** Achenes 1–1.2 mm long, smooth, yellowish. **Ecology:** Found in sandy soil from 1,500–3,000 ft (457–914 m); flowers March–April. **Notes:** Low taprooted annual that is woolly all over. **Ethnobotany:** Unknown **Etymology:** Verna means of spring. **Synonyms:** *Diaperia multicaulis, Evax multicaulis, Filaginopsis multicaulis, Filago nivea, F. verna*

Erigeron arisolius

arid throne fleabane, dry–sun fleabane

General: Annual or short–lived perennial, 3–70 cm, taproot. Erect stems, coarsely hirsute to hispid (hairs only along ribs, bases thickened), minutely glandular. **Leaves:** Mostly cauline, blades linear to linear–oblong, lanceolate to oblanceolate, 25–50 mm long by 2–5 mm wide, margins entire or sometimes lobed (lobes 1–2 pairs, coarse, rounded). **Flowers:** Heads 20–50+ in loose, corymbiform arrays (erect buds); involucres 2.5–3.5 mm by 5–8 mm, phyllaries in 3–4 series, minutely hispid, minutely glandular; ray flowers 125–180; corollas white, sometimes lavender or pinkish, 6–7 mm, laminae reflexing; disc corollas 2–25 mm (throats indurate and inflated). **Fruits:** Cypselae (achene with adnate calyx) 0.7–1 mm, 2–nerved (nerves orange), faces sparsely strigose to glabrate, pappus 12–17 bristles. **Ecology:** Found in grasslands, often in moist areas, sometimes with mesquite, in openings, roadsides, oak from 4,000–5,500 ft (1219–1676 m); flowers May–June. **Notes:** Of conservation concern. Similar in appearance to *E. divergens*; the erect buds and reflexing rays of *E. arisolius* contrast with the nodding buds and non–reflexing rays of *E. divergens*. *E. divergens* also has evenly distributed stem pubescence. **Ethnobotany:** Unknown for this species, other species in this genera have many uses. **Etymology:** Name means Early–Old–Man, named by Theophrastus, arisolius means dry sun. **Synonyms:** None

Erigeron divergens

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spreading fleabane

General: Native biennial herb; stems branched from base and above, 5–50 cm tall; spreading–hairy. **Leaves:** Alternate; basal leaves up to 5 cm long, reduced above; oblanceolate and long–petioled below, to nearly linear above; entire to slightly lobed. **Flowers:** Heads several to many on leafy peduncles; involucres 4–5 mm high; disk 7–11 mm wide; rays 75–150, 5–10 mm long, pale blue, pink or white; disk yellow. **Fruits:** Achenes sparsely hairy, 2–4 veined, with a double pappus of 5–12 long, fragile bristles surrounded by short, narrow scales. **Ecology:** Semi–arid, open to lightly wooded areas from 1,000–9,000 ft (305–2740 m); flowers May–August. **Notes:** Lacks the numerous stolons of *E. flagellaris;* related species *Erigeron colomexicanus* (=*E. divergens* var. *cinereus*), which has leafy stolons. **Ethnobotany:** Aerial parts are sometimes used to make oil to treat pets for fleas (Hence the common name – fleabane). Many *Erigeron spp*. used similarly. **Etymology:** Name means Early–Old–Man, named by Theophrastus. Divergens is ancient word for diverging. **Synonyms:** *Erigeron divergens* var. *typicus*

Eriophyllum lanosum

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white easterbonnets

General: Loosely floccose, spreadingly branched annual with slender stems 5–15 cm long, erect, ascending or the lowermost often decumbent. **Leaves:** Linear to narrowly oblanceolate, entire 1–3 mm wide, 5–20 mm long, acute to apiculate at apex, gradually narrowing toward base. **Flowers:** Slender peduncles, 1–6 cm long, campanulate involucres 5–8 mm wide, 5–6 mm high, 8–11 bracts, oblanceolate, short–acuminate, 1–1.5 mm wide floccose; ray flowers 8–10 with white ligules 6 mm long, 3–4 mm wide, yellow disk corollas, 2.5–3 mm long, sparsely glandular–puberulent, tube about equaling throat and limb. **Fruits:** Achenes, linear–obpyramidal, 3–3.5 mm long, sparsely strigose, black; pappus of 4–5 slender, lance–subulate, scaberulous awns about equaling corollas and about as many or a few more short, obtuse and whitish. **Ecology:** Found on arid mesas, gravelly slopes and washes from 1,000–3,000 ft (305–914 m); flowers March–April. **Notes:** Distinguished by its tomentose herbage, slender achenes and white to rosy rays. **Ethnobotany:** Unknown **Etymology:** Lanosum means woolly. **Synonyms:** *Eriophyllum lanosum*

Gamochaeta purpurea

spoonleaf purple everlasting

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General: Biennial or short–lived perennial, often flowering in first season, usually considerably branched from base and with ascending to erect stems 10–35 cm tall, closely woolly–canescent. **Leaves:** Broadly spatulate, 4–15 mm wide, 2–6 cm long, finely and compactly tomentose beneath, greenish and glabrate above, mostly obtuse to rounded and often minutely apiculate at apex, gradually narrowed to a petiole–like base. **Flowers:** Heads spicately arranged, inflorescence 1–10 cm long, heads 3.5–5 mm high, outer bracts brownish or purplish, at least tips, obtuse, shining, inner most bracts oblong, thinner and paler than outer, often acutish or minutely erosulate and apiculate at apex; pistillate flowers about 1.5–1.8 mm long, very slender, pappus bristles 7–15, connate in funnelform ring at base, falling together. **Fruits:** Achenes straw–colored, about .5 mm long, faintly roughened. **Ecology:** Found on open plains and slopes, ditch banks and waysides from 3,000–7,500 ft (914–2286 m); flowers from March–May. **Ethnobotany:** Infusion of dried plant taken for the grippe and colds. **Etymology:** Gamochaeta is from Greek gamos, marriage, stigma, or female part, and chaite, bristle, mane, long hair, while purpurea means purple. **Synonyms:** *Gnaphalium purpureum*

Gnaphalium palustre

western marsh cudweed

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General: Low annual, commonly much branched at base with erect or ascending stems 10–25 cm long, herbage loosely floccose–lanate. **Leaves:** Wool persistent on stems but often more or less deciduous from spatulate to linear–spatulate leaves, these 5 mm wide and 3 cm long but usually smaller, uppermost ones subtending and exceeding heads, usually lanceolate to oblong. **Flowers:** Heads in dense subglobose glomerules at tips of branchlets, each 2–3 mm high, involucral bracts deeply embedded in loose wool, only scarious tips showing, scarious part usually obtuse, often denticulate; flowers and pappus bristles about equaling longer involucral bracts; pappus falling separately or in groups. **Fruits:** Achenes about 0.5 mm, papillate. **Ecology:** Found along streams, grassy plains and on valley floors from 1,000–5,000 ft (305–1524 m); flowers March–October. **Notes:** Diagnostics for this plant are the heads clustered at the tips of the stem and branches and the loosely floccose–woolly herbage. **Ethnobotany:** Unknown for this species, but others in the genera have medicinal use. **Etymology:** Gnaphalium is derived from the Greek gnaphalon, a lock of wool, and palustre means growing in marshes. **Synonyms:** *Filaginella palustris*

Gutierrezia microcephala

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threadleaf snakeweed

General: Native perennial subshrub from a woody base; stems more–or–less herbaceous (though generally more woody than *G. sarothrae*), branched, 30–100 cm tall, dying back somewhat in winter. **Leaves:** Alternate; primary leaves linear to linear–oblanceolate, 2–5 cm long, 2–4 mm wide, often deciduous by flowering; secondary leaves in fascicles in axils of primary ones, shorter and narrower. **Flowers:** Heads numerous, usually in clusters of 3–several at tips of branchlets; inflorescence usually dry and persistent throughout non–growing season above green living parts; involucres 3–4 mm high; disk 1–1.5 mm wide, yellow; rays 1–2, 3–4 mm long; phyllaries whitish or yellowish with a green tip. **Fruits:** Achenes 2–3 mm long, hairy, with a pappus 0.5–1 mm long. **Ecology:** Dry, open, often disturbed/overgrazed areas from 1,000–7,000 ft (305–2134 m); flowers June–October. **Notes:** Similar to *G. sarothrae*, except for the somewhat more woody stems and smaller flower heads. Usually only one ray and one disk flowers. Poisonous and unpalatable to livestock. Presence indicates overgrazing, and may decrease biodiversity even after grazing has stopped. Invasive in overgrazed lands. **Ethnobotany:** Hopi use for gastric problems, as decorations for paaho (prayer sticks), and in roasting sweet corn. Navajo use it to heal cuts and bites. The ashes are rubbed on the forehead to cure a headache, nervousness, or fever. The flowers make a yellow dye. **Etymology:** Gutierrezia is named for Pedro Gutierrez (Rodriguez), a 19th century Spanish noblemen and botanist, while microcephala means small head. **Synonyms:** *G. sarothrae* var. *microcephala*, *Xanthocephalum microcephalum*, *Brachyris microcephala*

Helianthus annuus

sunflower

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General: Native annual herb; stems stout, erect, 30–200 cm or more tall; rough–hairy. **Leaves:** Only the lowermost leaves opposite, otherwise alternate; long–petioled, ovate or even broader, especially below, 4–20 cm long, 3–15 cm wide, coarsely toothed to (less commonly) almost entire; rough–hairy. **Flowers:** Heads solitary or few at the ends of stems and branches; phyllaries ovate with a long narrow tip, more–or–less pubescent and ciliate–margined; disk usually 3–4 cm wide, purplish–brown or occasionally yellow; rays 15–40 mm long, yellow; central receptacle bracts inconspicuously pubescent at the tips. **Fruits:** Achenes plump, glabrous or finely pubescent, with a pappus of 2 or more awns or scales. **Ecology:** Open or disturbed areas from 1,000–7,000 ft (305–2134 m); flowers March–October. **Notes:** A related species, *H. petiolaris*, is very similar but smaller and more slender in all respects, with phyllaries lanceolate and usually not ciliate–margined, and the central receptacle scales conspicuously white–bearded at the tip. Medium drought tolerance, no fire tolerance. Stalks used as fuel, livestock fodder, poultry food, and silage. Stems used as source of commercial fiber. Fiber may be used in paper. Host plant for California Patch, Bordered Patch, and Painted Lady butterflies. **Ethnobotany:** Seed is dried, ground and mixed with water to make a coffee–like drink. It is also ground to make sunflower seed cakes or crushed and boiled to make oil. The oil relieves coughs. The pith of a sunflower stalk has also been burned and used as a wart remover. **Etymology:** From ancient root helio– for sun loving and meros– meaning part. **Synonyms:** Numerous, see USDA Plants db

Helianthus petiolaris

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prairie sunflower

General: Erect stems, strict to moderately branched annual 3–10 dm tall or more with scaberulous but distinctly green stems and leaves. **Leaves:** Petioles slender 1–5 cm long, sparsely scaberulous, often tinged with red, leaf blades narrowly lanceolate to ovate–lanceolate, 0.5–5 cm broad, to 15 cm long, cuneate to subtruncate at base, acute at apex, scaberulous and dark green above, paler and more densely pubescent beneath, margins entire to serrate or sinuate–serrate. **Flowers:** Slender peduncles to 15 cm long or more, sparsely puberulent below, densely so just beneath heads; involucres 1–1.8 cm wide, phyllaries lanceolate to lance–ovate, 6–10 mm long, slightly acuminate, equaling or barely surpassing disk corollas, scaberulous dorsally; ligules 1.5–2 cm long; yellow disk corollas 4–5 mm long, nearly glabrous, lobes dark brown to nearly black; receptacular bracts rather thin, puberulent dorsally, entire and acuminate to obscurely tridentate at apex, inner ones black–tipped. **Fruits:** Achenes 4.5–5 mm long, striate and faintly mottled, sparsely silky–puberulent below, more densely so above; pappus paleae about 1 mm long, thin, caducous. **Ecology:** Found on hillsides and valley floors from 500–7,500 ft (152–2286 m); flowers March–October. **Notes:** *H. petiolaris*, is very similar to *H. annuus* but smaller and more slender in all respects, with phyllaries lanceolate and usually not ciliate–margined, and the central receptacle scales conspicuously white–bearded at the tip. **Ethnobotany:** Used as a spider bite medicine by the Hopi, for good luck in hunting when flower infusion is sprinkled on clothing, as life medicine, as an ointment on sores and swellings, seeds saved and eaten, ground as meal. Flower petals mixed with corn meal for ceremonial powder, and used as an indicator of rainfall. **Etymology:** From ancient root helio– for sun loving and meros– meaning part, petiolaris means with conspicuous petioles. **Synonyms:** None

Heliomeris longifolia

longleaf false goldeneye

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General: Native annual herb; stems slender, simple or often branched above, 15–70 cm tall; sparsely to moderately pubescent with mostly appressed hairs, or almost. **Leaves:** Opposite below, usually alternate above; linear to lanceolate, 1.5–11 cm long, 1.5–14 mm wide, with a deep midvein; sparsely to moderately pubescent with mostly appressed hairs, or almost glabrous. **Flowers:** Heads solitary or in loose clusters; involucres 3–7 mm high; disk 6–14 mm wide, yellow; rays mostly 8–12, 8–17 mm long, yellow. **Fruits:** Achenes 2.5–3 mm long, with no pappus. **Ecology:** Found on plains, arroyos, along washes, and on slopes from 2,500–8,000 ft (760–2440 m); flowers May–November. **Notes:** Two varieties thought to occur in at Tumacacori: *Heliomeris longifolia* var. *longifolia* and *Heliomeris longifolia* var. *annua*; var. *longifolia* has wider leaves and slightly bigger flowers than var. *longifolia* (description as written accounts for both varieties). **Ethnobotany:** Ramah Navajo use as life medicine and fodder for sheep food. **Etymology:** Heliomeris is from ancient roots helio– for sun loving and meros– meaning part, while longifolia means long leaved. **Synonyms:** *H. annua, Viguiera annua, V. longifolia*

Heliomeris multiflora var. *multiflora*

showy goldeneye

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General: Native perennial herb, sometimes slightly woody at base; stems several, often somewhat reddish, 25–130 cm tall; more–or–less covered with short, stiff hairs. **Leaves:** Opposite below, often alternate above; linear to ovate, 2–25 mm wide, 3–8 cm long, with a deep midvein; covered with short, stiff, appressed hairs. **Flowers:** Heads solitary or in loose clusters; involucres 5–10 mm high; disk 6–15 mm wide, yellow; rays mostly 10–16, 7–20 mm long, yellow. **Fruits:** Achenes 2.5–3 mm long, with no pappus. **Ecology:** Open slopes and riparian areas from 3,000–9,500 ft (915–2895 m); flowers May–October. **Notes:** One variety occurs in the area: var. *multiflora* has wider leaves and occurs in more moist habitats. **Ethnobotany:** Navajo use for sheep and deer feed. Gosiute report use of seeds for food. **Etymology:** From ancient roots helio– for sun loving and meros– meaning part. Multiflora is ancient word for many–flowered **Synonyms:** *Viguiera multiflora*

Heterotheca subaxillaris

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camphorweed

General: Erect annual to biennial herb 40–150 cm tall with striate and short–hirsute stems, moderately branched above. **Leaves:** Leaves ovate–lanceolate to somewhat lyrate in outline, 0.8–3.5 cm wide, 2.5–10 cm long, at least upper cordate–clasping, serrate–dentate, acute to obtuse and apiculate at apex, short hirsute–scabrous on both sides. **Flowers:** Heads corymbosely or broadly paniculately arranged, 6–8 mm high, 10–18 mm wide at anthesis; involucral bracts in several series, lance–linear to subulate, rather rigid, outer ones acute and apiculate, innermost attenuate and scraggly brush of spreading and ascending hairs on terminal part, pale greenish to stramineous below, tips often brownish or reddish; ray flowers 30–50, ligules about 5 mm long, 1 mm wide, yellowish but soon turning brown; corollas 4–5 mm long. **Fruits:** Achenes of ray flowers about 3 mm long, glabrous, epappose; achenes of disk flowers about as long as ray achenes but more slender, densely silky–villous; pappus bristles reddish–brown, longer inner ones about 15 mm long. **Ecology:** Found along streams, ditches, fence–rows, and in disturbed soils from 1,000–5,500 ft (305–1676 m); flowers August–November. **Notes:** Sometimes known as camphor–weed because of the odor of the plant. **Ethnobotany:** Unknown for this species, other species in this genera have medicinal, poisonous, and as a dermatological aid. **Etymology:** Heterotheca is from Greek heteros, different, and theke, ovary for the different achenes, while subaxillaris means below the axil. **Synonyms:** Many, see Tropicos

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Lactuca serriola

prickly lettuce

General: Annual herb; leafy–stemmed with milky sap. Introduced from Europe. Stems 30–150 cm tall; glabrous for most of length, but prickly at bottom of stem. **Leaves:** Leaves have large prickles on the midrib on the underside, and have finer prickles on the margins of the leaves. Leaves are sometimes lobed, and are clasping. Milky sap is apparent. **Flowers:** Numerous small heads arranged in a panicle or corymb. Flowers are all ligulate and perfect, yellow, often drying to blue. **Fruits:** Achenes, white pappus **Ecology:** Wide range, weed of fields, waste places, and disturbed areas, naturalized throughout much of the U.S.; flowers July–September. **Notes:** Distinguished by milky sap, prickles on midvein of underside of leaf. Differs primarily by leaves without prickly margins and achenes that are not spinulose. The inflorescence also resembles a spike, whereas the inflorescence of *L. serriola* is an open panicle, with spreading branches. **Ethnobotany:** Navajo use steeped plant tea as ceremonial emetic. **Etymology:** Lactuca is Latin for milky sap; serriola is for ranked salad leaves. **Synonyms:** *L. scariola*

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Laennecia coulteri

conyza

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General: Annual herb; forming densely hairy basal rosette when young. Stems 10–100 cm tall; glandular or sticky hairs all over plant, hairs resembling spider web (arachnoid); taproot. **Leaves:** Numerous leaves, almost all cauline and clasping and with an oblong shape, many of them are irregularly toothed, especially near the base. Leaves become smaller and have many course teeth. **Flowers:** Corollas of the pistillate flowers are tubular–filiform, without a ligule. **Fruits:** Achenes, 0.5–0.8 mm long, with a very short neck. **Ecology:** Found in ditch banks, dry stream–beds and disturbed sites from 1,500–9,000 ft (457–2743 m); flowers September–October. **Notes:** Similar to *L. schiedeana* except that the achenes in *L. schiedeana* are 1–1.4 mm long, and the leaves are much less toothed. **Ethnobotany:** Unknown **Etymology:** Laennecia is named for Rene Theophile Hyancinthe Laennec (1781–1826), coulteri is named for John Merle Coulter (1851–1928) an American botanist. **Synonyms:** *Conyza coulteri*

Laennecia sophiifolia

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leafy marshtail

General: Annual herb, forming densely hairy basal rosette; stems 10–100 cm tall, glandular hairs all over plant, hairs resembling spider web; taproot. **Leaves:** Leaves 1–3.5 cm long and once or twice pinnately parted into linear lobes. **Flowers:** Corollas of the pistillate flowers are tubular–filiform, without a ligule, only about 3 mm high. **Fruits:** Achenes glabrous and puncticulate in fine lines. **Ecology:** Found on arid hills, mesas, and plains from 2,500–6,000 ft (762–1829 m); flowers August–October. **Notes:** Less densely villous and more glandular than *L. coulteri*, along with smaller heads. **Ethnobotany:** Unknown **Etymology:** Laennecia is named for Rene Theophile Hyancinthe Laennec (1781–1826). **Synonyms:** *Conyza coulteri* var. *tenuisecta*, *C. sophiifolia*, *Eschenbachia tenuisecta*

Machaeranthera tagetina

©2005 Carlos M. Gonzalez Leon

mesa tansyaster

General: Annual, or possibly biennial under favorable conditions, stems slender, moderately branched, 10–40 cm long, puberulent with both eglandular and gland–tipped hairs, slightly cinereous. **Leaves:** Lower leaves pinnatifid, 1.5–2.5 cm long, 3–7 lobes acute, spinulose–tipped, 0.5–3 mm broad, 2–6 mm long, upper leaves reduced and denticulate, all hirsutulous and glandular–puberulent. **Flowers:** Stems leafy to heads, these 10–15 mm wide, bracts lance–linear, 3–8 mm long, green herbaceous part triangular to lance–triangular, nearly as wide as chartaceous part, densely glandular; rays 10–20, ligules 2–2.5 mm wide, 6–7 mm long, purplish; disk corollas 6–6.5 mm long, slender, slightly and gradually ampliate, glabrous. **Fruits:** Achenes about 4 mm long, silky–villous; pappus bristles slender, 5–6 mm long, whitish. **Ecology:** Found on arid mesas, plains, and roadsides from 1,500–4,500 ft (457–1372 m); flowers from April–October. **Ethnobotany:** Unknown for this species, other species in this genus have limited use. **Etymology:** Name comes from the Greek "machaira" meaning sword and "anthera" or anther, referring to the shape of the anther–tips, tagetina refers to the genus Tagetes. **Synonyms:** *Aster tagetinus*

Machaeranthera tanacetifolia

tansyleaf tansyaster

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General: Native annual herb; 0.5–4 dm tall, highly branched when mature; taprooted. **Leaves:** Numerous, 2–10 cm long, pinnately incised to tripinnatifid. **Flowers:** Heads terminal on the branches; large, showy; involucre glandular and sometimes puberulent, imbricate bracts in several series with long, loose or reflexed green tips; 12–36 rays, blue. **Fruits:** Silky achenes 2.5–4 mm long. **Ecology:** Dry, open places and along streams and washes, lowlands from 1,000–6,000 ft (305–2300 m); flowers March–October. **Notes:** This is a very distinct plant with characteristic pinnately incised to tripinnatifid leaves, sharp bracts, and blue ray flowers. This is a very distinct plant with very characteristic leaves and sharp bracts. **Ethnobotany:** Unknown for this species, other species in this genus have limited use. **Etymology:** Name comes from the Greek "machaira" meaning sword and "anthera" or anther, referring to the shape of the anther–tips. **Synonyms:** *Aster tanacetifolius, M. coronopifolia, M. parthenium*

Malacothrix clevelandii

Cleveland's desert dandelion

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General: Diffusely branched, slender–stemmed annual 10–60 cm tall with numerous heads paniculately arranged at tips of branches; herbage glabrous throughout, stems and lower leaves often reddish–tinged. **Leaves:** Basal leaves linear to narrowly lanceolate, 2–7 cm long to 1.5–2 cm wide, lobed to pinnatifid or less commonly with linear segments; cauline leaves remote, linear to lanceolate, entire or nearly so, gradually reduced upward to linear bracts 5–10 mm long. **Flowers:** Involucres cylindro–campanulate, 4–8 mm tall, 2–5 mm broad, bracts linear, 0.4–0.7 mm wide, equal and scarcely imbricated, green with purple–dotted tips, margins narrow, scarious; basal bracts calyculate, ovate, 1–2 mm long; ligules pale yellow or rarely white, exceeding involucre only 1–3 mm. **Fruits:** Achenes linear–fusiform, truncate at apex, 1.4–1.8 mm long, finely 15–ribbed, 5 ribs more prominent that rest, buff to pale brown, truncate crown, bearing 14–17 minute white, scarious teeth; deciduous pappus bristles silvery white, 5–6 mm long. **Ecology:** Found along arroyos and streams, on slopes and grassy hillsides from 2,500–4,500 ft (762–1372 m); flowers from March–May. **Notes:** Told apart from *Malacothrix fendleri* by the pale yellow petal color. **Ethnobotany:** Unknown for this species, but other species in this genera have use as food and medicine. **Etymology:** Malacothrix is from malakos, soft and thrix, hair, while clevelandii is named after Daniel Cleveland (1838–1929) a botanical collector. **Synonyms:** None

Malacothrix fendleri

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Fendler's desert dandelion

General: Sparingly to moderately branched annual with spreading to ascending stems 5–30 cm long, stems, upper leaves and involucres glabrous. **Leaves:** Basal leaves oblong–oblanceolate to spatulate in outline, 2–8 cm long, sinuately lobed to remotely pinnatifid, lobes or teeth deltoid to oblong, mostly less than 1 cm long, sinuately lobed to remotely pinnatifid, lobes or teeth deltoid to oblong, mostly less than 1 cm long, petioles often with a dense mat of wool on upper surface near base, cauline leaves few, smaller, glabrous or essentially so. **Flowers:** Fairly numerous heads, paniculately arranged or some solitary at tips of unbranched but sparsely leafy branches, involucres broadly campanulate, 7–8 mm tall, basal bracts ovate, 1.5–3 mm long, main ones equal, scarcely imbricated, 1–1.5 mm wide, purplish at tip and along midrib, margins narrowly scarious; ligules yellow, washed with purple or lavender on underside, 7–10 mm long. **Fruits:** Achenes cylindric, 1.8–2 mm long, dark brown, finely and evenly 15–ribbed or striate, glabrous; pappus bristles white, 5–6 mm long, 1–2 of them persistent or all of them deciduous. **Ecology:** Found on sandy pains, mesas, and rocky hillsides from 2,000–5,000 ft (610–1524 m); flowers March–June. **Ethnobotany:** Used for sores, seeds for food, and as an eye wash for sore eyes. **Etymology:** Malacothrix is from malakos, soft and thrix, hair, fendleri is named for Augustus Fendler (1813–1883). **Synonyms:** None

Malacothrix glabrata

smooth desert dandelion

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General: Ascending, moderately branched, wholly glabrous plant except slightly pubescent on youngest leaves in some plants, and on smallest outer involucral bracts, stems 10–40 cm tall. **Leaves:** 1–2 cauline leaves near base, usually with 2–3 or rarely only 1 large head at tips of upper branches; basal leaves oblong–oblanceolate, 2–8 cm long, sinuately lobed to remotely pinnatifid into linear segments, glabrous. **Flowers:** Involucres 5–12 mm high, glabrous or lowest bracts sparsely arachnoid–pubescent; ligules yellow, often tinged with purple or lavender on lower surface. **Fruits:** Achenes cylindric, 1.6–2 mm long, finely and evenly 15–ribbed or nerved, glabrous, truncate and with a low ring of tissue at apex, bearing a white–scarious, denticulate ring inside that tissue; pappus bristles white, 5–6 mm long. **Ecology:** Found on sandy and gravelly plains, rocky hillsides and mesas below 7,000 ft (2134 m); flowers March–June. **Ethnobotany:** The roots were used by the Apache as a blood medicine. **Etymology:** Malacothrix is from malakos, soft and thrix, hair, glabrata means somewhat glabrous. **Synonyms:** *Malacothrix californica* var. *glabrata*

Melampodium longicorne

Arizona blackfoot

2009 NPS/Steve Buckley

General: Erect annual 10–40 cm tall moderately branched from near base, stems and branches spreading–hispidulous. **Leaves:** Oblanceolate to oblong–spatulate, 5–15 mm wide (without projecting lobes), 1.5–5 cm long, entire with 1–2 pairs of abruptly spreading lobes 3–9 mm long, cuneate toward sessile base, acute at apex, blade sparsely scabro–hispidulous. **Flowers:** Heads sessile or subsessile at tips of branchlets, subtended by leaves 3–6 times as long as heads, outer involucral bracts distinct, obovate, abruptly short–acuminate, sparsely hispid on midrib and along margins, 3.5–4 mm long; ray flowers inconspicuous, ligules 1–2 mm long or less, barely equaling or usually shorter than outer involucral bracts; disk flowers few, often only 3–5, inconspicuous. **Fruits:** Fruit about 4 mm long, lightly but distinctly ridged, 3 low ridges on each lateral face and one fainter dorsal one, outer angles each bearing 1–3 low conical tuber–like swelling or projection, oblique cup, outer margin drawn into a recurvingly coiled, puberulent awn; achene black, shining, longitudinally striate. **Ecology:** Found in canyons, on hillsides, along streams, and often on limestone from 4,000–5,500 ft (1219–1676 m); flowers March–October. **Notes:** Yellow ray flowers and the larger hooded fruit enveloping the achene set this plant apart from *M. leucanthum*. **Ethnobotany:** Unknown **Etymology:** Longicorne refers to the long spur, or hook on the fruit. **Synonyms:** None

Parthenice mollis

2010 NPS/Steve Buckley

annual monsterwort

General: Moderately to profusely branched herb to 2 m tall. **Leaves:** Ample, blades lance–ovate to broadly ovate–cordate, 1–15 cm broad, 3–20 cm long, upper smaller ones entire, larger coarsely and irregularly dentate, bright green and sparsely puberulent to glabrate above, paler and more densely puberulent beneath; petioles to 10 cm long, blades decurrent on upper portion. **Flowers:** Panicles 10–40 cm long, involucres 4–5 mm in diameter at anthesis; bracts obtuse or rounded, thin, densely short–puberulent and somewhat scurfy; corollas of sterile disk flowers 1–1.3 mm long, tube very short, abruptly expanding into narrowly funnelform throat, lobes minute, densely cobwebby with hairs of adjacent corollas intertangled; corollas of pistillate flowers tubular, about .3 mm long or less. **Fruits:** Achenes 1–1.3 mm long, ovoid, compressed, attached to and falling with paleae of 2 disk flowers immediately adjacent. **Ecology:** Found along watercourses, hillsides, and mesas from 3,500–5,000 ft (1067–1524 m); flowers February–September. **Notes:** Endemic to Arizona. Very unique in appearance, with stalks to 5 cm in diameter, or larger. Odd flowers; plant appears to be farinose. **Ethnobotany:** Unknown **Etymology:** Parthenice alludes to members of the genus Parthenium, mollis means soft or with soft velvety hair. **Synonyms:** None

Pectis prostrata

2009 NPS/Steve Buckley

spreading cinchweed

General: Diffuse annual branching from base, 1–30 cm across, with prostrate to ascending stems, often mat–forming, densely leafy and puberulent. **Leaves:** Linear to narrowly oblanceolate, 10–40 mm long by 1.5–7 mm wide, margins with 4–12 pairs of bristles 1–3 mm near base, faces glabrous, dotted below with round oil glands 0.1–0.3 mm. **Flowers:** Heads borne singly or in congested cymiform arrays on peduncles 1–2 mm, surpassed by subtending leaves; involucres campanulate, cylindric to ellipsoid; phyllaries coherent, oblong to obovate, 5–8 mm long by 1–3 mm wide, dotted in submarginal rows of elliptic oil glands, 0.1–0.3 mm; ray florets 5, yellow, corollas 2.5–3.5 mm, scarcely surpassing phyllaries; disc florets 3–17, about 2 mm long. **Fruits:** Cypselae 2.5–4.5 m, strigillose, with pappus of (2 ray and 5 disc) lanceolate scales, 1.5–2.5 mm long. **Ecology:** Found in open, dry and hot, often sandy soils from sea level to 6,500 ft (1981 m); flowers July–November. **Notes:** In this species the phyllaries stay together and fall as a unit with the achenes. Notably, the *Pectis* have C4 photosynthetic pathways which accounts for why they inhabit such hot, dry sites. **Ethnobotany:** Unknown **Etymology:** Pectis is from the Greek pecteo, to comb, while prostrata means prostrate. **Synonyms:** *Pectis multisetosa*, *P. prostrata* var. *urceolata*

Pseudognaphalium canescens ssp.*canescens*

Wright's cudweed

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General: Erect or ascending, short–lived, perennial herb much branched at base, densely and closely white–woolly. **Leaves:** Leaves crowded and matted at base, oblong to oblanceolate or somewhat spatulate, to 1 cm wide, 2–4.5 cm long, cauline leaves oblong to oblong–oblanceolate, 1.5–5 mm wide, 1.5–3 cm long, densely tomentose on both sides, rarely slightly greenish on upper surface, acute and apiculate at apex, sessile and not at all or only slightly decurrent at base. **Flowers:** Inflorescence of numerous, small, ovoid–turbinate heads arranged in open corymbose panicle of few–headed glomerules, each head 4–5.5 mm long; bracts well imbricated in 3–5 series, white and shining, outermost woolly at base only, mostly obtuse, sometimes apiculate; pistillate flowers capillary about 3 mm long, about equaled by pappus bristles; perfect flowers about same length. **Fruits:** Achenes ovoidal, 0.5–0.7 mm long, pale brown, smooth, dull; pappus bristles distinct. **Ecology:** Found on arid rocky slopes from 3,500–7,000 ft (1067–2134 m); flowers August–October. **Ethnobotany:** Ground flowers inhaled for head colds, or leaves used as a paste for liniment. **Etymology:** Pseudognaphalium is false gnaphalium, the former genus name, and canescens means covered with short gray or white hairs. **Synonyms:** *Gnaphalium canescens, G. canescens* ssp. *canescens, G. wrightii*

Pseudognaphalium leucocephalum

white cudweed

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General: Erect perennial with 1 to several stems 30–80 cm tall, stems leafy, persistently tomentose with dense, finely packed wool. **Leaves:** Narrowly linear–attenuate or lowermost linear–oblanceolate, 1.5–6 mm wide, 2–8 cm long, green and only puberulent glandular above, persistently white–tomentose beneath, sessile. **Flowers:** In corymbose panicle, often 20 cm broad, many heads, turbinate, 6–7 mm high, 7–8 mm wide at anthesis, bracts well inbricated in 4–6 series, broadly ovate to oblong, dull pearly white, obtuse and erosulate at apex, only bases of outermost embedded in loose wool; flowers 4 mm long, pistillate barely equaling capillary pappus bristles, perfect ones 0.1–0.3 mm longer than pistillate or equaling them. **Fruits:** Achenes 0.8 mm long, pale brown or stramineous, smooth, dull, pappus bristles distinct, falling separately. **Ecology:** Found in sandy washes, dry hillsides, and disturbed areas from 2,000–5,000 ft (610–1524 m); flowers July–October. **Notes: Ethnobotany:** Unknown for this species, but others in genus have medicinal use. **Etymology:** Pseudognaphalium is false gnaphalium, the former genus name, leucocephalum means white or dusky–headed. **Synonyms:** *Gnaphalium leucocephalum*

Rafinesquia neomexicana

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New Mexico plumseed

General: Simple to very branched, glabrous plant 15–50 cm tall with weak, zigzag, fistulous, purplish stems, frequently growing upward through shrubs. **Leaves:** To 15 cm long, 1–3 cm wide, deeply and often rucinately pinnatifid, lobes to 2 cm long, acute; blades sessile and auriculate–clasping or short–petioled. **Flowers:** Heads solitary and scattered at tips of branchlets, involucres about 2 cm long, main bracts lance–linear, with purplish midribs; ligules white within, rose–tinged without, outer ones 15–20 mm long. **Fruits:** Achenes 12–15 mm long, body tapering only slightly into beak, nearly twice as long as latter, minutely and closely papillate or puberulent, pale to dark gray; pappus bristles 10–15 mm long, silvery white, about three times as wide as thick at base. **Ecology:** Found on arid plains, mesas, and gentle slopes 200–3,500 ft (61–1067 m); flowers March–May. **Notes:** One of the more conspicuous flowers in the spring. **Ethnobotany:** Unknown **Etymology:** Rafinesquia is named for Constantine Samuel Rafinesque–Schmaltz (1783–1840) a 19th century botanist, while neomexicana is for New Mexico. **Synonyms:** None

Senecio flaccidus

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threadleaf ragwort

General: Native soft shrub or half–shrub or suffrutescent perennial; up to 1 m in height; numerous long, slender erect stems; dies back annually to ground; herbage tomentose. **Leaves:** Leaves numerous, well–distributed along the stem; 3–10 cm long, linear or linear–filiform, less than 2 mm wide, sometimes with a few short to elongate, spreading lateral segments. **Flowers:** Heads short–pedunculate in small to fairly large cymose clusters on each stem; seldom > 20 per stem, relatively large, with numerous involucral bracts (20–30), 7–11 mm long; bracteoles small and inconspicuous, not more than 1/4 the height of involucre. **Ecology:** Common on dry plains, mesas, slopes and along washes, and common in sagebrush and pinon–juniper zone, from 2,500–7,500 ft (760–2285 m); flowers May–October. **Notes:** This species has numerous long, slender tomentose stems, giving the plant a grayish appearance; leaves are cauline, numerous, and linear to filiform; cymose clusters of flower heads occur on each stem. **Ethnobotany:** Senecio species are poisonous. Navajo use this species as medicine for arthritis, rheumatism and boils. **Etymology:** From the Latin senex – old man. Flaccidus is ancient word for flabby. **Synonyms:** *S. douglasii* var. *jamesii, S. douglasii* var. *longilobus, S. douglasii* ssp. *longilobus, S. filifolius, S. longilobus*

Sonchus asper

Impact risk level H M L

spiny sowthistle

General: A simple or scantily branched annual 0.3–2.5 m tall, herbage glabrous, peduncles and involucres with tack–shaped, glandular hairs. **Leaves:** Basal leaves oblanceolate to spatulate in outline, to 30 cm long, blades lyrately or rucinately pinnatifid into broadly ovate to oblong lobes and these saliently dentate with spinulose teeth or sometimes blades only dentate; petiole often equaling blade, cauline leaves similar but usually sessile, auricles to 2 cm long, rounded and saliently toothed. **Flowers:** Heads urceolate–turbinate in bud, on peduncles 1–10 cm long, involucres 10–16 mm long and campanulate or cylindric in anthesis; main bracts lance–linear, acute to attenuate, thickened along midrib toward base in age, glabrous or sparsely glandular–pubescent, outer bracts ovate, more commonly glandular, but rarely thickened; ligules 3–6 mm long, pale yellow, quickly withering. **Fruits:** Achenes ovoid 2–2.5 mm long, about 1 mm wide, strongly compressed, each face 3–ribbed and smooth in intervals, lateral margins very thin; pappus hairs 6–10 mm long, often much tangled, holding several achenes together in cluster. **Ecology:** Widespread, along roadsides, fields, and disturbed sites from 200–8,000 ft (61–2438 m); flowers April–August. **Notes:** Told apart from *S. oleraceus* by achenes, which are strongly 3–5 ribbed on each face, thin–margined; while *S. oleraceus* achenes are striate and strongly wrinkled transversely, not thin–margined. **Ethnobotany:** Given to babies as a sedative, taken as a heart medicine, while other tribes considered this species a poison. **Etymology:** Sonchus is the Greek name for sowthistle, while asper means rough. **Synonyms:** *Sonchus asper* ssp. *asper*, *S. asper* ssp. *glaucescens*, *S. nymanii*

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H M L Impact risk level

Sonchus oleraceus

common sowthistle

General: Annual introduced herb; native to Europe; 10 cm–2 m tall; from a short taproot; glabrous except for an occasional spreading gland–tipped hair on the involucres and peduncles; milky sap. **Leaves:** Leaves alternate; pinnatifid to occasionally merely toothed; soft; the margins only weakly or scarcely prickly; 6–30 cm long and 1–15 cm wide; all but the lowermost prominently auriculate; leaves progressively less divided upwards. **Flowers:** Heads several in a corymbiform inflorescence; relatively small; 1.5–2.5 cm wide in flower; involucre 9–13 mm high in fruit; yellow rays; 120–150 flowers per plant. **Fruits:** Achenes 2.5–3.5 mm long; transversely rugulose and 3–5 ribbed on each face. **Ecology:** Disturbed areas, from 600–8,000 ft (185–2440m); flowers March–October. **Notes:** Two other species of *Sonchus* in the Intermountain West. *S. arvensis* is also native to Europe and widely introduced in North America; prefers fairly moist to wet soil. It is a perennial with deep–seated creeping roots and relatively large flowers. *S. asper* is an annual introduced species occurring in meadows, along streambanks and obviously disturbed habitats. It differs from *S. oleraceus* by having mature several–nerved achenes that are not rugulose (mature achenes are transversly rugulose as well as several–nerved in *S. oleraceus*). **Ethnobotany:** Young leaves are used in salads or cooked in curry and rice dishes. Salves are used to treat hemorrhoids and ulcers. Tea is used to treat anxiety and asthma. The milky juice is often used as eyewash. **Etymology:** Sonchus is the Greek name for sowthistle, while oleraceus means resembling garden herbs or vegetables used in cooking. **Synonyms:** None

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Impact risk level H M L

Tagetes minuta

muster John Henry

General: Introduced exotic annual 2–10 dm tall, erect, glabrous. **Leaves:** Leaflets serrate or dentate, pinnately divided, dotted with embedded with oil glands. **Flowers:** In terminal cymes, peduncles 5–5.5 mm, slender, involucre 7–10 mm, narrowly cylindric, phyllaries 3–5, not splitting apart; ray flowers 1–3, corollas pale yellow, ligules 1–2 mm, inconspicuous; disk flowers 3–5, corollas yellow 3–4 mm. **Fruits:** Cylindric achene 4.5–7 mm, pappus of 1–2 acuminate scales, 2–3 mm, and 3–5 ovate to lanceolate scales. **Ecology:** Found in disturbed places below 3,500 ft (1067 m); flowers throughout year. **Notes:** This is considered invasive in Arizona, still uncertain as to its distribution. **Ethnobotany:** Unknown **Etymology:** Tagetes is named after the Etruscan god Tages, while minuta means very small, minute. **Synonyms:** *Tagetes bonariensis, T. glandulifera, T. glandulosa, T. porophylla*

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Tithonia thurberi

Arizona sunflowerweed

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General: Slender, moderately branched annual 0.5–2 m tall with whitish, striate stems sparsely to densely hispid–pilose with spreading; tuberculate–based, coarse hairs interspersed with finer ones, eventually glabrate. **Leaves:** Lower leaves opposite, upper ones alternate, blades ovate to broadly triangular–ovate, acute to acuminate, 3–27 cm wide, 5–28 cm long, cuneately decurrent along petiole from a cuneate to broadly cordate base, crenate–dentate with mucronulate teeth, deep green and hispidulous with incurved hairs above, paler green and sparsely granular or hispidulous and hispid–pilose along veins beneath, petioles 2–10 cm long. **Flowers:** Fistulose peduncles, striate, 10–30 cm long, spreadingly hispid–pilose and finely hispidulous; heads 2.5–3.5 cm wide, involucres of graduated bracts in 3 series, 1–2 cm tall, outer bracts lanceolate, oblong–ovate, or obovate, acute to acuminate; rays 5–10, orange–yellow, oval–oblong 4–6 mm wide, 7–12 mm long; disk corollas 6–6 mm long, hispidulous on lobes, glandular–pilosulous below, tube about 1 mm long, throat cylindrical; oblong receptacular bracts 1–1.5 cm long, abruptly acuminate at tip with a small tooth on each side just below tip, striate–ribbed, smooth. **Fruits:** Oblong–obovate achenes, 8.5–9 mm long, pappus awn solitary on outer angle of achene, linear–subulate, 5–6 mm long. **Ecology:** Found in rich soil along banks of streams, ditches, and margins of water bodies from 3,000–4,500 ft (914–1372 m); flowers August–September. **Notes:** This plant is distinguishable by its orange rays and sunflower–like leaves and habit. **Ethnobotany:** Unknown **Etymology:** Thurberi is named for Dr. George Thurber (1821–1890). **Synonyms:** None

Trixis californica

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American threefold

General: Profusely branched subshrub to 1 m or less, slender, brittle branches, appressed–puberulent branchlets, new growth glandular and often densely pubescent with brown hairs. **Leaves:** Leaves and flowers appear at various seasons, leaves mostly 3–8 cm, upright, blades relatively thin, lanceolate, with minute hairs to sometimes glabrate, densely glandular below and sometimes above but not as densely so, the margins toothed to nearly entire; sessile or petioles mostly 1–2 mm, usually winged, dead leaves semipersistent. **Flowers:** Heads in corymbose panicles, usually 12–14–flowered, inner phyllaries green, 10–15 mm, oblong, with thickened yellow–brown bases extending into midrib; flowers yellow, corollas 1 cm long, sparsely puberulent at tips of lobes. **Fruits:** Achenes 8–10 mm long, slender, densely glandular with short stout hairs, pappus twice as long as achenes. **Ecology:** Found on rocky slopes and ridges below 5,000 ft (1524 m); flowers February–June, rarely flowering again in autumn. **Notes:** The leaves are densely glandular–dotted beneath, with corky thickened bracts at base of leaves. **Ethnobotany:** Unknown **Etymology:** Trixis is from Greek trixos, three–fold, referring to three–cleft outer corolla lip, while californica refers to California. **Synonyms:** *Trixis californica* var. *californica*

Uropappus lindleyi

Lindley's silverpuffs

©2005 Robert Sivinski

General: Spring ephemeral with milky sap, glabrous or slightly puberulent herbage, scapes 10–60 cm tall. **Leaves:** Linear to linear–lanceolate or pinnate with few slender segments, in basal rosette, 10–15 cm long, stems above leafless with small glands near flower head. **Flowers:** Each stem bearing single, erect head; outer involucral bracts 1 cm long, acute, ligules barely surpassing involucre, ephemeral, pale yellow but drying reddish or purplish. **Fruits:** Achenes 8.5–10 mm long, blackish, linear–cylindric and slightly tapered at each end, apex slightly flared; pappus with 5 papery, silvery, linear–lanceolate scales 9–10 mm, these deeply notched at the apex with long, slender awn from notch. **Ecology:** Found on mesas, plains, outwash slopes and arroyos below 5,000 ft (1524 m); flowers March–June. **Ethnobotany:** Unknown **Etymology:** Uropappus refers to the pappus having a long tail–like dip, while lindleyi is named for John Lindley (1799–1865) a British botanist. **Synonyms:** *Microseris linearifolia, Uropappus lindleyi, U. linearifolius*

Verbesina encelioides

golden crownbeard

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General: Native (double check) taprooted annual; 20–100 cm tall; simple when small and branched above or throughout when well developed; stem strigose to villous–puberulent. **Leaves:** Leaves all cauline; well distributed along stem; lower leaves opposite; others alternate, evident petioles; coarsely toothed to subentire; narrowly to broadly triangular to merely lance–ovate; strigose beneath; thinly strigose on upper surface. **Flowers:** Heads terminating the branches; erect on peduncles up to 10 cm long; phyllaries green; ligules yellow and evidently 3–toothed at the tip. **Fruits:** Achenes 5–7 mm long, thinly hairy. **Ecology:** Open, sandy or rocky places, sometimes on dunes or along roadsides from 3,000–8,500 ft (914–2591 m); flowers April–September. **Notes:** 2 subspecies in Arizona: *exauriculata* and *encelioides*. Most of the Arizona plants are of ssp. *exauriculata* which is the dryland, more western phase and distinguished by petioles that are not auriculate–dilated at the base. ssp. *encelioides* is native to the Gulf Coast. It has more prominently auriculate leaves and mostly longer involucral bracts (how long?) Host plant for Bordered patch butterfly. **Ethnobotany:** Hopi make plant tea into wash for fever or spider bites. Navajo make lotion for similar uses. Navajo also use liquid of strained leaves for stomach trouble. It is also a good luck token. **Etymology:** Verbesina is derived from Verbena. **Synonyms:** None

Xanthisma gracile

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slender goldenweed

General: Herb; annual; native. Stems 10–30 cm tall, freely branching. **Leaves:** Leaves are erect on the stem and branches; sessile and reduced on the upper part of the stem; few scattered teeth on leaves, each with a stiff bristle 1–2 mm long (also each leaf tip); leaves sometimes lobed. **Flowers:** Terminal composite flower heads with small disks (6–10 mm wide). **Fruits:** Achene **Ecology:** Open, dry sites from 3,000–7,500 ft (914–2286 m); flowers April–October. **Notes:** Stem leaves of this annual are erect, with teeth a sharp bristle scattered along the margin; flowers are small and yellow. **Ethnobotany:** Navajo make cold tea as wash for pimples, sores, boils and sore eyes. Steeped tea is used to treat internal injuries and to clear nasal passages. **Etymology:** From Greek anthemon for flower. Gracilis means graceful or slender. **Synonyms:** *Machaeranthera gracilis, Dieteria gracilis, Haplopappus gracilis, H. ravenii, Sideranthus gracilis*

Xanthisma spinulosum

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lacy tansyaster, spiny haplopappus

General: Perennial or subshrub 10–100 cm, branched caudices, woody, tap roots 2–18 cm; stems 1–30+ branched throughout, moderately stout, not wiry, hairy or glabrous, often stipitate–glandular. **Leaves:** Oblong to lanceolate 0.2–8 cm by 0.1–3 cm, not reduced markedly distally, margins deeply lobed to coarsely dentate or entire, teeth 4–18 per side, tipped with white bristles 0.2–1.8 mm, hairy or glabrous; basal leaves sometimes wither by flowering, pinnatifid to twice pinnatifid. **Flowers:** Glabrous to hairy peduncles, often stipitate–glandular, bracts 0–3 leaflike, hemispheric to cupulate involucres, 6–10 mm by 8–25 mm; phyllaries in 5–6 series, linear to linear–lanceolate, 0.1–0.9 mm, apices acute to acuminate, tipped with white bristle, faces glabrous or hairy; ray florets 14–60, corollas yellow; disc florets 30–150; corollas 4–5 mm. **Fruits:** Cypselae narrowly obovoid, 1.8–2.5 mm, nerves 16–24, sparsely to moderately tawny hairy; pappus tawny, 4–6 mm. **Ecology:** Found on arid plains, mesas, hillsides from 1,000–5,500 ft (305–1676 m); flowers March–June. **Notes:** This is an excessively difficult taxon and there are a number of varieties that make this difficult to tease out which is which. **Ethnobotany:** Unknown for this species, other species in this genus have limited use. **Etymology:** Xanthisma is a Greek name meaning that which is dyed yellow, while pinnatifida means pinnately cut. **Synonyms:** *Machaeranthera pinnatifida*

Xanthium strumarium

rough cocklebur

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General: Erect annual herb; 2–20 dm tall, appressed–hairy or sub–glabrous. **Leaves:** Long–petiolate, blade broad, ovate to sub–orbicular or reniform, generally cordate or deltoid at the base, toothed and sometimes shallowly 3–5 lobed, often 15 cm long. **Flowers:** Heads in several or many short, axillary and terminal inflorescences; burs brownish or yellowish–brownish, broadly cylindric to ovoid, ellipsoid, or subglobose, mostly 2–3.5 cm long, terminated by two stout, incurved beaks, and covered with stout, hooked prickles. **Ecology:** Fields, waste places, floodplains and lake beaches; cosmopolitan weed; originally native to the New World and possibly to Europe. From 3,500–7,500 ft (1067–2286 m); flowers April–October. **Notes:** Easily distinguished by its large fruits that are burs with long hooked bristles. The leaves sand–papery to the touch. Ambrosia–like flowers. Ours are of the var. *canadense*. Burrs become entangled in hides and wool decreasing value. Seeds and cotyledon leaves poisonous to all livestock, while morning doves eat seeds. **Ethnobotany:** The leaves made into a tea make a useful diuretic. In large quantities it can have toxic effects. **Etymology:** From the ancient Greek name of a plant producing a yellow dye. **Synonyms:** var. *canadense*, many others.

Xanthocephalum gymnospermoides

San Pedro matchweed

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General: Stout herbaceous annual to 1.5 m tall, glutinous and sometimes sparingly tomentose in youth, very leafy to apex. **Leaves:** Lanceolate to oblong–lanceolate, 5–20 mm wide, 5–10 cm long, tapering toward each end, entire or sometimes sparingly denticulate, obscurely pinnately veined. **Flowers:** Heads numerous in corymbose cymes, radiate, pedicels stipitate–glandular, involucres hemispherical, 6–8 mm high, bracts linear to narrowly oblong, subequal, greenish and loose to slightly spreading at tips; ray flowers 12–19, ligules yellow, 4–5 mm long, about equaling tubes; disk flowers 40–60, golden yellow. **Fruits:** Achenes oblong, compressed, those of rays glabrous, devoid of pappus; disk achenes sparingly strigillose, with a very short, toothed, coroniform pappus on outer ones, inner usually with 4–8 longer, stiff paleae. **Ecology:** Found along arroyos, alluvial, and saline soils from 1,000–5,500 ft (305–1676 m); flowers August–October. **Notes: Ethnobotany:** Unknown **Etymology:** Xanthocephalum is from a Greek name meaning that which is dyed yellow and the word for head, while gymnospermoides means naked seed. **Synonyms:** *Grindelia gymnospermoides, Gutierrezia gymnospermoides*

Zinnia acerosa

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desert zinnia

General: Much branched low rounded or flat–topped subshrub 10–25 cm tall, with slender cinereous–puberulent branches, irregularly scaly grayish bark. **Leaves:** Linear to oblanceolate–linear, acerose leaves 0.3–2.5 mm wide, numerous, often longer than internodes, 5–20 mm long, cinereous–puberulent, golden punctate glands interspersed among hairs. **Flowers:** Peduncles 5–35 mm long, campanulate involucres 5–7 mm long, 3–5 mm wide; phyllaries suborbicular to oblong, greenish and tomentulose at first, later glabrate and stramineous but dull; ray flowers mostly 5–7, ligules suborbicular to broadly oblong, 7–10 mm long, white or faintly yellow, strongly green veined beneath, persist, strongly reflexed in fruit; disk corollas 5–6 mm, tinged with purple. **Fruits:** Disk achenes 2.5–3.5 mm long, striate, strigose or only upwardly ciliate, pappus usually of 2–3 unequal awns or much reduced; ray achenes oblanceolate, 3–angled in cross–section, receptacular chaffy bracts uniformly yellow, erose at apex. **Ecology:** Found on arid rocky slopes and mesas from 2,500–5,000 ft (762–1524 m); flowers March–November. **Notes:** The color of the ray flowers is usually sufficient to tell it apart from *Z. grandiflora*. **Ethnobotany:** Plant was crushed and used as a paste on swellings or aches. Also given to children to help them learn to talk. **Etymology:** Acerosa means sharp, or with stiff needles. **Synonyms:** *Zinnia pumila*

Zinnia peruviana

2009 NPS/Steve Buckley

Peruvian zinnia

General: Annuals 30–50 cm tall, with greenish unbranched or sparingly branched stems, becoming purplish or yellowish, strigose. **Leaves:** Opposite, ovate to elliptic or broadly lanceolate blades, 3–5 nerved, 25–70 cm long by 8–35 mm wide, scabrellous. **Flowers:** On peduncles 10–50 mm long, with narrowly to broadly campanulate involucres, phyllaries obovate to oblong, becoming scarious, glabrous with rounded apices, usually entire to erose, sometimes ciliate; paleae red to purple or yellow with obtuse tips, erose or subentire; ray florets 6–15, usually scarlet red or maroon, linear to spatulate in shape 8–35 mm; disc florets 12–50, corollas yellow 5–6 mm, with 1 mm lobes. **Fruits:** Cypselae 7–10 mm long, 3–angled in ray flowers or compressed in the disc flowers, ribbed and ciliate with pappi of 1 stout awn 4–6 mm long. **Ecology:** Found on rocky soils, often calcareous, from 4,000–5,500 ft (1219–1676 m); flowers in summer to fall. **Notes:** In flower the distinctive red flower is a dead give away. The stems can be decumbent and are deceiving, but the ribbed leaves help when flowers are not present. **Ethnobotany:** Unknown **Etymology:** Zinnia is named for Johan G. Zinn (1729–1759) a German botanist, while peruviana means of or from Peru. **Synonyms:** *Crassina multiflora*, *Zinnia multiflora*, *Z. pauciflora*

Amoreuxia palmatifida

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Mexican yellowshow

General: Herbaceous perennial from fusiform tuberous rootstock, stems 1 to several, erect 25–35 cm tall, stipules linear–subulate, 4–7 mm long. **Leaves:** Alternate, narrow to broadly cuneate, 7–9 lobed, lobes to 2 cm wide, coarsely serrate, rounded or obtuse at apex. **Flowers:** Sepals narrowly lanceolate, acute or somewhat attenuate, 15–20 mm long; petals orange–yellow with 1–2 maroon spots at base of each, 2.5–3 long; anthers all dark maroon or only lower set dark maroon, ovary densely puberulent papillose. **Fruits:** Ovoid capsule, 3–4 cm long, pendant, weakly striate longitudinally, 2–2.5 cm wide, finely and sparsely puberulent and with scattered, sessile, reddish glands intermingled with fine crisped hairs. **Ecology:** Found on dry rocky slopes and mesas from 2,500–5,000 ft (762–1676 m); flowers July–September. **Notes:** Alternate species *A. gonzalezii* is separated from *A. palmatifida* by its ellipsoid capsule, silky ovary, and lower set of cream–colored anthers as opposed to dark maroon. Howard Gentry reported that this plant yields lots of seed, but it is difficult to grow. **Ethnobotany:** All parts of the plants were used as food, including roots, young leaves, flowers, fruits and seeds. **Etymology:** Palmatifida means palmately divided. **Synonyms:** None

Amsinckia menziesii var. *intermedia*

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Menzies' common fiddleneck

General: Erect and slender annual form with rough–hispid stems and foliage, 30–150 cm tall, or under favorable conditions frequently and widely branched. **Leaves:** Basal leaves narrowly oblanceolate or oblong, entire, to 20 cm long, gradually narrowed to a slender petioled 1–6 m long, upper leaves gradually reduced to linear–lanceolate bracts 1 cm long or less, intermediate ones usually lanceolate, sessile or subsessile. **Flowers:** Spike leafy–bracted at base, 5–30 cm long or more, tip continues to produce flowers after basal nutlets have matured, calyx lobes linear–lanceolate, reddish–hispid, 3–5 mm long in flower, elongating to 6–10 mm in fruit, corolla dark yellow to orange, 7–12 mm long, rotate limb 3–6 mm wide, glabrous without, short throat narrow, 10 nerved below stamens. **Fruits:** Ovoid nutlets, incurved, dorsally keeled, scabrous–rugose, grayish, 1.5–3 mm long. **Ecology:** Found on grassy hillsides, valleys, along washes, abundant on sandy or gravelly soil below 4,000 ft (1219 m); flowers March–May. **Notes:** Varieties of this species and this genus more broadly are determined by the size of the nutlets, when collecting it is critical to obtain flowers, fruit, AND seed. **Ethnobotany:** Unknown for this species, other species in genus used for food, both seeds and young leaves eaten fresh. **Etymology:** Amsinckia named for Wilhelm Amsinck (1752–1831), while menziesii is named for Archibald Menzies (1754–1842) a Scottish botanist. **Synonyms:** *Amsinckia intermedia, A. intermedia* var. *echinata,* several others: see Tropicos

Cryptantha angustifolia

Panamint cryptantha

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General: Much branched herb 8–25 cm tall, usually with many slender, ascending or spreading–ascending, brownish stems sparsely hispidulous with slender white hairs, epidermis eventually exfoliating in irregular strips and shreds. **Leaves:** Linear, usually 1 mm wide or less, 5–30 cm long, hispidulous with white hairs from pustulate bases. **Flowers:** Inflorescence of numerous short scorpioid spikes, elongating in fruit; calyx lobes lance–linear, 1–1.5 mm long at anthesis, hispid with stiff spreading hairs, white corolla about 1.5 mm long, limb 1.5–2 mm broad. **Fruits:** Nutlets, 4, heteromorphous, all ovoid, acute, brownish or pale gray; lateral angles rounded or rather sharp, ventral groove narrow above. **Ecology:** Found in gravelly or rocky soil on hillsides, along washes, and on disturbed soil below 4,000 ft (1219 m); flowers February–June. **Ethnobotany:** Other species in the genus used the plant for fatigue, coughs, against throat cancer, as sheep feed, for intestinal problems, and the plant was chewed for colds. **Etymology:** Cryptantha is from the Greek krypsis, meaning hiding, suppression, concealment, thus a hidden flower, while angustifolia means narrow foliage. **Synonyms:** *Eremocarya angustifolia*

Cryptantha micrantha

redroot cryptantha, dwarf cryptantha

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General: Plant 3–10 cm, branched mostly above, stems very slender, bark peeling on the lower stems of larger, older plants; hairs small, mostly appressed; roots and stems stain bright purple when pressed. **Leaves:** Relatively few and scattered, 3–8 mm, those of the first 1 or 2 nodes opposite and not in a basal rosette. **Flowers:** Infloresence branches not strongly helidoic, reaching 5 mm; flowers minute, subtended by leafy bract, corollas white with a yellow center, lobes broadly obovate–spatulate, notched at apex. **Fruits:** Nutlets 4, 0.9 mm, slender, margins rounded; either all smooth or all rough. **Ecology:** Found on sandy soil, often among Larrea from sea level to 7,000 ft (2134 m); flowers March–June. **Notes:** This is the smallest of the *Cryptantha*. **Ethnobotany:** Other species in the genus used the plant for fatigue, coughs, against throat cancer, as sheep feed, for intestinal problems, and the plant was chewed for colds. **Etymology:** Cryptantha is from the Greek krypsis, meaning hiding, suppression, concealment, thus a hidden flower, micrantha means small–flowered. **Synonyms:** None

Cryptantha nevadensis

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Nevada cryptantha

General: Annual 10–60 cm, simple to branched throughout, strigose, some hairs ascending. **Leaves:** 1–4 cm, linear to oblong, generally bristly, bristles more or less ascending. **Flowers:** Inflorescence generally dense in fruit, lowest flowers sometimes not touching; sepals 3–3.5 mm, 6–10 mm and linear in fruit, densely rough–hairy and bristly, hairs ascending, bristles spreading; corolla limb 1–2 mm wide. **Fruits:** Nutlets 4, 2–2.5 mm, lanceolate, back densely tubercled, groove more or less closed, forked or flared open at base. **Ecology:** Found on sandy, gravelly soils below 4,000 ft (1219 m); flowers March–May. **Notes:** Frequently found under shrubs and bushes. **Ethnobotany:** Other species in the genus used the plant for fatigue, coughs, against throat cancer, as sheep feed, for intestinal problems, and the plant was chewed for colds. **Etymology:** Cryptantha is from the Greek krypsis, meaning hiding, suppression, concealment, thus a hidden flower, nevadensis is for Nevada. **Synonyms:** None

Cryptantha pterocarya

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wingnut cryptantha

General: Annual 10–40 cm, stem erect or with mostly few, ascending branches, few strigose and rough–hairs, hairs generally ascending. **Leaves:** Simple, entire, linear to oblong, 0.5–5 cm, bristly; bristles ascending; basal whorled; cauline generally opposite below, alternate above. **Flowers:** Inflorescences not heliocoid or only slightly so on larger plants, more cymose; calyx appears angled due to thickened sepal midribs, sepals broadly ovate, obtuse, corolla generally white, tube 1–13 mm, appendages 5, white to yellow. enlarging as the fruit matures to 4.5–6 mm. **Fruits:** Nutlets 4, 2.5–3 mm, intricately sculptured, studded with blunt tubercles and edged by broad light–colored wing edged with blunt, finger–like projections. **Ecology:** Found on rocky and gravelly soils below 8,000 ft (2438 m); flowers March–June. **Notes:** More common in wet years. Wing nut clearly distinguishes it from other *Cryptantha*. **Ethnobotany:** Other species in the genus used the plant for fatigue, coughs, against throat cancer, as sheep feed, for intestinal problems, and the plant was chewed for colds. **Etymology:** Cryptantha is from the Greek krypsis, meaning hiding, suppression, concealment, thus a hidden flower, pterocarya means wing nut from Greek pteron and karyon. **Synonyms:** None

Cryptantha pusilla

low cryptantha

General: Annual with many prostrate–ascending, slender branches 10–20 cm long, pubescence rather densely strigose and more sparsely spreading–hirsute. **Leaves:** Crowded below, less abundant above, narrowly oblanceolate, 1.5–2.5 cm long, little reduced above, densely hirsute, hairs from pustulate bases with some finer hairs intermixed. **Flowers:** Corolla small 1.5–3 mm long, calyx sessile or nearly so, early deciduous, calyx lobes equal, hirsute, lance–ovate to oblong–lanceolate, midrib but thickened, 2–2.5 mm long. **Fruits:** Nutlets 4, strongly bent above base, about 1 mm long, closed, areola shallow, triangular, style much surpassing nutlets. **Ecology:** Found on sandy and rocky soils from 4,000–5,500 ft (1219–1676 m); flowers March–June. **Notes:** Diagnostic for this species is the bent nutlet. **Ethnobotany:** Other species in the genus used the plant for fatigue, coughs, against throat cancer, as sheep feed, for intestinal problems, and the plant was chewed for colds. **Etymology:** Cryptantha is from the Greek krypsis, meaning hiding, suppression, concealment, thus a hidden flower, pusillus means small, weak or insignificant. **Synonyms:** *Eritrichium pusillum*

Eucrypta micrantha

dainty desert hideseed

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General: Small, dainty annual, glandular–viscid, with stalked glandular hairs intermixed with non–glandular hairs. Stems often 5–23 cm, slender, erect to ascending, sometimes spreading on large plants or when shaded. **Leaves:** Pinnatifid, 1.5–5 cm by 0.5–2.6 cm. **Flowers:** Calyx usually divided about halfway up or more to base, with stalked glandular and non–glandular hairs; not spreading open at maturing, revealing only the tip of the capsule; corolla lobes white, pale violet, or lavender, throat yellow with yellow nectarines and often nectar filled in the morning. **Fruits:** Capsule, splitting, but the 2 carpels not falling free, the halves obovoid, obtusely pointed at tip. **Ecology:** Widespread, often in shade of shrubs, dies out as soil dries out from 4,000 ft (1219 m) and lower; flowers February–May. **Notes:** Grows particularly well in years of abundant moisture, can form small mats, often in shade where ground has slightly more moisture. **Ethnobotany:** Unknown **Etymology:** Eucrypta is from Greek eu, well or true and crypta, secret, alluding to hidden inner seeds, while micrantha means small–flowered. **Synonyms:** None

Lappula redowskii var. *occidentalis*

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flatspine stickseed

General: Native annual; puberulent or shortly hirsute throughout herbage; 10–80 cm tall; often with many branches above the middle. **Leaves:** Numerous leaves; blades linear to oblong; upper blades sessile, 1–2 mm long; lower blades petioled and longer, up to 6 cm; petioles 1–2 mm long; basal leaves often deciduous. **Flowers:** Inconspicuous corolla; white to light blue or ochroleucous. **Fruits:** Marginal prickles of the nutlets in a single row; prickles often swollen and confluent toward the base, forming a cupulate border to the nutlet. **Ecology:** Dry to moderately moist, sunny, usually disturbed sites, roadsides, overgrazed areas; widely distributed to 8,500 ft (2590 m); flowers March–September. **Notes:** This may not be a showy plant but it makes itself known by attaching its many distinctive seeds to the socks of passers by. Two varieties of *L. occidentalis* are found in Arizona: var. *cupulata* is mainly found in the southwestern US and var. *redowskii* is found throughout the range. *L. squarrosa* has nutlets with marginal prickles in at least 2 rows and prickles are slender, not confluent at the base as in *L. occidentalis*. **Ethnobotany:** Navajo make poultice for insect bites and other skin irritations. **Etymology:** Lappula is from ancient root lappa meaning a bur, while occidentalis means of the west. **Synonyms:** *L. redowskii, L. texana*

Nama demissa

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bristly nama

General: First flowering as rosettes, often developing stems 5–30 cm, erect to ascending or spreading with age. Larger stem hairs 1–1.2 mm, dense, bristly, straight. **Leaves:** Narrowly spatulate 1.5–4.6 cm, gradually narrowed to a winged petioled, the upper leaves smaller, sessile. **Flowers:** Corollas lavender, 13–15 mm, 2 styles, distinct to base, calyx divided nearly to base. **Fruits:** Superior ovary, nutlets, ellipsoid–ovoid, 0.5–0.6 mm, about twice as long as wide, yellowish. **Ecology:** Widespread on gravelly, rocky and sandy soils from 5,000 ft (1524 m); flowers from February–June. **Notes:** *N. hispidum* is identifiable by larger more robust habit, usually thicker stems, stouter and stiffer hairs, especially on stems. **Ethnobotany:** Used by the Navajo as a lotion for spider or tarantula bites. **Etymology:** Nama comes from the Greek nama for spring or stream, while hispidum means rough with bristly hairs. **Synonyms:** *Nama hispidum* var. *mentzelii, N. hispidum* var. *revolutum, N. hispidum* var. *spathulatum*

Pectocarya heterocarpa

chuckwalla combseed

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General: Stems prostrate to procumbent, several from vase, 5–25 cm long, stigulose with finer hairs than most species. **Leaves:** Linear to narrowly oblanceolate, 0.5–1.2 mm wide, 5–25 mm long, strigulose. **Flowers:** Small, about 2 mm long, sepals elliptic–lanceolate or linear lanceolate, 1.5–2 mm long at anthesis, corolla white. **Fruits:** Two broadly margined nutlets, margins lacerate–toothed and deltoid teeth tipped with uncinate hairs, other 2 nutlets unmargined and somewhat reflexed, tuft of uncinate hairs distally. **Ecology:** Found on arid, gravelly, sandy slopes, in valleys and washes and in disturbed areas below 5,000 ft (1524 m); flowers February–May. **Notes: Ethnobotany:** Unknown **Etymology:** Pectocarya from the Greek pectos, combed and karua, nut, while heterocarpa is from Greek heteros, different and karphos, a chip of wood, splinter, nail. **Synonyms:** *Pectocarya penicillata* var. *heterocarpa*

Pectocarya recurvata

curvenut combseed

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General: Plants slender, prostrate to ascending, 5–20 cm long, minutely cinereous–strigulose. **Leaves:** Filiform–linear to narrowly linear–oblanceolate, 0.6–2 mm broad, 1–3 cm long, rather harshly strigose. **Flowers:** Axillary to leaves from the very base to apex of individual branches, minute; sepals lance–linear, 1.5–2 mm long, slightly longer in fruit, strigose; corolla short–salverform, about 2 mm long, lobes ascending. **Fruits:** Nutlets linear about 0.8 mm broad, 2.5–3.2 mm long, distinctly and often strongly reflexed, often forming a semicircle, margins deeply dissected to form series of distinct, short teeth, gradually tapering into and terminated by slender, elongated, uncinate hair equaling or surpassing tooth. **Ecology:** Found on arid slopes, plains, mesas, washes below 5,000 ft (1524 m); flowers February–April. **Notes:** The recurved nutlet margin is conspicuous. **Ethnobotany:** Unknown **Etymology:** Pectocarya from the Greek pectos, combed and karua, nut, recurvata means curving backwards. **Synonyms:** None

Phacelia affinis

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limestone phacelia

General: Annual forb mostly several–branched from near base, 4–20 cm; herbage, inflorescences and calyx with dense stiff white hairs and sessile glands. **Leaves:** Mostly basal and on lower stem 3–6 cm, pinnately lobed to pinnatifid, mostly narrowly oblong; upper leaves reduced. **Flowers:** Cymes moderately helicoids, especially on larger plants, flowers few to numerous; calyx lobes oblanceolate to spoon–shaped, glandular; corollas white (rarely pale purple) with a pale yellow–green throat; filaments whitish, the anthers included and cream colored. **Fruits:** Many seeds nearly 1 mm, brown, reticulate transversely corrugated. **Ecology:** Found along streams, washes, arroyos from 2,000–4,000 ft (610–1219 m); flowers March–May. **Notes:** These plants are known to cause light dermatitis. **Ethnobotany:** Unknown **Etymology:** Phacelia is based on Greek phakelos, meaning cluster alluding to crowded spikes, while affinis means bordering on or related or similar to. **Synonyms:** None

Phacelia arizonica

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Arizona phacelia

General: Annual with several procumbent to ascending stems 5–30 cm long, villous and hirsutulous, inflorescence somewhat glandular. **Leaves:** Ovate, oblong, to oblong–oblanceolate in outline, 8–20 mm wide, 3–8 cm long, pinnatifid, lobes entire, dentate or again pinnatifid, mostly obtuse. **Flowers:** Slender petioles 5–18 mm long, compact cyme, usually branched 1–3 cm long in flower, erect and to 10 cm in fruit; slender pedicel, 1 mm long at anthesis to 4 mm long and ascending in fruit, calyx lobes lance–elliptic 2 mm long at anthesis, 4 mm in fruit; campanulate corolla 4–5 mm, white to pale lavender. **Fruits:** Globose capsule 3 mm in diameter sparsely hirsutulous. **Ecology:** Found on rocky hillsides, plains, and mesas from 1,500–5,000 ft (457–1524 m); flowers February–May. **Ethnobotany:** Unknown **Etymology:** Phacelia from Greek phacelo– for bundle; arizonica for Arizona. **Synonyms:** *Phacelia popei* var. *arizonica*

Phacelia crenulata

cleftleaf wildheliotrope

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General: Annual, pungent, allergenic, stems 10–40 (up to 80) cm tall, erect, openly branched, stems and leaves with copious stalked glands as well as non–glandular hispid hairs, glands are yellow to orange and odiferous. **Leaves:** Oblong in outline, 2–12 cm, reduced upwards, mildly to deeply lobed, with crenate lobes. Lower sinuses quite deep, upper sinuses becoming shallow. Lower leaves petiolate, cauline leaves becoming sessile. Leaves bearing numerous stalked glands as well as hispid hairs. **Flowers:** Inflorescence of dense terminal and lateral scorpioid cymes. Cymes several to many flowered. Corolla showy, blue to purple to lavender to occasionally white basally. Stamens conspicuously exserted and with yellow anthers. **Fruits:** Globose capsule with 4 seeds. **Ecology:** Dry, gravelly hillsides and flats, sandy and clay soils from 3,500–7,000 ft (1067–2134 m); flowers April–September. **Notes:** Positive field identification of *Phacelia* is quite difficult as specific delimitations usually rely on seed morphology. **Ethnobotany:** Keres make root tea for sore throat and into rub for swellings. **Etymology:** Phacelia from Greek phacelo– for bundle; crenulata from crenata for toothed margins. **Synonyms:** *P. corrugata*

Phacelia distans

distant phacelia, caterpillar phacelia

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General: Annual forb 15–45 cm, erect and simple to much branched and spreading to procumbent; herbage moderately sticky and often scabrous with conspicuous white hairs, sometimes with swollen white bases and also sessile glands, golden when fresh; stems leafy, semisucculent and relatively stout. **Leaves:** Usually relatively thin and fernlike, 6–17 cm, 1 or 2 times pinnatifid, segments pinnately lobed or toothed to pinnatifid. **Flowers:** Cymes helicoids, calyx lobes enlarging moderately in fruit, reaching 6 mm; corollas 8–9.5 mm, pale violet to blue, the lobes spreading; stamens usually no or scarcely exserted. **Fruits:** Seeds 4 or fewer around 2 mm, red–brown, narrowly ovoid, pitted, the back convex, the ventral side angled and convex. **Ecology:** Found under bushes along washes and along sandy–gravelly washes and bajadas and less often rocky slopes from 1,000–4,000 ft (305–1219 m); flowers from February–May. **Notes:** Delicate foliage and bright–blue flowers are indicative of this species, plants often disappearing quickly along with soil moisture. **Ethnobotany:** Leaves were steamed and eaten as greens by Kawaiisu. **Etymology:** Phacelia from Greek phacelo– for bundle, distans means separated, apart, widely–spaced in reference to the long, exserted stamens. **Synonyms:** *Phacelia cinerea, P. distans* var. *australis*

Plagiobothrys arizonicus

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lipstick weed, Arizona popcornflower

General: Annual herb with 1 to several stems from base, these usually simple, erect, ascending or slightly decumbent, 10–30 cm long, hispid herbage with slender spreading hairs 1–2.5 mm long; sparsely puberulent with tangled, mostly appressed, delicate hairs among bases of spreading hairs, stems, roots, and leaves, particularly midribs, which are distinctively purplish–red. **Leaves:** Lanceolate to linear–oblanceolate, 1.5–5 mm broad, 1–6 cm long, basal ones gradually narrowed to slender base, acute to obtuse at apex, strigose and with some spreading hairs, not noticeable pustulate. **Flowers:** Spikes compact at anthesis, elongated and lax in fruit, to 15 cm long, naked or few–bracteate toward base; calyx lobes ovate, distinct about one–half way to base, densely tawny–hirsute; calyx 3–4 mm long in fruit, at length circumscissile, lobes equal; corolla 2 mm long, 1.5–2 mm broad, white. **Fruits:** Nutlets usually 2, sometimes fewer, ovoid, short–acute, 1.5–2 mm long, transversely rugulose, reticulate dorsal and lateral keels. **Ecology:** Found on arid sandy hillsides and plains below 5,000 ft (1524 m); flowers February–May. **Notes:** Lipstick red leaf midribs and margins are tell–tale for this species. **Ethnobotany:** Red coating on outside leaves and lower stems used as a red pigment to paint the body and face. **Etymology:** Plagiobothrys is derived from Greek plagios, oblique or placed sideways, and bothros, a pit or scar, arizonicus is named for Arizona. **Synonyms:** None

Plagiobothrys pringlei

Pringle's popcornflower

General: Prostrate or decumbent annual with several rather coarse stems 10–25 cm long, from slender taproot, herbage hispid throughout. **Leaves:** Leaves not developing a distinct rosette, lowermost commonly opposite, upper ones alternate, blades linear to linear–oblong, 2–3 cm long, acute or obtuse at apex. **Flowers:** Borne throughout length of stems, even in axils of basal leaves; calyx lobes narrowly linear–lanceolate, 1.5–2 mm long, somewhat spreading in fruit; corolla white, minute. **Fruits:** Nutlets 4, ovoid, finely wrinkled and finely roughed, keeled both dorsally and ventrally. **Ecology:** Found on arid plains, sandy mesas, and hillsides from 1,000–4,500 ft (305–1372 m); flowers February–April. **Notes:** Long striped nutlets is unique among the borages. Of conservation concern in Arizona. **Ethnobotany:** Unknown **Etymology:** Plagiobothrys is derived from Greek plagios, oblique or placed sideways, and bothros, a pit or scar, pringlei is named for Cyrus Guernsey Pringle (1838–1911). **Synonyms:** None

Impact risk level H M L

Capsella bursa–pastoris

shepherd's purse

General: Annual introduced herb; stem 20–50 cm, simple or occasionally branched above; pubescent below with stellate hairs, usually glabrous above. **Leaves:** Basal leaves 3–16 cm long, 1–3 cm wide, toothed to (more often) pinnately divided or lobed into angular, forward–pointing lobes or segments; stem leaves greatly reduced upwards and auriculate–clasping. **Flowers:** Inflorescence many–flowered; pedicels spreading or ascending, 10–15 mm long; petals 2–4 mm long, white to pinkish. **Fruits:** Silicles 5–8 mm long, 3–5 mm wide, shaped like an inverted triangle with the top side dented. **Ecology:** Disturbed areas up to 9,000 ft (2740 m); flowers March–September. **Notes:** Oddly shaped silicles are distinctive and the source of the common name "shepherd's purse." Host plant for Checkered White, Cabbage White, and Sara Orangetip butterflies. **Ethnobotany:** Cheyenne use leaves and stems for head pain. Chippewa, Costanoan, and Mahuna all use plant for painful diarrhea. Menominee use plant wash to alleviate poison ivy discomfort. Mohegan eat seed pods to kill internal worms. Apache, Chiricahua, and Mescalero use seed flour for bread. Mendocino eat seed as staple grain. Cherokee use leaf spice in cooking. Seeds are known to stimulate digestive juices, which aids in the digestive process. The seeds are also useful in stopping internal or external bleeding. **Etymology:** Capsella is ancient word for small box, depicting the fruit. Bursa–pastoris translates to sheperd's purse. **Synonyms:** *Bursa bursa–pastoris, Bursa gracilis, Capsella rubella, Thlaspi bursa–pastoris*

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Descurainia pinnata

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western tansymustard

General: Native annual herb; stems 10–70 cm tall, usually branched, sparsely to densely pubescent. **Leaves:** Lower leaves mostly bipinnate and upper leaves pinnate; leaflets usually pinnatifid, pubescent like the stem. **Flowers:** Racemes terminal; flowers with pedicels 3–20 mm long, spreading; petals 2–3 mm long, white to yellow. **Fruits:** Siliques 4–20 mm long, more or less club–shaped; seeds numerous, in two rows. **Ecology:** Found on a variety of soils and conditions from 3,000–7,000 ft (914–2134 m); flowers April–August. **Notes:** Distinguished from other *Descurainia* by some of the siliques (at least) having seeds in two rows (vs. in one row in *D. sophia*) and the lower leaves bipinnate (vs. once pinnate in *D. obtusa*). Toxic to livestock, although lightly consumed by mule deer in winter and spring. Rodents and lagomorphs graze on it, while it is larval food for several butterflies. Host plant for Spring White, Checkered White, Pearly Marble, and Sara Orangetip butterflies. **Ethnobotany:** Edible greens and seeds. Tansy mustard appears in clan names and migration tales as an important plant. **Etymology:** Named for French physician Franscois Descourain. Pinnat means feathered or winged. **Synonyms:** None

H M L Impact risk level

Descurainia sophia

herb sophia

General: Exotic annual herb, naturalized from Europe; stems 25–75 cm tall, branched, stellate pubescent. **Leaves:** Leaves 2 or 3 times pinnate, 2–9 cm long, the ultimate divisions linear. **Flowers:** Racemes terminal; flowers with pedicels 8–15 mm long; sepals 2 mm long; petals greenish–yellow, about as long as the sepals. **Fruits:** Siliques linear, 1–3 cm long, often curved, loosely ascending; seeds numerous, 10–20 in each locule, in one row. **Ecology:** Found on open and disturbed ground from 3,000–7,500 ft (914–2286 m); flowers April–June. **Notes:** Distinguished from other *Descurainia* by some of the siliques (at least) having seeds in one row (vs. in two rows in *D. pinnata*); leaves bipinnate to tripinnate; siliques larger (10–30 mm long). Species is often found in dry and disturbed areas. Species may be dominant on sites due to large seed crops. This attribute may increase browse potential. Species is rapidly killed by fire but will re–establish quickly due to large seed crops. Toxic to livestock, and is larval food for several butterflies. Host plant for Checkered White and Beckers White butterflies. **Ethnobotany:** Edible greens and seeds. Tansy mustard appears in clan names and migration tales as an important plant. **Etymology:** Commemorating Francois Descourain, famous French physician. Sophia translates to wisdom. **Synonyms:** *Sophia sophia, Sisysibrium sophia*

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Draba cuneifolia var. *cuneifolia*

wedgeleaf draba

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General: Native annual herb; plants 1–25 cm tall, stems simple or branched at the base; pubescent at least near the base with simple and/or forked hairs. **Leaves:** Crowded at or near the base; basal leaves orbicular to ovate or obovate, 0.5–5 cm long, 2–27 mm wide, entire or often with a few teeth near the tips, pubescent with 2–4 forked hairs and sometimes simple ones as well; stem leaves few to several, similar to the basal leaves but usually much reduced. **Flowers:** Racemes 3–many flowered, crowded or elongating in fruit; pedicels spreading to ascending, 1–10 mm long, with branched hairs; sepals 1.5–2.5 mm long, pubescent; petals white, 3–5 mm long. **Fruits:** Silicles strongly laterally compressed, 4–15 mm long, 2–4 mm wide, pubescent; seeds 20 or more. **Ecology:** Sandy soil from 1,000–7,000 ft (305–2135 m); flowers February–May. **Notes:** Flowers white, leaves cluster at the base of the flower stalk. **Ethnobotany:** Unknown **Etymology:** Draba is from the Greek drabe for sharp or acrid, while cuneifolia means leaves tapered to the base. **Synonyms:** *D. sonorae*

Impact risk level H M L

Erysimum repandum

spreading wallflower

General: Introduced annual herb; stems usually much branched, 10–50 cm tall; pubescent throughout with short, appressed hairs. **Leaves:** Basal and cauline, mostly lanceolate, wavy margined and finely toothed, 1–11 cm long, 1–8 mm wide; pubescent with short, appressed hairs. **Flowers:** Sepals 3–6 mm long, yellowish or greenish; petals 5–8 mm long, yellow. **Fruits:** Pedicels 2–5 mm long, nearly or as wide as the fruits; siliques 3–8 cm long, 1–2 mm wide, glabrous or nearly so, generally spreading to ascending. **Ecology:** Disturbed areas from 4000–7000 ft (1219–2134 m); flowers March–July. **Notes:** Annual, with small flowers and generally a highly branching habit. **Etymology:** Erysimum is Greek meaning to help, given for its medicinal uses, name given by Theophratus. Repandum is ancient word referring to wavy margin. **Synonyms:** *Cheirinia repanda*

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Lepidium lasiocarpum

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shaggyfruit pepperweed

General: Annual from 5–20 cm, larger plants much–branched, herbage with simple, spreading, white, rather thick hairs less than 0.4 mm. **Leaves:** Alternate, basal rosette 2.5–6 cm, oblanceolate leaves, quickly withering as stems develop; stem leaves smaller, oblanceolate, variable, withering as plant matures. **Flowers:** Racemes 2–10 cm, numerous and often crowded on larger plants, pedicels conspicuously flattened, glabrous or pubescent; flowers bisexual, sepals 4, less than 1 mm, wide margins, petals white, 6 stamens, superior ovary, quickly deciduous. **Fruits:** Orbicular and flattened, 2–celled pod, 2–3 mm across, with tiny notch at apex, gelatinous when wetted. **Ecology:** Found on playas, washes, arroyos, beaches, saline soils, roadsides and other disturbed areas below 6,500 ft (1981 m); flowers February–May. **Ethnobotany:** Plant used as a disinfectant, seeds were gathered and ground, parched, eaten in a variety of ways. **Etymology:** Lepidium is from Greek lepidion, meaning little scale, a reference to the shape of the fruits, lasiocarpum means having woolly seeds or fruits. **Synonyms:** None

Lepidium thurberi

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Thurber's pepperweed

General: Annual or biennial under ideal conditions with erect, ascending, freely branched stems 10–60 cm tall, stems hirsute–canescent to pilose throughout, longer hairs obviously flattened, shorter ones usually papilliferous or clavate. **Leaves:** Lower leaves oblanceolate in outline, 3–7.5 cm long, 1–1.5 cm wide, pinnatifid into 3–8 pairs of more or less lobed or dissected segments, ultimate divisions linear to obovate, acute, or apiculate; cauline leaves reduced but similar to lower leaves. **Flowers:** Many flowered raceme, elongating at 1.5–2 cm in fruit; slender pedicels, spreading 6–9 mm long in fruit, slightly flattened, pilosulous along margins; sepals broadly ovate, white, 1–1.5 mm long, petals white 2–3 mm long, glabrous filaments. **Fruits:** Silicles ovate to suborbicular 2–2.5 mm wide, 2–3 mm long, very shallowly and narrowly notched, glabrous. **Ecology:** Found in waste places, roadsides, along washes, and disturbed areas below 5,000 ft (1524 m); flowers February–September. **Notes:** Flattened hirsute to pilose hairs is one diagnostic for this plant. **Ethnobotany:** Papago gathered seeds, winnowed them, parched, dried, cooked, and used for food. **Etymology:** Lepidium is from Greek lepidion, meaning little scale, a reference to the shape of the fruits, thurberi is named for Dr. George Thurber (1821–1890) a member of the Mexican Boundary Survey. **Synonyms:** None

Impact risk level H M L

Nasturtium officinale

watercress

General: Perennial aquatic or semi–aquatic herb; succulent stems floating, creeping or ascending, rooting at the nodes, 10–80 cm or more long; glabrous. **Leaves:** Pinnately divided into ovate to orbicular segments, the terminal one the largest, 1–10 cm long, narrowly clasping at the base. **Flowers:** Racemes without bracts; pedicels spreading to ascending, 5–13 mm long; sepals 2–3 mm long, green or with white tips; petals white, 3–5 mm long, oblanceolate. **Fruits:** Siliques spreading or curved upward, 1–3 cm long, 2–3 mm wide; style about 1 mm long. **Ecology:** Found in water or very wet soil from 1,500–7,500 ft (460–2285 m); flowers April–August. **Notes:** Usually found in streams. White petals and leaves with a long terminal lobe that is larger than the lateral ones. **Ethnobotany:** Havasupai used for food. Other tribes eat as greens. **Etymology:** Rorippa is an Anglo–Saxon work rorippen with an uncertain meaning, while nasturtium–aquaticum is from the Latin nasus tortus, a twisted nose. **Synonyms:** *Rorippa nasturtium–aquaticum, Sisymbrium nasturtium–aquaticum, Nasturtium nasturtium–aquaticum*

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Physaria gordonii

Gordon's bladderpod

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General: Densely stellate–canescent annual with several to many decumbent stems 10–30 cm long. **Leaves:** Basal leaves narrowly oblanceolate to spatulate, entire to slightly repand (rarely lyrate), 1.5–3.5 cm long, acute at apex, gradually narrows to slender petiole nearly equal to blade; numerous cauline leaves, 1–3 cm long, linear to narrowly oblanceolate, entire or faintly wavy. **Flowers:** Racemes compact in flower, elongating later; stout pedicels, slightly recurved, 7–10 mm long; petals yellow, narrowly obovate, claw slightly dialated basally. **Fruits:** Pod globose and glabrous, 3.5–4 mm diameter on a tip 0.5–0.8 mm long. **Ecology:** Found on sandy plains, mountain slopes and mesas below 5,000 ft (1524 m); flowers February–June. **Notes:** This is widespread in the desert and some years has truly remarkable blooms. **Ethnobotany:** Unknown for this species, however, other species have wide medicinal and ceremonial uses. **Etymology:** Lesquerella is named for Leo Lesquereaux (1805–1889) an American botanist, and gordonii is named for Alexander Gordon (c. 1795?) an English horticulturalist and nurseryman. **Synonyms:** *Lesquerella gordonii*

H M L Impact risk level

Sisymbrium irio

London rocket

General: Erect annual, strict or branching from above base, glabrous or sparsely pubescent on part of herbage and pedicels. **Leaves:** Petioled, pinnatifid, larger ones 7–20 cm, blades thin. **Flowers:** Flowering stems usually branched, sepals green, petals, filaments, and anthers yellow; petals 3–4 mm, slender, spreading pedicels 5–14 mm. **Fruits:** Siliques linear, slender, 0.5–0.6 or rarely 1 mm in diameter, 2–5 cm long, curving upward. **Ecology:** Fairly widespread weed of all disturbed areas below 4,500 ft (1372 m); flowers February–May. **Notes:** Introduced from Europe, this is an abundant weed. **Ethnobotany:** Used by the Pima as food, as seeds were parched and made into pinole, while leaves were eaten raw and boiled or fried. **Etymology:** Sisymbrium is from a Greek name for some plants of the mustard family, irio is a reference to an old kind of cress. **Synonyms:** *Norta irio*

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Nemacladus glanduliferus

glandular threadplant

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General: Winter spring ephemeral, 3.5–18 cm, glabrous or sparsely to moderately pubescent with short white hairs at base; stems threadlike, much branched and upright or spreading. Herbage usually dark olive–green to purple brown. **Leaves:** Basal leaves 3–10 mm long, oblanceolate with toothed margins, soon drying, stem leaves are bractlike. **Flowers:** Racemes zigzag, pedicels ascending to spreading, calyx segments green, 0.8–1.5 mm, corollas twice as long as calyx, lobes pointed, white with maroon–purple tips. **Fruits:** Capsule, 2–celled, loculicidally dehiscent. **Ecology:** Found on rocky slopes, sandy–gravelly soils, along washes, arroyos below 5,000 ft (1524 m); flowers April–June. **Notes:** Notable for its diffuse much branched habit and stiffer branches. **Ethnobotany:** Unknown **Etymology:** Nemacladus is from Greek nema, a thread and clados, branch, meaning thread–like branches, while glanduliferus means bearing or producing glands. **Synonyms:** None

Triodanis perfoliata

clasping Venus' looking–glass

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General: Native annual herb; stem erect, simple or somewhat branched, 10–50 cm tall, spreading hairy, at least near the base. **Leaves:** Alternate, 0.5–3 cm long (sometimes wider than long), sessile and clasping the stem, round to cordate, with rounded teeth, hairy on the veins and margins. **Flowers:** Borne singly or in clusters of two or three in leaf axils; calyx 3–8 mm long; corolla 6–12 mm long, purple to bluish lavender. **Fruits:** Capsule 5–10 mm long. **Ecology:** Found on hillsides, under shrubs and in the shade of rocks from 5,000–8,500 ft (1524–2591 m); flowers June and July. **Notes:** Leaves of this slender annual are hairy, alternate, clasping, and relatively small and rounded; flowers are sessile, purple to blue, and borne in spikes. **Etymology:** Triodanus is from Greek treis, "three," and odons, "tooth," hence "three–toothed." Perfoliata refers to the stem which perforates the stem. **Synonyms:** None

Cleome lutea var. *jonesii*

©Al Schneider, www.swcoloradowildflowers.com

yellow spiderflower (Jones' spiderflower)

General: Tall glabrous annual herb with branching stems 30–60 cm tall; leaves with 5 (sometimes 7) palmately compound leaflets; flowers yellow. **Leaves:** Leaves with 5 (sometimes 7) palmately compound leaflets, glabrous; lower leaf petioles longer than upper leaf petioles which can be sessile; leaflets oblong to oblanceolate, 2–5 cm long, entire. **Flowers:** Racemes elongate in fruit, rather persistent sepals united below; petals pale yellow, 4–7 mm long; filaments 10–15 mm long. **Fruits:** Capsules 1–4 cm long on stipes 10–20 mm long; seeds nearly round and yellowish, 2 mm long. **Ecology:** Mostly along streams from 2,000–7,000 ft (600–2130 m); flowers May-August **Notes:** Characterized by 5–7 palmately compound, entire leaflets and a raceme of yellow flowers. High drought tolerance, no fire tolerance. **Ethnobotany:** Navajo used with tobacco in some chants. Plant also used for insect bites. Capers can also be gathered to eat. **Etymology:** Cleome is early European name for mustard–like plant. Lutea means yellow, from a source of yellow dye called lutum. **Synonyms:** None

Polanisia dodecandra

2010 NPS/Steve Buckley

redwhisker clammyweed

General: Annual herb, strong–scented, 20–80 cm tall, glandular–pubescent. **Leaves:** Leaves palmately trifoliate, leaflets oblanceolate to oval, 1–4 cm long; petioles 1–4 cm long. **Flowers:** Flowers in terminal racemes; sepals 4, purple–tinged, 4–5 mm long; petals 4, clawed, whitish, 8–12 mm long; stamens 8–32, with purple filaments, long–exserted; style 4–6 mm long. **Fruits:** Capsule almost sessile, 2–3 cm long, elongate and somewhat compressed. Seeds numerous, brown, almost round, about 2 mm long. **Ecology:** Found in outwash slopes, in disturbed areas from 1,000–6,500 ft (305–1981 m); flowers May–October. **Notes:** Distinguished from *Cleome lutea* by having 3 leaflets and whitish petals that are 8–12 mm long; there is one subspecies in our region, ssp. *tracysperma*. **Ethnobotany:** Pueblo use for food, as greens, boiled and stored for winter food. Zuni use ceremonially. **Etymology:** Polanisia is from Greek polys "many" and anisos "unequal", referring to the numbers of stamens. **Synonyms:** None

Impact risk level H M L

Loeflingia squarrosa

spreading pygmyleaf

General: Glandular pubescent, somewhat fleshy, stiff stems, dichotomously branched at or near the base, variously branched, prostrate or decumbent 5–15 m long. **Leaves:** Usually connate proximally into short, scarious sheath, stipules filamentous to spinose, .4–1.5 mm; blade erect to recurved, 0.4–5.5 mm apex blunt to spine–tipped. **Flowers:** Secund inflorescence, flowers. Sepals similar to leaves 4–5 mm long, recurved, rigid, bristle–tipped; calyx squarrose owing to spreading–recurved tips of sepals; petals minute or wanting; stamens 3–5, 0.4–0.7 mm long, equaling ovary at anthesis. **Fruits:** Oblong capsule 3–angled, 1.5–3.7 mm, 2–5 times as long as sepals. **Ecology:** Found in sandy and gravelly soils from sea level to 7,000 ft (2134 m); flowers March–April. **Ethnobotany:** Unknown **Etymology:** Loeflingia is named for Pehr Lofling (1729–1756) a Swedish botanist, while squarrosa means scaly or rough. **Synonyms:** None

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Commelina erecta

whitemouth dayflower

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General: Erect to ascending perennial, freely branching, fleshy roots, tufted. **Leaves:** Sessile or petiolate, linear, lanceolate to lanceolate–ovate, 2.5–17 cm long, 0.3–3 cm wide, apex acuminate, rarely acute. **Flowers:** Solitary or clustered spathe 1–2.5 cm long, 0.7–1.5 cm wide, peduncle 0.5–1 cm, margins fused at base, glabrous except for fused edge, surface green, usually variously pubescent, apex acute to acuminate. Flowers perfect and staminate, 1.5–4 cm wide, upper petals blue (rare: lavender or white), lower petal minute, white; staminodes and medial stamen anther yellow. **Fruits:** Loculicidal capsule, 1 locule warty indehiscent, 2 locules smooth dehiscent. **Ecology:** Found in grasslands to meadows in mesquite woodlands to pine forests on granitic and limestone soils from 4,000–7,500 ft (1219–2286 m); flowers July–November. **Notes:** Told from *C. dianthifolia* by the spathe margins, fused in *C. erecta*, free in *C. dianthifolia*. **Ethnobotany:** One variety was used by the Seminole to soothe irritations. **Etymology:** Commelina comes from the Dutch botanists Jan (1629–1692) and nephew Caspar (1667–1731) Commelijn, while erecta refers to its upright habit. **Synonyms:** None

H M L Impact risk level

Convolvulus arvensis

bindweed

General: Introduced perennial herb; stems slender, prostrate or twining, 20–120 cm long, glabrous or somewhat hairy; often forming large patches. **Leaves:** Alternate, variable, oblong to ovate, usually with hastate base; 3–4 cm long and almost as wide. **Flowers:** 1–3 per node on long (1–5 cm) peduncles in leaf axils, w/narrow bracts near middle of flower stalk; calyx of oblong lobes, 3–5 mm long; funnel–shaped corolla of fused petals, 15–25 mm long, white to pink, often w/darker bands outside on folds. **Fruits:** Capsule 5–8 mm high; seeds black, 4 mm long. **Ecology:** Disturbed habitats, orchards, and gardens from 3,500–8,000 ft (1067–2438 m); flowers May–September. **Notes:** Looks vegetatively similar to *Polygonum convolvulus*, but lacks the lacerate stipules of that species. A related species *C. equitans*, is occasionally found near Tonto National Monument, and can be distinguished by leaves much longer than broad, calyx much longer (6–12 mm), and not forming large patches. Species is competitive in disturbed areas. Cattle may be a vector for species spread. When restoring an area where *C. arvensis* may be a problem it is recommended that extreme precautions to be taken in maintaining native species. Plant is top killed by fire but readily resurges from rhizomes. Hence, fire is not an adequate tactic to control invasive populations. One of most common "weeds" in all of North America. Highly palatable to pigs, but sheep and cattle will not eat it. Poor palatability to wild ungulates. Host plant for Painted Crescent butterfly. **Ethnobotany:** Navajo make cold plant tea for spider bites. Pomo make slow plant tea for painful menses. Okanagon–colville use stems for roping hunted animals. **Etymology:** Convolvulus means interwoven and arvensis means of cultivated alpine fields. **Synonyms:** *Convolvulus ambigens; C.incanus; Strophocaulos arvensis*

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Cuscuta umbellata

flatglobe dodder

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General: Parasitic perennial forb with slender but profuse stems, twining or trailing, yellow–orange **Leaves:** Reduced to scales or not present. **Flowers:** Glabrous or slightly puberulent, 4–6 mm long, pentamerous, on pedicels 2–8 mm long, forming dense compound cymes; calyx turbinate, lobes as long as or longer than campanulate corolla, acute to acuminate; corolla lobes equal corolla tube, oblong to lancolate, acute to acuminate, usually reflexed; campanulate corolla almost colorless, whitish. **Fruits:** Depressed–globose capsule, with ring of low, road, rounded tubercules about intrastylar aperture, circumscissile, whithering corolla in fruit. **Ecology:** Found on various hosts, mostly herbaceous. **Notes:** Parasitic on *Polygonum, Atriplex, Suaeda, Alternanthera, Amaranthus, Boerhaavia, Trianthema, Kallstroemia, Tribulus*, and *Euphorbia*. **Ethnobotany:** Unknown for this species, but other species in this genera have many uses. **Etymology:** Cuscuta is the name of an Arabic derivation meaning dodder, umbellata refers to the form of the flowers. **Synonyms:** *Cuscuta umbellata* var. *reflexa*, *Grammica umbellata*

Evolvulus arizonicus

wild dwarf morning–glory

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General: Suffrutescent herbs, densely appressed–pilose to almost woolly tomentose throughout; few to many stems from a woody base, erect to ascending or decumbent, 10–30 cm tall. **Leaves:** Lanceolate to linear–lanceolate, 10–25 mm long, 2.5–6 mm wide, gradually decreasing in size toward apex, the upper leaves linear, acute or obtuse apically, attenuate basally, petioles absent or short. **Flowers:** 1–3 flowered cymes on slender peduncles as long as or longer than leaves; flowers on pedicels 3–4 mm long, reflexed in fruit, bracteoles linear–subulate, 1.5–3 mm long; sepals equal, lanceolate, acuminate, 3–3.5 mm long, corollas blue or blue with white stripes, rotate to broadly campanulate, 12–22 mm wide, filaments inserted near base, 1.5–2 times as long as the linear anthers; glabrous ovary. **Fruits:** Globose fruit, 3.5–4 mm long. **Ecology:** Found in disturbed, often rocky sites from 3,000–6,000 ft (914–1829 m); flowers April–October. **Notes:** Similar to *E. alsinoides* also found in SE Arizona, but with a larger corolla. **Ethnobotany:** Unknown **Etymology:** Arizonicus refers to being from Arizona. **Synonyms:** *Evolvulus arizonicus* var. *laetus*, *E. laetus*

Ipomoea barbatisepala

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canyon morning–glory

General: Low–climbing glabrous annual vine. **Leaves:** Orbicular–ovate in outline, 3–8 cm long, 1.5–8.5 cm wide, deeply 5–7 lobed, glabrous often with glandular dots at least below, the base cordate, lobes lanceolate and narrowed toward base, the apex acute to acuminate, the petioles 1–5.5 cm long. **Flowers:** Axillary inflorescences, 1–3 flowered cymes, peduncles 2–6 cm long, glabrous or remotely appressed–hairy; bracts foliaceous, elliptic to linear, 5–6 mm long; flowers on pedicels 4–5 mm long, glabrous, erect in fruit, sepals 10–12 mm long, 1–2 mm wide, hispid–pilose except at base, tips elongate, narrowly linear, bases slightly dilated; corollas funnelform, 1.6–2 cm long, glabrous, blue to light rosy–purple or white, the limb 1.8–2 cm wide, stamens 10–11 mm long. **Fruits:** Glabrous capsule 8–9 mm long, rounded, apiculate, 2–3 locular. **Ecology:** Found in chaparral and desertscrub from 2,500–8,000 ft (762–2438 m); flowers July–December. **Notes: Ethnobotany:** Unknown **Etymology:** Ipomoea comes from Greek ips, a worm and homoios, like, referring to plant's habit. **Synonyms:** None

Ipomoea costellata

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crestrib morning–glory

General: Native annual herb; stems slender, erect when young, later trailing, not or only weakly twining, 10–120 cm or more long, more–or–less glabrous but with 8–10 low longtudinal ridges. **Leaves:** Alternate, sessile or on petioles 1–3 cm long, deeply incised into 5–9 linear to oblanceolate segments (the outer of which may be further divided), 7–35 mm long, 1–3 mm wide. **Flowers:** Mostly solitary in leaf axils, on 2–5 cm long flower stalks with tiny bracts up to 1 mm; sepals somewhat unequal, oblong to lanceolate, with membranous margins, 3–6 mm long, 1–3 mm wide, more–or–less rough–textured on the veins; corolla funnel–shaped, 8–12 mm long, pink to lavender to white. **Fruits:** Stalk erect in fruit; globose tan capsules 4–6 mm wide. **Ecology:** Rocky areas in chaparral, oak woodlands, and ponderosa pine forests from 3,000–7,000 ft (914–2134 m); flowers July–October. **Notes:** This species has pink to lavender flowers with a long peduncle, and a small corolla tube that is 8–12 mm long. **Etymology:** Ipomoea comes from Greek ips, a worm and homoios, like, referring to plant's habit, costellata comes from costa, Latin for ribbed. **Synonyms:** None

Ipomoea cristulata

redstar

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General: Freely climbing, slender, glabrous annual with showy, bright red flower; stems several meters long. **Leaves:** Slender petioles, 2.5–10 cm long, blades ovate to deltoid–cordate, 3–8 cm wide, to 10 cm long, entire or sagittately lobed basally, acute to acuminate, truncate to broadly and shallowly cordate at base. **Flowers:** Peduncles slender, to 25 cm long, surpassing leaves, 1 to several flowered; pedicels 3–15 mm long, sepals oblong, obtuse, about 2 mm wide, 4–5 mm long; horn–like appendage 4–8 mm long, borne by each sepal, tips curved inward against corolla tube; corolla scarlet, sometimes orange–tipped, tube 2–4 cm long, limb cup–shaped, 1–2 cm broad, very shallowly angulate. **Fruits:** Capsule subglobose 7–8 mm in diameter, mucronate at apex, glabrous. **Ecology:** Found climbing on shrubs, rocks, and trees along arroyos, plains, hillsides, and mesa from 2,500–6,000 ft (762–1829 m); flowers August–December. **Notes:** Easily distinguished from all other species in Arizona by the scarlet, narrowly trumpet–shaped corolla. There is a long history of mis-naming this species as *Ipomoea coccinea*. **Ethnobotany:** Unknown **Etymology:** Ipomoea comes from Greek ips, a worm and homoios, like, referring to plant's habit, coccinea means scarlet or bright, deep pink. **Synonyms:** *Quamoclit coccinea*

Impact risk level H M L

Ipomoea hederacea

ivyleaf morning–glory

General: Twining introduced annual, stems densely to sparsely pubescent. **Leaves:** Ovate to orbicular, 5–12 cm wide and long, entire to 3–5–lobed, basally cordate, lobes apically acute to acuminate, pubescent, petioles to 12 cm long, rarely longer. **Flowers:** 1–3 flowered cymes, peduncles 5–10 cm long; bracts foliaceous, elliptic to lanceoate, 5–8 mm long; pedicels 3–7 mm long, erect in fruit; sepals 12–24 mm long, 4–5 mm wide, herbaceous, lanceolate, narrowed form rounded base to narrow acuminate apex, curved in fruit, apex sometimes strongly curved, densely long–hirsute; funnelform corolla 2–3.7 cm long, light blue, tube white or pale yellow inside, limb 1.7–3.5 cm wide. **Fruits:** Globose capsule, 8–12 mm wide, enclosed within sepals. **Ecology:** Found on disturbed sites, roadsides from 3,000–6,000 ft (914–1829 m); flowers August–November. **Notes:** Weedy species, widespread, leaves help to tell it apart from Convolvulus arvensis. **Ethnobotany:** Unknown **Etymology:** Ipomoea comes from Greek ips, a worm and homoios, like, referring to plant's habit, hederacea means of or pertaining to ivy. **Synonyms:** Many, see Tropicos

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H M L Impact risk level

Ipomoea purpurea

tall morning–glory

General: Annual, loosely pubescent to tomentose with short, appressed retrorse trichomes, often with large spreading trichomes which may reach 4 mm long, stems twining, branched to simple. **Leaves:** Blades ovate, entire to 5–lobed, 1–11 cm long, 1–12 cm wide, the base cordate, the apex acute to acuminate, rarely obtuse, mucronate, petioles 1–14 cm long. **Flowers:** 2–5 flowered cymes, linear to lanceolate bracts, 1.3–9 mm long; pedicels 5–16 mm long, erect in flower, reflexed and enlarged in fruit, to 25 mm long; bracteoles 4.5 mm long; sepals 8–15 mm long, outer sepals narrowly ovate–lanceolate to elliptic, 2.5–4.5 mm wide, acute to abruptly acuminate apically, more pubescent near base, inner sepals ovate–lanceolate, 2.5–3 mm wide, acute to abruptly acuminate; funnelform corollas 2.5–4.3 cm long, blue, white within tube, glabrous, limb 2.4–4.8 cm wide. **Fruits:** Globose to ovoid capsule 7–8 mm wide. **Ecology:** Found in disturbed sites and in cultivated areas from 1,000–7,500 ft (305–2286 m); flowers from July–November. **Notes:** Introduced weed, highly variable species, largely due to cultivated selection. **Ethnobotany:** Unknown **Etymology:** Ipomoea comes from Greek ips, a worm and homoios, like, referring to plant's habit, purpurea means purple. **Synonyms:** *Convolvulus purpureus, Ipomoea hirsutula, I. purpurea* var. *diversifolia, Pharbitis purpurea*

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Cucurbita digitata

fingerleaf gourd

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General: Perennial prostrate vine with deep root, slender branches distantly run, but rarely climb; slender stems, glabrous, ribbed, whitish–pustulate with flat oval trichomes on anges, tendrils shot–petiolate, 3–5 parted, branches gland tipped. **Leaves:** Leaves 5–cleft nearly to base of blade, lobes 4–10 cm long, linear–lanceolate to linear–oblanceolate, variably sublobed, green, bearing conic trichomes above and below, sometimes paler below; stout petioles, ribbed, shorter than lobes, muricate and hispid. **Flowers:** Calyx cylindric to narrowly campanulate, 4–6 cm long, sparsely hispid, tube 2.5–3 cm long, lobes subulate, 3–5 mm long, corolla sparsely hispid, bright yellow. **Fruits:** Globose, vivid dark green with 10 narrow stripes and variably speckled. **Ecology:** Found mostly in sandy alluvial soil of washes and valleys or on dry plains and mesas below 5,000 ft (1524 m); flowers June–October. **Notes:** Smell it. You'll know if it is not *C. foetitissima*. **Ethnobotany:** The Gila Pima roasted the seeds and ate them. **Etymology:** Cucurbita is the Latin name for gourd, digitata means lobed like fingers. **Synonyms:** None

Cucurbita foetidissima

coyote gourd, Missouri gourd

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General: Coarse, large–leaved prostrate vine with large, deeply penetrating root, long–lived. Stems radiate, forming dense cover 30–40 cm high over several square meters, scabrous with curved, dimorphic, hair like trichomes. **Leaves:** Triangular–lanceolate to quadrangular–lanceolate, commonly 10–20 cm long, evenly and progressively smaller toward the tips of stems, densely and coarsely white–pubescent above, scabrous beneath with conical trichomes along veins. Thick petioles, scabrous, one–half as long as blade; tendrils thick, long–petiolate, branches short and capitately coiled. **Flowers:** Short peduncle, staminate calyx lobes subulate, equaling tube, corollas with several kinds of hair. **Fruits:** Globose, 6–8 cm across, green with conspicuous, whitish stripes, white–mottled. **Ecology:** Found on sandy soils, along fields, in disturbed areas from 1,000–7,000 ft (305–2134 m); flowers May–August. **Notes:** Conspicuous because of its utterly foul smell, crush it in your fingers and they'll stink for days. You can use the crushed plant leaves soaked in water as a spray to ward off squash bugs. **Ethnobotany:** Poultice of roots applied to boils and sores, to soothe horses' backs, ground fruit shell as shampoo, as an emetic and as a rattle, or dried for other purposes. **Etymology:** Cucurbita is the Latin name for gourd, while foetitissima means very evil smelling. **Synonyms:** *Pepo foetidissima*

Echinopepon wrightii

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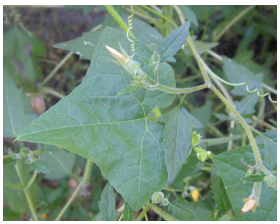
wild balsam apple

General: Native, coarse annual vine with lobate leaves and large, long–spined fruits; stems coarsely ribbed, tendrils strongly ribbed, pubescent. **Leaves:** Orbicular, deeply and broadly notched at base, dentate, undulate, 3–5 lobed, acute lobes, mucronate, blade 5–8 cm wide, finely hispid on both surfaces. **Flowers:** Staminate flowers in simple or compound racemes; pubescent calyx, corolla 6–8 mm wide, rotate. **Fruits:** Obovate, tapering to base, 2–2.5 cm long, stipitate–glandular, 4–8 seeded, prickles 1–2 cm long. **Ecology:** Found on alluvial plains and on gentle slopes, along streams and climbing on shrubs from 3,000–4,000 ft (914–1219 m); flowers July–October. **Notes:** The fruits are quite distinctive with the large prickles. **Ethnobotany:** Unknown **Etymology:** Echinopepon comes from the Greek echinos for hedgehog or spine and pepon derives form pepo, while wrightii is named for Charles Wright (1811–1885), an American botanical collector. **Synonyms:** *Elaterium wrightii*

Sicyosperma gracile



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climbing arrowheads

General: Native, annual vine with slender, twinging, narrowly grooved or striate stems, glabrous or sparsely pubescent; slender tendrils. **Leaves:** Blades broadly triangular to shallowly 3–lobed, thin, conic–hispid on both surfaces, margins entire to denticulate; petioles shorter than blades. **Flowers:** In short racemes or panicles, very slender pedicels; corolla white, 2–3 mm wide, petals bifid at apex, with fine clavate marginal glands. **Fruits:** Smooth, indehiscent, enclosed in enveloping bracts, whitish, 5 mm long, enclosing solitary seed. **Ecology:** Found in canyons and along streams, often in partial shade from 3,500–5,500 ft (1067–1676 m); flowers August –September. **Notes:** The leaves could be confused with *Marah* spp. but the flowers are distinctive. **Ethnobotany:** Unknown **Etymology:** Unsure about the origin of Sicyosperma, but gracile means slender, graceful. **Synonyms:** None

Acalypha neomexicana

New Mexico copperleaf

2008 NPS/Beth Fallon

General: Erect or ascendingly branched annual 10–40 cm tall with thin, bright green leaves, slender petioles and stems, finely puberulent to subglabrate foliage. Sap not milky. **Leaves:** Alternate, on petioles 1–3 cm long, puberulent with fine, spreading, slightly curved hairs; blades ovate, 8–30 mm wide, 1–4.5 cm long, rounded at base, acute to fairly acuminate at apex, thin, serrate, tinged with red when growing in full sun, becoming subglabrate and slightly papillose on lower surface, veins puberulent beneath. **Flowers:** Slender staminate spikes 5–12 mm long, axillary but inserted at base of pistillate spikes, latter both terminal and axillary, 1–5 cm long, rhomboid–ovate bracts 5–11 mm long, 7–9–dentate, central tooth prolonged and five times as long as lateral teeth, veined but glabrous or essentially so on back, short–ciliolate along margins. **Fruits:** Capsule depressed–globose, 3–4 mm wide, 2–2.5 mm high, distinctly 3–lobed, sparsely hirsute and faintly muricate dorsally. **Ecology:** Found in moist areas and rocky soils from 2,500–7,500 ft (762–2286 m); flowers August–November. **Notes:** Distinguished by the conspicuously veined pistillate bracts. **Ethnobotany:** Unknown **Etymology:** Acalypha is from Greek akalephes for nettle, while neomexicana refers to New Mexico. **Synonyms:** None

Acalypha ostryifolia

pineleaf threeseed mercury

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General: Erect, simple to ascending branched annual 10–80 cm tall with dark green minutely puberulent to glabrate stems and foliage. **Leaves:** Slender petioles 1–7 cm long, blades ovate 2–6 cm wide, 2.5–12 cm long, obtuse, rounded, sometimes subcordate at base, acute to short–acuminate at apex, serrate, thin, becoming sparsely puberulent to nearly glabrous and puncticulate in age. **Flowers:** Slender axillary staminate spikes 1–3 cm long, flowers separate below, densely crowded above middle; pistillate spikes terminal on branches 2–7 cm long, bracts 5–9 mm in diameter, lobed one–half to two–thirds of way to base into 11–15 narrowly subulate–linear lobes, these closely beset with short–stiped, nearly granular glands. **Fruits:** Depressed–globose capsule 3.5–4.5 mm wide, 2–3 mm high, strongly 3–lobed, papillose and muricate on upper surface. **Ecology:** Found along washes, in shade of shrubs and in wet cienegas from 3,000–5,500 ft (914–1676 m); flowers June–October. **Notes:** Comb–like teeth on pistillate bracts help to tell this species apart. **Ethnobotany:** Unknown **Etymology:** Acalypha is from Greek akalephes for nettle. **Synonyms:** *Acalypha caroliniana*

Cnidoscolus angustidens

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mala mujer

General: Robust herb or slightly suffrutescent plant 1.5–12 dm tall from fleshy rhizome with stems, leaves, and inflorescences sparsely to densely armed with stiff stinging hairs 4–8 mm long, each hair surmounting a conspicuous, rounded, whitish pustule. Papery stipules, whitish, 5–6 mm long. **Leaves:** Petioles 2–10 cm long, blades orbicular to subreniform in outline, 8–15 cm wide, 3–5 lobed nearly to middle, broadly or shallowly subcordate at base, lobes coarsely incised–dentate, teeth 1–2.5 cm long, blade glabrous between bases of coarse stinging hairs. **Flowers:** Stout peduncles 1–5 cm long, monoecious flowers, staminate in broad cymes to 8 cm wide, staminate calyx white, papery, 9–14 mm long, funnelform, armed with spreading stinging hairs 2–5 mm long; pistillate calyx of 5 distinct, ligulate to oblanceolate segments 10–12 mm long, sparsely hispid with stinging hairs without, early deciduous. **Fruits:** Capsule 10–12 mm long, hispid. **Ecology:** Found on plains and hillsides from 2,500–5,000 ft (762–1524 m); flowers May–July. **Notes:** Notable for its transparent, stinging hairs from conspicuous, white, pustulate bases. **Ethnobotany:** Unknown **Etymology:** Unknown **Synonyms:** None

Croton pottsii var. pottsii

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leatherweed

General: Erect suffrutescent plant 10–50 cm tall with few to many stems from woody base and rootstock, stems, leaves and outer floral parts covered with fine, stellate, slightly lepidote, grayish to silvery pubescence. **Leaves:** Slender petioles 0.5–2 cm long, tomentulose, blades ovate to loblong, 5–18 mm wide, 1–4.5 cm long, acute to mucronulate at apex, rounded at base, entire, greenish and lepidote–pubescent above, gray to silvery and densely stellate–tomentulose beneath, pinnately 5–9–veined. **Flowers:** Monoecious, rarely dioecious; on pedicels to 6 mm long, staminate, calyx densely tomentulose without, lobes narrowly deltoid, 1.5–2 mm long, petals spatulate, nearly twice as long as sepals, bearded with slender crisped hairs; 6–18 stamens, filaments villous near base. **Fruits:** Capsule globose to ovoid 4–7 mm long. **Ecology:** Found on arid rocky slopes from 2,500–6,000 ft (762–1829 m); flowers March–October. **Notes: Ethnobotany:** Infusion taken for kidney infections. **Etymology:** Croton comes from Greek word kroton, meaning a tick, because of the appearance of the seeds. **Synonyms:** *Croton corymbulosus*

Croton texensis

Texas croton

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General: Erect or ascendingly branched annual 0.5–1.5 m tall with slender–rayed, stellate pubescence scattered over stems and leaves, stems slender, yellowish green, plants mainly dioecious, stipules lacking. **Leaves:** Slender petioles 5–20 mm long, densely stellate–pubescent, blades linear, lanceolate, or ovate–lanceolate, 0.5–5 cm wide, 2–12 cm long, obtuse to acuminate at apex, obtuse to rounded at base, entire, upper surface green, with scattered stellate trichomes that rarely overlap, lower surface more closely stellate–puberulent and more or less cinereous, especially on young growth. **Flowers:** Staminate flowers in short racemes, subtended by minute bracts; sepals about 1 mm long, thin, densely pubescent without, glabrous within, petals none; sepals narrowly deltoid about 2 mm long, tomentulose without; pistillate flowers 1–5 per inflorescence. **Fruits:** Capsule, 3–celled, ovoid–globose, 4–6 mm tall, stellate–scurfy. **Ecology:** Found on roadsides, fields, ditch banks, washes, and along arroyos from 500–7,000 ft (152–2134 m); flowers May–November. **Notes:** Plant sometimes called dove–weed, because it is a favorite food for the bird. **Ethnobotany:** Used as a cathartic, on open sores, for hemorrhoids, as a purgative, for stomach troubles, as an eye wash, for gonorrhea or syphilis, and for headaches. The leaves are burned and clothes smoked to remove skunk smell. **Etymology:** Croton comes from Greek word kroton, meaning a tick, because of the appearance of the seeds. **Synonyms:** None

Ditaxis neomexicana

New Mexico silverbush

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General: Annual or short–lived perennial, much branched and densely pubescent with stiff, coarse hairs; to 35 cm tall. **Leaves:** Broadly elliptic to oblanceolate, 13–34 mm, apex acute to obtuse, margins entire or with a few small teeth; leaves longer broader, greener, not as thick and less hairy during warm, wet conditions. **Flowers:** Racemes glomerate–congested in axils, staminate flowers 2–2.5 mm long with lanceolate–acuminate, pilose sepals and glabrous petals parley exceeded by sepals; sepals green 3.2–4 mm, petals obovate white with red–purple veins 1.5–3 mm; gland ovate–lanceolate .5 mm transparent–membranous, becoming yellow–brown and thickened with age. **Fruits:** Depressed–globose capsule 3–4 mm wide, densely long–pilose. **Ecology:** Found on sandy and rocky slopes and along washes from 1,000–4,000 ft (305–1219 m); flowers throughout the year. **Notes:** Notably distinguishable by its lanceolate, acute, and serrulate to entire leaves. **Ethnobotany:** Unknown **Etymology:** Argythamnia is from Greek argyro, silvery and the word for shrub, while neomexicana refers to New Mexico. **Synonyms:** *Argythamnia neomexicana*

Euphorbia abramsiana

Abrams' sandmat

General: Prostrate annual forming open to moderately dense mat 5–45 cm in diameter herbage and stems finely pubescent to glabrate red–brown; or, tips of stems spreading–ascending and green among dense vegetation and in shade. **Leaves:** Ovate–elliptic to oblong, 2.5–12 mm, entire to minutely toothed mostly toward leaf apex, with reddish blotch near the center. **Flowers:** Cyathia on congested lateral branches but also solitary at nodes, inconspicuous, 0.4–0.5 mm wide, involucral glands dotlike, rounded or nearly so, 0.1 mm wide, appendages absent to 0.2 mm wide, white to pink. **Fruits:** Glabrous capsules, bright green with red margins and furrows, margins rather sharp, 1.3–1.7 mm long. **Ecology:** Found on desert slopes, washes, playas, and flats from 200–3,500 ft (61–1067 m); flowers July–October. **Notes:** Plant told apart by the combination of glabrous capsule and entire leaves. **Ethnobotany:** Unknown for this species, other species in genera have medicinal use. **Etymology:** Euphorbia is named for Euphorbus, which derives from eu, good, and phorbe, meaning well–fed, while abramsiana is named for LeRoy Adams (1874–1956) a professor of botany at Stanford. **Synonyms:** *Chamaesyce abramsiana*

Euphorbia albomarginata

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whitemargin sandmat

General: Perennial herb with glabrous and often glaucous herbage; stems prostrate and freely branched, sometimes creeping belowground and rooting at the nodes, 5–40 cm long; mat–forming. **Leaves:** Leaf blades orbicular to oblong, entire, 3–8 mm long; stipules united into a membranous, white scale with entire or lacerate margins. **Flowers:** Cyathia solitary at the nodes, with 1 female and 15–30 male flowers; glands oblong, dark brown, 0.5–1 mm long, petaloid appendages consipicuous, white, entire or subcrenate. **Fruits:** Capsule ovoid, 2 mm long, acutely angled and glabrous; seeds 4–sided, oblong, whitish, 1–2 mm long. **Ecology:** Open, sandy or gravelly dry places up through the pinon–juniper zone from 1,000–7,000 ft (305–2135 m); flowers April–September. **Notes:** Distinctively marked from other species in our range by the prominent interpetiolar stipules. **Ethnobotany:** Diegueno brew plant into tea to treat sores. Shoshoni and Kawaitsu use leaves and flowers for snakebite. Keres treat eye problems by rub from plant. Navajo use slow tea from whole plant for colds or stomachaches. **Etymology:** Euphorbia is named for Euphorbus, which derives from eu, good, and phorbe, meaning well–fed, while albomarginata refers to white margins. **Synonyms:** *Chamaesyce albomarginata*

Euphorbia florida

Chiricahua mountain sandmat

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General: Erect annual 10–65 cm tall, glabrous, stem branched from near base, slender branches green or faintly tinged red, internodes 1.5–5 cm or occasionally to 7 cm. **Leaves:** Linear, 0.5–3 mm wide, 0.5–6 cm long, remotely serrulate, revolute in age, on petioles 1.5–2.5 mm long. **Flowers:** Cyathia 1 to several at nodes, on peduncles 1–3 mm long, campanulate involucre 1.5–2 mm diameter, 2 mm high at anthesis, glabrous without, densely pubescent with straight white hairs around inner rim; lobes of cyathia triangular–acuminate, entire or toothed, about 0.3 mm high; discoid glands, 4 of them .5 mm, fifth filiform, nearly equaling lobes; appendages white or pink, obovate to elliptic 1–2.8 mm long. **Fruits:** Capsule rounded–triangular in cross–section, oblate–globose 2.5 mm diameter, glabrous. **Ecology:** On arid flats, washes, and hillsides from 2,000–5,000 ft (610–1524 m); flowers August–November. **Notes:** The linear leaves, very delicate appearance of the plant, and the distinctively beautiful flowers help to identify this plant. **Ethnobotany:** Unknown for this species, other species in genera have medicinal use. **Etymology:** Euphorbia is named for Euphorbus, which derives from eu, good, and phorbe, meaning well–fed, florida means free–flowering or bright. **Synonyms:** *Chamaesyce florida*

Euphorbia heterophylla

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Mexican fireplant, painted spurge

General: Erect annual 30–70 cm tall, beginning to branch ascendingly near base, stems light green, faintly striate, glabrous or essentially so. **Leaves:** Leaves opposite below, alternate from above first to third nodes to floral whorls, slender petioles 0.5–3 cm long, often gradually widening to cuneate base to leaf blade, latter ovate, obovate, elliptic, or lanceolate in outline 1–6 cm wide to 10 cm long, bright green above, pale to slightly glaucous beneath, margin entire or shallowly dentate and often lyrately lobed, lobes acutely to obtusely deltoid. **Flowers:** Floral leaves similar to cauline ones, but some or all have white, pink, or scarlet near base; involucres clustered at tips of branches, 1.5–2 mm high, narrowly campanulate, green and glabrous, bearing a single unappendaged, discoid, sessile gland and deeply fimbriate–dentate lobes which slightly surpass gland. **Fruits:** Capsules depressed–globose, strongly 3–lobed, 3.5–4.5 mm high, 5–6 mm in diameter, glabrous. **Ecology:** Found on the margins of streams, washes, and hillsides from 2,500–5,000 ft (762–1524 m); flowers August–October. **Notes:** The partially colored leaves are diagnostic of this species. **Ethnobotany:** Unknown **Etymology:** Euphorbia is named for Euphorbus, which derives from eu, good, and phorbe, meaning well–fed, while heterophylla means that the leaves are different on the same plant. **Synonyms:** *Euphorbia geniculata, E. prunifolia, Poinsettia geniculata, P. heterophylla*

Euphorbia hirta

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pillpod sandmat

General: Few–stemmed, erect to decumbent, sparingly branched annual 2–25 cm tall, stems strigose to pilose with yellowish hairs. **Leaves:** Stout petioles 1–2 cm long, pilose, narrowly lanceolate, rhombic–lanceolate, or ovate leaves 3–12 mm wide, 8–30 mm long, acute at apex, asymmetrical at base, sharply to inconspicuously serrulate, sparsely hispid but glabrate above, appressed to spreadingly hirsute beneath, often reddish or with reddish splotches on lower surface. **Flowers:** Cyathia in dense pedunculate heads, peduncles sparsely strigose to glabrate, involucres obconic–campanulate 0.6–0.9 mm in diameter, strigose without, glabrous within; glands stipitate, orbicular to transversely oval, appendages white or sometimes absent; staminate flowers 2–8 per cyanthium. **Fruits:** Capsule 1–1.2 mm long, truncate at base. **Ecology:** Found on sandy or light soil from 3,000–5,000 ft (914–1524 m); flowers March–September. **Notes:** The cyathia in dense pedunculate heads helps to separate out this species. **Ethnobotany:** Unknown for this species, other species in genera have medicinal use. **Etymology:** Euphorbia is named for Euphorbus, which derives from eu, good, and phorbe, meaning well–fed, while hirta means hairy. **Synonyms:** *Chamaesyce hirta, E. pilulifera*

Euphorbia hyssopifolia

hyssopleaf sandmat

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General: Erect to strongly ascending annual 5–60 cm tall with mostly glabrous but sometimes sparsely pilose herbage, stems simple to moderately branched at or near base. **Leaves:** Leaves lanceolate to oblong, 4–20 mm, sometimes with a red blotch at center, margins evenly serrated, paler beneath than above. **Flowers:** Cyathia 0.4–0.9 mm wide, solitary or in few–flowered cyme, peduncle .5–2 mm long, involucral glands 0.2–0.4 mm wide oval pink to maroon, appendages 0.3–0.6 mm wide, broader than long, white to pink, darkening with age; staminate flowers 4–15 per cyathium. **Fruits:** Strongly 3–lobed capsule, 1.6–2.1 mm long, with obtuse to rounded angles, glabrous. **Ecology:** Found on valley flowers, grassy slopes, washes, and rocky hillsides from 1,000–6,000 ft (305–1829 m); flowers throughout year under favorable moisture. **Notes:** Mucilaginous when wetted; evenly serrate margins indicative of this plant. **Ethnobotany:** Unknown for this species, other species in genera have medicinal use. **Etymology:** Euphorbia is named for Euphorbus, which derives from eu, good, and phorbe, meaning well–fed, hyssopifolia means having leaves like Hyssop. **Synonyms:** *Chamaesyce hyssopifolia, Chamaesyce brasiliensis, Euphorbia brasiliensis*

Euphorbia micromera

Sonoran sandmat

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General: Prostrate, glabrous to puberulent annual with stems 2–25 cm long and internodes extremely variable in length. **Leaves:** Petioles .5 mm slender, leaf blades 1.5–7 mm long, ovate to oblong, base oblique in larger leaves, rounded in smaller ones, glabrous to sparsely puberulent, margins entire. **Flowers:** Pubescent to glabrate peduncles 1.2 mm long; campanulate involucres, slightly constricted above, about 1 mm long, 0.9 diamteter, crispate–hirsutulous without, or less commonly glabrous, lobes minute, deltoid, about equaling glands; glands 0.12–0.25 mm wide, dotlike, rounded or sometimes oval, maroon, without appendages; rarely appendages represented by minute white margin. **Fruits:** Globular capsule, 3–angled, 1.2–1.4 mm long, puberulent to glabrous. **Ecology:** Found on flats, washes, bajadas, and hillsides from 500–5,000 ft (152–1524 m); flowers throughout the year. **Notes:** Very similar to *E. polycarpa*, consult more detailed flora if uncertain. *E. polycarpa* is found in more specifically desert habitats. **Ethnobotany:** Unknown for this species, other species in genera have medicinal use. **Etymology:** Euphorbia is named for Euphorbus, which derives from eu, good, and phorbe, meaning well–fed, while micromera means having a small number of parts. **Synonyms:** *Chamaesyce micromera*

Euphorbia pediculifera

Carrizo mountain sandmat

General: Prostrate to slightly procumbent annual with spreading dichotomous branches 3–30 cm long, herbage puberulent with sparse, simple, spreading hairs. Herbage often red–brown to gray–brown. **Leaves:** Leaves at least twice as long as wide, petioled, blades 5.5–15.5 mm, ovate to obovate or oblong, margins entire or sometimes with a few small, irregular teeth. **Flowers:** Cyathia 1.2–1.5 mm wide, glands maroon, oval, 0.6–0.9 m wide, appendages rather showy, white, fading pink, usually considerably wider and longer than the glands; staminate flowers 20–25 in a cyathium. **Fruits:** Capsules sharply 3–angled, 1.2–1.4 mm long and wide, hirsutulous, exserted and reflexed at maturity. **Ecology:** Found on sandy flats and on gentle slopes from 500–4,000 ft (152–1219 m); flowers throughout the year. **Ethnobotany:** Unknown for this species, other species in genera have medicinal use. **Etymology:** Euphorbia is named for Euphorbus, which derives from eu, good, and phorbe, meaning well–fed, pediculifera means bearing lice. **Synonyms:** *Chamaesyce pediculifera*

Tragia nepetifolia

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catnip noseburn

General: Perennial forb, stems slender, often twining, herbage with stinging hairs. **Leaves:** Alternate, serrate, elliptic less than 3 cm. **Flowers:** Monoecious flowers borne in terminal or lateral bracteate racemes staminate flowers above, 2 to many, pistillate flowers below, 1–2, sepals 6. **Fruits:** 3–seeded capsule. **Ecology:** Found on canyons, hillsides, and valley floors from 2,500–7,000 ft (762–2134 m); flowers March–November. **Notes:** One recognized variety in Arizona, var. *dissecta*. **Ethnobotany:** Plant used as a lotion to keep snakes away by the Navajo, while the Ramah Navajo used the plant as a life medicine. The Kayenta Navajo sprinkle the plant on the Hogan during rain storms for protection from lightning. **Etymology:** Tragia is the Latin name of Hieronymus Bock (1498–1554) a German herbalist, while nepetifolia means leaves like catnip. **Synonyms:** None

Astragalus allochrous

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halfmoon milkvetch

General: Perennial from a short woody caudex, stems erect or ascending, 30–50 cm tall, sparsely strigose, usually more or less purplish; stipules broadly deltoid acute to acuminate 2–5 mm long, scarious, sparsely pubescent to subglabrate. **Leaves:** 10–12 cm long, ascending, rachis strongly grooved above, leaflets 11–19, obovate to oblong, 2–4 mm wide, 8–25 mm long, rounded to retuse at apex, acute at base, sparsely strigose but green on both surfaces. **Flowers:** Peduncles 3–8 cm long, racemes 3–10 cm long, 8–15 flowered, purplish, strigose with white and black hairs; teeth narrowly subulate, 1.5–2 mm long, corollas 6–8 mm long, purplish; banner obovate, slightly exceeding wings, glade of wings slightly longer than claw; keel often ochroleucous, strongly curved, obliquely obovate, rounded at apex. **Fruits:** Pods sessile, ovoid, 2.5–4 cm long, 1.5–2 cm wide, strigulose, often slightly tinged with purple. **Ecology:** Common on plains and mesas from 1,500–7,000 ft (457–2134 m); flowers March–May. **Notes:** One of the most conspicuous species of *Astragalus* because of its large size and bladdery pods. **Ethnobotany:** Used ceremonially by the Navajo. **Etymology:** Astragalus is from Greek astragalos meaning ankle bone and is an early name applied to the genus because of the shape of the seeds, allochrous means of a different color. **Synonyms:** None

Astragalus arizonicus

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Arizona milkvetch

General: Prostrate to decumbent perennial from a tough taproot. Many stems, more or less flexuous, 10–50 cm long, finely white–strigose, stipules broadly deltoid, 1.5–3 mm long, usually as wide. **Leaves:** 5–10 cm long, ascending, leaflets 9–17, linear, oblong, or lance–oblong; 2–3 mm wide, 8–15 mm long, canescent. **Flowers:** Racemes 3–8 cm long, lax, several to many flowered, bracts lanceolate, 2.5–3 mm long, villous without; calyx tube cylindro–campanulate, 3–4 mm long, white–strigose; teeth deltoid, subulate–acuminate, about 2 mm long, corolla white, more or less suffused with greenish yellow, purplish, or maroon, 9–11 mm long; banner obovate, arched but not reflexed; wings slightly shorter than banner and keel, falcate, obtuse at apex; keel broadly lunate, apex blunt, strongly arcuate. **Fruits:** Pods linear, ascending, 1.5–3 cm long, about 3 mm wide, slightly arcuate, flat to slightly sulcate along lower suture, finely white–strigose. **Ecology:** Found on grassy hillsides and in flats, on plains and mesas from 4,500 ft (1372 m) and lower; flowers March–May. **Notes:** The radiating, nearly prostrate stems, narrow, silvery–sericeous leaflets, and dingly–purple flowers are characteristic. **Ethnobotany:** *Astragalus spp.* used medicinally for chest cough, colds. **Etymology:** Astragalus is from Greek astragalos meaning ankle bone and is an early name applied to the genus because of the shape of the seeds, arizonicus is named for Arizona. **Synonyms:** None

Astragalus nuttallianus

smallflowered milkvetch

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General: Slender, diminutive annual with stems 10–50 cm long, strigose, white and firm. **Leaves:** Leaves often 2–5.5 cm, leaflets 7–11, mostly all alike, elliptic to linear, very slender, 2.5–5 cm; strigose on both surfaces or sometimes glabrous above, acute to obtuse at apex. **Flowers:** Peduncles 3–10 cm long, slender, mostly surpassing leaves, racemes subcapitate, compact, 3–8 flowered. Corolla white or tips tinged with purple, 4–7 mm long; banner obovate, retuse, slightly exceeding wings. **Fruits:** Pods horizontally spreading to ascending, moderately arcuate, 1.5–2 cm long, 2–2.5 mm wide, about 3 mm deep, strigose to glabrous. **Ecology:** Found on arid plains and on hillsides, mesas, and slopes from 100–4,000 ft (33–1219 m); flowers February–May. **Notes:** This species has ten known varieties (Barneby 1964) in the region. **Ethnobotany:** None **Etymology:** Astragalus is from Greek astragalos meaning ankle bone and is an early name applied to the genus because of the shape of the seeds, nuttallianus is named for Thomas Nuttall (1786–1859) an English botanist. **Synonyms:** None

Chamaecrista nictitans

partridge pea

2008 NPS/Beth Fallon

General: Slender stemmed annual to 50 cm tall, stems covered in dense hairs. **Leaves:** Alternate, pinnately compound leaves, each leaf divided into 10–25 narrow oblong leaflets with small spines on the tips; stalked gland on petiole, just below last pair of leaflets; leaves fold when disturbed. **Flowers:** Short axillary pedicels bearing irregular yellow flowers up to 1.4 cm wide, 5 petals, lower petal larger and more spreading. **Fruits:** Legume **Ecology:** Found in open woods, prairies, thickets, and on wet shores from 3,500–5,000 ft (1067–1524 m); flowers July–August. **Notes:** At Tumacacori both *C. nictitans* and *C. nictitans* var. *leptandenia* have been documented. **Ethnobotany:** Used medicinally for endurance and given against fainting spells. **Etymology:** Chamaecrista come from Greek chamae, dwarf and crista for cross. **Synonyms:** *Chamaecrista nictitans* var. *nictitans, Cassia nictitans*

Crotalaria pumila

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low rattlebox

General: Erect, ascending annual 20–60 cm tall with puberulent to glabrate stems and glabrous or glabrate leaflets, stipules linear or filiform, 4–6 mm long, caducous. **Leaves:** Petioles 2.5 cm long or less, leaflets 3, narrowly elliptic to linear–oblanceolate, 3–15 mm wide to 6 cm long, bright green and glabrous above, slightly glaucous and appressed–puberulent beneath. **Flowers:** Racemes to 30 cm long, many flowered; calyx 3–4 mm long, lobes triangular, equaling tube, petals 10 mm long, bright yellow, keel and sometimes banner faintly washed with red and drying reddish to purple; acumen of keel slender, 7–8 m long, conspicuously exserted beyond wings. **Fruits:** Pods oboid or broadly rounded–oblong, 6–9 mm in diameter, 10–15 mm long, appressed–strigose; persistent style that forms slender beak 1.5–2.5 mm long. Seeds yellow to red–brown, reniform, about 3 mm long, smooth. **Ecology:** Weedy species on sandy, gravelly, or clayey soils on flats and along margins of washes from 4,000–6,000 ft (1219–1829 m); flowers June–October. **Notes:** Varies greatly in size of the plant and of the flowers and in the number of flowers in the raceme, from 1 to many. Petals often tinged or streaked with red. **Ethnobotany:** Seeds boiled, or ground and eaten as a pinole. **Etymology:** Crotalaria is from Greek drotalon, a rattle or clapper, while pumila means dwarf. **Synonyms:** None

Desmodium neomexicanum

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New Mexico ticktrefoil

General: Erect or ascending, moderately to much branched, annual forb 10–45 cm tall, stems and branches slender but deeply grooved, terete or subangulate, sparsely to densely uncinate–puberulent. Stipules slenderly linear–lanceolate, attenuate, 1.5–6 mm. long, minutely striate, glabrous above and below but ciliate–hispid along margins. **Leaves:** Petioles slender, grooved, 0.5–5 cm long, uncinate–puberulent; leaflets 3, linear–lanceolate to ovate or rhombic–lanceolate, obtuse and mucronaulate at apex, 2–21 mm wide, 1.5–6 cm long, terminal ones similar in shape but somewhat larger than lateral, light green and sparsely strigose to glabrate above, slightly paler and sparsely strigose beneath. **Flowers:** Inflorescence 10 cm long, pedicels filiform, 7–12 mm long, calyx small, purplish–pink to white, about 2–2.5 mm long, corolla about 2.5–3 mm long. **Fruits:** Loment 2–5 jointed, sessile or faintly stipitate, joints rhomboidal, reticulate and uncinate–hispidulous, 2.5–3 mm wide, 3–4 mm long, margins slightly folded or revolute, terminal joint slightly larger than others. **Ecology:** Found on mountainsides, mesas, canyons and grassy slopes from 3,500–6,000 ft (1067–1829 m); flowers July–September. **Ethnobotany:** Many non–regional medicinal uses for other species. **Etymology:** Neomexicanum means New Mexico where the type was found in the late 1800s. **Synonyms:** *Meibomia neomexicana*

Hoffmannseggia glauca

hog potato, Indian rushpea

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General: Herbaceous perennial from deeply buried rhizomes, with stalked reddish glands and sparse, short white hairs. Stems renewed annually or seasonally, usually several, around 15–20 cm including the erect terminal inflorescence. **Leaves:** Several near base 5–13 cm long with 5–11 pinnae 1–2.5 cm long, leaflets 4–12 pairs, oblong, glabrous or minutely puberulent and eventually glabrate, obtuse, 3–8 mm long. **Flowers:** Terminal inflorescence in raceme, petals predominantly bright yellow, turning red or red–flecked with age; stamens often red 10–12 mm long, claws equaling blades and densely glandular. **Fruits:** Falcate pod, 5–8 mm wide, 2–4 cm long, reticulate–veined, compressed, readily deciduous, indehiscent. **Ecology:** Found on sandy and alkaline soils, disturbed sides, forming large colonies from 5,000 ft (1524 m) and below; flowers April–September. **Notes:** Plant is considered a good soil binder. **Ethnobotany:** Small tuber are collected and eaten raw, boiled, or preferably roasted. **Etymology:** Hoffmanseggia is named for Johan Centurius, Count Von Hoffmansegg (1766–1849) a German botanist, and glauca is from Greek meaning bluish gray, referring to leaves. **Synonyms:** None

Lotus humistratus

foothill deervetch

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General: Annual forb with erect, ascending, or decumbent stems .5–20 cm long, whole plant is densely villous with white to slightly tawny, soft hairs. **Leaves:** Petioles short, rarely over 5 mm long, rachises of leaves flattened, 5–8 mm long, leaflets 3–5, broadly elliptic to obovate, 2–6 mm wide, 4–15 mm long, cuneate at base, acute to rounded at apex. **Flowers:** Subsessile, solitary or in paris in axils of leaves, calyx tube 2–2.5 mm long, yellow tinged with red or rose. **Fruits:** Pods 2–3 mm wide, 5–10 mm long densely villous. **Ecology:** Found on dry gravelly slopes and sandy flats from 5,000 ft (1524 m) and below; flowers March–June. **Notes:** Notable for its low ground loving habit and its tiny flowers. **Ethnobotany:** Infusion of plant taken and used as a wash by women in labor by Karok (CA). **Etymology:** Lotus from the Green and originally applied to a fruit said to make those who tasted it forget their homes, while humistratus means low layer. **Synonyms:** *Hosackia brachycarpa*

Lupinus concinnus

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bajada lupine, scarlet lupine

General: Erect annual 5–30 cm tall with few to many branches from base and at higher levels; herbage is densely villous with spreading hairs. **Leaves:** Petioles exceed leaflets, slender, lower ones 4–8 cm long, stipules lance–linear, 5–9 mm long; leaflets 5–8 oblanceolate, obtuse to rounded at apex, 3–6 mm wide, 1–2 cm long, deep green through pubescence. **Flowers:** Racemes erect, 3–10 cm long or sometimes of only 2–3 flowers and surpassed by leaves. Papilionoid flower with a densely villous calyx, shallow cup 1–2 mm deep, upper calyx lip cleft nearly or fully halfway to base, 4–5 mm long, lower one tridentate, petals 7–9 mm long, lilac or bluish, edged with deep purple, banner obovate, rounded or emarginated at apex, keel nonciliate, nearly straight. **Fruits:** Pods 10–18 mm long, straight, densely villous, 2–4 seeded. **Ecology:** Found on dry sandy soils below 5,000 ft (1524 m); flowers March–May. **Notes:** Several varieties in and around the Sonoran Desert, worth collecting if uncertain. **Ethnobotany:** No known uses. **Etymology:** Lupinus comes from Latin for wolf, while concinnus means neat or elegant. **Synonyms:** None

Marina calycosa

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San Pedro false prairie–clover

General: Decumbent to ascending perennial herb with slender, strigose stems 10–30 cm long; stipules lance–acuminate, 2–4 mm long, sparsely strigose on outer surface. **Leaves:** 1–3 cm long, petioles 4–7 mm long, leaflets 15–29, oblong to obovate, 2–5 mm long, rounded, obtuse or retuse at apex, glabrous on upper surface, strigose and sparsely and minutely glandular–punctate beneath. **Flowers:** Peduncles 1–4 cm long, racemes dense, 1.5–4 cm long, bracts lanceolate–attenuate, 3.5–4.5 mm long, sparsely pubescent, caudcous; flowers 7–10 mm long, calyx tube turbinate, 2–2.5 mm long, strongly 10 ribbed, pilose, glandular between ribs; calyx lobes linear–lanceolate, 4–5 mm long, densely pilose without, glabrous within; corollas purple and white, reniform banner. **Fruits:** Obovate pod 3–3.5 mm long and wide, sparsely pilosulous. **Ecology:** Found on dry slopes and washes from 4,000–5,000 ft (1219–1524 m); flowers April–September. **Notes: Ethnobotany:** Unknown **Etymology:** Marina refers to marine, or of the sea, while calycosa means having a full calyx. **Synonyms:** *Dalea calycosa*

Impact risk level H M L

Medicago polymorpha

burclover

General: Decumbent annual with numerous spreading branches to 80 cm long, glabrous stems and foliage, whitish stipules, asymmetrically ovate–lanceolate to 1 cm long, bearing several slender teeth 2–3 mm long. **Leaves:** Petioles 1–2 cm long, leaflets obovate to obcordate or suborbicular, 5–13 mm wide, 10–15 mm long, broadly cuneate to obtuse at base, dentate almost to base. **Flowers:** Peduncles 2–5 flowered, 2 cm long or less, calyx about 5 mm long, petals yellow, only slightly exceeding calyx. **Fruits:** Pods to 1 cm in diameter, tightly coiled into 2–3 spirals, reticulate on sides, margins keeled and keel armed on each side by a row of curved or hooked prickles 2–3 mm long. **Ecology:** Widely established, occasional in waste areas, old fields; flowers March–June. **Notes:** Introduced from Europe, widely naturalized at present. **Ethnobotany:** Seeds parched, ground to make mush; leaves eaten for forage. **Etymology:** Medicago derived from medike, or medick, the Greek name for alfalfa, while polymorpha means many forms, or variable. **Synonyms:** Numerous, see Tropicos

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Impact risk level H M L

Melilotus indicus

annual yellow sweetclover

General: Erect annual to 1 m tall with glabrous herbage or leaves and inflorescences sparsely appressed–pubescent when young, stipules subulate or narrowly lanceolate, 3–8 mm long. **Leaves:** Slender petioles to 5 cm long, leaflets cuneate–oblong to obovate, 3–12 mm wide, 1–2.5 cm long, obtuse, rounded or truncate, denticulate. **Flowers:** Peduncles surpass subtending leaves, racemes numerous, 2–10 cm long, about 5 mm in diameter; flowers 2.5 mm long, calyx half as long, its teeth triangular, sparsely ciliolate, pealike, petals yellow. **Fruits:** Ovoid pods 2–2.5 mm long, reticulate, glabrous, usually 1–seeded. **Ecology:** Occasional along roadsides, ditches, in fields, and in disturbed areas; flowers April–September. **Notes:** Widespread introduced ruderal. **Ethnobotany:** Used as a bed bug repellant, as a strong laxative, and for games. **Etymology:** Melilotus is from Greek meli, honey and lotos, a leguminous plant, while indicus refers to India. **Synonyms:** *Melilotus indica*

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H **M** L Impact risk level

Melilotus officinalis

yellow sweetclover

General: Tall, erect introduced biennial. Stems to 1.5 m (approximately 60 inches). Up to 10 stems per plant; originating from short rhizomes and a deep taproot. **Leaves:** In three's. Leaflets oval, slightly toothed. **Flowers:** Inflorescence a raceme; small yellow pea flowers, 4–7 mm long. **Fruits:** Pods 3 mm long or less, oval and smooth. **Ecology:** Native of Europe; found on roadsides, in waste places, agricultural and pristine areas; from foothills and deserts to mountains; flowers May–frost. **Notes:** Tall, erect biennial with many–flowered racemes containing tiny yellow flowers. *M. alba* has white flowers, but is otherwise very similar in habit, and is often found growing with *M. officinalis*. *M. indicus* is a smaller yellow–flowering annual. Good forage species for domestic livestock and wild ungulates. If cut as hay and not cured properly, can cause hemorrhaging in cattle. Nitrogen fixer. Good source of nectar for honeybees. Considered noxious weed in some states. Fire scarifies the seeds, as does freezing/thawing and passage through animal digestive tracts, thus stimulating germination. Seeds can remain viable in soil seed bank for up to 40 years. It persists on sites that have periodic disturbance. Fire may be used to control it if used correctly. Eaten by livestock and wild ungulates, Dabbling ducks use it as nesting habitat (mallards, gadwalls, and teals), while many birds use it for both habitat and food. Host plant for Spring Azure and Eastern–Tailed Blue butterflies. **Ethnobotany:** Used medicinally to reduce postsurgical blood clots. Used in tea for soft tissue inflammations. Young leaves have a vanilla flavor and are used in cooking and tea. Herb is also used to flavor Gruyere cheese. **Etymology:** Melilotus is from Greek meli, honey and lotos, a leguminous plant, officinalis means it is sold as an herb. **Synonyms:** *Melilotus albus*, *M. albus* var. *annuus*

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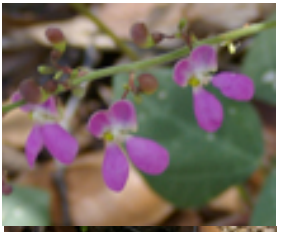
Phaseolus ritensis

Santa Rita mountain bean



2008 NPS/Steve Buckley

General: Prostrate, scandent or twining perennial with slender, striate, sparsely puberulent stems 2–10 dm long, onder ones often strongly zigzag; root woody, to 1.5 cm in diameter, stipules oblong–lanceolate to narrowly lanceolate 0.8–1.5 mm wide, 3–5 mm long, strongly striate, finely and sparsely puberulent to subglabrate. **Leaves:** Petioles 1–3 cm long, sparsely puberulent, leaflets ovate to bradly rhombic–ovate, symmetrical or nearly so, entire, 1.5–3.5 cm wide, 2–5.5 cm long, rather leathery, light green, subglabrate and finely reticulate–veined above, slightly paler, sparsely puberulent and conspicuously veined beneath, acute to obtuse and slightly emarginated at apex, rounded to broadly cuneate at base. **Flowers:** Peduncles usually surpassing leaves, to 30 cm long, flowering racemes equaling or exceeding basal portion; pedicels slender, 3–5 mm long, and ascending at anthesis, to 1.5 cm long and reflexed in fruit; calyx broadly campanulate, 2–3 mm high, fully as wide, subglabrate, teeth broader than long, shorter than tube, corolla pale lavender, 6–9 mm long. **Fruits:** Pods 4–7 mm wide, 3–4 cm long, more or less falcate, very abruptly turned upward at base, abruptly prostrate at apex, strongly flattened, glabrous. **Ecology:** Found on valley floors and rocky hillsides, common to oak woodlands to down to upper margins of Sonoran Desert from 4,500–7,000 ft (1372–2134 m); flowers August–September. **Notes:** Often found crawling up into canopy of mesquite and oak, this makes it easily identifiable. **Ethnobotany:** The seeds which are quick to fall from ripened pods are large and can be prepared like teparies. **Etymology:** Phaseolus is from Greek phaselos, a little boat or light vessel, referring to its pod, while ritensis is a reference to the Santa Rita Mountains. **Synonyms:** None

Rhynchosia senna var. *texana*

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Texas snoutbean

General: A slender, twining or scrambling vine with stems 1–20 dm long from a woody root, minutely puberulent throughout, stipules lance–setaceous, 2–2.5 mm long. **Leaves:** Petioles slender, 5–12 mm long, petiolule of terminal leaflet from half as long as to equaling petiole; leaflets narrowly ovate–lanceolate to lanceolate, 3–10 mm wide, 1–5 cm long, rounded at base, acute and muctonulate at apex. **Flowers:** Solitary to few flowered clusters in axils, pedicels 4–5 mm long, calyx tube 1.5 mm long, finely villous with short spreading hairs, teeth linear–subulate, 1.5–2.5 mm long, corolla yellow, 5–6 mm long. **Fruits:** Pods lunate, 5–7 mm wide, about 2 cm long, finely and closely puberulent, minute beak turned abruptly downward. **Ecology:** Found on the margins of grassy plains, among shrubs, and on mesas from 3,500–5,500 ft (1067–1676 m); flowers May–September. **Notes:** Specimens in southern Arizona have hairs on the stem that are appressed or subppressed and retrorse, while those further north have spreading or ascending hair. **Ethnobotany:** Unknown **Etymology:** Rhynchosia is from Greek rhynchos, horn, beak or snout, while senna from the Arabic name sana. **Synonyms:** *Rhynchosia senna* var. *angustifolia, R. texana*

Senna bauhinioides

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twinleaf senna

General: Herbaceous perennial from slender woody rootstock, with several ascending–spreading branches 10–30 cm tall and soft pubescent foliage; stipules lance–linear, 3–6 mm long, persistent. **Leaves:** Petioles slender, 1–3 cm long, cylindric gland just below apex; leaflets 1 pair, oblong, 5–12 mm broad, 1–2.8 cm long, obtuse or rounded at both ends, silky–pubescent and slightly cinereous on both surfaces. **Flowers:** Peduncles 2.5–4 cm long, usually 2–flowered, sepals 6–8 mm long, oblong, thinnish, green with yellowish margins, pubescent outside, glabrous within; petals 12–18 mm long, distinctly brown–veined; anthers essentially alike; ovary densely appressed–hirsute. **Fruits:** Pods oblong, 5–6 mm in diameter, 2–3.5 cm long, scarcely compressed, dark brown, spreadingly pubescent. **Ecology:** Found on gravelly flats and plains, along washes, and rocky slopes from 2,000–5,500 ft (610–1676 m); flowers April–August. **Notes:** Another species *Senna hirsuta* var. *glaberrima* is thought to be in the area, but the taxonomy remains elusive. **Ethnobotany:** Unknown **Etymology:** Senna is from Arabic Sena, while bauhinioides is named from Swiss herbalist and botanist brothers Caspar and Jean Bahuin (1541–1613). **Synonyms:** *Cassia bauhinioides, C. bauhinioides* var. *arizonica*

Senna hirsuta var. *glaberrima*

woolly senna

2009 NPS/Steve Buckley

General: Perennial herb to subshrub, simple stemmed or branched above, often to 1 m more tall, herbage glabrate to sparsely pubescent, stems ridged with linear to lance–subulate stipules, 5–10 mm long. **Leaves:** Leaves to 40 cm long, petiole bearing a large gland near base, 8–16 leaflets, lanceolate, 7–25 mm wide by 4–10 cm long, glabrous except on puberulent margins, bright green. **Flowers:** Terminal inflorescence, but can be axillary, few flowered, on pedicels 5–25 mm long; sepals thin, oblong to obovate, rounded, 7–10 mm long, petals to 1.5 cm long, exceeding the sepals, yellow. **Fruits:** Linear pods, 4.5–6 mm wide to 25 cm long, indehiscent to tardily dehiscent, dull grayish brown at maturity. **Ecology:** Found along washes and streams from 2,500–5,500 ft (762–1676 m); flowers July–September. **Notes:** Foliage is ill–smelling, easily identified by the bright yellow flowers and size of the plant. **Ethnobotany:** Unknown **Etymology:** Senna is from Arabic Sena, while hirsuta comes from hirsute, for hairy, and glaberrima means completely glabrous. **Synonyms:** *Cassia leptocarpa* var. *glaberrima*

Sphinctospermum constrictum

hourglass peaseed

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General: Stems simple or sparingly ascendingly branched, 20–60 cm tall, slender, sparingly strigose to glabrate. **Leaves:** Simple, sessile, linear, 1–3 mm broad, 2–8 cm long, glabrous or with a few scattered hairs, pale green. **Flowers:** Pedicels 1–5 mm long, lobes lance–subulate, slightly spreading, equaling or slightly exceeding tube, corolla pink about 5 mm long. **Fruits:** Pod linear, 2.5–3 mm wide, 3–4 cm long, straight, glabrous, pendent at an angle of about 40 degrees. **Ecology:** Uncommon, found on grassy hillsides and plains, mostly in sandy soil. likes the open from 2,500–4,000 ft (762–1219 m); flowers July–September. **Notes:** Hour glass shaped seeds are very distinctive. **Ethnobotany:** Unknown **Etymology:** Sphinctospermum means pinched seed, while constrictum means constricted also. **Synonyms:** *Tephrosia constricta*

H M L Impact risk level

Erodium cicutarium

redstem stork's bill

General: Annual herb; thought to be introduced from Europe, naturalized throughout U.S.; herbage glandular–villous; stems are erect initially becoming prostrate, few to several, often reddish with swollen nodes; slender taproot. **Leaves:** Pinnately and finely dissected; blade bipinnatifid (twice pinnately cleft), lance–shaped stipules. **Flowers:** 2–5 (usually)–flowered umbel, glandular–pubescent; rose–lavender, pink, or lilac petals; often spotted; mature stylar column. **Fruits:** With beak of fruit 2.7–3.8 cm. **Ecology:** In disturbed, often dry places from 2,500–8,000 ft (762–2438 m); naturalized throughout the West and much of the US; flowers February–July. **Notes:** Glandular–pubescent annuals of disturbed areas, 20–50 mm long stylar column, pink or lavender petals, finely dissected leaves. Told apart from *E. texanum* by its leaves which are simple and 3–lobed, plants are also without glands. Seasonal forage for rodents, desert tortoise, big game animals, and livestock. Seeds eaten by upland gamebirds, songbirds, and rodents. Plant is sensitive to pollution. Low intensity burns may allow plant survival. Moderate to severe intensity fires kill plant. Initially, post–fire germination is low but overall biomass increases. Prescribed burns are favorable to species. **Ethnobotany:** Costanoan make cold leaf tea to treat typhoid fever. Navajo use plant to disinfect and treat bobcat and mountain lion bites. Zuni make chewed leaf poultice for sores and rashes. Navajo also use it to treat excessive menstruation. **Etymology:** Erodium is Greek for heron, which comes from the bill–like fruit. Cicut means pertaining to hemlock. **Synonyms:** None

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Erodium texanum

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Texas stork's bill

General: Winter spring ephemeral, stems reaching 25 cm, but usually shorter and stemless. Herbage with small, coarse white hairs, not glandular. **Leaves:** Blades 9–21 mm, ovate to heart–shaped or rounded in outline, usually 3–lobed or parted, margins toothed, petioles 10–42 mm. **Flowers:** Umbels 2–3 flowered, petals pink to purple, readily falling, longer than the sepals; fruiting sepals 5.5–9 mm. **Fruits:** Beak of fruit 3.2–5 cm long. **Ecology:** Widespread, mostly at lower elevations on sandy or fine–textured soils, sometimes among rocks from 1,000–5,000 ft (305–1524 m); flowers February–April. **Notes:** Common as *E. cicutarium*, but easily distinguishable by the flowers. **Ethnobotany:** Unknown **Etymology:** Erodium is Greek for heron, which comes from the bill–like fruit, texanum refers to Texas. **Synonyms:** None

Impact risk level H M L

Lamium amplexicaule

henbit deadnettle

General: Annual or biennial with sparsely pubescent herbage and decumbent to ascending stems 5–35 cm long, branching at base and from some axils. **Leaves:** Broadly ovate to suborbicular, truncate to cordate at base, obtuse to rounded at apex, coarsely crenate, dark green above, slightly paler beneath, lower leaves 5–10 mm wide, slenderly petiolate, upper sessile and often clasping, 20–25 mm wide, nearly as long. **Flowers:** Cymules few–flowered; calyx hispidulous 4–5 mm long, teeth equaling or slightly longer than broad tube, corolla purple to lavender, 10–16 mm long, tube slender, sparsely hirsute below, becoming densely pubescent upward, upper lip bearded with lavender to purplish hairs, lower lip with very small lateral lobes, middle lobe spotted with white and deep purple. **Fruits:** Nutlets obovoid–oblong, round back, trigonous in cross section, narrowly grooved down ventral midline, pale brown with paler numerous tubercles. **Ecology:** Found in waste places, disturbed areas, cultivated fields and lawns, very widespread. Flowers March–October. **Notes:** Widespread weed, naturalized extensively in United States, from Eurasia. **Ethnobotany:** Unknown **Etymology:** Lamium is the ancient Latin name for the mints, while amplexicaule refers to the leaf base clasping the stem. **Synonyms:** *Lamium amplexicaule* var. *album*

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Impact risk level H M L

Marrubium vulgare

horehound

General: Perennial exotic herb from a taproot; stems several, prostrate to ascending–erect, 20–100 cm long/tall, densely white wooly. **Leaves:** Opposite, blades 1–6 cm long, conspicuously wrinkled, ovate to round, with crenate margins; generally green and pubescent above, white wooly below. **Flowers:** Whorled in globular clusters in leaf axils, with spiny calyces; corolla 5–10 mm long, whitish. **Fruits:** 4 nutlets **Ecology:** On disturbed ground from 2,000–7,500 ft (610–2286 m); flowers April–October. **Notes:** Distinguished by noticeably wrinkly leaves and white–wooly pubescence on stems and undersides of leaves. **Ethnobotany:** Herb is useful in tincture form to alleviate lung congestion. Species is sometimes substituted in brewing in place of hops. Navajo use it to treat indigestion, stomachache, influenza, colds, coughs, sore throats, and general aches and pains. It is also used in childbirth. **Etymology:** Possibly from the Hebrew for "bitter juice". Vulgare is ancient word for common. **Synonyms:** None

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Salvia subincisa

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sawtooth sage

General: Erect annual herb with several to many slender branches 30–50 cm tall, internodes 3–10 cm, quadrangular in cross section, closely glandular–hirtellous with capitate hairs. **Leaves:** Slender petioles, glandular–hirtellous, 1–1.5 cm long, broadening gradually above to cuneate base of leaf blades, the oblong–elliptic to linear–lanceolate, 3–15mm wide, 1.5–6 cm long, acute to attenuate at apex, irregularly incised–serrate, sparsely hirtellous and minutely glandular, slightly paler beneath that above. **Flowers:** Solitary flowers, but sometimes 2–3 flowered verticals 1–3 cm apart in a raceme 3–15 cm long; bracts ovate, 2–3.5 mm long, ciliate–glandular, caducous; calyx 4.5–5.5 mm long in flower, corolla 4–4.5 mm long, upper lip 2–2.5 mm long, bluish, sparsely hirtellous without; lower lip 7–8 mm, slightly hirtellous beneath. **Fruits:** Nutlets ellipsoidal, 2.5–3 mm long, 1.8–2 mm wide, smooth but dull, buff to pale brown. **Ecology:** Found along canyons and rocky shaded slopes and on margins of meadows below 5,500 ft (1676 m); flowers August–September. **Notes:** Irregularly incised–serrate leaves are one key diagnostic. **Ethnobotany:** Unknown for this species, but other species in this genus have medicinal, culinary, or food value. **Etymology:** Salvia comes from Latin salveo, I am well, and subincisa means below incised, deeply or irregularly cut. **Synonyms:** None

Calochortus kennedyi

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desert mariposa lily

General: Simple stems, stoutish, 10-25 cm tall, glaucous. **Leaves:** Basal leaves linear, deeply channeled, 2-5 mm wide, about equaling stems, glaucous; upper leaves 1-2 or wanting, 3-6 mm wide at base, 3-5 cm long, recurved and thick, attenuate, scarious along margins. **Flowers:** Umbels 2-4 flowered, sepals broadly ovate to lance-ovate, 2-3 cm long, 6-10 mm wide, acute, orange-red within, usually brownish spot near base; petals broadly cuneate-obovate, 2.5-3.5 cm long, orange-red with brownish purple claws; large hairy gland at base. **Fruits:** Capsule broadly linear-lanceolate, 4-5 cm long, obtusely triquetrous, slightly attenuate above. **Ecology:** Found on gravelly hills, mesas and outwash slopes below 5000 ft (1524 m); flowers April-June. **Notes:** Several species of this genus are in the region, petal color usually is the diagnostic. **Ethnobotany:** Large bulbs were eaten. **Etymology:** Calochortus is Greek, meaning beautiful herb, while kennedyi is named after William Kennedy (c1827?). **Synonyms:** None

Mentzelia albicaulis

whitestem blazingstar

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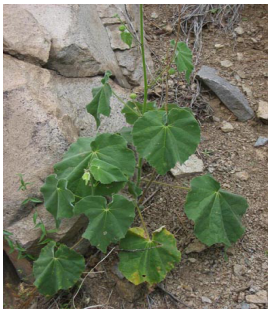
General: Annuals with sticky leaves, stems to 45 cm tall. **Leaves:** Sticky surface due to barbed hairs; sessile, narrowly elliptic to lanceolate; margins lobed often with teeth in the sinuses; up to 15 cm long. **Flowers:** Sessile; petals yellow, 2–5 mm long; 15–30 stamens; style 2–3 mm long. **Fruits:** Capsules club–shaped (widens toward tip and often long–tapering to base); 8–28 mm long; Seeds hang down, not winged, grain–like seeds in upper half of capsule. **Ecology:** Found in dry places from 1000–7500 ft (305–2286m); flowers February–June. **Notes:** *M. albicaulis* has more consistently deeply pinnately lobed leaves, at times with shallowly lobed leaves above. **Ethnobotany:** Gosiute rub seeds on burned skin. Hopi use plant for toothaches. Navajo use leaf concoction for snakebites. Numerous tribes use seed flour as staple for gravy, bread porridge, etc. **Etymology:** Mentzelia named for Christian Mentzel (1622–1701), a 17th century German botanist, botanical author and physician. Albicaulis translates to whitish–stem. **Synonyms:** *Acrolasia albicaulis, M. gracilis, M. mojavensis*

Mentzelia aspera

tropical blazingstar

General: Annual herb with spreading, ascending, longitudinally striate stems 10–40 cm long, puberulent with straight or slightly curved, spinelike hairs, retrorsely barbed. **Leaves:** Lanceolate to ovate–lanceolate, to broadly ovate 10–15 cm long to 8 cm broad, acute to acuminate at apex, more or less cuneate to subcordate at base, serrateor deeply incised or sometimes hallowly 3–lobed, dark green on upper surface, paler and more densely scabrous beneath. **Flowers:** Calyx tube 6–11 mm long, attenuate at base, lobes lanceolate 3–4 mm long, 1–1.5 mm wide, acuminate; 5 petals, obovate to obovate–orbicular, 4–8 mm long. **Fruits:** Subcylindrical capsule, 1.5–2.5 cm long, 3–5 mm in diameter, terete, obtuse at base, papery, sessile. **Ecology:** Found on sandy or rocky soil below 4000 ft (1219 m); flowers July–October. **Notes:** Diagnostic for this plant is the striate stems. **Ethnobotany:** Unknown, but others of this genera had wide use as food, medicine, and for ceremony. **Etymology:** Mentzelia named for Christian Mentzel (1622–1701), a 17th century German botanist, botanical author and physician, while aspera means rough. **Synonyms:** None

Abutilon mollicomum



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Sonoran Indian mallow

General: Shrubs 1–2 m tall, stems and petioles with spreading simple hairs 2–4 mm long. **Leaves:** Broadly ovate or weakly lobulate, 10–20 cm long, irregularly dentate, softly pubescent, markedly discolorous. **Flowers:** In ample terminal panicle rising above leaves, calyx 4–6 mm long, petals 5–8 mm long, staminal column glabrous, around 10 styles. **Fruits:** Exceeding calyx, 8–10 mm diameter, stellate–pubescent, mericarps 10, short–apiculate. **Ecology:** Found in grasslands and along waterways from 3,000–4,500 ft (914–1372 m); flowers September–December. **Notes:** Easy to identify because of its huge leaves. **Ethnobotany:** Unknown **Etymology:** Abutilon is from the Arabic word for a mallow–like plant. **Synonyms:** *Abutilon sonorae*

Abutilon parvulum

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dwarf Indian mallow

General: Herbs or subshrubs with trailing branches, stems minutely stellate–pubescent, sometimes also with simple hairs 1 mm long. **Leaves:** Broadly ovate, up to 5 cm long, often smaller, coarsely dentate, sparsely stellate–pubescent, concolorous. **Flowers:** Solitary in leaf axils, calyx 3–5 mm long, lobes reflexed in fruit, petals orange or pink, 4–7 mm diameter, minutely stellate–pubescent. **Fruits:** Mericarps 5, apically acute or apiculate. **Ecology:** Found on dry plains and arid slopes from 2,500–5,500 ft (762–1676 m); flowers throughout the year. **Notes:** The green of the leaf tissue showing through the sparser, longer–rayed pubescence on the lower sides of the leaf blade readily sets it apart in the field. **Ethnobotany:** Unknown **Etymology:** Abutilon is from the Arabic word for a mallow–like plant, while parvulum means somewhat small. **Synonyms:** None

Anoda cristata

crested anoda

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General: Suberect or decumbent herb, stems hispid. **Leaves:** Usually ovate to hastate, dentate to subentire, sparsely pubescent, often with purple blotch along midvein. **Flowers:** Solitary in leaf axils on long pedicels, calyx 5–10 mm long (12–20 mm in fruit); petals 8–16 mm long, lavender (rarely white); pubescent staminal column, shorter than petals, styles 10–19. **Fruits:** Disk–shaped, 8–11 mm diameter (excluding spines), hispid; mericarps 10–19 with horizontal spines 1.5–4 mm long dorsally. **Ecology:** Found along streams, in meadows, roadsides, fields and gentle slopes or flats from 3,500–6,000 ft (1067–1981 m); flowers throughout the year. **Notes:** Considered a weed by many sources, common throughout the region, noxious in some states, including Colorado. **Ethnobotany:** Unknown **Etymology:** Anoda comes from Greek, a, without and Latin nodus, joint or node, a nod to the stems lacking nodes, while cristata means comb–like. **Synonyms:** *Anoda acerifolia*, *A. cristata* var. *brachyantha*, *A. cristata* var. *digitata*, *A. lavaterioides*, *Sida cristata*

Impact risk level H **M** L

Malva parviflora

cheeseweed mallow

General: Introduced, trailing or ascending herb, slightly pubescent to glabrate. **Leaves:** Orbicular or reniform, 2–7 cm long, crenate, undulate, or 5–7 lobed. **Flowers:** 1–4 in leaf axils, short–pedicellate, calyx 3–4 mm long, accrescent to 7–8 mm in fruit, petals lavender or white, 4–5 mm long. **Fruits:** Nearly glabrous, mericarps around 10, rugose or wrinkled dorsally and winged at the angle between the dorsal and lateral walls. **Ecology:** Found on roadsides and in fields, disturbed ground and urban habitats from 1,000–7,000 ft (305–2134 m); flowers most of the year. **Notes:** Similar to the other weed species *Malva neglecta*, which is generally found at higher elevations, but can also be told apart by the pedicels being shorter than the calyx in *M. parviflora*, along with shorter petals, and fewer mericarps. **Ethnobotany:** Decoction of leaves used as a rinse for dandruff and to soften hair, used for enema and bath for babies with fevers, and for swelling, sores, or boils. **Etymology:** Malva is the Latin name for mallow taken from Greek malache, referring to the leaves; parviflora is from Greek parvus, small and flora, flower, hence small–flowered. **Synonyms:** None

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Malvella leprosa

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scaly alkali mallow

General: Trailing stems with a mixture of stellate hairs and lepidote scales. **Leaves:** Triangular, acute, irregularly dentate, 1–2 cm long. **Flowers:** Pedicel subequal to the corresponding leaf, involucel usually absent, calyx 6–8 mm long, lepidote, petals 12–15 mm long. **Fruits:** Oblate, 5–6 mm in diameter, mericarps about 7, dorsally rounded. **Ecology:** Found in heavy, saline soils on roadsides or mud flats from 4,500–5,500 ft (1372–1676 m); flowers throughout year. **Notes:** The stellate puberulence on the backs of the petals is a striking character. **Ethnobotany:** Used for dysentery, diarrhea, and inflammation of the bowels. **Etymology:** Malvella is a diminutive of Malva meaning little malva, while leprosa means scurfy or spotted like a leper. **Synonyms:** *Sida hederacea, S. leprosa, S. leprosa* var. *hederacea*

Rhynchosida physocalyx

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buffpetal, bladder calyx

General: Herbs with large taproot, stems trailing to ascending, with scattered coarse stellate hairs. **Leaves:** Oblong–ovate, 2–5 cm long, coarsely pubescent, with ciliate margins. **Flowers:** Solitary in leaf axils, calyx lobes broadly cordate, overlapping and strongly 5–angled basally, petals 5–8 mm long, subequal to calyx. **Fruits:** 8–9 mm in diameter, surrounded by inflated calyx; mericarps 8–10. **Ecology:** Found in canyons and along waterways from 2,500–5,000 ft (762–1524 m); flowers throughout year. **Ethnobotany:** Unknown **Etymology:** Rhynchosida comes from Greek rhynchos, horn, beak, snout, and sida which Theophrastus called the water lily, while physocalyx comes from Greek physa meaning bladder, or pair of bellows and calyx meaning flower. **Synonyms:** *Sida physocalyx*

Impact risk level H M L

Sida abutifolia

spreading fanpetals

General: Introduced procumbent perennial herbs, stellate–pubescent and usually with simple hairs 1–2 mm long. **Leaves:** Ovate to oblong, crenate, up to 1.5 cm long or occasionally larger. **Flowers:** Solitary in the leaf axils on slender pedicels, calyx 4–5 mm long, petals white, 5–6 mm long, 5 styles. **Fruits:** Oblate–conical, pubescent, 5 mm diameter, mericarps 5, with apical spines to 0.5 mm long. **Ecology:** Found on arid, sandy plains and on roadsides, from 2,500–6,000 ft (762–1981 m); flowers throughout year. **Notes:** Diagnostic for this plant is the 5 mericarps which are the smallest, procumbent habit, and setose hairs. **Ethnobotany:** Unknown **Etymology:** Sida is the name Theophrastus gave to the lily, abutifolia comes from abutilon and folia for leaves, meaning mallow–like leaves. **Synonyms:** *Sida filicaulis, S. filiformis, S. procumbens, S. supina*

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Sida neomexicana

New Mexico fanpetals

General: Multi–stemmed erect perennial herbs up to 0.5 m tall, minutely stellate–puberulent. **Leaves:** Narrowly oblong–lanceolate, dentate, 3–9 mm wide, pubescent beneath. **Flowers:** Axillary but apically congested through shortened internodes, calyx 6–7 mm long, petals yellow–orange to reddish, 10–12 mm long, styles 10–12, obscurely reticulate laterally, muticous. **Fruits:** Apically pubescent, 5–7 mm diameter, 7–14 per schizocarp. **Ecology:** Found on rocky slopes, in canyons, and generally in open vegetation from 4,000–6,000 ft (1219–1829 m); flowers June–October. **Notes:** Diagnostic of this plant is the congestion of the flowers and fruits at the end of the stem, the 1 cm pedicel, and narrowly oblong–lanceolate leaves. **Ethnobotany:** Unknown **Etymology:** Sida is the name Theophrastus gave to the lily, neomexicanum means New Mexico for location of type specimen. **Synonyms:** None

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Sida spinosa

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prickly fanpetals

General: Herbs or subshrubs, rarely annuals to 1 m tall, minutely stellate–puberulent. **Leaves:** Broadly ovate to narrowly oblong–lanceolate, dentate, 2–4 cm long, discolorous. **Flowers:** Solitary (rarely grouped) in leaf axils, sometimes crowded apically, calyx 5–7 mm long, petals yellow (rarely white); 5 styles. **Fruits:** Broadly conical, 4–5 mm diameter, 5 mericarps, apical spines about 1 mm long, antrorsely pubescent. **Ecology:** Found on open arid slopes and sandy plains, sometimes in fields from 3,500–4,000 ft (1067–1219 m); flowers throughout the year. **Notes:** Diagnostic is its erect habit, 5 mericarps about 1 mm long, and stellate–puberulence. **Ethnobotany:** Unknown **Etymology:** Sida is the name Theophrastus gave to the lily, spinosa means spiny. **Synonyms:** *Sida alba, S. angustifolia, S. spinosa* var. *angustifolia*

Sphaeralcea angustifolia

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copperleaf globemallow

General: Perennial, stems several, canescent to 1 m or taller; stems erect to floppy and curving. **Leaves:** Leaves broadly ovate to ovate–oblong, somewhat cordate at base, angulate to 3–parted or 3–cleft, crenate or dentate on margins, 2–9 cm long. Flowers: Three or more per node, in many–flowered interrupted raceme, pedicels shorter than sepals; calyx 5–10 mm , densely stellate–tomentose;, lobes acute to acuminate; petals grenadine–pink to pale red–orange, 10–20 mm long. **Fruits:** Mericarps 2–or–3 seeded, 2.7–4.3 mm, longer than wide, dehiscent section about as large as the body. **Ecology:** Found in sandy or loamy soil, sandy plains or waste places below 3,000 ft (914 m); flowers April–June. **Notes:** Big ovate leaves, 3–cleft, helps to identify this species. **Ethnobotany:** Taken as a decoction of root for diarrhea by Pima. **Etymology:** Sphaeralcea is from Greek sphaira, a globe, and alcea, a related genus. **Synonyms:** Many, see Tropicos

Sphaeralcea fendleri

Fendler's globemallow

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General: Perennial herbs to 120 cm tall, with woody crowns, the leaves and stems more or less canescent with stellate hairs, hairs gray or white. **Leaves:** Leaves narrowly to broadly ovate, deeply cleft, the lateral lobes triangular and acute. **Flowers:** Flowers bright red to pink, the petals 8–15 mm long, the calyx 4–6 mm long, with lobes about as long as the tube. **Fruits:** Rounded capsules often remaining attached to the axis after maturity by a thread–like extension of the dorsal nerve, seeds 1–3. **Ecology:** Found in pine forests and down to the oak and mixed oak woodlands from 3,000–8,000 ft (914–2438 m); flowering July–September. **Notes:** Similar to *S. incana* but with generally glabrescent leaves, ssp. *albescens* has been reported as collected from Tumacácori NHP, but Fryxell in his Malvaceae of Mexico does not recognize infraspecific taxa. La Duke 1986 indicates that this subspecies is only to be found in southern Arizona and northern Mexico, but even this remains a little finicky. **Ethnobotany:** The plant was used to treat sand cricket bites, an infusion of the plant was taken for mouth sores and for internal injury and hemorrhage, and as a lotion to treat external injury. The juice of the plant was made into a paste and mixed with clay before forming it into a pot. **Etymology:** Sphaeralcea comes from the Greek sphaira, "a globe," and alcea, a related genus, referring to the spherical fruits, the common name of this genus being "globe–mallow", while fendleri is named for August(us) Fendler (1813–1883), a German plant collector in North and Central America. **Synonyms:** *Sphaeralcea leiocarpa*

Proboscidea altheifolia

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desert unicorn–plant

General: Perennial from deeply set tuberous root, shoots emerging with summer rains, stems and petioles semi–succulent and viscid–sticky. **Leaves:** Often with petioles 4–11 cm long, blades 2–6 cm, broadly ovate to orbicular or kidney–shaped and shallowly lobed. **Flowers:** Flowers 4 cm, showy, corollas bright yellow inside tube and on lobes with brown–purple speckles and dark yellow–orange nectar guides, tube often bronze colored outside. **Fruits:** Capsule body 4–6.6 cm, claws 9–14 cm. Seeds 6–9 mm, obovoid, blackish and warty. **Ecology:** Found on sandy–gravelly soils of arroyos, washes, below 4,500 ft (1372 m); flowers May–August. **Notes:** Notably, black seeds are only found in the native, undomesticated species. **Ethnobotany:** Widely eaten, both seeds and fruit. When young, fruit is similar to okra. Seri peeled the fleshy root and ate the cortex. Used for basketry. **Etymology:** Proboscidea is from Greek proboskis, elephant's trunk, and althaeifolia means with leaves like the genus Althaea. **Synonyms:** *Martynia althaeifolia, M. arenaria, Proboscidea arenaria*

Proboscidea parviflora

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doubleclaw, devil's claw

General: Densely viscid–pubescent annual with spreading branches to 1 m long, roots small and poorly developed, stems and petioles thick and semisucculent. **Leaves:** Larger leaves 12–30 cm, petioles as long as broadly ovate blades that are shallowly lobed. **Flowers:** Few–flowered, pedicels 1–2 cm long at anthesis, corolla 3 cm, pale lavender with purple blotches and white–and–yellow nectar guides. **Fruits:** Body of capsule 2 cm in diameter, 5–7 cm long, claws 10–15 cm, seeds obovoid, blackish warty. **Ecology:** Found on sandy and gravelly soils, fields, roadsides, and disturbed areas from 1,000–5,000 ft (305–1524 m); flowers from March–October. **Notes:** Diagnostic for this plant is the white–lavender color. **Ethnobotany:** Widely eaten, both seeds and fruit. When young, fruit is similar to okra. The more common cultivated varieties have much longer claws than the wild annual, but both have wide usage in basketry and as food. **Etymology:** Proboscidea is from Greek proboskis, elephant's trunk, while parviflora is from Greek parvus, small and flora, flower. **Synonyms:** None

Cocculus diversifolius

snailseed

2012 NPS

General: Woody, climbing vine with slender stems. **Leaves:** Alternate, simple, thickish, linear to broadly ovate, .3–3 cm wide, 2–7 cm long, rounded and mucronulate to acute at apex, glabrous or sparsely pubescent, especially along margins and veins beneath. **Flowers:** Short axillary raceme 1–5 cm long, pubescent, three greenish ovate sepals, outer 1 mm long, inner 1.5 mm long, with three petals 2–2.5 mm long, rounded at apex. **Fruits:** Globose drupe, dark purplish black, fleshy, staining, 5–6 mm in diameter. **Ecology:** Found mostly in the shade of trees and larger shrubs from 3,500–5,000 ft (1067–1524 m); flowers May–August. **Notes:** Stems gray to brown with short, confluent ridges, younger stems green to gray to brown, finely grooved, with fine, appressed hairs. The alternate leaves and climbing habit are key, along with the three parted flowers. **Ethnobotany:** Unknown **Etymology:** Diversifolius refers to diverse foliage. **Synonyms:** None

Mollugo verticillata

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green carpetweed

General: Prostrate annual forming mats 1–35 cm across. **Leaves**: Spatulate, 5–6 in a whorl, 5–40 mm long, 2–8 mm wide, basal ones distinctly petiolate. **Flowers**: Several at node on slender pedicels, 5–15 mm long but not pedunculate, oblong sepals 2–2.5 mm long with green midrib and white margins; usually 3 stamens, alternating with cells of ovary about 1.5 mm long. **Fruits**: Ovoid capsule, slightly surpassing sepals. **Ecology**: Found in sandy soil and disturbed areas from 2,500–5,000 ft (762–1524 m); flowers September–October. **Notes**: One other species of Mollugo in our region, *M. cerviana*, easy to tell apart as it is erect. **Ethnobotany**: Unknown **Etymology**: Mollugo is an old name for the genus Galium, transferred because of similarly whorled leaves, while verticillata means whorled also. **Synonyms**: Mollugo berteriana

Cistanthe parryi

Parry's pussypaws, Arizona pussypaws

General: Annual herb to 10 cm tall, stems spreading to ascending. **Leaves:** Found in ephemeral basal rosette, spatulate, to 7.5 cm long. **Flowers:** Inflorescence 1–sided raceme to 4.5 cm long, bracts ovate to elliptic, sessile flowers, sepals scarious or scarious–margined, ovate, 1.5–5 mm long, 3 petals, white to pinkish, 1.5–3 mm long, stamens 1–3, stiles absent, 2 sessile stigmas. **Fruits:** Capsule with 2 valves, ovoid to cylindric, 2–8 mm long, not more than twice as long as sepals. **Ecology:** Found in sand and gravel washes and open areas from 2,500–4,500 ft (762–1372 m); flowers February–May. **Notes:** This variety is somewhat up for questioning. The voucher from the inventory at Tumacacori indicates this as var. *parryi*, however that variety is only found in California, up to this point. This description essentially follows the species description for both, as the only difference is that the seeds in the var. *arizonica* are smooth and shiny. **Ethnobotany:** Unknown for this species, other species used for food. **Etymology:** Cistanthe parryi for Charles Parry (1823–1890) a naturalist on the Mexican Boundary Survey. **Synonyms:** *Calyptridium parryi*, *C. parryi* var. *parryi*

Calandrinia ciliata

fringed redmaids

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General: Annual from slender to thick taproot, to 30 cm tall, spreading, prostrate to ascending. **Leaves:** Alternate, linear to oblanceolate, to 10 cm long, glabrous or ciliate. **Flowers:** 2–15 on elongated raceme, leaf–like bracts, pedicels 4–13 mm long, sepals 2.5–8 mm long; petals 4–11 mm long, red to purple. **Fruits:** Capsule with 3 valves, 5–20 seeds. **Ecology:** Found on sandy to loamy soil, sand and gravel washes, rocky slopes from 1,500–5,000 ft (457–1524 m); flowers February–June. **Ethnobotany:** Seeds were eaten for food, as were the greens. **Etymology:** Calandrinia is named for J.L. Calandrini (1703–1758) a Swiss botanist, while ciliata is the name given to describe slight fringing of petals like an eyelash. **Synonyms:** *Calandrinia ciliata* var. *menziesii*

Phemeranthus aurantiacus

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orange flameflower

General: Perennial herb to 50 cm tall, woody tuberous roots, stems simple to branching, erect, sometimes suffrutescent. **Leaves:** Subsessile, linear to lanceolate, rarely oblanceolate, basally attenuate, to 6 cm long. **Flowers:** Inflorescence later with flowers inserted singly or occasionally in cymules, pedicels recurving in fruit; sepals ovate, sometimes cuspidate, 5–10 mm long, deciduous, petals obovate, 9–15 mm long, yellow to reddish–orange, stamens 20–30, 3 linear stigmas. **Fruits:** Ovoid to globose capsule, 4–7 mm long. **Ecology:** Found in desert scrub and grasslands, savannahs and open woodlands, in rocky soil, often granitic, sometimes calcareous from 2500–6500 ft (762–1981 m); flowers May–October. **Notes:** Variable in size, flower color, capsule shape over the range. There is a recognized form *P. angustissimum* that has yellow petals, very narrow leaves, short slender stems, and small globose capsule; found in southern AZ. **Ethnobotany:** Unknown **Etymology:** Phemeranthus comes from Greek ephemoros, living for one day and anthos, flowers; while aurantiacus means orange, orange–yellow, or orange–red. **Synonyms:** *Talinum aurantiacum*

Allonia incarnata

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trailing windmills

General: Ephemeral annual or short–lived perennial herb with stout taproot, dying back to roots during drought; Glandular hairy and sticky viscid throughout except the flowers, often with sand sticking to herbage. Stems sometimes reach more than 1 m. **Leaves:** Petioleso.2–3.5 cm long, leaves 2–6 cm long, broadly deltoid–orbicular to oval, usually rounded at base, unequal, green above, paler beneath. **Flowers:** Involucres on slender peduncles 3–5 cm long, lobes free, ovate–orbicular, 5–9 mm long, perianth 6–15 mm long, purplish red, rarely white. **Fruits:** Anthocarp 3–4.5 mm long, inner side 3–nerved, margins with 3–5 broad teeth or sometimes entire, strongly incurved. **Ecology:** Found in sandy or rocky soil below 6,000 ft (1829 m); flowers April–October. **Notes:** The fruits of this species are unique in being bilaterally rather than radially symmetrical. **Ethnobotany:** Unknown **Etymology:** Allonia is from Greek allos, meaning different or other and incarnata means flesh–colored. **Synonyms:** None

Boerhavia coccinea

scarlet spiderling

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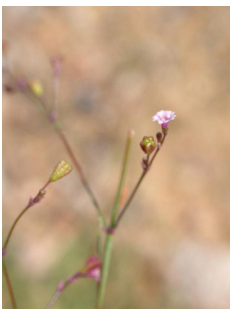
General: Decumbent or prostrate perennial, branching from base with many stout stems 30–140 cm long, viscid–pubescent and sometimes glandular–hirsute below, more or less glandular above, occasionally glabrate. **Leaves:** Opposite, 2–6 cm long, ovate–orbicular to oblong, rounded to acute at apex, green above, pale below, with a brown–punctate margin, glabrous to hirsute, often viscid. **Flowers:** Cymose, much branched, branches slender, glandular–pubescent, flowers in heads on slender peduncles, bracts minute, lanceolate; perianth purplish red, 2 mm long; stamens 1–3, barely exserted. **Fruits:** Obovoid, 2.5–3.5 mm long, densely glandular–puberulent with dark, blunt, usually gland–tipped hairs. **Ecology:** Found in sandy soil along drainages, washes, roadsides, disturbed areas below 7,000 ft (2134 m); flowers April–November. **Notes:** This plant tends to take over areas, so it is identifiable often by the large patches. **Ethnobotany:** Unknown **Etymology:** Boerhavia is for Hermann Boerhaave (1663–1738) a Dutch botanist, while coccinea means scarlet or bright, deep pink. **Synonyms:** None

Boerhavia coulteri

Coulter's spiderling



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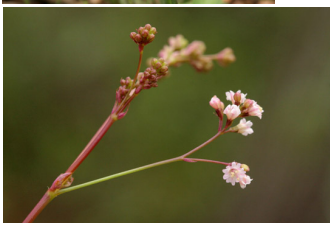
General: Slender annual, usually with many branches spreading from base, more or less pubescent and sometimes a little ciliate below, not conspicuously glandular, sometimes with viscid bands. **Leaves:** Opposite, ovate to ovate–deltoid, 1.5–5 cm long, obtuse, often rounded at apex, mostly truncate at base, margin entire or sinuate, upper leaves smaller, lanceolate to ovate–lanceolate. **Flowers:** Cymose–paniculate, much branched, flowers in loose, slender, interrupted spikes; minute bracts, lanceolate–ovate, usually brown–punctate; perianth 1–1.5 mm long, white or pale pink, stamens 1–3, included or short–exserted. **Fruits:** Anthocarp narrowly obovoid, 2.5–3 mm long, 5 angled, ridges broad, smooth, obtuse, groove closed or nearly closed, rugulose. **Ecology:** Found on sandy soil from 500–5,000 ft (152–1524 m); flowers August–October. **Notes:** One of the most common *Boerhavia* species in Arizona. **Ethnobotany:** Unknown **Etymology:** Boerhavia is for Hermann Boerhaave (1663–1738) a Dutch botanist, coulteri is named for Dr. Thomas Coulter (1793–1843) an Irish botanist. **Synonyms:** *Senkenbergia coulteri*

Boerhavia erecta



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erect spiderling

General: Usually coarse, glaucous annuals 30–100 cm, glabrous or hirsutulous below, branching from base and above, branches ascending, basal branches sometimes procumbent. **Leaves:** Opposite, ovate to oblong–ovate, usually acute, rarely rounded at apex, entire or subsinuate, glabrous, lower leaves 2.5–8 cm long, upper ones short, narrowly ovate–lanceolate; sometimes with moderately to densely glandular patches. **Flowers:** Cymosely paniculate, much branched, branches and branchlets erect or strictly ascending; flowers umbellate, or subracemose in clusters of 3–6 flowers, occasinally in twos or solitary on older inflorescences, perianth greenish or white, sometimes tinged with pink, 1 mm or longer; stamens 2–3, subtending bracts minute, deciduous. **Fruits:** Anthocarp greenish or brownish green, 5 angled, 3–4.5 mm long, narrowly obpyramidal, strongly narrowed below, ridges smooth. **Ecology:** Found in open places and disturbed areas from 1,000–5,000 ft (305–1524 m); flowers July–August. **Notes:** Widely distributed in the topics. **Ethnobotany:** The Hopi would take the stem and leaves and hang them upside down in the house as a fly–trap. **Etymology:** Boerhavia is for Hermann Boerhaave (1663–1738) a Dutch botanist, erecta means upright. **Synonyms:** None

Boerhavia purpurascens

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purple spiderling

General: Erect, slender annual 15–45 cm high, 1–3 stems from base, more or less glandual–hirtellous, branches spreading above into paniculate–cymose inflorescence. **Leaves:** Brown–punctate and pale below, glabrous or nearly so, oblong, acute or rounded at apex, sinuate–margined, 2.5–3 cm long, upper leaves lanceolate, reduced and sessile; petioles shorter than blade, 6–11 mm long. **Flowers:** In headlike glomerules at ends of branches of cymose–paniculate inflorescence; perianth rotate–spreading, pink to rose–pink, about 2 mm long; 3 stamens, much exserted; ovate subtending bracts, scarious with short, spreading, villous hairs, as long as or longer than fruit. **Fruits:** Anthocarp obovoid 2–2.5 mm long, 5 angled. **Ecology:** Found on hill slopes, often in limestone and among chapparal from 3,500–5,500 ft (1067–1676 m); flowers August–September. **Ethnobotany:** Unknown **Etymology:** Boerhavia is for Hermann Boerhaave (1663–1738) a Dutch botanist, purpurascens means becoming purple. **Synonyms:** None

Boerhavia scandens

climbing wartclub

2009 NPS/Steve Buckley

General: Suffrutescent or shrubby, much branched perennial with long, weak, slender, pale reclining branches. **Leaves:** Opposite, scattered, glabrous 1.5–6 cm long, ovate to ovate–deltoid, typically cordate to truncate at base, attenuate at apex or sometimes acute, often apiculate. **Flowers:** Terminal inflorescence or axillary, flowers arranged in umbels on leafy or bracteate cymose branches; umbels 5–10 rayed, forked, rays lanceolate–attenuate, sparsely hairy, caducous; greenish perianth, rotate–spreading, 3–4 mm broad, stamens 2, much exserted. **Fruits:** Greenish anthocarp, narrowly clavate, finely ribbed, glabrous or occasionally finely hirsutulose, 10–12 mm long. **Ecology:** Found in canyons and thickets from 2,000–4,500 ft (610–1372 m); flowers September–April. **Ethnobotany:** Unknown **Etymology:** Boerhavia is for Hermann Boerhaave (1663–1738) a Dutch botanist, scandens means climbing. **Synonyms:** *Commicarpus scandens*

Boerhavia spicata

creeping spiderling

2009 NPS/Steve Buckley

General: Erect or procumbent annual to 65 cm high, stems densely coarse, glandular–villous except those of upper inflorescence, often reddish. **Leaves:** Ovate or lanceolate, 1.5–5 cm, acute to narrowly acute at apex, the upper reduced and narrowly lanceolate, subsessile, margins entire or subsinuate, puberulent or short–villous, often glandular; petioles usually one–half to one–third as long as blade. **Flowers:** Cymose–paniculate, few branched, bracts beneath flowers deciduous, flowers white to pale pink, in short, dense slender spikes at the ends of branchlets. **Fruits:** Anthocarp 2.1–2.5 mm, narrowly obovoid, ridges smooth, broad. **Ecology:** Found on sandy soil, plains, washes, arroyos, disturbed habitats from 1,500–4,500 ft (457–1372 m); flowers September–October. **Notes:** Widespread. **Ethnobotany:** Unknown **Etymology:** Boerhavia is for Hermann Boerhaave (1663–1738) a Dutch botanist, spicata refers to the spicate flowers. **Synonyms:** *Boerhavia torreyana, B. watsonii*

Mirabilis jalapa

2010 NPS/Jason Welborn

marvel of Peru

General: Much branched and bushy perennial 60–150 cm tall with erect to ascending branches, the plant covered in viscid to short–villous and puberulent pubescence. **Leaves:** Opposite, ovate and rounded at base to acute at apex, 4–13 cm long, on a shot petiole but subsessile above. **Flowers:** Leafy bracted inflorescence, cymose at the ends of the branches, the involucre campanulate, with lobes longer than the tube, these 15 mm long, the perianth 3–5.5 cm long, reddish purple, but also whitish and yellowish with other variations in cultivation, 5 stamens, little exserted. **Fruits:** Anthocarp 7–9 mm long, obovoid, rugose and 5 sided, glabrous to puberulent. **Ecology:** Found widespread in lowland desert or warmer climates, often as an escapee of cultivation. **Notes:** The beautiful flowers of this plant leave little room to wonder why it has been cultivated as widely as it has been. **Ethnobotany:** Unknown **Etymology:** Mirabilis is Latin for miraculous or wonderful, while jalapa is named for the city of Xalapa in Mexico. **Synonyms:** *Mirabilis jalapa* ssp. *lindheimeri, Mirabilis lindheimeri*

Mirabilis longiflora

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sweet four o'clock

General: Several stems 5–15 dm, herbage lightly puberulent basally, glandular–puberulent distally, erect or ascending. **Leaves:** Leaves at midstem with petiole 2–6 cm; blade usually cordate, less often deltate, ovate or ovate–lanceolate, 5–14 cm by 3–8 cm. **Flowers:** Dense clusters of flowers among conspicuous foliaceous bracts 5–20 mm, peduncle 0.5–2 mm, bracts 40–60% connate, 7–11 mm in flower, 10–18 mm in fruit, apex triangular to narrowly triangular; perianth white, tube blushed with green or purple, 8–15 cm, pubescent externally. **Fruits:** Black to dark brown anthocarp, bluntly 5–angled in cross section. **Ecology:** Found in rocky canyons and on slopes from 2,500–9,000 ft (762–2743 m); flowers from August–September. **Notes:** Plant remarkable for the very long and slender perianth tube of the white or pinkish flowers. There is one recognized variety, var. *wrightiana* found north of the Mexican border. **Ethnobotany:** Unknown for this species, while other species in this genera have many uses. **Etymology:** Mirabilis is Latin for miraculous or wonderful, while longiflora means long flower. **Synonyms:** None

Camissonia californica

California suncup

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General: Annual or perennial, slender and often much taller than wide, 15–70 cm, with erect main axis; solitary or sparsely branched with ascending straight branches; young plant with sparsely pubescent hairs as well as small glandular hairs, becoming glabrous with age. **Leaves:** First in basal rosette, or no basal rosette at all; lower leaves 3–24 cm long by 0.4–0.7 cm wide, petioled, blades linear to narrowly elliptic, margins pinnately and coarsely lobed and toothed, steim leaves reduced above. Plants leafy when you, leafless or nearly so at flowering time. **Flowers:** Flowers vespertine (closed until 10pm, open at 5am) often 15–18 mm wide, petals 5–7 mm, bright yellow, flecked with red, fading orange, drying pink. Style, stigma, anthers, and filaments bright yellow. **Fruits:** Capsules 4–8 cm long by 1–1.5 mm wide, slender, straight to slightly curved, turning downward. **Ecology:** Found on rocky, gravelly, sandy and cinder soils of bajadas, plains, washes below 4,500 ft (1372 m); flowers February–June. **Notes:** This plant is identifiable by how strikingly it looks like a mustard. **Ethnobotany:** Unknown, but other species in the genera have medicinal and culinary uses. **Etymology:** Camissonia is named for Ludolf Karl Adelbert von Chamisso (1781–1838) a German botanist, which californica is named for California. **Synonyms:** *Eulobus californicus, Oenothera californica, O. leptocarpa*

Eremothera chamaenerioides

willow–herb primrose, longcapsule suncup

©2004 James M. Andre

General: Erect annual with slender stem, 10–50 cm tall with glandular hairs and small coarse non–glandular hairs near inflorescence, reddish. **Leaves:** Basal and cauline, thin, 1.5–7 cm long by 1–15 mm wide, green to reddish with dark red spots, blades more or less elliptic, entire to sparsely and shallowly toothed or crenulate. **Flowers:** Racemose inflorescence to 20 cm long in fruit, narrowly funnelform hypanthium, cream–white inside, pink outside 2–2.5 mm, whitish, often with broad pink midstripe or markings, turning pink with age; flowers open near sunset. **Fruits:** Linear capsule, terete in cross section 0.5–0.8 mm in diameter, 2.5–5 cm long, divariacate–spreading, glabrous and beakless at apex. **Ecology:** Found on arid hills and plains below 5,500 ft (1676 m); flowers February–June. **Notes:** Smallest flowered evening primrose in the Sonoran Desert region. Widespread. Pay attention to the small spots on the leaves, often quite variable in shape. **Ethnobotany:** Unknown, but other species in the genera have medicinal and culinary uses. **Etymology:** Camissonia is named for Ludolf Karl Adelbert von Chamisso (1781–1838) a German botanist, chamaenerioides is from root chamai, low–growing, dwarf added to something that looks like the genus Nerium. **Synonyms:** *Camissonia chamaenerioides, Oenothera chamaenerioides*

Ludwigia repens

creeping primrose–willow

General: Perennial, matted herb with stems 10–30 cm long, decumbent, rooting at nodes, subglabrous. **Leaves:** Opposite, less than 5 cm, narrowly elliptic to round, entire, subglabrous to densely and minutely strigose. **Flowers:** Axillary, sepals 4, 1.8–5 mm; petals 4, 1–3 mm, yellow, stamens 4 anthers 0.4–0.9 mm. **Fruits:** Erect, pedicel 0–3 mm, fruit 4–10 mm, oblong to narrowly obconic, sometimes hairy. **Ecology:** Grows along waters edge, or along sandy streambanks, ponds, and ditches below 3,500 ft (1067 m); flowers July–September. **Notes:** Always along streams, this species is invasive in Puerto Rico, but native to lower–48. **Ethnobotany:** Unknown for this species, other species in genera have medicinal use. **Etymology:** Ludwigia is named for Christian Gottlieb Ludwig (1709–1773) a German botanist, while repens means having creeping and rooting stems. **Synonyms:** *Isnardia intermedia, I. repens, Ludwigia natans, L. natans* var. *stipitata, L. repens* var. *rotundata, L. repens* var. *stipitata*

Oenothera curtiflora

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velvetweed

General: Coarse, erect, taprooted native annual or biennial; single–stemmed, branched above; up to 2 m. Herbage clothed with soft long hairs, sometimes glandular. **Leaves:** Lance–ovate to lanceolate or oblong, obtuse at the base, remotely denticulate, up to 10 cm long; larger leaves usually at least 4 cm. **Flowers:** Inflorescence of elongate many–flowered spikes, bracts slender 1.5–5.5 mm long, deciduous; flowers quite small, self–pollinating; floral tube 1.5–5 mm long; 4 sepals 2–3.5 mm long; separately reflexed at anthesis; 4 petals 1.5–3 mm long, red to pink. **Fruits:** Capsule glabrous or seldom short–hairy, 5–10 mm long, spindle–shaped to lanceolate, 4–angled, tapering to a slender base. **Ecology:** Native weed of fields, pastures, and streamsides, up to about 6,500 ft (2000 m); flowers June–October. **Notes: Ethnobotany:** Hopi used root to treat snake bites. Navajo used to treat burns, inflammation and snake bites. **Etymology:** From the Greek "gauros" superb or proud, presumably because of the erect, proud petals. Mollis means smooth, or with soft velvety hair. **Synonyms:** *Gaura mollis, Gaura parviflora, Gaura parviflora* var. *lachnocarpa, Gaura parviflora* var. *typica*

Oenothera primiveris

desert evening–primrose

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General: Annual in basal rosette, nearly stemless or often developing stout leafy stems 10–20 cm; thick taproot; dense pubescence of spreading papillate–based white hairs. **Leaves:** Leaves 5–27 cm, larger ones 3.5–7 cm wide, mostly pinnatifid into toothed or rounded lobes, narrowed to long, winged petiole expanded at very base. **Flowers:** Yellow, petals 3.5–5.5 cm, notched at apex; opening at dusk closing the following morning. **Fruits:** Ovary and capsule densely hairy with spreading white hairs; capsules 2.8–4.5 cm long by 6.5–7.5 mm wide at base, thick and woody, upright, straight, 4–angled, tapering to conspicuously narrowed tip. **Ecology:** Found on sand flats, playas, gravelly–sandy washes, common but not very abundant below 4,500 ft (1372 m); flowers March–May. **Notes:** Plants are easy to know by their caespitose habit, yellow flowers and pinnatifid leaves. **Ethnobotany:** Dried flowers used for ceremonies and poultice applied to swellings. **Etymology:** Oenothera is from Greek oinos, wine and thera, to imbibe. **Synonyms:** None

Oenothera rosea

rose evening–primrose

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General: Perennial with several slender, simple or branched stems 10–50 cm long, ascending or erect, finely strigillose, occasionally a few spreading hairs on lower stems. **Leaves:** Distant, oblanceolate to narrowly obovate, 25 cm long, entire to sinuate–dentate or pinnatifid, upper ones reduced. **Flowers:** Slender racemes, hypanthium 4–8 mm long, slender, strigillose–canescent outside, puerulent within, sepals ovate–acuminate, 5–8 mm long, petals rose to red–violet, 5–10 mm long, broadly obovate. **Fruits:** Obovoid capsule, 8–10 mm long, 3–4 mm diameter, pedicel–like stipe 5–20 mm long, hollow, ribbed. **Ecology:** Found on plains, stream banks, hillsides, and in river bottoms from 1,000–5,500 ft (305–1676 m); flowers April–August. **Notes:** Occasionally flowers November; similar to *O. speciosa*, which differs by having larger more deeply pinnatifid leaves and nodding rather than erect buds. **Ethnobotany:** Unknown for this species, other Oenothera species have wide usage. **Etymology:** Oenothera is from Greek oinos, wine and thera, to imbibe, rosea refers to rose. **Synonyms:** None

Castilleja exserta

2009 NPS

exserted Indian paintbrush

General: Stems simple to diffusely branched from near base and closely ascending 10–40 cm tall, villous–pubescent. **Leaves:** Sessile 1–5 cm long, parted into few or many linear or filiform divisions 1–12 mm long or lower ones entire, linear, villous–pubescent with shining, white, spreading hairs. **Flowers:** Spikes 2–20 cm long, dense, bracts 10–20 mm long, central portion lanceolate, 2–4 pairs of linear or filiform divisions palmately or pectinate–ascendingly disposed, upper lobes crimson to purple, conspicuously pilose with shining white hairs at base; calyces 12–20 mm long, 4 lobed to middle or slightly below, lobes resemble bracts in shape and color; corolla 12–30 mm long crimson, lower lip purple, crimson, pink, yellow or white, usually purple tipped with yellow, 3–5 mm wide, 3–7 mm long; bilabiate. **Fruits:** Ovoid capsule 8–15 mm long. **Ecology:** Found on grassy valley floors and hillsides from 1,500–4,500 ft (457–1372 m); flowers March–May. **Notes:** Sometimes this species can be found covering large areas. One subspecies found in our area, ssp. *exserta*. **Ethnobotany:** Unknown for this species, many other species have medicinal or food uses. **Etymology:** Castilleja is for the Spanish botanist Domingo Castillejo (1744–1793), while exserta means exserted or protruding out or beyond surrounding structure. **Synonyms:** *Orthocarpus purpurascens*

Orobanche cooperi

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desert broomrape

General: Stout and fleshy, 10–45 cm tall, simple or branching sparingly at base, viscid–puberulent throughout; stems brownish to purplish. **Leaves:** Cauline bracts 5–10 mm long, obtuse to rounded. **Flowers:** Inflorescence 5–20 cm long, spicate and densely flowered, branching into 2–3 axillary spikes; lowest flowers on slender pedicels longer than scales, calyx densely puberulent 5–10 mm long, lobes lance–attenuate, three to five times as long as cup; corolla 1.5–3 cm long, purplish within, palatal folds yellow, puberulent and gray–purple without, lips 4–8 mm long, upper lip erect, cleft at apex, lobes broadly to narrowly acute. **Fruits:** Capsule **Ecology:** Found on sandy desert flats below 3,500 ft (1067 m); flowers February–May. **Notes:** Known to be parasitic on *Hymenoclea* and other shrubs. **Ethnobotany:** The stalk, below the ground, was eaten cooked or raw by the Gila Pima; as were the roots. **Etymology:** Orobanche is from Greek orobos, a kind of vetch, and anchone, choke or strangle because of the parasitic nature of the genus, cooperi is named for Dr. James Graham Cooper (1830–1902) a geologist. **Synonyms:** None

Oxalis corniculata

creeping woodsorrel

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General: Delicate perennial, fleshy taproot, creeping stems that root at nodes, less than 30 cm long, more or less hairy. **Leaves:** Cauline, petiole less than 7 cm, leaflets less than 2 cm, often maroon. **Flowers:** Cyme, 2–5 flowered, pedicel less than 1 cm; sepals less than 4.5 mm, petals less than 8 mm, yellow. **Fruits:** Explosively dehiscent capsule, cylindric, 6–25 mm. **Ecology:** Found widely; flowers throughout the year. **Notes:** Naturalized weed. **Ethnobotany:** Taken as an infusion for hookworms, to stop vomiting, as a blood medicine, for mouth aid, sore throat, and as a food. **Etymology:** Oxalis is from Greek oxys for sharp, sour, and corniculata means horned. **Synonyms:** Many, see Tropicos

Argemone polyanthemos

crested pricklypoppy

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General: Plants annual or biennial, stems 4–8 dm, sparingly prickly. **Leaves:** Distal clasping, abaxial surface scattered–prickly on main veins, adaxial surface unarmed; proximal lobed 2/3 distance to midrib. **Flowers:** Buds ellipsoid–oblong, body 15–22 mm by 10–15 mm, sparingly prickly; sepal horns terete, 6–10 mm, usually unarmed; 7–10 cm broad, usually closely subtended by 1–2 foliaceous bracts; white petals, very rarely lavender, stamens 150 or more, filaments lemon yellow, pistil 3–4 carpellate. **Fruits:** Capsule narrowly to broadly ellipsoid 35–50 mm by 10–17 mm (including stigma and excluding prickles), prickly, surface clearly visible, prickles widely spaced, longest 4–10 mm, interspersed with a few shorter ones. **Ecology:** Found on prairies, foothills and mesas 1,000–7,500 ft (305–2286 m); flowers March–August. **Notes:** Huge questions about this species collection, as Flora of Arizona neither mentions *A. polyanthemos* or its predecessor *A. intermedia* as occurring here. Flora of North America does not list it as being in AZ, neither does Plants db, could simply be a subspecies of *A. pleicantha*, likely ssp. *ambigua*. Only collection in Santa Cruz Co. made at Tumacacori. **Ethnobotany:** Unknown for this species, but many other uses for species in this genus. **Etymology:** Argemone from Greek argemos, a white spot (cataract) on the eye, what it was supposed to cure, polyanthemos refers to having many anthers. **Synonyms:** *Argemone intermedia, A. intermedia* var. *polyanthemos, A. platyceras*

Eschscholzia californica ssp. *mexicana*

2009 NPS/Beth Fallon

California poppy

General: Annual with leaves forming rosette, stems mainly scapose. **Leaves:** Mainly 3–15 cm long, segments oblong, mostly 1 mm wide, faintly glaucous, glabrous, flabelliform dissected blade usually one–third as long as petiole or less. **Flowers:** Calyptra broadly ovoid–undulate, mostly 1 mm wide or less, petals flabelliform–obovate 1.5–3.5 cm long, yellow to deep orange or rarely white tinged with pink. **Fruits:** Capsule 4–6 cm long, longitudinally ridged, the grooves glaucous. **Ecology:** Found on sandy or gravelly soil, widespread below 4,500 ft (1372 m); flowers February–May. **Notes:** Closely related to *E. californica* but it is smaller, more scapose, probably always annual plant and in having a narrower, sometimes nearly obsolete, outer rim of the hypanthium. **Ethnobotany:** Unknown for this species, other species in the genera widely used medicinally. **Etymology:** Eschscholzia is named for Dr. Johan Friedrich Gustav von Eschscholtz (1793–1831) a Latvian or Estonian surgeon and botanist, while californica refers to California, and mexicana refers to Mexico. **Synonyms:** *Eschscholzia californica*

H M L Impact risk level

Papaver rhoeas

corn poppy

General: Introduced annual, 30–80 cm, hairy. **Leaves:** Basal and cauline leaves 3–15 cm, deeply pinnately lobed. **Flowers:** Solitary, terminal, petals 20–40 mm, white (sometimes red–marked) red or purple; 2 sepals, shed at flower; 4 petals, free, obovate or wedge–shaped. **Fruits:** Capsule, dehiscent by valves or pores, septicidal, 1–2 cm, widely obovate to round. **Ecology:** Found in disturbed areas and fallow fields below 3,500 ft (1067 m). **Notes:** Native to Eurasia, found in cultivated areas. **Ethnobotany:** Unknown **Etymology:** Papaver is the Latin name for poppy, rhoeas is the Latin name for the common red poppy. **Synonyms:** None

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Passiflora mexicana

Mexican passion flower

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General: Vine 2–8 m long, glabrous throughout. **Leaves:** Bilobed, occasionally variegated, margins entire, laminar nectaries borne abaxially between main veins, petioles eglandular, setaceous stipules to linear triangular, subfalcate. **Flowers:** Bracts, 1.5–4 mm long, 0.2–0.8 mm wide, setaceous to narrowly lanceolate, 3–toothed; flowers 2–3 cm in diameter, light green or yellowish green, corona red or reddish purple, sepals longer than inconspicuous petals, coronal filaments in 2 series, outer 8–12 mm long, inner 2 mm long, ovary glabrous or nearly so. **Fruits:** Subglobose to widely ellipsoid, purplish black, 0.8–1.6 cm long. **Ecology:** Found in thickets near riparian zones and washes from 2,500–4,000 ft (762–1219 m); flowers July–October. **Notes:** Bilobed leaves, red to reddish purple corona, and purplish black fruit are diagnostic of this species. **Ethnobotany:** Unknown for this species, other species in this genera have medicinal and food value. **Etymology:** Passiflora is from the Latin passio, passion, and flos, flower, while mexicana is for Mexico. **Synonyms:** None

Mimulus guttatus

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seep monkeyflower

General: Native annual or perennial herb, rarely stoloniferous but often rooting at the nodes; stems erect to lying down, simple or sparingly branched, 5–55 cm tall; usually more–or–less glabrous below and glandular–hairy in the inflorescence. **Leaves:** Opposite, petiolate below and sessile above, broadly ovate to orbicular, 15–55 mm long, 10–40 mm wide, with irregularly toothed margins; more–or–less glabrous. **Flowers:** Solitary from the leaf axils on stalks 1–6 cm long; calyx bell–shaped, ribbed, 6–16 mm long in flower (becoming inflated and to 20 mm long in fruit); corolla yellow, 9–23 mm long, two–lipped with the lower lip hairy and spotted with red, soon deciduous after anthesis. **Fruits:** Capsule oblong, 7–12 mm long, included in the inflated, more–or–less closed up calyx. **Ecology:** Wet areas, especially near streams, from 1,000–9,500 ft (305–2896 m); flowers March–September. **Notes:** A large *Mimulus*, with big yellow flowers; can be distinguished vegetatively by its broader, generally glabrous leaves. Host plant for Mylitta Crescent butterfly. **Ethnobotany:** Leaves and stems were used as flavor enhancers. Juice of leaves make a soothing poultice for minor burns and skin irritations. Yavapai use decoction for stomachache. **Etymology:** Guttatus is from Latin meaning "a drop–like spot" which describes the red dots on both petals and sepals. **Synonyms:** Numerous, see Tropicos

Mimulus rubellus

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little redstem monkeyflower

General: Native annual herb; stems simple or loosely branched, with elongated internodes, 1–22 cm tall; glandular–hairy throughout, and often reddish. **Leaves:** Opposite, sessile (and often connate at the base), lanceolate to linear, 3–20 mm long, entire or nearly so. **Flowers:** Solitary from the leaf axils on stalks 7–20 mm long; calyx tubular, reddish–ribbed, 4–9 mm long, with ciliate teeth; corolla weakly two–lipped with the lips hardly spreading, 6–9 mm long, yellow with maroon dots, or often pinkish to violet. **Fruits:** Capsule 4–6.5 mm long, included in the persistent calyx. **Ecology:** Dry sites in shadscale, rabbitbrush, Joshua tree, catclaw, blackbrush, sagebrush, live oak, ephedra, pinon–juniper, and ponderosa pine commununties from 2,500–9,000 ft (762–2743 m); flowers February–April. **Notes:** Generally a smaller species with sessile, usually entire leaves. **Ethnobotany:** Leaves and stems were used as flavor enhancers. Juice of leaves make a soothing poultice for minor burns and skin irritations. **Etymology:** Mimulus– ape–flower, or a diminutive of the Latin minimus, a comic or mimic actor, because of the grinning corolla. Rube– is in reference to the color red. **Synonyms:** *M. gratioloides*

Rivina humilis

rougeplant

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General: Perennial or suffrutescent, 0.3–1 m tall. **Leaves:** Ovate–acuminate, rounded to subcordate at base, 3–13 cm long, 1–5 cm wide, sparsely puberulent to glabrous, slender petioles 2–4 cm long, 2–4 cm long. **Flowers:** Inflorescence erect or somewhat curved, 3–8 cm long, rachis green, short–puberulent to sparsely pilose, bracteoles minute, sepals broadly elliptic, 2–3 mm long, pink or purplish with a greenish midvein, spreading; stamens about equaling or slightly shorter than sepals. **Fruits:** Sleek black, turning to red, shining or short–puberulent, 2.5–3 mm long. **Ecology:** Found in the shade of shrubs and trees in moist places, along watercourses or on flats from 1,500–4,500 ft (457–1372 m); flowers throughout year. **Notes:** Often found where water stands during the rainy season. **Ethnobotany:** Unknown **Etymology:** Rivina has a root in the word for along streams, humilis means low–growing or humble. **Synonyms:** None

Maurandella antirrhiniflora

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roving sailor

General: Scandent perennial herb climbing to 2 m or more by tortuous petioles and pedicles; slender stems, vine–like, glabrous except for sparse tomentum at base of stems. **Leaves:** Thin, green trianglular to hastate or 3–5 lobed, 5–25 mm long, often nearly as wide, cordate at base, central lobe acuminate, lateral lobes mucronate; petioles 5–25 mm long. **Flowers:** Solitary in axils, pedicels subfiliform 1–2 cm long, glabrous; calyx narrowly campanulate, 5–parted almost to base, sepals lance–linear or narrowly lanceolate 10–13 mm long at anthesis; corolla purple, carmine, or rarely white 2.5–3 cm long, glabrous without, throat broadly ampliate, whitish but tinged with blue, about 1 cm wide. **Fruits:** Capsule ovoid–globose, 7–8 mm long, dehiscence subterminal, irregular. **Ecology:** Found mainly in limestone soils, on stony slopes, usually among shrubs from 1,500–6,000 ft (457–1981 m); flowers April–October. **Ethnobotany:** Unknown **Etymology:** Maurandella is a diminutive of Maurandya, while antirrhiniflora means having flowers like those of Antirrhinum. **Synonyms:** *Antirrhinum maurandioides, Asarina antirrhiniflora, Maurandya antirrhiniflora*

Mecardonia procumbens

2009 NPS/Steve Buckley

baby jump–up

General: Creeping or ascending glabrous herbs, branching at base, sometimes rooting at lower nodes, branches to 15 cm long, flexuous, stems strongly angled. **Leaves:** Opposite, ovate, mostly 10–15 mm long, 8–10 mm wide with 7 even, ascending teeth on upper two–thirds of margin, apically obtuse, basally cuneate, glandular punctate with sessile glands, short or indistinct petiole. **Flowers:** At first terminal, soon axillary, a solitary flower in leaf axil, on slender pedicels, with bracts 2–4 mm long, linear entire, located at base of pedicel; flowers 8 mm long, 5 –lobed, lobes recurved, rounded, yellow, bearded in throat with darker veins; 4 stamens. **Fruits:** Capsule narrowly ovoid, about 4 mm long, dehiscent loculicidally and septicidally from apex. **Ecology:** Found in wet, sandy soil along streams from 3,000–4,500 ft (914–1372 m); flowers March–September. **Notes:** Its opposite leaves and slightly dentate margins will help steer identification toward Phrymaceae and *Mimulus*, but pay attention to the way the flower emerges from what appears to be a sheath. **Ethnobotany:** Unknown **Etymology:** Mecardonia is named for the Spaniard Antonia de Meca y Cardona, a patron of botany, while procumbens means having trailing or prostrate stems. **Synonyms:** *Mecardonia dianthera, M. peduncularis, M. tenuis, M. vandellioides*

Nuttallanthus texana

Texas toadflax

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General: Slender, erect, annual or biennial with 1 to several branches 10–80 cm long from base, stems and leaves glabrous, dark green. **Leaves:** Glabrous, dark green, rather densely leafy below, pedunculate–racemose above; leaves of sterile stems crowded, ovate, elliptic or linear, entire, obtuse to acute at both ends, 1–3 mm wide, 3–20 mm long, petioles 1–2 mm long; leaves on fertile stems linear to linear–oblong, opposite or ternate at base of stem; alternate above, entire, acute or obtuse, sessile, 1–3 mm wide, 5–30 mm long. **Flowers:** Raceme spikelike, 5–30 cm long, on peduncles 2–15 cm long, pedicels filiform, 2–10 mm long, glabrous or finely and sparsely glandular–puberulent, bracts subulate 0.5–2 mm long, calyx lobes lanceolate, 2–3 mm long, corolla pale blue with darker veins, 9–12 mm long (exclusive of spur); upper lip 4–5 mm long, reflexed, oblong lobes 2–3 mm long, lower lip deflexed–spreading; palate prominent, densely pubescent. **Fruits:** Capsule globose to subcylindrical 2.5–4 mm long, irregularly dehiscent. **Ecology:** Found along arroyos, stream banks, and on grassy hillsides or in open chaparral from 1,500–5,000 ft (457–1524 m); flowers March–June. **Notes:** Often found in cracks in rocks and in slightly wetter microsites. **Ethnobotany:** Unknown **Etymology:** Nuttallanthus is named for Thomas Nuttall (1786–1859) an English botanist. **Synonyms:** *Linaria canadensis var texana, L. texana*

Penstemon parryi

Parry's beardtongue

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General: Herbaceous, stems 1 to several from a tough root, erect or ascending, 0.3–1.2 m tall, glabrous and glaucous throughout. **Leaves:** Elliptic, spatulate or oblanceolate 1–2.5 cm wide, 4–15 cm long, gradually narrowing to a winged petiole 1–4 cm long, upper ones narrowly lanceolate to lanceolate–oblong, 1–2.5 cm wide, 3–12 cm long, obtuse tip, auriculate–clasping at base. **Flowers:** Virgate inflorescence 10–50 cm long, peduncles few to many flowered, erect or divergent to 2.5 cm long, glabrous; calyx 3–5 mm high, ovate sepals glabrous, acute or short–acuminate, corolla rose, cerise, or rose–magenta, 13–21 mm long, tube 3–5 mm long, pilose at base of lower lip. **Fruits:** Ovoid capsule 4–6 mm long. **Ecology:** Found on hillsides, outwash slopes, and along canyons from 1,500–5,000 ft (457–1524 m); flowers March–May. **Notes:** Diagnostic is the glabrous stem and clasping leaves. **Ethnobotany:** Unknown for this species, other species in this genera have many uses. **Etymology:** Penstemon is from Greek pente, five and stemon, indicating the five stamens of the genus, while parryi is named for Dr. Christopher Parry (1823–1890) an English–born, American botanist. **Synonyms:** None

Plantago major

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common plantain

General: Perennial to 42 cm tall. **Leaves:** Petiolate with broadly ovate blades, 3.5–15 cm long, 2–9 cm wide, attenuate at base, acute at apex, sparsely pubescent, becoming glabrate, distinctly 3–5 veined, margins with shallow lobes near base. **Flowers:** Peduncle 4–20 cm long, sparsely pubescent to glabrous, appearing ridged to four sided; spikes 3–24 cm long, interrupted near base, bracts broadly ovate, 1.5–4.5 mm long, broad scarious–margined, glabrous midvein; perfect flowers, sepals broadly ovate to elliptic, 1.2–2.3 mm long, broadly scarious margined, glabrous midvein, corolla lobes spreading or reflexed, ovate, 0.7–1.5 mm long, 4 stamens. **Fruits:** Capsule breaks below middle. **Ecology:** Weed of wet areas from 2,000–8,500 ft (610–2591 m); flowers May–October. **Notes:** Easily distinguished by its prostrate broadly ovate leaves and its habitat of disturbed yet moist areas such as lawns; also diagnostic are the broadly ovate and entire bracts. **Ethnobotany:** Used for pain relief, rheumatism and swellings, as blood medicine, leaves used as a poultice, decoction taken for coughs, for stomach problems, and as a laxative. Many, many other uses by other non–regional tribes. **Etymology:** Plantago translates to foot–sole in reference to leaf habit on ground, major means larger, or greater. **Synonyms:** Many, see Tropicos

Plantago patagonica

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woolly plantain

General: Native annual; mostly woolly throughout and hairs on upper part of scape; very common. **Leaves:** Leaves linear to narrowly oblanceolate. Bracts pointed or narrowly lanceolate. **Flowers:** Inflorescence in dense spikes; petals spreading 2 mm long, suborbicular to ovate; stamens 4. **Fruits:** Capsule 3.5 mm long; seeds 2 **Ecology:** Dry open places up to 7,000 ft (2100 m); flowers February–July. **Notes:** Characterized by hairy, linear to narrowly oblanceolate leaves and a spike inflorescence. More robust and with a denser spike; lower bracts are lanceolate to subulate and longer than the calyx. Hairs on upper part of scape usually apppressed or closely ascending. **Ethnobotany:** Keres, Navajo, and Zuni make plant tea to treat diarrhea and headaches. Havasupai include seeds in diet. **Etymology:** Plantago translates to foot–sole in reference to leaf habit on ground. Patagonica means from Patagonia in South America. **Synonyms:** *P. picta, P. spinulosa, P. wyomingensis, P. purshii* (4 varieties)

Plantago virginica

pale–seeded plantain, Virginia plantain

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General: Annual herb to 34.5 cm tall. **Leaves:** Petiolate, blades lanceolate 2.5–10 cm long, 0.8–2.7 cm wide, attenuate at base, acute at apex, sparsely villous, distinctly 3–veined, sometimes 2–4 widely–spaced teeth. **Flowers:** Peduncles 1–20 cm long, spikes 1.5–17 cm long, sparsely to densely villous, subulate bracts narrowly or broadly triangular, 2–4.8 mm long, narrowly scarious–margined at base, ciliate; more or less dioecious flowers, ovate sepals 2.5–3 mm long, 4 stamens. **Fruits:** Capsule breaks at middle. **Ecology:** Found in disturbed areas from 1,500–4,500 ft (457–1372 m); flowers March–July. **Notes:** Similar to *P. rhodosperma*, but otherwise clearly distinguishable. **Ethnobotany:** Used ceremonially **Etymology:** Plantago translates to foot–sole in reference to leaf habit on ground, while virginica means Virginia. **Synonyms:** *Plantago virginica* var. *viridescens*

Veronica anagallis–aquatica

water speedwell

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General: Perennial, generally decumbent, rooting at lower nodes, glabrous, simple to many–branching from base, 10–60 cm. **Leaves:** 20–80 mm long, elliptic to ovate, clasping to cordate, entire to serrate, light green, sessile. **Flowers:** Axillary inflorescence, glabrous to glandular–puberulent, flowers generally more than 30, bracts linear–lanceolate, pedicels 4–8 mm upcurved; sepals 3–5.5 mm, lanceolate to elliptic, corolla 5–10 mm, pale lavender–blue, violet–lined; style 1.5–3 mm. **Fruits:** Capsule, 2.5–4 mm, at least as wide, rounded, barely notched. **Ecology:** Found in wet meadows, streambanks, and along slow streams from 1,500–7,000 ft (457–2134 m); flowers March–September. **Notes:** Widespread in western hemisphere. **Ethnobotany:** Unknown for this species, other species in genera have medicinal uses. **Etymology:** Veronica is named for Saint Veronica, while anagallis–aquatica means water Anagallis. **Synonyms:** Many, see Tropicos

Veronica peregrina

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neckweed

General: Annual native herb; stems simple or branched, erect, ascending, 15–30 cm tall; herbage glandular and pubescent, leaves and bracts often glabrous or the plant wholly glabrous; short taproot. **Leaves:** Leaves sessile or the lowermost leaves narrowed to a petiolar base, blades 0.5–2.2 mm long, 0.5–5 mm wide, narrowly oblong to oblanceolate, entire or irregular, crenate–serrate. **Flowers:** Raceme terminal, elongate, glandular–puberulent, bracts foliaceous at the base, gradually reduced upwards, corolla inconspicuous, whitish. **Fruits:** Capsules 3–4 mm long and slightly wider, obcordate with a broad notch at the top; numerous seeds. **Ecology:** Usually along streams and washes to 10,000 ft (3050 m); flowers March–September. **Notes:** Differs from other species by the terminal raceme, annual habit, fibrous roots or taproot, short pedicels, and whitish corolla. **Ethnobotany:** Navajo use plant as ceremonial emetic. Chewed plant is blown toward deer for good luck while hunting. **Etymology:** Peregrina is foreign or exotic, wandering or straggling in growth. **Synonyms:** None

Eriastrum diffusum

miniature woollystar

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General: Annual 3–35 cm tall, erect and simple to diffusely branching. **Leaves:** Subglabrous to sparsely woolly, entire or with 1–2 pairs of lobes near the base of the rachis, 1–3 cm long. **Flowers:** Calyx 6–7 mm long, corolla actinomorphic, narrowly funnelform to slightly zygomorphic, throat white to yellow, lobes white to pale blue or bluish lavender, tube and throat 4–7 mm long, slightly longer that the calyx tube, lobes 3–5 mm long, stamens inserted on throat near sinuses, less than corolla lobes, filaments unequal in length, pistil 5–7 mm long. **Fruits:** Capsule 2–4 mm long **Ecology:** Found in open sites, desert shrublands, sagebrush, and piñon–juniper woodland from 500–5,500 ft (457–1676 m); flowers February–June. **Notes:** Distinguished by its shorter corolla lobes. **Ethnobotany:** Unknown for this species, others in genera have medicinal use. **Etymology:** Eriastrum is form Green erion, for wool and astrum, star, meaning woolly with starlike flowers, while diffusum means diffuse. **Synonyms:** *Eriastrum diffusum* ssp. *jonesii*

Gilia mexicana

El Paso gilia

General: Annual, 10–35 cm tall, usually branched, stems cobwebby pubescent below, sparsely glandular above. **Leaves:** Cobwebby pubescent, reduced above basal rosette; basal and lower deeply lobed, the lobes linear, entire or toothed, cauline leaves basally lobed to entire. **Flowers:** Open inflorescence with 1–2 pedicelled flowers at branch tips; calyx 2.5–5 mm long, glabrous, lobes acute to acuminate; corolla funnelform, 4–8 mm long, the tube and throat equal to or slightly exceeding the calyx, white, throat white with yellow flecks, lobes white to pale blue, sometimes streaked with violet flecks, stamens inserted on throat, anthers slightly exserted, stigma among anthers. **Fruits:** Capsule 3.5–6 mm long, oblong–ovoid. **Ecology:** Found on sandy soils, bajadas, canyons, desert shrublands, coniferous or oak woodlands from 3,500–5,500 ft (1067–1676 m); flowers April–June. **Notes:** Thin basal leaf lobes are distinctive in this species. **Ethnobotany:** Unknown for this species, but many medicinal and edible uses for others in genera. **Etymology:** Gilia is named for Filippo Luigi Gilii (1756–1821) an Italian naturalist, while mexicana refers to Mexico. **Synonyms:** None

Gilia sinuata

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rosy gilia

General: Annual 9–30 cm tall, simple or branched above rosette, glabrous and glaucous below, glandular above. **Leaves:** Cobwebby pubescent on upper surface, abruptly reduced above the basal rosette, basal deeply lobed once, the lobes oblong, cauline clasping, dentate to entire. **Flowers:** Open inflorescence with 1–3 short pedicelled flowers at branch tips; calyx 3–5 mm long, glandular, lobes short acuminate, corolla funnelform, 7–12 mm long, tube exserted, purple and white striate, throat yellow or purple tinged below, lobes white to lavender, stamens exserted on throat, anthers exserted. **Fruits:** Capsule 4–7 mm long, ovoid. **Ecology:** Found in sandy soils, shrubland, woodland from 1,000–6,000 ft (305–1829 m); flowers March–May. **Notes:** Cauline leaves clasping, rachis of basal leaves strap shaped both diagnostic. **Ethnobotany:** Used by the Havasupai, seeds were parched, ground, and kneaded into seed butter. **Etymology:** Gilia is named for Filippo Luigi Gilii (1756–1821) an Italian naturalist, sinuata means having sinuous or wavy margins. **Synonyms:** *Gilia inconspicua* var. *sinuata*

Ipomopsis longiflora

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flaxflowered ipomopsis

General: Annual or biennial 25–100 cm tall, simple to branched, stems glabrous to sparsely short pubescent. **Leaves:** Glabrous to sparsely short pilose, deeply lobed. **Flowers:** Diffuse inflorescence with 1–3 subsessile to long pedicelled flowers at tips of branches; calyx 5–11 mm long, short glandular pubescent, lobes lanceolate to ovate, acuminate; corolla white to bluish, tube 30–50 mm long, throat 2–3 mm wide, lobes ovate, rounded to acuminate; stamens inserted on tube. **Fruits:** Capsule 7–15 mm long. **Ecology:** Found on open sites, washes, desert and sagebrush shrublands, woodlands from 1,500–7,000 ft (457–2134 m); flowers April–November. **Notes:** Two subspecies known to southern Arizona, ssp. *australis* and ssp. *neomexicana*. Ssp. *australis* apices of calyx lobes short pubescent, capsules 7–10 mm long. Ssp. *neomexicana* has apices of calyx lobes that are glabrous to sparsely short pubescent, with capsules 10–15 mm long. **Ethnobotany:** Used medicinally as an emetic to eliminate the ozone in cases of lightning shock; for stomachache and arthritis, to prevent hair loss, and ceremonially. **Etymology:** Ipomopsis is from the Greek ipo, to strike and opsis, appearance, while longiflora means long flowered. **Synonyms:** None

Polygala barbeyana

blue milkwort

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General: Suffrutescent herb with erect, ascending, stiff, crowded stems 3–25 cm long from a woody root; stems densely leafy, flexuous, densely canescent–puberulent. **Leaves:** Broadly elliptic to oblong–oval, 8–18 mm long, 5–7 mm wide, middle and upper leaves progressively narrower and longer, oblong–lanceolate to linear–lancelate, 1.5–4 mm wide, 1.5–3.5 cm long, acute to acuminate or rarely obtuse. **Flowers:** Loose racemes 2–10 cm long, purplish flowers, lanceolate sepals 2.2–3.5 mm long, minutely puberulent, wings suborbicular to broadly oval 2.4–4 mm wide, 3.5–5.5 mm long, rounded at apex, puberulent on outer surface and near apex; keel 4–5.7 mm long glabrous. **Fruits:** Oval capsule 7–8 mm long, ciliate margins, glabrous sides, finely reticulate–veined. **Ecology:** Found on the banks of arroyos and rocky hillsides from 3,000–5,000 ft (914–1524 m); flowers March–May, September–October. **Notes:** Alternate or whorled leaves and ciliate capsule sets this species apart. **Ethnobotany:** Unknown for this species, but other species in this genera have many uses. **Etymology:** Polygala is from Greek polys, many or much, and gala, milk. **Synonyms:** *Polygala longa, P. racemosa, P. reducta, P. tenuiloba*

Eriogonum abertianum

Abert's buckwheat

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General: Annual, profusely branched from or near base with ascending appressed–hirsute stems 10–40 cm long. **Leaves:** Basal leaves petiolate, blade ovate to oblong, 1–2 cm wide, 1.5–2.5 cm long, petiole 6 cm long, upper leaves usually sessile, obovate–lanceolate to linear, all loosely villous to hoary. **Flowers:** Soliatry involucre, broadly campanulate, villous–canescent on outside, tube 2–3 mm long, 5 oblong lobes 4–6 mm long, 1–2 mm wide reflexed in maturity; calyx papery, white to pale yellow tinged with rose, deep rose midribs, outer lobes orbicular–cordate, 3–4 mm in diameter, sparingly glandular, inner lobes spatulate, 0.7–1.2 mm wide, slightly longer than outer. **Fruits:** Achenes dark brown, smooth and shining or transversely rugulose, 0.6–0.8 mm long. **Ecology:** Found on sandy plains, washes, and granitic hills from 1,500–7,000 ft (457–2134 m); flowers March–September. **Notes:** One of our most common buckwheats with several varieties known. **Ethnobotany:** Used as a lotion for skin cuts on humans and horses by Navajo. **Etymology:** Eriogonum is from Greek erion, wool and phyllon, leaf, while abertiaum is named for James William Abert (1820–1897), a US Army officer. **Synonyms:** Many, see Tropicos

Eriogonum polycladon

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sorrel buckwheat

General: Native annual; 15–60 cm tall; branched in inflorescence. **Leaves:** Leaves scattered along stem; alternate; lanceolate or oblanceolate; 5–15 mm long, margins curled under; tomentose. **Flowers:** Involucres sessile and solitary; 10–flowered or fewer; sepals petal–like, pink or whitish, glabrous, 1–2 mm; petals none. **Fruits:** Achenes about 2 mm long, blump, ovoid body abruptly narrowed to minutely scaberulous beak of equal length. **Ecology:** Common on roadsides and in washes from 2,500–7,500 ft (762–2286 m); flowers June–November. **Notes:** This annual species is distinguished by its tomentose hairs, leaves with curled–under margins scattered along the stem, and white or pink flowers. Host plant for Rita Blue butterfly. **Ethnobotany:** Unknown **Etymology:** Eriogonum is from Greek erion, wool and phyllon, leaf, while polycladon means many branched. **Synonyms:** *E. densum*, *E. vimineum* var. *densum*

Persicaria punctata

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dotted smartweed

General: Glabrous perennial with simple to much–branched, slender, erect or ascending stems 30–150 cm tall. Stipule sheath cylindrical on young stems, often split on older parts 1–1.5 cm long, truncate, glabrous to sparsely strigillose, fringed with bristles. **Leaves:** Blades narrowly lanceolate to oblong–lanceolate, 3–15 cm long, acuminate at both ends, glabrous, margin and midrib subscabrous with short, stout, forward–pointing hairs. **Flowers:** Inflorescence paniculate, narrow racemes 3–8 cm long, erect, pedunculate, ocreolae funnelform 2–3 mm long, sparingly bristly–cilliate, slender pedicels 3–4 mm long, greenish, conspicuously punctate–glandular, lobes ovate to oblong; 8 stamens, 3 style branches. **Fruits:** Triquetrous or sometimes lenticular achene about 2.5 mm long, black, smooth, shiny. **Ecology:** Found along margins of ponds, along ditches, and in moist ground from 2,500–5,000 ft (762–1524 m); flowers April–October. **Ethnobotany:** Plant used for stomach pain, for pains and swellings in legs and joints, and as a psychological aid. **Etymology:** Polygonum is derived from Greek polys, many, and gonu, knee or joint, while punctatum means spotted. **Synonyms:** *Polygonum punctatum*

Impact risk level H M L

Polygonum argyrocoleon

silversheath knotweed

General: Erect annual 10–60 cm high with simple or moderately branched, finely striate stems. **Leaves:** Elliptic–lanceolate to oblong, or oblanceolate, 5–20 mm long, 1.5–5 mm wide, acute or rarely obtuse, cuneate at base, glabrous. Stipule sheath 3–6 mm long, lacerate, hyaline to faintly rosaceous. **Flowers:** In 1–6–flowered axillary fascicles, pedicels 1–4 mm long, calyx 1.5–2 mm long, oblong, greenish with white or pinkish margins, erect, surpassed by achene, 8 stamens, 3 style branches. **Fruits:** Trigonous achene, 2.2–2.5 mm long, minutely granular–striate, dark brown, dull. **Ecology:** Found on roadsides and in disturbed habitats from 100–3,500 ft (30–1067 m); flowers April–October. **Notes:** Plant resembles *P. ramosissimum* but the inflorescences are more spicate. Naturalized from central Asia. **Ethnobotany:** Seeds were parched, ground, and eaten by the Cocopa. **Etymology:** Polygonum is derived from Greek polys, many, and gonu, knee or joint, while argyrocoleon means silvery and is from the Greek work koleos meaning sheath. **Synonyms:** None

Impact risk level H M L

Rumex crispus

curly dock

General: Introduced perennial herb; tap root; 30–120 cm tall; erect; glabrous. **Leaves:** Basal leaves 10–40 cm long, lanceolate, crenulate, petioled; stem leaves reduced. **Flowers:** Panicle 10–50 cm long; densely flowered; sepals ~1 mm long, green. **Fruits:** Achene. **Ecology:** Moist areas from 3,000–9,000 ft (914–2743 m); ubiquitous in temperate North America; flowers March–October. **Notes:** Tall plant with little axillary branching below the inflorescence. Thick stems, large leaves that are wavy, crinkled and/or curled. Introduced from Europe. There are currently 2 varieties recognized as occurring in the United States: *R. crispus var crispus* and *R. crispus* var. *fauriei*. Only *R. crispus* var. *crispus* occurs in Arizona. Host plant for Purplish Copper butterfly. **Ethnobotany:** Plant is used by many tribes medicinally. Common uses are root or seed poultices for swelling and skin irritations. Considered a liver stimulant and blood purifier. Some tribes make tea to purify blood or treat urinary problems. Tea salve is made for skin problems. Slow root tea is used to treat diarrhea, stimulate appetite, and for intestinal cold. Tea is also made into a wash for face, hands and clothing as love med. Seeds, greens and stems are consumed by many tribes. Pima, Cheyenne, and Choctaw also make yellow dye from roots. **Etymology:** Crispus is from Latin meaning "curled or wavy" in reference to the leaves. **Synonyms:** *R. fauriei*

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H M L Impact risk level

Portulaca oleracea

little hogweed

General: Native annual; several spreading, succulent stems. **Leaves:** Ovate to spoon–shaped; simple; opposite; succulent; 5–30 mm. **Flowers:** Solitary or in clusters of 2–5 at stem tips; sepals 2, fused at base, green or reddish; petals 5, yellow, 3–5 mm. **Fruits:** Capsule, 3–8 mm wide; seeds 0.6–1 mm wide, dark brown to black. **Ecology:** Likes open, disturbed locations from 4000–8500 ft (1220–2590 m); flowers August–September. **Notes:** This spreading annual has succulent stems and opposite, succulent, spoon–shaped leaves; the flowers are small and yellow. Likes warm, sunny, open, disturbed areas. **Ethnobotany:** Hopi boil plant with meats or make into gravy. Pima eat boiled leaves. San Felipe fry young plants and mix with peas. **Etymology:** Portulaca means "milk–carrier." It is also Latin for small gate or door, from the capsule lid. Oleracea means "of cultivation" meaning edible. **Synonyms:** *Portulaca neglecta, P. retusa*

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Portulaca suffrutescens

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shrubby purslane

General: Native, erect or ascending fleshy herb 5–30 cm tall, from tuberous rootstocks, somewhat woody at base, hairs in axils of leaves conspicuous. **Leaves:** Blades linear, terete, 1–3 cm long, 1–2 mm broad, acute at apex. **Flowers:** In few–flowered terminal clusters, surrounded by 6–8 leaves and pale brown hairs 4–6 mm long, sepals broadly ovate to suborbicular, 5–8 mm broad, 6–7 mm long; petals copper or buff colored, 7–12 mm long, emarginate to obcordate. **Fruits**: Subglobose capsule, 3.5–5 mm in diameter, 5–6 mm long, circumsessile below middle. **Ecology:** Found on plains and in open areas of full sun, often in dry sites from 3000–5500 ft (914–1676 m); flowers July–September. Rarely, in spring. **Notes:** One of the showiest species of *Portulaca*, with flowers to 3 cm or more. **Ethnobotany:** Unknown, but other species in genus have some uses. **Etymology:** Portulaca means "milk–carrier," it is also Latin for small gate or door, from the capsule lid, while suffrutescens means woody base. **Synonyms:** None

Portulaca umbraticola

wingpod purslane

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General: Annual with fibrous roots, stems erect or ascending 10–23 cm, stems glabrous, with sparse hairs at nodes. **Leaves:** Mostly alternate, sometimes subopposite, few, flat, lanceolate or spatulate, 10–35 mm long, 2–15 mm wide, glabrous. **Flowers:** Glabrous with 4–5 conspicuous involucral leaves, 10–30 mm long, 1–7 mm wide; flowers clustered at ends of branches; petals pink, purple, yellow or orange tipped with red, 5–10 mm long, stigmatic branches 5–18. **Fruits:** Capsule 3–5 mm in diameter with expanded circular membranous wing just below rim. **Ecology:** Found in sandy or rocky soils, along washes and disturbed sites from 3,000–6,000 ft (914–1829 m); flowers June–October. **Notes:** Ours are generally ssp. *lanceolata*, which is distinguished by the 8–15 mm flower diameter with the bi–colored flowers. One characteristic to key in on is the circular membranous wing just below the rim of the capsule. **Ethnobotany:** Unknown **Etymology:** Portulaca means "milk–carrier," but it comes from the Latin for small gate or door, from the capsule lid, while umbraticola comes form Latin umbraculum, for shady place. **Synonyms:** None, but ssp. *lanceolata* has two, see Tropicos

Androsace occidentalis

western rockjasmine

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General: Small delicate annual herb to 10 cm tall, sparsely puberulent throughout. **Leaves:** Basal, narrowly obovate to oblanceolate or oblong, 1.5–4 mm wide, 4–15 mm long, obtuse to short–acuminate at apex, narrowed to short peiole or subsessile, entire or slightly denticulate, scapes several, ascending to erect, 1.5–5 cm long. **Flowers:** Umbels 2–15–flowered (usually 2–8–flowered), bracts subtending umbel ovate or elliptic, somewhat rhombic 2–5 mm long foliaceous, green; pedicels slender, 5–20 mm long, outer curved–ascending, inner erect or nearly so; calyx tube 2–2.5 mm in flower, green or often reddish, lobes ovate or narrowly triangular, 1.2–1.5 mm long in flower, green or reddish, spreading or even slightly reflexed in fruit. **Fruits:** Capsule about 3 mm in diameter. **Ecology:** Found on grassy hillsides and along streams and washes from 1,000–5,000 ft (305–1524 m); flowers February–April. **Ethnobotany:** This plant is used for postpartum hemorrhage, for birth injury, for internal pain, and as a 'life medicine.' **Etymology:** Androsace from Green name for sea–plant from Greek andros, a man, male and sakos, a shield, while occidentalis means western. **Synonyms:** *Androsace arizonica*, *A. occidentalis* var. *arizonica*, *A. occidentalis* var. *simplex*

Clematis drummondii

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Drummond's clematis

General: Scandent and climbing vine with slender woody stems to 10 m long or more, bark tawny or light gray, striate and eventually stringy. **Leaves:** Petioles 3–8 cm long, sparsely puberulent, coiling like tendrils when in support of vine; leaflets 3–5 (rarely 7), lanceolate to narrowly ovate, 5–15 mm broad, usually less than 5 cm long, divergently 1–3–toothed or entire, grayish–pubescent, often copiously so. **Flowers:** Cymose panicles, on pedicels 1–2.5 cm long, sepals obovate to narrowly oblanceolate, 1 cm long or less, spreading but soon involute and irregularly reflexed; stamens about 7–8 mm long. **Fruits:** Achenes, narrowly ovoid, about 4 mm long, pubescent, tails 5–10 cm long, filiform, shining white but turning slightly rusty in drying. **Ecology:** Climbing over rocks and shrubs below 4,500 ft (1372 m); flowers March–September. **Notes:** Diagnostic for *C. drummondi* versus *C. ligusticifolia* involves the longer filiform tail off the achene and the grayish pubescence on the leaves, whereas *C. ligusticifolia* is glabrous and green. **Ethnobotany:** Unknown **Etymology:** Clematis is Greek name given to climbing plants, drummondii is named after Thomas Drummond (1790–1835) a Scottish naturalist. **Synonyms:** None

Clematis ligusticifolia

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western white clematis

General: Native perennial vine often 4–6 m tall; stems woody at the base. **Leaves:** Leaves pinnately compound; leaflets 5–7, lanceolate, toothed sparsely hairy; petioles tendril–like. **Flowers:** Flowers imperfect; dioecious; sepals ~10mm long, petal–like, white; petals none. **Fruits:** Achenes pubescent with long, straight hairs. **Ecology:** Along streams from 3,000–8,500 ft (915–2590m); flowers May–September. **Notes:** This species is a perennial vine with white dioecious flowers. There are currently 3 varieties recognized in the United States: *C. ligusticifolia* var. *brevifolia*, *C. ligusticifolia* var. *californica*, *C. ligusticifolia* var. *ligusticifolia*. Only *C. ligusticifolia* var. *ligusticifolia* is listed as occurring in Arizona. Medium drought and fire tolerance. Used to rehabilitate roadsides and stream–banks. Develops thick mat that may inhibit livestock movement. Cold stratification required. **Ethnobotany:** Native Americans used the roots as a stimulant for exhausted or dehydrated horses. The plant was chewed as a cold remedy and to cure sore throats. Similar uses as *C. hirsutissima*. **Etymology:** Clematis is Greek name given to climbing plants and hirsutissima means very hairy. **Synonyms:** *C. neomexicana*, *C. suksdorfii*

Delphinium scaposum

tall mountain larkspur

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General: Native perennial; stems leafless; 20–50 cm tall; glabrous. **Leaves:** Leaves mostly basal, occasional reduced stem leaves; 3–5 divisions; divisions lobed; 2–3 cm wide. **Flowers:** Raceme 5–15 flowers; sepals 5, petal–like, 10–15mm, blue; petals 4 in 2 unequal pairs, white; spur as long as sepals, bronze–tipped. **Fruits:** Follicles 10–20 mm long, glabrous; seeds dark brown. **Ecology:** Exposed rocky areas from 1,500–8,500 ft (460–2590m); flowers March–June. **Notes:** Distinguished from other *Delphinium* by more or less leafless stems and flowers with blue sepals and white petals. **Ethnobotany:** Hopi use as emetic in Po–wa–mu ceremony. Also used as after birth wash. Navajo make blue dye from flower. **Etymology:** Delphinium is Discorides' name for dolphin–head. Scaposum is ancient word referring to leafless stems. **Synonyms:** *D. andersonii* var. *scaposum*

Myosurus minimus

tiny mousetail

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General: Native annual; 2–18 cm tall; stems generally leafless. **Leaves:** Filiform to linear; 2–8 cm long. **Flowers:** In spikes 1–6 cm long; sepals 5, 1–4 mm, spurred; petals 5, 1.5–3 mm, whitish. **Fruits:** Achenes **Ecology:** Wet areas from 3,000–7,000 ft (915–2135 m); flowers March–April. **Notes:** This small annual has spikes of tiny flowers with spurred sepals and 5 whitish petals. **Ethnobotany:** Chewed plant poultice is used by Navajo for ant bites. **Etymology:** Myosurus translates to mouse– tail, pertaining to receptacle when mature. Minimus means least or smallest. **Synonyms:** *M clavicaulis; M. lepturus*

Diodia teres

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poorjoe

General: Erect annuals, 7–25 cm tall, simple, with four–angled stems above, glabrous, or with short scattered hairs. **Leaves:** Opposite with connecting stipules, fimbriate; blades 1.5–3.5 cm long, linear to narrowly lanceolate–oblanceolate, apices subulate bearing a sharp terminal hair, scabrous margins, bases somewhat hyaline, this forming the fimbriate stipules that contain the sessile flowers. **Flowers:** One to several in leaf axils, calyx 2–4 lobes, unequal, ovate or lanceolate, smallest above; other 3 large and adhering to the lower nutlet; corolla white or pink, glabrous or hispid externally, 3 mm long, 4 small lobes; stamens and style included or scarcely exserted. **Fruits:** Nutlets 3 mm long, obovoid–turbinate, flattened at plane of separation, covered with stiff straight, apically directed hairs, topped with persistent calyx. **Ecology:** Found on sandy, gravelly slopes and along washes, often in disturbed soils from 3,500–8,000 ft (1067–2438 m); flowers August–October. **Notes:** Flowers to make you think *Houstonia* or *Hedyotis*, but this species is delicately annual and with the connective stipules, quite unlike the close ground habit of the other two species. Ours are thought to be of var. *angustata*. **Ethnobotany:** Unknown **Etymology:** Diodia is from the Greek for thoroughfare, for its habit, while teres means cylindrical in cross–section. **Synonyms:** None

Phoradendron californicum

2009 NPS/Beth Fallon

mesquite mistletoe

General: Branches arching to drooping, often forming much branched masses in desert trees, especially legumes. Stems terete, at first silvery–green pubescent with minute, appressed scalelike hairs, soon glabrous and green to reddish green. **Leaves:** Closely appressed to stem, 1–2.5 mm, at first green or yellow–green and quickly drying as persistent scales or remaining green only at base. **Flowers:** Dioecious or occasionally monoecious. Fragrant, calyx thick, fleshy, and yellow–green. Anthers short and yellow. **Fruits:** Globose, 4.5–5.5 mm when fresh, the fresh pulp viscid and translucent white, salmon colored on exposed surfaces and whitish to yellow–white when not exposed to sunlight. Explosive dehiscence. **Ecology:** Found on host plants through southwest; flowers December–February. **Notes:** Flowering and fruiting non–seasonally, birds love this species and help to spread. **Ethnobotany:** Decoction of the berries was taken as purge by the Pima. It was used for washing sores, for stomachaches, boiled, dried and stored for food. **Etymology:** Phoradendron is from Greek phor, a thief and dendron, tree—hence tree thief because of its parasitism, while californicum refers to California. **Synonyms:** *Phoradendron californicum* var. *distans, P. californicum* var. *leucocarpum*

Calibrachoa parviflora

seaside petunia

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General: Prostrate annual herb with diffusely branched stems 2–40 cm, glandular–viscid herbage. **Leaves:** Linear, elliptic, or oblong–oblanceolate, 4–18 mm long, 1–4.5 mm wide, narrowed to short petiole or nearly sessile, 1 nerved, acute to rounded at apex, margins entire to slightly undulate. **Flowers:** Solitary in axils on slender pedicels, 2–5 mm long at anthesis, calyx lobes linear–spatulate to linear–lanceolate, .5–1 mm wide, 2–3 mm long in flower, 5–8 mm long in fruit, cup 1–2 mm deep, funnelform corolla 5–7 mm long, pale blue to purplish, often paler to nearly white on one side, lobes rounded but apiculate, more or less spreading. **Fruits:** Capsule broadly ovoid, 3–4 mm long, firm, yellowish or whitish, glabrous. **Ecology:** Found on sandy flats, arroyos, sand bars and stream banks from 500–5,000 ft (152–1524 m); flowers December–September, although it flowers sporadically the rest of the year. **Notes:** Relative of the showy cultivated petunias. **Ethnobotany:** Unknown **Etymology:** Calibrachoa is named for Mexican botanist Antonio de la Cal y Bracho (1766–1833) while parviflora means small flowered. **Synonyms:** *Petunia parviflora*

Chamaesaracha conoides

gray five eyes

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General: Copiously branched, glandular–pubescent plant with ascending or slightly decumbent stem 10–40 cm long, viscid and often discolored with adhering soil and debris. **Leaves:** Numerous, lance–ovate to broadly ovate, blades 4–18 mm wide, 1–3.5 cm long, rounded to acute at apex, cuneately narrowed to narrowly winged petiole, margin entire, undulate, occasionally pinatifid. **Flowers:** Pedicels 1–2.5 cm long, glandular–hirsute, calyx 3–4 mm deep, teeth 1–1.5 mm long, ascending to erect, lanceolate, triangular; corolla rotate 10–15 mm in diameter, greenish yellow to purplish, densely pubescent in throat, stamens 3–5 mm long, erect, filaments glabrous, yellowish anthers 2 mm long. **Fruits:** Dry berries, globose 5–6 mm diameter, glabrous, pale yellow to whitish. **Ecology:** Found on roadsides, grassy plains, rocky hillsides and mesas from 3,500–5,500 ft (1067–1676 m); flowers April–August. **Notes:** Told apart from *C. coronopus* by its herbage which is composed for simple hairs intermingled with gland–tipped ones, making it more or less viscid. **Ethnobotany:** Unknown **Etymology:** From Greek for low or dwarf and Saracha, a genus in Solanaceae from South America, conoides is cone like. **Synonyms:** None

Chamaesaracha coronopus

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greenleaf five eyes

General: Herbaceous perennial, ascending to procumbent, 10–50 cm long, slightly angular in cross section, longitudinally ridged or subulate, ridges more pubescent than intervening channels; herbage sparsely scurfy with coarse dendritic to stellately branched hairs, branches stubby, white. **Leaves:** Oblong–linear to elliptic–oblanceolate, usually pinnatifid with teeth 1–2 mm long, leaves 2–5 mm wide but vigorously growing plants often have shallowly pinnatifid leaves or only undulate. **Flowers:** Solitary in axils on slender pedicels to 4 cm long and often deflexed and curved in fruit; calyx 3–4 mm deep at anthesis, densely pubescent–scurfy, teeth broadly to narrowly deltoid, corolla rotate or shallowly cup–shaped, 12–18 mm in diameter, greenish–yellow, more or less blotched with purple, densely puberulent around base of filaments, tips sparsely pubescent; glabrous yellow stamens. **Fruits:** Globose berry, dry, 5–8 mm diameter, glabrous. **Ecology:** Along ditches, roadsides, pastureland, and mesas from 2,500–7,500 ft (762–2286 m); flowers April–September. **Notes:** Told apart from *C. conoides* by the mostly pinnatifid leaves and the coarse pubescence. **Ethnobotany:** Used for swellings and the Kayenta used it in case of drowning. **Etymology:** From Greek for low or dwarf and Saracha, a genus in Solanaceae from South America, coronopous is from Greek korone, crown and pous, foot from the deeply cleft leaves being like the points of a crown. **Synonyms:** None

Datura wrightii

sacred thorn–apple

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General: Perennial herbs; spreading and branching; herbage grayish–green; 50–180 cm tall. **Leaves:** Leaves alternate with short petioles and toothed lobes, usually asymetric at the base, 4–15 cm long, grayish–green and short–pubescent. **Flowers:** Calyx tube 6–10 cm long with 1–3 cm long teeth; corolla white, often with hints of lavender or purple, 15–25 cm long, with 5–10 slender teeth that are 5–20 mm long; anthers white or lavender, 15 mm long. **Fruits:** Capsule round, 3–4 cm in diameter, nodding, and very prickly; prickles 5–12 mm long; seeds flat and cream–colored. **Ecology:** Found in creosote brush, Joshua tree, sagebrush, and pinon–juniper communties from 1,000–6,500 ft (300–1980 m); flowers April–October. **Notes:** Characterized by its spreading habit, large ovate leaves, and large white funnel–shaped corolla. Entire plant is poisonous. **Ethnobotany:** Apache use plant juice, flower, roots as disinfectant. Cahuilla and others use leaf powder to make ointment for setting bones. Also used as antidote for tarantula, snake, spider and poisonous insect bites. In Cahuilla given to shaman so he may visit the land of the dead and offer messages to those living. In other tribes given to medicine men to "see" the disease and give proper diagnosis. Used in numerous tribes in ceremonies marking boy initiation into manhood. Plant is most poisonous narcotic known. **Etymology:** Datura is an ancient Hindu name. Wrightii named for Charles Wright (1811–1885), an American botanical collector. **Synonyms:** *D. inoxia, D. meteloides, D. metel*

Physalis acutifolia

sharpleaf groundcherry

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General: Erect or ascending annual 10–100 cm tall with strongly angled, much–branched stems and sparingly pubescent to subglabrous foliage. **Leaves:** Slender petioles 1.5–5 cm long, lanceolate, 6–35 mm wide, 2.5–8 cm long, deeply sinuate–toothed, cuneate at base, acute, attenuate at apex, margins finely ciliate. **Flowers:** Pedicels 5–20 mm long, finely puberulent at anthesis, campanulate calyx, scarcely angular, 3–5 mm long with narrowly deltoid lobes, rotate corolla 12–20 mm diameter, whitish or light yellow with deeper yellow center; greenish anthers, linear, 3–4.5 mm long. **Fruits:** Ovoid globose berry 1.5–2.5 cm long. **Ecology:** Found on roadsides, fields, ditches from 100–4,000 ft (30–1219 m); flowers April–September. **Notes:** Smaller, low growing habit help identify this species. **Ethnobotany:** Fruit eaten primarily by children as a snack food by the Gila River Pima; eaten raw, cooked into sauces, preserves and jams, dried and stored as food. **Etymology:** Physalis from Greek physallis, a bladder or bubble, due to inflated calyx, while acutifolia means pointed leaves. **Synonyms:** *Physalis wrightii*

Physalis longifolia

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longleaf groundcherry

General: Stout erect perennial 0.5–1 m tall with angulate–striate, glabrous stems **Leaves:** Lance–elliptic, glabrous or subglabrous entire leaves 1–2.2 cm wide and 3–9 cm long, acute, cuneate and deccurrent on petioles at base; petioles 1–4 cm long. **Flowers:** Pedicels 8–12 mm long at anthesis; campanulate calyx, truncate at base, sparsely puberulent toward base, lanceolate lobes 2.5–3 mm wide, 4–5 mm long; corolla campanulate–rotate, 12–20 mm wide, about 10–15 mm long, yellow with darker center; anthers 2–3 mm long, yellow. **Fruits:** Fruiting calyx ovoid 2–3 cm long, glabrous, distinctly veined, berry. **Ecology:** Found on plains and along stream banks from 2,500–5,000 ft (762–1524 m); flowers April–August. **Notes:** Fairly rare in Arizona, large size compared to other ground loving *Physalis* distinguish this species. **Ethnobotany:** Berries were widely eaten, whether raw or boiled. **Etymology:** Physalis from Greek physalis, a bladder or bubble, due to inflated calyx, while longifolia means long leaved. **Synonyms:** None

Solanum eleagnifolium

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silverleaf nightshade

General: Perennial herb or woody at base to 1 m tall, emerges from tough creeping rhizomes, foliage and stems canescent with finely stellate pubescence; stems, petioles and midribs of leaves sparsely to densely prickly with slender yellowish spines 1–5 mm long. **Leaves:** Petioles with shallowly longitudinal grooves on upper surface, 3–20 mm long, leaves linear, oblong, or lanceolate 4–25 mm wide, 3–10 cm long, broadly cuneate at base, obtuse to acute at apex, with prominent veins. **Flowers:** Cymose, peduncles, pedicels and calyces prickly with yellow spines, calyx ovate to lance–linear, corollas 2–3 cm diameter, violet or blue; anthers 7–9 mm long, subequal, yellow. **Fruits:** Berries globose 9–14 mm in diameter, yellow to brownish. **Ecology:** Found on sandy plains, arroyos, outwash slopes and disturbed areas from 1,000–5,500 ft (305–1676 m); flowers April–October. **Notes:** Rhizomatousness, spines, and distinct purple–blue flowers help identify this species. **Ethnobotany:** Used in a variety of medicinal capacities, considered to be highly toxic. **Etymology:** Solanum is Latin for quieting, reference to the narcotic properties of some species, elaeagnifolium refers to being like plants in the genus Eleagnus. **Synonyms:** None

Talinum paniculatum

pink baby breath, jewels of Opar

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General: Perennial herb to 1 m tall, tuberous roots, erect stem. **Leaves:** Short–petiolate, blades elliptic to obovate, basally attenuate, to 12 cm long, reduced upward. **Flowers:** Inflorescence spreading to 25 cm long, sepals ovate to suborbiculate, 2.5–4 mm long, sometimes reflexed, petals ovate to suborbiculate, 3–5 mm long, red or pink, sometimes orangish, yellowish, or purplish, 15–20 stamens, 3 linear stigmas. **Fruits:** Subglobose capsule, sometimes triquetrous, 3–5 mm long. **Ecology:** Found in moist to dry habitats in woodlands and savannas, desert scrub and grasslands, in grassy soil and crevices, in open and often in shade from 2,500–5,500 ft (762–1676 m); flowers July–October. **Notes:** Its very fleshy leaves and weak stems help to identify this plant.**Ethnobotany:** Unknown **Etymology:** Paniculatum means with panicles. **Synonyms:** *Portulaca paniculata*, *Talinum chrysanthum*, *T. paniculatum* var. *paniculatum*, *T. paniculatum* var. *sarmentosum*, *T. reflexum*, *T. spathulatum*

Parietaria pensylvanica

Pennsylvania pellitory

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General: Erect, slender stemmed annual 10–40 cm tall, simple or sparingly branched at base, glabrate or more commonly sparsely to moderately villous with weak, white hairs. **Leaves:** Lanceolate to lance–oblong, cuneate to slightly rounded at base, acute to acuminate at the apex, puberulent to villosulous, blades 5–12 mm wide, 2.5–7.5 cm long long slender petioles about one half as long as blade. **Flowers:** In glomerules in most axils, bracts linear or lance–linear, 4–6 mm long, sparsely pubescent, sepals lance–linear, about 2 mm long, acute. **Fruits:** Achenes, brownish about 2 mm long. **Ecology:** Found along watercourses, in the shade of trees, cliffs, and rocks from 1,500–4,500 ft (457–1372 m); flowers March–June. **Notes:** This plant is common through temperate North America. **Ethnobotany:** Unknown **Etymology:** Parietaria comes form Latin parietarius, of walls which details the preferred habitat, while pensylvanica comes from its being of Pennsylvania. **Synonyms:** *Parietaria obtusa*, *P. occidentalis*, *P. pensylvanica* var. *obtusa*

Glandularia gooddingii

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southwestern mock vervain

General: Annual or perennial; stems several from a common base, 20–45 cm tall, branched, densely hairy and glandular. **Leaves:** Mostly 3–cleft, the divisions are toothed or cleft, hairy on both sides, tapering at the base to a short petiole. **Flowers:** Spikes capitate in anthesis, elongated in fruit, bracts a little shorter than the calyx, which is glandular; corolla pink, lavender, violet or blue, tube a little longer than calyx. **Fruits:** Nutlets, about 3 mm long, reticulate, base striate. **Ecology:** Found at 5,000–10,000 ft (1524–3048 m) in coniferous forests; flowers throughout year. **Notes:** Corollas large and showy, pink, lavender, violet or blue, 3–cleft leaves. *G. gooddingii* has large and showy corolla, but the corolla tube is only slightly longer than the calyx. Herbage is conspicuously villous and stems and stems are glandular. **Ethnobotany:** Acts as a sedative, diphoretic, diuretic, bitter tonic, and antispasmodic. **Etymology:** Verbena is the Latin name for the leafy twigs used in the wreaths for ritual use and medicine. Glandularia is ancient word meaning full of glands. **Synonyms:** *Verbena arizonica, V. gooddingii, V. gooddingii* var. *nepetifolia, V. verna, V.* var. *fissa*

Tetraclea coulteri

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Coulter's wrinklefruit

General: Perennial with several branching obscurely 4–angled ascending or spreading stems about 40 cm tall from a woody root; branchlets slender, gray, obtusely tetragonal, densely puberulent with appressed, strigose, whitish hairs, nodes not swollen, principal nodes 9–32 mm long. **Leaves:** Decussate–opposite, slender petioles, 4–10 mm long, flattened with distinct margin from apex to base, appressed–puberulent throughout, blades thin–chartaceous or submembranous, uniformly bright green, ovate 1.5–3.5 cm long, 6–18 mm wide, sharply acute and mucronulate at apex, irregularly and coarsely dentate, finely puberulent. **Flowers:** Mostly 3–flowered, slender peduncles 3–8 mm long, densely puberulent, cream–colored corolla, tinged with red outside, lobes elliptic–obovate, entire. **Fruits:** Pyriform pyrene, strongly and coarsely reticulated, finely pubescent. **Ecology:** Found in sandy soil below 4,500 ft (1372 m); flowers April–August. **Notes:** Ashy–green foliage and fine, rough pubescence helps to separate this plant. **Ethnobotany:** Plant used as a ceremonial medicine and as a fever medicine. **Etymology:** Tetraclea comes from tetra meaning four, and coulteri which is named for Dr. Thomas Coulter (1793–1843) an Irish botanist. **Synonyms:** *Tetraclea coulteri* var. *angustifolia*

Vitis arizonica

canyon grape

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General: Native, sprawling or weakly climbing perennial vine; stems generally 2–6 m long; the young twigs densely woolly, but losing this over time and the bark becoming shreddy. **Leaves:** Broadly cordate, 3–10 cm long and about as wide, irregularly toothed and sometimes shallowly 3–lobed, more–or–less cottony hairy; petiole 1–3 cm long; tendrils opposite the leaves, more–or–less branched, withering quickly if not attached to something. **Flowers:** Inflorescence opposite leaves, usually branched, 2–10 cm long; flowers with five, white petals. **Fruits:** Edible (but sometimes bitter) grapes, 8–10 mm thick, black. **Ecology:** Generally in canyons and along streams from 2,000–7,500 ft (610–2286 m); flowers April–July. **Notes:** Characterized by a sprawling or vine–like habit; broad, irregularly–toothed leaves with tendrils opposite; and inflorescences opposite of the leaves that bare dark purple to black grapes. **Ethnobotany:** Navajo use in courtship gifts. Apache dry and eat fruits like raisins, eaten fresh. Havasupai use to make toys/games, other tribes have uses as well. Leaves can be salted and soaked and used similarly like domesticated grape leaves. **Etymology:** Vitis is Latin for vine. **Synonyms:** *Vitus treleasei*

Kallstroemia grandiflora

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Arizona poppy, caltrop

General: Diffuse annual with hirsute, spreading to ascending stems 10–40 cm long, stipules linear–subulate, 4–6 mm long, hirsute; procumbent with age. **Leaves:** Leaves 4.5–12 cm, with 5–9 pairs of leaflets; obliquely oblong, 2–5 mm wide, 8–25 mm long, obtuse or acute, asymmetrical at base, usually glabrous above, pubescent with both coarse and fine hairs or glabrate beneath. **Flowers:** Pedicels 1–2 cm long at anthesis, to 4 cm long in fruit, sepals narrowly linear–lanceolate, about 5 mm long, hirsute, persistent; petals deep dark orange that fades to yellow with the day, narrowly obovate 5–7 cm wide corolla, corolla center and filaments dark orange–red, anthers yellow, ovary and style green. **Fruits:** Fruiting pedicels 3–7 cm, body of fruits 4–5 mm and knobby, beaks 8–12 mm long, columnar. **Ecology:** Widespread and common on desert flats, gravelly or sandy soils from 5,000 ft (1524 m) and below; flowers February–September. **Notes:** The color of the petals is diagnostic between the three species in the region. **Ethnobotany:** *K. californica* was used as an antidiarrheal and a dermatological aid. **Etymology:** Kallstroemia is named for Anders Kallstrom (1733–1812) a contemporary of Giovanni Antonio Scopoli, the author of the genus, while grandiflora refers to the large flower. **Synonyms:** None

H M L Impact risk level

Tribulus terrestris

puncturevine

General: Prostrate annual herb with diffusely branching stems 10–80 cm long; herbage sparsely silky–strigose throughout or upper surfaces of leaflets nearly glabrous; stipules subulate, 2–3 mm long. **Leaves:** Leaves 2–5 cm long, with 3–9 pairs of elliptic or oblong leaflets 3–13 mm long, oblique, acute to obtuse at apex; leaflets of the lower pair unequal in size. **Flowers:** Peduncles axillary to the shorter of the pair of leaves and exceeded by subtending leaf; sepals narrowly lance–ovate, 3–3.5 mm long, caducous; petals pale yellow, 4–5 mm long. **Fruits:** 15–18 mm broad exclusive of spines, breaking into 5 spiny nutlets, each with 2 larger spines, after separation the vicious tacklike nutlets land with the larger spines upward. **Ecology:** Introduced and abundant in cultivated areas, along roads, disturbed sites; flowers July–October. **Notes:** Introduced and weedy where established. **Ethnobotany:** Used by the Navajo as a ceremonial medicine. **Etymology:** Tribulus is Latin for three–pointed, a caltrop, while terrestris in Latin means on land. **Synonyms:** None

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A

Abaxial: the side away from the axis
Acaulescent: stemless
Accumbent: a term referring to seeds in which the embryonic root is wrapped around and lies along the edges of the two cotylodons (compare **incumbent**)
Acerose: needle-shaped
Achene: a small, dry, one-seeded, indehiscent fruit (i.e. one that does not split open), deriving from a one-chambered ovary, typical of the Asteraceae
Acicular: needle-shaped, as applied to some kinds of foliage
Acorn: hard, dry, indehiscent with a single large seed and a cupule
Actinomorphic: radially symmetrical
Aculeate: pointed or prickly
Acuminate: tapering gradually to a pointed apex with more or less concave sides along the tip
Acute: tapering to a sharp-pointed apex with more or less straight sides along the tip
Acyclic: with the floral parts arranged spirally rather than in whorls
Adaxial: the side toward the axis
Adenophorous: gland-bearing
Adherent: two or more organs appearing to be fused but actually separable
Adnate: grown together, used only to describe unlike parts (compare **connate**)
Adventitious: occurring in unusual or unexpected locations such as roots on aerial stems or buds on leaves. Also meaning: out of the usual place, introduced but not yet naturalized
Aestivation: the arrangement of floral parts in a bud
Aggregate: densely clustered
Albumen: the nutritive tissue in a seed
Alkaline: soils that contain high amounts of various salts of potassium and/or sodium, as well as other soluble minerals, and are basic rather than acidic with a pH greater than 7.0
Allelopathy: a characteristic of some plants according to which chemical compounds are produced that inhibit the growth of other plants in the immediate vicinity
Allopatric: occupying different geographic regions
Alternate: a leaf arrangement along the axis in which the leaves are not opposite to each other or whorled
Alveolate: Honeycombed, with pits separated by thin, ridged partitions
Ament: an inflorescence consisting of a dense spike or raceme or apetalous, unisexual flowers, another name for a catkin
Ammophilous: sand-loving
Amplexicaul: describing a sessile leaf that has its base completely surrounding the stem
Anandrous: without stamens
Ananthous: without flowers
Androecium: a collective term for the stamens of a flower (compare **gynoecium**)
Androgynous: having staminate and pistillate flowers in the same inflorescence
Anemophilous: wind-pollinated
Angled: sided, as in the shape of stems or fruits
Angular: having sharp angles or corners, generally used in reference to structures such as stems to contrast them with rounded stems

Annual: a plant that completes its life cycle from the its germination as a seed to the production of new seeds in a single year and then dies
Anterior: on the front side away from the axis
Anther: the pollen-bearing portion of a stamen
Anthesis: time during which the flower is open
Antrorse: pointing forward or upward (compare **retrorse**)
Aperturate: with one or more openings or apertures
Apetalous: lacking petals
Apex: the tip of a plant part
Aphyllous: without leaves
Apiculate: ending in an abrupt slender tip which is not stiff
Applanate: flattened
Appressed: lying flat against or nearly parallel to, as leaves on a stem or hairs on a leaf
Arborescent: approaching the size and habit of a tree
Arcuate: arching or curved like a bow
Areole: a raised area on a cactus from which spines develop
Aristate: with an awn or stiff bristle, typically at the apex
Armed: provided with prickles, spines or thorns
Ascending: growing obliquely upward
Asymmetrical: not divided into like and/or equal parts
Attenuate: gradually narrowing to a tip or base
Auricle: a small earlike lobe or appendage
Auriculate: having earlike appendages
Autophilous: self-pollinated
Awn: a slender, stiff terminal bristle attached at its base to another structure or organ such as a leaf or grass stem
Axil: the upper angle formed between two structures or organs, such as a leaf and the stem from which it grows
Axillary: borne or carried in the axil
Axis: the main stem

B

Banner: the upper petal of a pea flower
Barbed: with a backward-facing tip
Barbellate: with short, stiff hairs or barbs
Basal: at or near the base, often describing leaves and where they attach
Basifixed: attached by the base (compare dorsifixed, versatile)
Beak: a firm, pointed terminal appendage
Berry: a fleshy, indehiscent fruit in which the seeds are not encased in a stone and are typically more than one
Biennial: a plant that takes two years to complete its life cycle, usually growing vegetation in the first year and producing flowers and seeds in the second, then dying
Bifurcate: divided into two forks or branches
Bilabiate: two-lipped
Bipinnate: twice pinnately compound
Bipinnatifid: two times pinnately cleft
Bisexual: having both stamens and pistils
Bladdery: thin-walled and inflated
Blade: the expanded terminal portion of a leaf, petal or other structure, i.e. that portion of the leaf that does not include the stalk

Bloom: a white, powderlike coating sometimes found on a leaf or stem surface
Bole: the trunk or stem of a tree
Brackish: a mixture of salt and fresh water, somewhat saline
Bract: a modified leaf which may be reduced in size or different in other characteristics from the foliage leaves and which usually subtends a flower or an inflorescence
Bracteole: a small bract, often secondary in nature, a bractlet
Bristle: a stiff hair, usually erect or curving away from its attachment point
Bud: a developing leaf, stem or flower
Bulb: an underground plant part derived from a shoot that is enclosed in numerous overlapping thickened leafy scales whose purpose is to store food
Bundle scar: scar left on a twig by the vascular bundles when a leaf falls
Bur: a prickly or spiny seed or fruit
Burl: a woody swelling where the stem joins the roots

C

Caducous: falling off very early compared to similar structures in other plants
Caespitose (Cespitose): having a densely clumped, tufted or cushion-like growth form with the flowers extending above the clump
Callus: a hardened or thickened area at the point of attachment
Calyptra: a hood or lid
Calyx: the outer whorl of the perianth, composed of the sepals, usually but not always green, which enclose other flower parts in bud
Campanulate: bell-shaped
Canescent: with gray or white short hairs, often having a hoary appearance
Capillary: very slender and hairlike
Capitate: in a globular or head-shaped cluster
Capsule: a dry, generally many-seeded fruit divided into two or more seed compartments that dehisces or splits open longitudinally with the line of dehiscence either through the locule (**loculicidal**) or through the septa (**septicidal**), or, less commonly, through pores (**poricidal**) or around the circumference (**circumscissile**)
Carnose: with a fleshy texture
Carpel: a simple pistil, or a single unit of a compound pistil, the ovule-bearing portion of a flower
Caruncle: a protuberance or appendage near the hilum of seed
Caryopsis: the grain or fruit of grasses
Catkin: a spikelike, often pendulous, inflorescence of petalless unisexual flowers, either staminate or pistillate
Caudate: bearing a tail or slender tail-like appendage
Caudex: the persistent, often woody base of an otherwise annual herbaceous stem
Cauline: attached to or referring to the stem, as opposed to 'basal', often used to describe leaf position
Ceraceous: waxy in texture or appearance
Cernuous: drooping or nodding
Chaff: thin scales or bracts subtending individual flowers in many species of the Asteraceae
Chaparral: an area characterized by dense, leathery-leaved, evergreen shrubs
Chartaceous: with a papery texture, usually not green
Cilia: marginal hairs

Ciliate: with a row of fine hairs along the margin of a structure such as a leaf
Ciliolate: with a marginal fringe of minute hairs
Cinereous: ash-colored, light-gray due to a covering of short hairs
Circumboreal: distributed around the globe at northern latitudes
Circumsessile: dehiscing along a transverse circular line around the fruit or anther, so that the top separates or falls off like a lid
Clasping: having the lower edges of a leaf blade partly surrounding the stem
Clavate: club-shaped, gradually thickened or widened toward the apex
Claw: the narrow, basal stalklike portion of some sepals and petals
Cleft: deeply cut, usually more than one-half the distance from the margin to the midrib or base
Cleistogamous: flowers which self-fertilize without opening
Collar: found in grasses, the outer side of the leaf at the junction of the sheath and blade
Colleter: a glandular hair
Column: a structure formed by the union of staminal filaments
Coma: a tuft of hairs, often at the tip of seeds
Complete: describing flowers that contain petals, sepals, pistils and stamens
Compound: made up of two or more similar parts, as in a leaf which has leaflets
Compressed: flattened
Concolor: of uniform color
Conduplicate: folded together lengthwise with the upper surface within, as the leaves of many grasses
Cone: a dense cluster of sporophylls on an axis
Confluent: running together or blending of one part into another
Connate: Describing similar structures that are joined or grown together (compare **adnate**)
Connivent: converging, but not actually fused or united
Contracted: narrowed or shortened as opposed to open or spreading
Convergent: meeting together, as leaf veins which come together at the apex
Convex: rounded or curved outward on the surface
Convolute: rolled up longitudinally, with one edge inside the other and the upper surface on the inside (compare **revolute**, **involute**)
Coppice: a thicket of bushes or small trees; sprouts arising from a stump
Cordate: heart-shaped
Coriaceous (Coreaceous): leathery in texture
Corm: an enlarged underground structure of stem tissue and thin scales
Corneous: horny
Corniculate: having little horns or hornlike appendages
Corolla: the inner whorl of the perianth, between the calyx and the stamens, a collective term for the petals of a flower
Corolla tube: the hollow, cylindric portion of a corolla of united petals
Corona: petal-like or crown-like structures between the petals and stamens in some flowers
Coroniform: crown-shaped
Corrugated: wrinkled, folded
Corymb: a broad, flat-topped inflorescence in which the flower stalks arise from different points on the main stem and the marginal flowers are the first to open (compare **cyme**)
Costa (pl. costae): a rib or prominent mid-vein
Cotyledon: a primary leaf of the embryo; a seed leaf
Crenate: with shallow roundish or bluntish teeth on the margin, scalloped

Crenulate: similar to crenate, but with smaller, rounded teeth
Crisped: curled on the margin like a strip of bacon
Cristate: with a terminal tuft or crest
Crosier: the curled top of a young fern frond
Cruciform: cross-shaped
Crustaceous: dry and brittle
Cucullate: hooded or hood-shaped
Culm: a hollow or pithy slender stem such as is found in the grasses and sedges
Cultivar: a form of a plant derived from cultivation
Cuneate: wedge-shaped, with the narrow part at the point of attachment
Cupule: a cup-shaped involucre, as in an acorn
Cuspidate: tipped with an abrupt short, sharp, firm point (compare **mucronate**)
Cuticle: the waxy layer on the surface of a leaf or stem
Cyathiform: cup-shaped
Cyathium: the specialized inflorescence characteristic of the Euphorbiaceae, consisting of a flower-like, cup-shaped involucre which carries the several true flowers within
Cyme: a broad, flat-topped inflorescence in which the central flower is the first to open (compare **corymb**)
Cymose: with flowers in a cyme
Cypselae: dry, single-seeded, indehiscent fruit with an adnate calyx, essentially an achene

D

Deca-: a prefix meaning ten
Decompound: more than once-compound, the leaflets again divided
Decumbent: prostrate at the base but ascending at the end
Decurrent: adnate to the petiole or stem and extending downward, as a leaf base that extends downward along the stem (compare **surcurrent**)
Decussate: arranged in pairs along the stem with each pair at right angles to the one above and below
Deflexed: Bent downward or backward
Defoliation: the shedding of leaves
Dehiscent: opening spontaneously when ripe to discharge the seed content (compare **indehiscent**)
Deltoid: broadly triangular in shape
Dendritic: with a branching patter similar to that in a tree, describes a hair type
Dense: congested, describing the disposition of flowers in an inflorescence (compare **open**)
Dentate: with sharp, outward-pointing teeth on the margin
Depauperate: starved or stunted, describing small plants or plant communities that are growing under unfavorable conditions
Determinate: describes an inflorescence in which the terminal flower blooms first, thereby halting further elongation of the flowering stem (compare **indeterminate**)
Dextrorse: turned to the right or spirally arranged to the right (compare **sinistrorse**)
Di-: prefix meaning two or twice
Diadelphous: stamens united into two, often unequal, sets by their filaments
Diandrous: having two stamens
Dichasium: a cymose inflorescence in which each axis produces two opposite or

subopposite lateral axes
Dichotomous: branching regularly and repeatedly in pairs
Diclinous: with the stamens and pistils in separate flowers, imperfect
Dicotyledon: a plant having two seed leaves, one of the two major divisions of flowering plants (compare **monocotyledon**)
Didymous: twinned, being in pairs
Didynamous: with two pairs of stamens of unequal length
Diffuse: looosely branching or spreading
Digitate: radiating from a common point, having a fingered shape, i.e. a shape like an open hand
Digynous: having two pistils
Dimorphic: having two forms
Dioecious: having staminate and pistillate flowers on separate plants (compare **monoecious**)
Diploid: with two full sets of chromosomes in each cell
Disarticulating: separating at maturity at a joint
Disciform: having a flowering head that contains both filiform and disk flowers, referring to members of the Asteraceae
Discoid: having only disk flowers, referring to flower heads in the Asteraceae
Disjunct: separated from the main distribution of the population
Disk: the central portion of composite flowers, made up of a cluster of disk flowers
Dissected: finely cut or divided into many, narrow segments
Distal: the end opposite the point of attachment, away from the axis (compare **proximal**)
Distichous: two-ranked, that is with leaves on opposute sides of a stem and in the same plane
Distinct: having separate, like parts, those not at all joined to each other, often describing the petals on a flower (compare **united**)
Disturbed: referring to habitats that have been impacted by the actions of people
Dithecal anthers: anthers lacking septi between the loculi, so there are only two anther cells
Diurnal: growing in the daytime
Divaricate: widely diverging or spreading apart
Divergent: diverging or spreading
Divided: cut deeply, nearly or completely to the midrib
Dolabriform: ax-shaped or cleaver-shaped; pick-shaped; attached at some point other than the base, usually near the middle
Dorsal: referring to the back or outer surface
Dorsifixed: attached at the back (compare **basifixed**, **versatile**)
Drooping: erect or spreading at the base, then bending downwards
Drupe: a fleshy indehiscent fruit enclosing a nut or hard stone containing generally a single seed such as a peach or cherry

E

E-: prefix usually meaning without, from, or away
Echinate: prickly
Ecotone: transition zone between two adjoining communities
Ecotype: those individuals adapted to a specific environment or set of conditions

Edaphic: due to, or pertaining to, the soil
Elater: structures attached to spores to aid in dispersal
Elliptic: broadest near the middle and tapering gradually to both ends
Elongate: stretched out, many times longer than broad
Emarginate: with a shallow notch at the apex
Endemic: confined to a limited geographic area
Endocarp: the inner layer of the pericarp, which is the wall of the ripened ovary or fruit (compare **mesocarp**, **exocarp**)
Endogenous: growing from, or originating from within
Ensiform: sword-shaped, as applied to a leaf
Entire: describing a leaf that has a continuous, unbroken margin with no teeth or lobes
Entomophilous: insect-pollinated
Ephemeral: describes a plant or flower that lasts for only a short time or blooms only occasionaly when conditions are right
Epi-: meaning upon
Epicalyx: an involucre which resembles an outer calyx
Epigynous: with stamens, pistils, and sepals attached to the top of the ovary (compare hypogynous)
Epipetalous: attached to the petals
Episepalous: attached to the sepals
Equilateral: with sides of equal shape and length
Equitant: overlapping or straddling in two ranks, as in *Iris*
Erose: having an irregular margin as if it has been gnawed
Erosulate: more or less erose
Escapee: a plant escaped from cultivation that now reproduces on its own
Esculent: edible
Estipulate: without stipules
Evanescent: fleeting, lasting for only a short time
Even-pinnate: a pinnately-compound leaf ending in a pair of leaflets (compare **odd-pinnate**)
Excurrent: extending beyond the apex, as the midrib in some leaves
Exfoliating: peeling off in thin layers or flakes
Exocarp: the outer layer of the pericarp of a fruit (compare **endocarp**, **mesocarp**)
Exotic: not native, introduced from another area
Exserted: projected from or extending beyond, as stamens from a flower
Extant: still surviving, not completely extinct
Extirpated: destroyed or no longer surviving in the area being referred to, but may survive outside of that area
Extrorse: turned or opening outward away from the axis (compare **introrse**)
Exudate: a substance exuded or secreted from a plant

F

Falcate: scimitar- or sickle-shaped
Farinose: covered with a mealy or whitish powdery substance
Fascicle: a small cluster or bundle, a fairly common leaf arrangement
Faveolate: honeycombed or pitted: **alveolate**
Fenestrate: with small slits or areas thinned so as to be translucent
Ferruginous: rust-colored
Fertile: having the capacity to produce fruit, having a pistil
Fetid: with an offensive odor, stinking

Fibril: a delicate fiber or hair
Filament: the basal, sterile portion of a stamen below the anthers
Filiform: (1) threadlike; (2) a type of flower in the Asteraceae which is pistillate and has a very slender, tubular corolla
Fimbriate: having fringed margins
Fistulose: hollow like a tube or pipe
Flaccid: soft and weak, limp
Flagellate: with long, slender runners
Flange: a projecting rim or edge
Fleshy: thick and pulpy, succulent
Flexuose or **flexuous**: with curves or bends, somewhat zigzagged
Floccose: bearing tufts of long, soft, tangled hairs
Floret: a small individual flower in a flower head
Fluted: with furrows or grooves
Foliar: pertaining to the leaves, leaf-like
Foliolate: of or pertaining to, or having leaflets
Follicle: a dry, many-seeded fruit derived composed of a single carpel and opening along one side only like a milkweed pod
Forb: a non-grasslike herbaceous plant
Fringed: with hairs or bristles along the margin
Frond: a fern leaf
Fructiferous: fruit-bearing
Frutescent: shrubby or bushy in the sense of being woody
Fugacious: falling or withering early; ephemeral
Fulvous: dull yellowish-brown or yellowish-gray, tawny
Funiculus: the stalk connecting the ovule to the placenta, the stalk of a seed
Funnelform: gradually widening upwards, as in the flowers of morning glory
Furcate: forked
Fuscous: dark grayish-brown, dusky
Fusiform: spindle-shaped, thickest in the middle and drawn out at both ends

G

Galbulus: a cone of *Cupressus*
Gall: an abnormal growth on a plant that is caused by insects
Geniculate: bent abruptly like a knee or a stove pipe
Gibbous: swollen or enlarged on one side, ventricose
Glabrate: becoming glabrous in age
Glabrous: smooth, without hairs
Gland: a depression or protuberance that exists for the purpose of secreting
Glandular: producing tiny globules of sticky or oily substance
Glans: a dry dehiscent fruit borne in a cupule, such as the acorn
Glaucescent: slightly glaucous
Glaucous: covered with a thin, light-colored waxy or powdery bloom
Globose: globe-shaped, spherical
Glochids: barbed bristles on cacti
Glomerate: crowded, congested or compactly clustered
Glume: in grasses, the bracts (generally two) that form the lowermost parts of the spikelet
Glutinous: having a sticky surface
Gracile: slender and graceful
Grain: the fruit of grasses
Gregarious: growing in groups or colonies

Gynobase: an elongation or enlargement of the receptacle that supports the carpels or nutlets, as in many species of the Boraginaceae
Gynoecium: a collective term for the pistils of a flower (compare **androecium**)

H

Habit: the overall appearance of a plant
Halophyte: a plant that can tolerate an abnormal amount of salt in the soil
Haploid: with a single full set of choromosomes in each cell
Hastate: spear- or arrowhead-shaped with the basal lobes facing outward
Haustorium: a specialized root-like organ used by parasitic plants to draw nourishment from host plants (*Phoradendron*)
Head: a dense cluster of sessile or subsessile flowers, found in Asteraceae
Helicoid: coiled spirally like a spring or a snail shell
Heliotropic: the movement of plant parts in response to a light source
Hemiparasite: a plant that derives its energy both from parasitism and from photosynthesis
Herbaceous: fleshy-stemmed, not woody
Heteromorphic: of one or more kind or form
Heterostylous: having different kinds of style (and stamen) lengths
Hexa-: a prefix meaning six
Hibernal: flowering or appearing in the winter
Hilum: a scar on a seed indicating its point of attachment
Hip: a fleshy, berry-like fruit, as in some members of the Rosaceae
Hirsute: pubescent with stiff, coarse hairs
Hirsutulous: pubescent with very small, coarse, stiff hairs
Hispid: rough-haired with firm, stiff hairs
Hoary: covered with white or gray, short, fine hairs
Holosericeous: covered with fine, silky hairs
Homomorphic: all of the same kind or form
Hood: a hollow, arched covering, found in *Asclepias*
Hooked: abruptly curved at the tip
Host: a plant providing nourishment to a parasite
Humifuse: spreading along or over the ground
Humistrate: lying on the ground
Hyaline: thin, translucent or transparent
Hydrophytic: adapted to growing in water
Hypanthium: a cup-shaped enlargement of the receptacle, creation by the fusion of sepals, petals and stamens
Hypogynous: with stamens, petals and sepals attached below the ovary (compare **epigynous**)

I

Imbricate: overlapping, like shingles on a roof
Imparipinnate: odd-pinnate, unequally pinnate
Imperfect: describes a flower that has stamens or pistils but not both
Implicate: twisted together, intertwined
Incised: cut, often deeply, usually irregularly, but seldom as much as one-half the distance to the midrib or base
Incumbent: a term referring to seeds in which the embronic root is wrapped around and lies adjacent to the back of one of the two cotylodons (compare **accumbent**)
Indehiscent: not opening by itself, said of a seed pod (compare **dehiscent**)
Indeterminate: describes an inflorescence in which the outer or lower flowers

bloom first, allowing an indefinite elongation of the flowering stem (compare **determinate**)
Indigenous: native to an area
Induplicate: with petals or sepals edge to edge along their entire length, the margins rolled inward
Indurate: hardened and/or stiffened
Indusium: a scale-like outgrowth on a fern leaf which forms a covering for the sporangia
Inferior ovary: one that is situated below the point of attachment of the sepals and petals, and possibly below the point of attachment of all other flower parts and embedded in the floral stem
Inflexed: turned abruptly or bent inwards
Inflorescence: the flowering portion of a plant
Infra-: a prefix meaning below or beneath
Infraspecific: below the species level
Infundibular: funnel-shaped
Innate: borne at the apex
Inserted: attached to or growing out of
Integument: the covering of the ovule which will become the seed coat
Inter-: a prefix meaning between or among
Internode: the portion of a stem between two successive nodes
Interrupted: not continuous, with gaps
Introrse: turned or opening inward toward the axis as an anther toward the center of a flower (compare **extrorse**)
Invaginated: sheathed, folded
Involucel: a secondary involucre as in the Apiaceae
Involucre: a set of bracts subtending a flower or an inflorescence
Involute: with both edges inrolled toward the midnerve on the upper surface (compare **revolute**)
Irregular: describes a flower that is not radially symmetric, the similar parts of which are unequal in size or form

J

Joint: the point on a plant stem from which a leaf or leaf-bud grows, more commonly termed a node
Jugate: with parts in pairs
Junciform: rush-like in appearance

K

Keel: the two lower petals of most pea flowers, united or partially joined to form a structure similar to the keel of a boat
Knee: a joint or articulate, as in grass
Krummholz: literally crooked forest, low wind-contorted forest that can be found at timberline

L

Labellum: lip, an exceptional petal found in some flowers, like Orchidaceae
Labiate: lipped
Lacerate: irregularly cut or cleft
Laciniate: cut into slender lobes
Lacustrine: growing around lakes

Laevigate: lustrous, shining
Lamella: erect scale inserted on the petal in some corollas and forming part of the corona
Laminar: thin, flat, and expanded, as the blade of a leaf (laminar stamens)
Lanate: with long tangled wooly hairs
Lanceolate: significantly longer than wide and widest below the middle, gradually tapering toward the apex
Lanulose: with very short hairs, minutely downy or wooly
Lateral: borne at or on the side of
Latex: a milky sap
Latifoliate: with broad leaves
Leaflet: one segment of a compound leaf
Legume: a dry, dehiscent fruit derived from a single carpel and usually opening along two lines of dehiscence like a pea pod
Lemma: in grasses, the lower and usually larger of the two bracts of the floret
Lenticel: Raised, corky , lens-shaped area on the surface of a young stem.
Lepidote: covered with small scurfy scales
Liana: a herbaceous or woody, usually perennial, climbing vine that roots in the ground and is characteristic especially of tropical forests
Ligneous: woody
Ligule: strap-shaped organ, membranous appendage arising from inner surface of leaf at the junction with the leaf sheath in many grasses and some sedges
Ligulate: (1) Describing a floral head in the Asteraceae that contains only ray flowers, or ligules; (2) strap-shaped
Limb: the upper, expanded portion of a corolla which has fused petals
Linear: long and narrow with sides that are parallel or nearly so
Lingulate: tongue-shaped
Lip: one of the two projections or segments of an irregular, two-lipped corolla or calyx
Littoral: growing along the shore
Livid: pale grayish-blue
Lobate: in the form of a lobe, lobed
Lobe: usually a rounded segment of an organ
Lobed: more or less deeply cut but not as far as the midrib
Lobulate: with small lobes
Locule: a cavity of the ovary which contains the ovules
Loculicidal: said of a capsule, longitudinally dehiscent through the ovary wall at or near the center of each chamber or locule (compare **poricidal**, **septicidal**)
Lodicule: paired, rudimentary scales at the base of the ovary in grass flowers
Loment: a legume which is constricted between the seeds
Lunate: crescent-shaped
Lurid: pale brown to yellowish-brown
Lustrous: shiny or glossy
Lyrate: lyre-shaped, pinnatifid with the terminal segment large and rounded and the lower lobes increasingly smaller toward the base

M

Machaerantheroid: having involucral bracts with recurved tips
Macro-: prefix meaning large or long
Macrophyllous: having large leaves
Maculate: spotted or blotched

Malvaceous: mallow-like
Mammilate: with nipple-like protuberances
Manicate: with a thick, interwoven pubescence
Margin: the edge, as of a leaf blade
Marginate: distinctly margined
Mealy: describing a surface that is covered with minute, usually rounded particles
Medial: of the middle, situated in the middle
Mega-: prefix meaning large
Membranous: thin, flexible and more or less translucent, like a membrane
Meristem: undifferentiated, actively dividing tissues at the growing tips of shoots and roots
-merous: a suffix utilized to indicate the number of parts or divisions in a particular structure or organ, as in 4-merous or 4-parted
Mesic: describes a habitat that is generally moist throughout the growing season (compare **xeric**)
Meso-: prefix meaning middle
Mesocarp: the middle layer of the pericarp of a fruit (compare **endocarp**, **exocarp**)
Mesophytic: adapted to growing under medium or average conditions, especially relating to water supply
Micro-: prefix meaning small
Microphyllous: bearing small leaves
Midnerve: the central nerve
Midrib: the main or central rib or vein of a leaf, a midvein
Monadelphous: having stamens with filaments united in a single group, bundle or tube
Mono-: prefix meaning one
Monocarpic: flowering and bearing fruit only once and then dying, the term may be applied to perennials, biennials, or annuals
Monochasium: a type of cymose inflorescence with only a single main axis
Monocotyledon: a plant having only one seed-leaf (compare **dicotyledon**)
Monoecious: having both male and female flowers on the same plant (compare **dioecious**)
Monotypic: describing a genus that contains only a single species
Montane: of or pertaining to, or growing in, the mountains
Mucilaginous: slimy and moist
Mucro: a short, sharp, abrupt point, usually at the tip of a leaf or other organ
Mucronate: having a short projection at the tip, as of a leaf
Mucronulate: tipped with a very small mucro
Multi-: prefix meaning many
Multifid: cleft into very many narrow lobes or segments
Multiflorus: many-flowered
Multifoliate: bearing many leaves
Muricate: rounded or roughened with short, hard or warty points
Mycorrhizal: having a symbiotic relationship between a fungus and the root of a plant

N

Nacreous: having a pearly luster

Naked: lacking hairs, structures or appendages, as in a flower lacking a perianth
Nascent: in the process of being formed
Nebulose: indistinct, as in a fine, diffuse inflorescence
Nectariferous: with nectar
Nectary: a plant part that secretes nectar, a sweet liquid that attracts bees, insects and birds
Needle: a slender, needle-shaped leaf
Nerve: a prominent, simple vein or rib of a leaf or other organ
Net-veined: in the form of a network, reticulate
Netted: same as reticulated, in the form or pattern of a network
Neuter: lacking a pistil or stamens
Nidulent: lying within a cavity, embedded within a pulp
Nitid: lustrous, shining
Nocturnal: functioning at night, as in flowers which open at night
Nodding: hanging down
Node: a point on a stem where leaves or branches originate
Numerous: eleven or more, same as 'many'
Nut: a dry, usually one-seeded, indehiscent fruit with a hard-walled exterior
Nutlet: a small nut or one of the sections of the mature ovary of some members of the Boraginaceae, Verbenaceae or Lamiaceae

O

Ob-: prefix signifying inversion or reversal of normal direction
Obcordate: inversely heart-shaped, attached at the point
Oblanceolate: inversely lanceolate
Oblate: spheroidal and flattened at the poles
Obligate: restricted to particular conditions or circumstances
Oblique: with sides unequal, usually describing the base of a leaf
Oblong: two to four times longer than broad with nearly parallel sides, but broader than 'linear'
Obovate: inversely ovate
Obovoid: inversely ovoid, with the attachment at the narrower end
Obtuse: blunt or rounded at the apex
Obverse: describing a leaf that is narrower at the base than at the apex
Obvolute: a vernation in which two leaves are overlapping in the bud in such a manner that one-half of each is external and the other half is internal, i.e. each leaf both overlaps the next and is in turn overlapped by the one before
Ochroleucous: yellowish-white; cream-colored
Ocrea: a sheath around the stem derived from the leaf stipules, primarily used in the Polygonaceae
Octo-: prefix meaning eight
Odd-pinnate: describing a pinnately-compound leaf with a single terminal leaflet (compare **even-pinnate**)
Open: uncongested, usually describing the organization of flowers in an inflorescence (compare **dense**)
Opposite: describing leaves that are situated in pairs at each node along an axis
Orbicular: circular
Oval: broadly elliptic, the width over half the length
Ovary: the basal portion of a pistil where female germ cells develop into seeds after germination
Ovate: egg-shaped, wider below the middle

Ovoid: an egg-shaped solid
Ovule: the structure that develops into the seed inside the ovary

P
Palate: an appendage or raised area on the lower lip of the corolla which partially blocks the throat
Palea: in grasses, the upper and generally smaller of the two bracts of the floret
Pallid: pale
Palmate: radiating from a single point like the spreading fingers of an outstretched hand
Palmate-pinnate: with the primary leaflets palmately arranged and the secondary leaflets pinnately arranged
Palmatifid: palmately cleft or lobed
Palustrine: same as paludose
Pandurate: fiddle-shaped
Panicle: a compound inflorescence in which the branches are racemose and the flowers are pedicelled on the branches
Papilla: short, rounded nipple-like bump or projection
Pappose: pappus-bearing
Pappus: collectively, the bristles, hairs or scales at the apex of an achene in the Asteraceae
Parasite: a plant which derives most or all of its food from another organisim to which it attaches itself
Parietal: attached to the wall of the ovary instead of the axis
Paripinnate: even pinnate, lacking a terminal leaflet
Parted: lobed or cut in over half-way and often very close to the base or midrib
Pectinate: describing a pinnatifid leaf whose segments are narrow and arranged like the teeth of a comb
Pedicel: the stalk of a single flower that is part of an inflorescence
Peduncle: the stalk of a flower cluster, or of a solitary flower not associated with others in an inflorescence
Pellucid: transparent or translucent
Peltate: a type of leaf having its petiole attached to the center of the lower surface of the blade
Pendent: hanging downward or drooping
Penicillate: with a tuft a short hairs at the end, like a brush
Penta-: prefix meaning five
Pepo: a fleshy, indehiscent fruit with a hard, more or less thickened rind and a single many-seeded locule, characteristic of the Cucurbitaceae
Perennial: a plant living for more than two years
Perfect: containing both stamens and pistils
Perfoliate: the stem apparently piercing the leaf or surrounded by basally joined opposite leaves
Perianth: a collective term for the calyx and corolla
Pericarp: the outer wall of mature fruit
Perigynous: situated around but not attached to the ovary directly, describing a flower whose stamens and pistils are joined to the calyx tube and the ovary is superior

Pernicious: harmful, destructive, or deadly in nature
Persistent: remaining attached after the usual time of falling
Petal: a single segment of a divided corolla
Petaloid: having the appearance of a petal
Petiole: the stalk of a leaf
Petiolule: the stalk of a leaflet of a compound leaf
Phloem: the food conducting tissue of vascular plants, bark
Phyllary: one of the bracts below the flowerhead in the Asteraceae
Pilose: having long, soft, straight hairs
Pilosulose: bearing minute, long, soft, straight hairs
Pinnate: with separate segments which are arranged feather-like on either side of a common axis
Pinnatifid: so deeply cleft or cut as to appear pinnate
Piriform: pear-shaped
Pistil: the central reproductive organ of a flower, consisting of ovary, style and stigma
Pistillate: a female flower that has two or more pistils but no functional stamens
Pith: the spongy central tissue in some stems and roots
Plane: with a flat surface
Planoconvex: flat on one side and rounded on the other
Plumose: appearing plumelike or feathery from fine hairs that line two sides of a central axis
Pod: any dry, dehiscent fruit, especially a legume or follicle
Pollinum: a mass of waxy pollen grains, in *Asclepias* and Orchidaceae
Poly-: prefix meaning many
Polyandrous: with many stamens
Polyanthous: with many flowers
Polycephalous: with many flower heads
Polygamous: having both unisexual and bisexual flowers on the same plant
Polyploid: with three or more complete sets of chromosomes in each cell
Pome: a fleshy indehiscent fruit derived from an inferior, compound ovary and consisting of a modified floral tube surrounding a core with several seeds, such as an apple
Poricidal: opening by pores, like a poppy capsule (compare **loculicidal**, **septicidal**)
Posterior: on the side next to the axis (compare **anterior**)
Praemorse: terminating abruptly, as if bitten off
Prehensile: adapted for grasping, as in a tendril
Prickle: a superficial, sharp-pointed outgrowth of the bark or epidermis
Procumbent: lying flat or trailing but not rooting at the nodes
Prostrate: lying flat
Proximal: nearest the axis or base (compare **distal**)
Prurient: causing itching
Ptero-: prefix meaning winged
Pterocarpous: with winged fruits
Puberulence: fine, short hairs
Puberulent: minutely pubescent
Pubescent: covered with short, soft hairs
Pulvinus: a swelling or enlargement at the base of a petiole or petiolule
Punctate: dotted with pits or with translucent, sunken glands or colored dots

Puncticulate: minutely punctate
Punctiform: reduced to a point
Pungent: tipped with a sharp, rigid point
Pustulose: with small blisters or pustules, often at the base of a hair
Pyrene: the stone or pit of a drupe or drupelet
Pyriform: pear-shaped
Pyxis: a circumscissile capsule, the top coming off as a lid

Q

Quadrate: square, rectangular
Quadri-: prefix meaning four
Quilled: with tubular florets, especially in cases whre the florets are typically ligulate, as in some Asteraceae
Quinate: with five nearly similar structures from a common point
Quinque-: prefix meaning five

R

Raceme: an elongate, unbranched inflorescence with pedicelled flowers on the main stem
Racemose: raceme-like or bearing racemes
Rachilla: a small rachis, in particular the axis of a grass spikelet
Rachis: the main stalk of a flower cluster or of a compound leaf, also that part of a fern frond stem that bears the leaflets
Radical: belonging to or proceeding from the root
Radiate: describing a flower head in the Asteraceae that contains both ray and disk flowers
Radicant: rooting from the stem
Radicle: part of the plant embryo which will develop into the primary root
Ramose: with many branches, branching
Rank: a vertical row usually of leaves or bracts that can be either opposite or alternate
Ray: strap-like portion of a ligulate flower in Asteraceae
Receptacle: the expanded apex of a flower stalk which bears the floral organs, either such structures as individual petals, sepals etc., or entire flowers in head-like inflorescences such as is typical of the Asteraceae
Recumbent: leaning or reposing upon the ground
Recurved: curved backwards or outwards
Reflexed: abruptly bent or curved downward
Regular: describes a flower with petals or sepals all of equal size and shape, i.e. radially symmetrical or capable of being divided into mirror images on either side of any plane that passes through the center
Reniform: kidney-shaped or rounded with a notch at the base
Repand: with an undulating margin, less strongly wavy than 'sinuate'
Replum: partition or septum between the two valves or compartments of silicles or siliques in the Brassicaceae
Resupinate: upside down due to twisting of the pedicel
Reticulate: having a netted pattern
Retrorse: bent backward or downward, reflexed (compare **antrorse**)
Retuse: having a rounded apex with a shallow notch
Revolute: having the margins inrolled toward the underside (compare **convolute**, **involute**)

Rhizomatous: rhizome-like, with rhizomes
Rhizome: an underground stem capable of producing new stems or plants at its nodes
Rhombic: with the shape of a diamond
Rosette: a cluster of leaves in a circular arrangement at the base of a plant, often called the basal rosette
Rostrum: a beak-like structure
Rotate: a rotate corolla is wheel-shaped with a short tube and a wide horizontally flaring limb
Ruderal: growing in disturbed habitats, weedy
Rudiment: an imperfectly developed organ, a vestige
Rufous: reddish-brown
Rugose: wrinkled
Rugulose: slightly wrinkled
Rucinate: sharply pinnatifid or cleft, the segments directed downward
Runner: a slender stolon or prostrate stem rooting at the nodes or at the tip

S

Saccate: with a sac, or in the shape of a sac
Sagittate: arrowhead-shaped, with two retrorse basal lobes
Salient: projecting outward
Salverform: with a slender tube abruptly expanded into a rotate limb
Samara: dry fruit with wings that do not open when mature, as in maple trees
Sanguineous: blood-red
Saponaceous: soapy
Saprophytic: deriving food from dead or decaying organic material in the soil and usually lacking in chlorophyll
Scaberulent: slightly scabrous
Scabrous: rough to the touch
Scale: a greatly reduced leaf or other outgrowth on a plant surface
Scape: a leafless flowering stem arising directly from the ground
Scapose: with flowers borne on a scape
Scarify: to roughen, score or scrape the hard, outer coating of a seed to assist in the absorption of moisture before germination, a process that many desert wash seeds require
Scarious: thin, dry, membranous and more or less translucent
Schizocarp: a dry, indehiscent fruit which splits into separate one-seeded segments (carpels) at maturity
Scissile: splitting easily
Sclerphyllous: with stiff, firm leaves
Scobina: the zigzag rachilla of some grass spikelets
Scorpioid: describing a coiled inflorescence
Scurfy: covered with small scale-like or bran-like particles or projections
Secund: borne from only one side of an axis
Semi-: prefix meaning half
Sepal: a single segment of a divided calyx
Septicidal: said of a capsule, longitudinally dehiscent through the ovary wall at or near the center of each septa, preserving each locule as an intact entity (compare **loculicidal**, **poricidal**)
Septum: any kind of a partition, specifically the wall between chambers in a compound ovary
Seriate: arranged in rows or series

Sericeous: covered with long, soft, straight, appressed hairs giving a silky appearance
Serpentine: refers to soils that are low in calcium and high in magnesium and iron, derived from greenish or gray-green rocks that are essentially magnesium silicate, other characteristics of which are a high nickel and chromium content, and a low content of nutrients such as nitrogen
Serrate: having sharp, forward-pointing teeth on the margin
Serrulate: serrate with very small teeth
Sessile: attached directly and without a petiole, pedicel or other type of stalk, said of either leaves or flowers
Setaceous: bristle-like, with bristles
Sheath: leafy, tubular structure on a sedge or grass that envelops the stem
Shrub: a small, woody plant with several stems
Silicle: fruit similar to a silique, but much shorter, not much longer than wide
Silique: a type of capsule found in the Brassicaceae, either half of which peels away from a central, transparent, dividing membrane
Simple: a leaf that has one part, not subdivided into leaflets
Sinuate: strongly or deeply wavy, usually referring to a leaf margin
Sinuous: of a wavy or serpentine form
Sinus: the space or division, usually on a leaf, between two lobes or teeth
Sori: clusters of spore sacs on a fern frond (singular: sorus)
Sp: abbreviation for 'species'
Spadix: a floral spike or head in which the flowers are borne on a fleshy axis
Spathe: a large bract or pair of bracts subtending and usually partially enclosing an inflorescence
Spatulate: spoon-shaped, gradually widening to a rounded apex
Specific epithet: second part of a scientific name which identifies the species
Spicate: arranged in a spike
Spike: an elongated, unbranched inflorescence with sessile or nearly-sessile flowers
Spikelet: in grasses, the smallest aggregation of florets plus any subtending glumes
Spine: sharp-pointed rigid structure, usually a highly modified leaf or stipule
Spinose: having a stiff and tough acuminate tip
Spinulose: bearing very small spines
Sporangium: a spore-case or sac in which spores are produced in a fern
Spore: a reproductive cell resulting from meiotic cell division in a sprangium, representing the first cell of the gametophyte generation
Spp: abbreviation for the plural of 'species'
Spray: a slender shoot or granch with its leaves, flowers, or fruits
Spur: a hollow extension of a petal or sepal such as characterizes the larkspurs, and which often produces nectar
Squarrose: having spreading, recurved tips
Ssp: abbreviation for 'subspecies'
Stamen: the male or pollen-bearing organ of a flower, composed of filament and anthers
Staminate: describing a male flower that contains one or more stamens but no functional pistils
Staminode: a sterile stamen or other nonfunctional structure occupying the position and having the overall appearance of a stamen
Standard: also called a banner, this is the upper petal or segment of a papilionaceous flower

Stellate: starlike, with radiating branches and often referring to the pattern of hairs on the surface of a leaf
Stem: the main upward-growing axis of a plant which bears the leaves and flowers
Stigma: the terminal portion of a pistil, which receives the pollen
Stipe: that portion of a fern frond below the rachis, i.e. below where the leaflets are attached
Stipitate: borne on a stipe or stalk
Stipule: an appendage at the base of a petiole, usually in pairs
Stolon: an elongated horizontal shoot above or below the ground, rooting at the nodes or apex
Stomate: a small pore or opening on the surface of a leaf through which gaseous exchange takes place, i.e. the diffusion of carbon dioxide, oxygen and water vapor
Stone: the hard, woody endocarp enclosing the seed of a drupe
Stramineus: straw-colored
Strap-shaped: elongated and flat
Striate: with fine longitudinal lines or ridges
Strigose: covered with rough, stiff, sharp hairs that are more or less parallel to a particular surface
Strobilus: a cone-like cluster of sporophylls on an axis, a cone
Style: the narrowed portion of a pistil between and connecting the ovary and the stigma
Sauveolent: fragrant
Sub-: prefix meaning under, slightly, somewhat or almost
Suber: cork
Suberose: corky in texture
Subshrub: a suffrutescent perennial plant
Subspecies: a group of plants within a species that has consistent, repeating, genetic and structural distinctions
Subtend: to occupy a position below and adjacent to
Subulate: awl-shaped
Succulent: fleshy, juicy and thickened
Sucker: a shoot originating from below ground
Suffrutescent: somewhat shrubby, slightly woody at the base
Sulcate: with longitudinal grooves or furrows
Summer annual: plant with seeds germinating in spring or early summer and completing flowering and fruiting in late summer or early fall (compare **winter annual**)
Superior ovary: one that is located above the perianth and free of it
Surcurrent: extending upward from the point of insertion, as a leaf base that extends up along the stem
Surficial: growing near the ground, or spread over the surface of the ground
Suture: a junction or seam of union, or a line of dehiscence
Swale: a depression or shallow hollow in the ground, typically moist
Sympatric: growing together with, or having the same range as
Sympetalous: having the petals more or less united
Syn-: prefix meaning united
Synandrous: with united anthers
Synoecious: having male and female flowers in the same flowerhead
Synsepalous: having the sepals more or less united

T

Taproot: the primary root continuing the axis of the plant downward often quite deeply into the ground
Taxon: any group of plants occupying a particular hierarchical category, such as genus or species
Tendril: a slender portion of a leaf or stem, modified for twining
Tepal: a collective term for sepals and petals, used when they cannot be easily differentiated
Terete: round in cross-section, cylindrical
Terminal: at the end of the branch or stem
Ternate: in three's, as a leaf which is divided into three leaflets
Tetra-: prefix meaning four
Thallus: a plant body which is not obviously differentiated into stems, roots, and leaves
Theca: a pollen sac or cell of the anther
Thorn: a short, stiff, sharp-pointed branch
Three-ranked: in three vertical ranks or rows around an axis
Throat: in some corollas with fused petals, the point of juncture between the tube and limb, a somewhat difficult point to distinguish
Thryse: a compact, cylindrical, or ovate panicle with an interderminate main axis and cymose subaxes
Tiller: in grasses the young vegetative shoots
Tomentose: wooly, with long, soft, matted hairs
Toothed: having small lobes or points along the margin (as on a leaf)
Transpiration: emission of water vapor from the leaves
Transverse: at a right angle to the longitudinal axis of a structure
Tri-: prefix meaning three
Triad: a cluster of three, as spikelets of Hordeum or Hilaria
Triandrous: having three stamens
Trichome: a hair-like outgrowth from the epidermis
Trichotomous: three-forked
Trifid: three-cleft to about the middle
Trifoliate: having three leaves
Trifoliolate: having three leaflets
Tripinnate: thrice divided
Tripinnatifid: thrice pinnately cleft
Tropism: the turning of a plant part such as a leaf in response to some external stimuli
Truncate: with a base or apex appearing as if cut straight across
Tube: the lower or narrower portion of a corolla or calyx
Tuber: a short, thickened underground stem which bears numerous buds
Tubercle: a knoblike projection
Tufted: in a dense cluster
Tumescent: somewhat tumid, swelling
Turbinate: shaped like a top or inverted cone
Turgid: swollen, expanded or inflated
Twining: climbing by coiling around some support
Two-ranked: in vertical ranks or rows on opposite sides of an axis (compare, **distichous**)

U

Umbel: a flat-topped or convex inflorescence with the pedicels arising more or less form a common point, like the struts of an umbrella
Umbellulate: in the form of or having the appearance of an umbel
Unarmed: lacking thorns or prickles
Uncinate: hooked near the apex or having the form of a hook
Unctuous: greasy, oily
Undulate: wavy
Uni-: prefix meaning one
Unilocular: having only a single locule in the ovary
Uniseriate: arranged in one row or series
Unisexual: bearing either stamens or pistils but not both
United: describes petals that are fused together
Urceolate: urn-shaped or pitcher-like, contracted at the mouth
Utricle: a small, thin-walled, single-seeded, bladdery-inflated fruit
Uva: a grape-like berry formed from a superior ovary

V

Vaginate: provided with or surrounded by a sheath
Valvate: opening by valves or provided with valves
Valve: one of the parts or segments into which a dehiscent fruit splits
Varicose: swollen or enlarged in places
Variegated: having a variety of colors
Vascular: containing both xylem, the principal water and mineral-conducting tissue, and phloem, food conducting tissue
Vein: the vascular portion of a leaf
Velutinous: velvety
Venation: the arrangement of veins in a leaf
Ventral: on the inner or axis side of an organ or the upper surface of a leaf
Ventricose: inflated or swollen unequally on one side
Vermicular: worm-shaped or wormlike, or of worm-eaten appearance
Vernation: the arrangement of leaves within a bud
Versatile: referring to an anther which attaches at or near its middle and is able to turn freely on its support (compare **basifixed**, dorsifixed)
Verticil: an arrangement of similar parts around a central axis or point of attachment, a whorl
Verticillate: same as 'whorled'
Vesicle: a bladder or cavity
Vespertine: opening or functioning in the evening
Villous: with fine, long, unmatted hairs
Vine: a plant with the stem not self-supporting, but climbing or trailing on some support
Virgate: wand-like, straight, slender, and erect
Viscid: sticky or greasy
Vitreous: transparent

W

Wanting: absent, lacking, nonexistent
Weed: a troublesome or aggressive plant that intrudes where it is not wanted, especially a plant that vigorously colonizes disturbed areas
Whorl: a circle of three or more structures radiating outward from the same node

Wing: a thin, paperlike flat margin bordering or extending from a seed capsule, stem or flower
Winter annual: plant with seeds germinating in late summer or fall and completing flowering and fruiting in spring or summer (compare **summer annual**)
Woolly: having soft, woollike hairs

X

X: a symbol which when placed before a specific epithet indicates a hybrid of two species
Xeric: pertaining to arid or desert conditions, implying a minimal water supply throughout most of the year (compare **mesic**)
Xero-: prefix meaning dry
Xerophytic: adapted to dry or arid conditions, places where fresh water is scarce or where water absorption is difficult due to an excess of dissolved salts
Xylem: the water-conducting tissue of vascular plants
Xylocarp: a hard, woody fruit such as the coconut

Z

Zygomorphic: with inequality in the size or form of similar parts, specifically bilaterally symmetric and capable of being bisected into equal mirror-image halves along one plane only

Works cited

Botany is an aggregative science and it is impossible to write a field guide without liberally depending upon the work of others. The entries in this field guide are to be considered edited because they are compilations of other descriptions. In compiling entries, multiple sources were used to get the best description for field identification. In most cases, language was used that is directly from the work of others. The frequency in which editorial choices were made renders in-text attribution impossible due to space limitations. Please consider this list for further consultation and as a complete listing of those resources utilized in the editing of this volume. Any errors are the editors and you have our apologies.

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Notes on the photography

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http://www.wnmu.edu/academic/nspages2/gilaflora/index.html

Web resources

The single best online resource for collections information in Arizona is the Southwest Environmental Information Network. This website is a digital archival project of all the herbariums in Arizona with a searchable database, plant photos, descriptions, and distribution data.

http://seinet.asu.edu/seinet/index.php

SEINet is also an online repository for NPS checklists from this and other national parklands in the region. All these lists are associated with all known collections found on NPS lands and include photographs and interactive keys to help identify plants. Visit the NPS Flora page at:

http://swbiodiversity.org/seinet/projects/index.php?proj=5

Plant etymology information is drawn from:

Charters, Michael L. 2003-2008 California Plant Names.
http://www.calflora.net/botanicalnames/index2.html

Most ethnobotanical information is drawn from:

Moerman, Daniel. 2003. Native American Ethnobotany.
http://herb.umd.umich.edu/

eFloras is the portal to the online Flora of North America. The site is also a link to many other useful floras.

http://www.efloras.org

Nomenclature and synonymy come from these sources:

Tropicos: http://www.tropicos.org
The Plant List: http://www.theplantlist.org
Integrated Taxonomic Information System: http://www.itis.gov
USDA Plants DB: http://plants.usda.gov

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yellow bristlegrass 80
yellow nut-grass 47

yellow spiderflower 189
yellow sweetclover 213
yewleaf willow 112
Yucca elata 94

Z

Zinnia acerosa 171
Zinnia peruviana 171
Ziziphus obtusifolia 109
Ziziphus obtusifolia var. canescens 109

This park checklist is part of the Flora of the Sonoran Desert Network, a project of the Vegetation Mapping program at the Sonoran Desert Network (http://science.nature.nps.gov/im/units/sodn).

This checklist has been derived from baseline inventory data, herbarium records, the phylogenetic and ecological literature, and agency study records. All non-native species are in bold. Voucher Status Codes: X = voucher in regional herbaria, O = observed in park, U = unconfirmed

		Voucher Status
Acanthaceae		
Anisacanthus thurberi (Torr.) A. Gray	Thurber's desert honeysuckle	X
Carlowrightia arizonica A. Gray	Arizona wrightwort	X
Dicliptera resupinata (Vahl) Juss.	Arizona foldwing	X
Elytraria imbricata (Vahl) Pers.	purple scalystem	X
Ruellia nudiflora (Engelm. & A. Gray) Urban	violet wild petunia	X
Tetramerium nervosum Nees	hairy fournwort	X
Adoxaceae		
Sambucus nigra ssp. *cerulea* Linnaeus	common elderberry	X
Aizoaceae		
Trianthema portulacastrum Linnaeus	desert horsepurslane	X
Amaranthaceae		
Alternanthera pungens Kunth	khakiweed	U
Amaranthus palmeri S. Watson	carelessweed	X
Atriplex canescens (Pursh) Nutt.	fourwing saltbush	U
Atriplex elegans (Moq.) D. Dietr.	wheelscale saltbush	X
Atriplex linearis S. Watson	thinleaf fourwing saltbush	X
Atriplex wrightii S. Watson	Wright's saltbush	X
Chenopodium berlandieri Moq.	pitseed goosefoot	X
Chenopodium incanum (S. Watson) Heller	mealy goosefoot	X
Chenopodium pratericola Rydb.	desert goosefoot	X
Chenopodium rubrum Linnaeus	red goosefoot	X
Gomphrena sonorae Torr.	Sonoran globe amaranth	X
Guilleminea densa (Humb. & Bonpl. ex Willd.) Moq.	small matweed	X
***Salsola kali* Linnaeus**	**Russian thistle**	**X**
Tidestromia lanuginosa (Nutt.) Standl.	woolly tidestromia	U
Amaryllidaceae		
Nothoscordum bivalve (Linnaeus) Britton	crowpoison	U
Anacardiaceae		
Rhus aromatica var. *trilobata* (Nutt.) A. Gray ex S. Watson	skunkbush sumac	U
Rhus lanceolata (A. Gray) Britt.	prairie sumac	X
***Schinus molle* Linnaeus (not treated)**	**Peruvian peppertree**	**X**
Apiaceae		
Bowlesia incana Ruiz & Pavon	hoary bowlesia	X
***Conium maculatum* Linnaeus**	**poison hemlock**	**X**
***Cyclospermum leptophyllum* (Pers.) Sprague ex Britt. & Wilson**	**marsh parsley**	**X**
Daucus pusillus Michx.	American wild carrot	X
Spermolepis echinata (Nutt. ex DC.) Heller	bristly scaleseed	X

Apocynaceae		
Funastrum cynanchoides var. *hartwegii* (Vail) Krings	Hartweg's twinevine	X
Araliaceae		
Hydrocotyle verticillata Thunb.	whorled marshpennywort	X
Aristolochiaceae		
Aristolochia watsonii Wooton & Standl.	Watson's dutchman's pipe	X
Asparagaceae		
Dasylirion wheeleri S. Watson	common sotol	X
Dichelostemma capitatum ssp. *capitatum* (Benth.) Wood	bluedicks	X
Yucca elata (Engelm.) Engelm.	soaptree yucca	X
Asteraceae		
Acourtia nana (A. Gray) Reveal & King	dwarf desertpeony	X
Agoseris heterophylla (Nutt.) Greene	annual agoseris	X
Ambrosia artemisiifolia Linnaeus	annual ragweed	X
Ambrosia confertiflora DC.	weakleaf bur ragweed	X
Ambrosia cordifolia (A. Gray) Payne	Tucson burr ragweed	U
Ambrosia monogyra (Torr. & A. Gray) Strother & B.G. Baldwin	singlewhorl burrobrush	X
Ambrosia psilostachya DC.	Cuman ragweed	U
Ambrosia trifida Linnaeus	great ragweed	X
Artemisia ludoviciana Nutt.	white sagebrush	X
Baccharis salicifolia (Ruiz & Pavon) Pers.	mule's fat	X
Baccharis sarothroides A. Gray	desertbroom	X
Baileya multiradiata Harvey & A. Gray ex A. Gray	desert marigold	X
Bidens laevis (Linnaeus) B.S.P.	smooth beggartick	X
Bidens leptocephala Sherff	fewflower beggarticks	X
Calycoseris wrightii A. Gray	white tackstem	X
Chaetopappa ericoides (Torr.) Nesom	rose heath	X
Cirsium neomexicanum A. Gray	New Mexico thistle	X
***Conyza bonariensis* (Linnaeus) Cronq.**	**asthmaweed**	**X**
Conyza canadensis (Linnaeus) Cronq.	Canadian horseweed	X
Diaperia verna var. *verna* Raf.	spring pygmycudweed	X
Ericameria nauseosa (Pallas ex Pursh) Nesom & Baird	rubber rabbitbrush	U
Erigeron arisolius Nesom	arid throne fleabane	X
Erigeron divergens Torr. & A. Gray	spreading fleabane	X
Eriophyllum lanosum (A. Gray) Rydb.	white easterbonnets	X
Gamochaeta purpurea (Linnaeus) Cabrera	spoonleaf purple everlasting	X
Gnaphalium palustre Nutt.	western marsh cudweed	X
Gutierrezia microcephala (DC.) A. Gray	threadleaf snakeweed	X
Helianthus annuus Linnaeus	common sunflower	X
Helianthus petiolaris Nutt.	prairie sunflower	X
Heliomeris longifolia (Robins. & Greenm.) Cockerell	longleaf false goldeneye	X
Heliomeris longifolia var. *annua* (M.E. Jones) W.F. Yates	longleaf false goldeneye	O
Heliomeris longifolia var. *longifolia*	longleaf false goldeneye	X
Heliomeris multiflora var. *multiflora* Nutt.	showy goldeneye	X
Heterotheca subaxillaris (Lam.) Britt. & Rusby	camphorweed	X
Isocoma tenuisecta Greene	burroweed	O
***Lactuca serriola* Linnaeus**	**prickly lettuce**	**X**
Laennecia coulteri (A. Gray) Nesom	conyza	X
Laennecia sophiifolia (Kunth) Nesom	leafy marshtail	X
Machaeranthera tagetina Greene	mesa tansyaster	X
Machaeranthera tanacetifolia (Kunth) Nees	tansyleaf tansyaster	X
Malacothrix clevelandii A. Gray	Cleveland's desertdandelion	X
Malacothrix fendleri A. Gray	Fendler's desertdandelion	X

Malacothrix glabrata (A. Gray ex D.C. Eat.) A. Gray	smooth desertdandelion	X
Melampodium longicorne A. Gray	Arizona blackfoot	X
Parthenice mollis A. Gray	annual monsterwort	X
Pectis prostrata Cav.	spreading cinchweed	X
Pseudognaphalium canescens ssp. *canescens*	Wright's cudweed	X
Pseudognaphalium leucocephalum (A. Gray) Anderb.	white cudweed	X
Rafinesquia neomexicana A. Gray	New Mexico plumeseed	X
Senecio flaccidus Less.	threadleaf ragwort	X
***Sonchus asper* (Linnaeus) Hill**	**spiny sowthistle**	**X**
***Sonchus oleraceus* Linnaeus**	**common sowthistle**	**X**
***Tagetes minuta* Linnaeus**	**muster John Henry**	**X**
Tithonia thurberi A. Gray	Arizona sunflowerweed	X
Trixis californica Kellogg	American threefold	X
Uropappus lindleyi (DC.) Nutt.	Lindley's silverpuffs	X
Verbesina encelioides (Cav.) Benth. & Hook. f. ex A. Gray	golden crownbeard	X
Xanthisma gracile (Nuttall) D. R. Morgan & R. Linnaeus Hartman	slender goldenweed	X
Xanthisma spinulosum (Pursh) D. R. Morgan & R. Linnaeus Hartman	lacy tansyaster	X
Xanthium strumarium Linnaeus	rough cockleburr	X
Xanthocephalum gymnospermoides (A. Gray) Benth. & Hook. f.	San Pedro matchweed	X
Zinnia acerosa (DC.) A. Gray	desert zinnia	X
Zinnia peruviana **(Linnaeus) Linnaeus**	**Peruvian zinnia**	**X**
Bignoniaceae		
Chilopsis linearis (Cav.) Sweet	desert willow	X
Bixaceae		
Amoreuxia palmatifida Moc. & Sessé ex DC.	Mexican yellowshow	O
Boraginaceae		
Amsinckia menziesii var. *intermedia* (Lehm.) A. Nelson & J.F. Macbr.	common fiddleneck	X
Cryptantha angustifolia (Torr.) Greene	Panamint cryptantha	X
Cryptantha micrantha (Torr.) I.M. Johnston	Redroot cryptantha	X
Cryptantha nevadensis A. Nelson & Kennedy	Nevada cryptantha	X
Cryptantha pterocarya (Torr.) Greene	wingnut cryptantha	X
Cryptantha pusilla (Torr. & A. Gray) Greene	low cryptantha	X
Eucrypta micrantha (Torr.) Heller	dainty desert hideseed	X
Lappula redowskii var. *occidentalis* (S. Watson) Rydb.	flatspine stickseed	X
Nama hispida A. Gray	bristly nama	X
Pectocarya heterocarpa (I.M. Johnston) I.M. Johnston	chuckwalla combseed	X
Pectocarya recurvata I.M. Johnston	curvenut combseed	X
Phacelia affinis A. Gray	limestone phacelia	X
Phacelia arizonica A. Gray	Arizona phacelia	X
Phacelia crenulata Torr. ex S. Watson	cleftleaf wildheliotrope	X
Phacelia distans Benth.	distant phacelia	X
Plagiobothrys arizonicus (A. Gray) Greene ex A. Gray	Arizona popcornflower	X
Plagiobothrys pringlei Greene	Pringle's popcornflower	X
Brassicaceae		
***Capsella bursa-pastoris* (Linnaeus) Medik.**	**shepherd's purse**	**X**
Descurainia pinnata (Walt.) Britt.	western tansymustard	X
***Descurainia sophia* (Linnaeus) Webb ex Prantl**	**herb sophia**	**X**
Draba cuneifolia var. *cuneifolia* Nutt. ex Torr. & A. Gray	wedgeleaf draba	X

Erysimum repandum **Linnaeus**	**spreading wallflower**	**X**
Lepidium lasiocarpum Nutt.	shaggyfruit pepperweed	X
Lepidium thurberi Wooton	Thurber's pepperweed	X
Nasturtium officinale **R. Br.**	**watercress**	**X**
Physaria gordonii (A. Gray) O'Kane & Al-Shehbaz	gordon bladderpod	X
Sisymbrium irio **Linnaeus**	**London rocket**	**X**
Cactaceae		
Cylindropuntia leptocaulis (DC.) F.M. Knuth	Christmas cactus	X
Cylindropuntia spinosior (Engelm.) F.M. Knuth	walkingstick cactus	X
Ferocactus wislizeni (Engelm.) Britt. & Rose	candy barrelcactus	X
Opuntia santa-rita (Griffiths & Hare) Rose	Santa Rita pricklypear	X
Opuntia macrorhiza Engelm.	twistspine pricklypear	X
Opuntia phaeacantha Engelm.	tulip pricklypear	X
Campanulaceae		
Nemacladus glanduliferus Jepson	glandular threadplant	X
Triodanis perfoliata (Linnaeus) Nieuwl.	clasping Venus' looking-glass	X
Cannabaceae		
Celtis ehrenbergiana (Klotzsch) Liebm.	spiny hackberry	X
Celtis reticulata Torr.	netleaf hackberry	X
Caryophyllaceae		
Loeflingia squarrosa **Nutt.**	**spreading pygmyleaf**	**X**
Cleomaceae		
Cleome lutea var. *jonesii* J.F. Macbr	Jones spiderflower	X
Polanisia dodecandra (Linnaeus) DC.	redwhisker clammyweed	O
Commelinaceae		
Commelina erecta Linnaeus	whitemouth dayflower	X
Convolvulaceae		
Convolvulus arvensis **Linnaeus**	**field bindweed**	**O**
Cuscuta umbellata Kunth	flatglobe dodder	X
Evolvulus arizonicus A. Gray	wild dwarf morning-glory	X
Ipomoea barbatisepala A. Gray	canyon morning-glory	O
Ipomoea costellata Torr.	crestrib morning-glory	X
Ipomoea cristulata Hallier f.	Trans-Pecos morning-glory	X
Ipomoea hederacea **Jacq.**	**ivyleaf morning-glory**	**X**
Ipomoea purpurea **(Linnaeus) Roth**	**tall morning-glory**	**U**
Cucurbitaceae		
Cucurbita digitata A. Gray	fingerleaf gourd	X
Cucurbita foetidissima Kunth	buffalo gourd	X
Echinopepon wrightii (A. Gray) S. Watson	Wild balsam apple	X
Sicyosperma gracile A. Gray	climbing arrowheads	X
Cupressaceae		
Juniperus coahuilensis (Martinez) Gaussen ex R.P. Adams	redberry juniper	X
Cyperaceae		
Cyperus esculentus Linnaeus	yellow nutsdege	O
Cyperus odoratus Linnaeus	fragrant flatsedge	X
Eleocharis montevidensis Kunth	sand spikerush	X
Schoenoplectus acutus (Muhl. ex Bigelow) A.& D. Löve	hardstem bulrush	X
Equisetaceae		
Equisetum laevigatum A. Braun	smooth horsetail	X

Euphorbiaceae		
Acalypha neomexicana Muell.-Arg.	New Mexico copperleaf	O
Acalypha ostryifolia Riddell	pineland threeseed mercury	X
Cnidoscolus angustidens Torr.	mala mujer	X
Croton pottsii var. *pottsii* (Klotzsch) Muell.-Arg.	leatherweed	X
Croton texensis (Klotzsch) Muell.-Arg.	Texas croton	X
Ditaxis neomexicana Muell.-Arg.	New Mexico silverbush	X
Euphorbia abramsiana (L.C. Wheeler) Koutnik	Abrams' sandmat	X
Euphorbia albomarginata (Torr. & A. Gray) Small	whitemargin sandmat	X
Euphorbia florida (Engelm.) Millsp.	Chiricahua Mountain sandmat	X
Euphorbia heterophylla Linnaeus	Mexican fireplant	X
Euphorbia hirta (Linnaeus) Millsp.	pillpod sandmat	X
Euphorbia hyssopifolia (Linnaeus) Small	hyssopleaf sandmat	X
Euphorbia micromera (Boiss. ex Engelm.) Wooton & Standl.	Sonoran sandmat	X
Euphorbia pediculifera (Engelm.) Rose & Standl.	Carrizo Mountain sandmat	X
Tragia nepetifolia Cav.	catnip noseburn	X
Fabaceae		
Acmispon humistratus (Benth.) D.D. Sokoloff	foothill deervetch	X
Astragalus allochrous A. Gray	halfmoon milkvetch	X
Astragalus arizonicus A. Gray	Arizona milkvetch	X
Astragalus nuttallianus DC.	smallflowered milkvetch	X
Calliandra eriophylla Benth.	fairyduster	O
Chamaecrista nictitans (Linnaeus) Moench	partridge pea	X
Crotalaria pumila Ortega	low rattlebox	X
Desmodium neomexicanum A. Gray	New Mexico ticktrefoil	X
Hoffmannseggia glauca (Ortega) Eifert	indian rushpea	X
Lupinus concinnus J.G. Agardh	bajada lupine	X
Marina calycosa (A. Gray) Barneby	San Pedro false prairie-clover	X
***Medicago polymorpha* Linnaeus**	**burclover**	**X**
***Melilotus indicus* (Linnaeus) All.**	**annual yellow sweetclover**	**X**
***Melilotus officinalis* (Linnaeus) Lam.**	**yellow sweetclover**	**O**
Mimosa aculeaticarpa (Benth.) Barneby	catclaw mimosa	X
Parkinsonia aculeata Linnaeus	Jerusalem thorn	X
Parkinsonia florida (Benth. ex A. Gray) S. Watson	blue paloverde	X
Phaseolus ritensis M.E. Jones	Santa Rita Mountain bean	X
Prosopis velutina Wooton	velvet mesquite	X
Rhynchosia senna var. *texana* (Torr. & A. Gray) M.C. Johnst.	Texas snoutbean	X
Senegalia greggii (A. Gray) Britton & Rose	catclaw acacia	X
Senna bauhinioides (A. Gray) Irwin & Barneby	twinleaf senna	X
Senna hirsuta var. *glaberrima* (M.E. Jones) H.S. Irwin & Barneby	woolly senna	X
Sphinctospermum constrictum (S. Watson) Rose	hourglass peaseed	U
Vachellia constricta (Benth.) Seigler & Ebinger	whitethorn acacia	X
Fouquieriaceae		
Fouquieria splendens Engelm.	ocotillo	X
Geraniaceae		
***Erodium cicutarium* (Linnaeus) L'Hér. ex Ait.**	**redstem stork's bill**	**X**
Erodium texanum A. Gray	Texas stork's bill	X
Juglandaceae		
Juglans major (Torr.) Heller	Arizona walnut	X
Juncaceae		
Juncus bufonius Linnaeus	toad rush	X
Krameriaceae		
Krameria erecta Willd. ex J.A. Schultes	littleleaf ratany	X

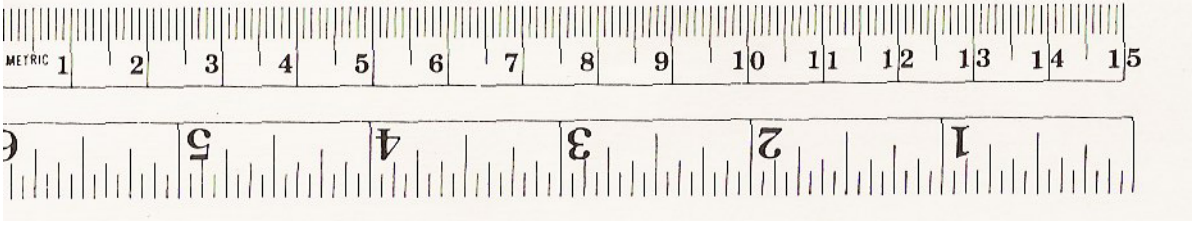
Lamiaceae		
Lamium amplexicaule **Linnaeus**	**henbit deadnettle**	**X**
Marrubium vulgare **Linnaeus**	**horehound**	**X**
Salvia subincisa Benth.	sawtooth sage	X
Liliaceae		
Calochortus kennedyi Porter	desert mariposa lily	X
Loasaceae		
Mentzelia albicaulis (Dougl. ex Hook.) Dougl. ex Torr. & A. Gray	whitestem blazingstar	X
Mentzelia aspera Linnaeus	tropical blazingstar	X
Malvaceae		
Abutilon mollicomum (Willd.) Sweet	Sonoran Indian mallow	X
Abutilon parvulum A. Gray	dwarf Indian mallow	X
Anoda cristata (Linnaeus) Schlecht.	crested anoda	X
Malva parviflora **Linnaeus**	**cheeseweed mallow**	**X**
Malvella leprosa (Ortega) Krapov.	alkali mallow	X
Rhynchosida physocalyx (A. Gray) Fryxell	buffpetal	X
Sida abutifolia **P. Mill.**	**spreading fanpetals**	**X**
Sida neomexicana A. Gray	New Mexico fanpetals	X
Sida spinosa Linnaeus	prickly fanpetals	X
Sphaeralcea angustifolia (Cav.) G. Don	copper globemallow	X
Sphaeralcea fendleri A. Gray	Fendler's globemallow	X
Martyniaceae		
Proboscidea altheifolia (Benth.) Dcne.	Desert unicorn-plant	X
Proboscidea parviflora (Wooton) Wooton & Standl.	doubleclaw	X
Menispermaceae		
Cocculus diversifolius DC.	snailseed	X
Molluginaceae		
Mollugo verticillata Linnaeus	green carpetweed	X
Montiaceae		
Calandrinia ciliata (Ruiz & Pavon) DC.	fringed redmaids	X
Cistanthe parryi (A. Gray) Hershkovitz	Parry's pussypaws, Arizona pussypaws	X
Phemeranthus aurantiacus (Engelm.) Kiger	orange fameflower	X
Moraceae		
Morus microphylla Buckley	Texas mulberry	X
Nyctaginaceae		
Allionia incarnata Linnaeus	trailing windmills	X
Boerhavia coccinea P. Mill.	scarlet spiderling	X
Boerhavia coulteri (Hook. f.) S. Watson	Coulter's spiderling	X
Boerhavia erecta Linnaeus	erect spiderling	X
Boerhavia purpurascens A. Gray	purple spiderling	X
Boerhavia scandens Linnaeus	climbing wartclub	X
Boerhavia spicata Choisy	creeping spiderling	X
Mirabilis jalapa **Linnaeus**	**marvel of Peru**	**X**
Mirabilis longiflora Linnaeus	sweet four o'clock	X
Oleaceae		
Fraxinus velutina Torr.	velvet ash	X
Onagraceae		
Camissonia californica (Nutt. ex Torr. & A. Gray) Raven	California suncup	X
Eremothera chamaenerioides (A. Gray) W.L. Wagner & Hoch	longcapsule suncup	X

Ludwigia repens J.R. Forst.	creeping primrose-willow	X
Oenothera curtiflora W.L. Wagner & Hoch	velvetweed	X
Oenothera primiveris A. Gray	desert evening-primrose	X
Oenothera rosea L'Hér. ex Aiton	rose evening-primrose	X
Orobanchaceae		
Castilleja exserta (Heller) Chuang & Heckard	exserted Indian paintbrush	X
Orobanche cooperi (A. Gray) Heller	desert broomrape	X
Oxalidaceae		
Oxalis corniculata Linnaeus	creeping woodsorrel	X
Papaveraceae		
Argemone polyanthemos (Fedde) G.B. Ownbey	crested pricklypoppy	X
Eschscholzia californica ssp. *mexicana* (Greene) C. Clark	California poppy	X
***Papaver rhoeas* Linnaeus**	**corn poppy**	**X**
Passifloraceae		
Passiflora mexicana Juss.	Mexican passionflower	X
Phrymaceae		
Mimulus guttatus DC.	seep monkeyflower	X
Mimulus rubellus A. Gray	little redstem monkeyflower	X
Phytolaccaceae		
Rivina humilis Linnaeus	rougeplant	X
Plantaginaceae		
Maurandya antirrhiniflora Humb. & Bonpl. ex Willd.	roving sailor	O
Mecardonia procumbens (P. Mill.) Small	baby jump-up	X
Nuttallanthus texanus (Scheele) D.A. Sutton	Texas toadflax	X
Penstemon parryi A. Gray	Parry's beardtongue	X
Plantago major Linnaeus	common plantain	X
Plantago patagonica Jacq.	woolly plantain	X
Plantago virginica Linnaeus	Virginia plantain	X
Veronica anagallis-aquatica Linnaeus	water speedwell	X
Veronica peregrina Linnaeus	neckweed	X
Platanaceae		
Platanus wrightii S. Watson	Arizona sycamore	O
Poaceae		
Aristida adscensionis Linnaeus	sixweeks threeawn	X
Aristida purpurea Nutt.	purple threeawn	O
Aristida purpurea var. *nealleyi* (Vasey) Allred	blue threeawn	X
Aristida purpurea var. *purpurea*	purple threeawn	X
Aristida ternipes Cav.	spidergrass	X
Aristida ternipes var. *gentilis* (Henrard) Allred	hook threeawn	X
***Arundo donax* Linnaeus**	**giant reed**	**O**
***Avena fatua* Linnaeus**	**wild oat**	**X**
Bothriochloa barbinodis (Lag.) Herter	cane bluestem	X
Bouteloua aristidoides (Kunth) Griseb.	needle grama	X
Bouteloua barbata Lag.	sixweeks grama	O
Bouteloua chondrosioides (Kunth) Benth. ex S. Watson	sprucetop grama	X
Bouteloua curtipendula (Michx.) Torr.	sideoats grama	X
Bouteloua gracilis (Willd. ex Kunth) Lag. ex Griffiths	blue grama	O
Bouteloua repens (Kunth) Scribn. & Merr.	slender grama	X
Bouteloua rothrockii Vasey	Rothrock's grama	X
***Bromus catharticus* Vahl**	**rescuegrass**	**X**

***Bromus tectorum* Linnaeus**	**cheatgrass**	**U**
Cenchrus longispinus (Hack.) Fern.	mat sandbur	O
Cenchrus spinifex Cav.	coastal sandbur	X
Chloris virgata Sw.	feather fingergrass	X
Cottea pappophoroides Kunth	Cotta grass	X
***Cynodon dactylon* (Linnaeus) Pers.**	**Bermudagrass**	**X**
***Dactyloctenium aegyptium* (Linnaeus) Willd.**	**Egyptian grass**	**X**
Dasyochloa pulchella (Kunth) Willd. ex Rydb.	wow woollygrass	X
Digitaria californica (Benth.) Henr.	Arizona cottontop	X
Digitaria sanguinalis (Linnaeus) Scop.	hairy crabgrass	X
***Echinochloa colona* (Linnaeus) Link**	**jungle rice**	**O**
***Echinochloa crus-galli* (Linnaeus) Beauv.**	**barnyardgrass**	**X**
Elymus elymoides (Raf.) Swezey	squirreltail	X
***Eragrostis barrelieri* Daveau**	**Mediterranean lovegrass**	**X**
***Eragrostis cilianensis* (All.) Vign. ex Janchen**	**stinkgrass**	**X**
***Eragrostis curvula* (Schrad.) Nees**	**weeping lovegrass**	**X**
Eragrostis intermedia A.S. Hitchc.	plains lovegrass	O
***Eragrostis lehmanniana* Nees**	**Lehmann lovegrass**	**X**
Eriochloa acuminata var. *minor*(Vasey) R.B. Shaw	tapertip cupgrass	X
Festuca octoflora Walter	sixweeks fescue	X
Hilaria belangeri (Steud.) Nash	curly-mesquite	X
Hopia obtusa (Kunth) Zuloaga & Morrone	vine mesquite	X
***Hordeum murinum* ssp. *glaucum* (Steud.) Tzvelev**	**smooth barley**	**X**
Hordeum pusillum Nutt.	little barley	X
***Hordeum vulgare* Linnaeus**	**common barley**	**X**
Leptochloa dubia (Kunth) Nees	green sprangletop	X
Leptochloa panicea ssp. *mucronata* (Michx.) Nowack	mucronate sprangeltop	X
Muhlenbergia fragilis Swallen	delicate muhly	O
Muhlenbergia microsperma (DC.) Trin.	littleseed muhly	X
Muhlenbergia porteri Scribn. ex Beal	bush muhly	X
Panicum hallii Vasey	Hall's panicgrass	X
Panicum hirticaule J. Presl	Mexican panicgrass	X
Paspalum dilatatum Poir.	dallisgrass	X
Paspalum distichum Linnaeus	knotgrass	X
Poa bigelovii Vasey & Scribn.	Bigelow's bluegrass	X
***Polypogon monspeliensis* (Linnaeus) Desf.**	**annual rabbitsfoot grass**	**X**
***Schismus arabicus* Nees**	**Arabian schismus**	**X**
***Schismus barbatus* (Loefl. ex Linnaeus) Thellung**	**common Mediterranean grass**	**X**
Setaria grisebachii Fourn.	Grisebach's bristlegrass	X
Setaria leucopila (Scribn. & Merr.) K. Schum.	streambed bristlegrass	X
***Setaria pumila* (Poir.) Roemer & J.A. Schultes**	**yellow bristlegrass**	**X**
***Setaria viridis* (Linnaeus) Beauv.**	**green bristlegrass**	**X**
***Sorghum bicolor* (Linnaeus) Moench**	**sorghum**	**X**
***Sorghum halepense* (Linnaeus) Pers.**	**Johnsongrass**	**X**
Sporobolus airoides (Torr.) Torr.	alkali sacaton	X
Sporobolus contractus A.S. Hitchc.	spike dropseed	X
Sporobolus cryptandrus (Torr.) A. Gray	sand dropseed	X
Sporobolus wrightii Munro ex Scribn.	big sacaton	X
Tridens muticus (Torr.) Nash	slim tridens	X
Urochloa arizonica (Scribn. & Merr.) O. Morrone & F. Zuloaga	Arizona signalgrass	X
Urochloa fusca (Sw.) B.F. Hansen & Wunderlin	browntop signalgrass	X
Polemoniaceae		
Eriastrum diffusum (A. Gray) Mason	miniature woollystar	X
Gilia mexicana A.& V. Grant	El Paso gilia	X
Gilia sinuata Dougl. ex Benth.	rosy gilia	O
Ipomopsis longiflora (Torr.) V. Grant	flaxflowered ipomopsis	X
Polygalaceae		
Polygala barbeyana Chod.	blue milkwort	X

Polygonaceae		
Eriogonum abertianum Torr.	Abert's buckwheat	X
Eriogonum polycladon Benth.	sorrel buckwheat	X
Persicaria punctata (Elliott) Small	dotted smartweed	X
***Polygonum argyrocoleon* Steud. ex Kunze**	**silversheath knotweed**	**X**
***Rumex crispus* Linnaeus**	**curly dock**	**X**
Portulacaceae		
***Portulaca oleracea* Linnaeus**	**little hogweed**	**X**
Portulaca suffrutescens Engelm.	shrubby purslane	X
Portulaca umbraticola Kunth	wingpod purslane	O
Primulaceae		
Androsace occidentalis Pursh	western rockjasmine	X
Ranunculaceae		
Clematis drummondii Torr. & A. Gray	Drummond's clematis	O
Clematis ligusticifolia Nutt.	western white clematis	X
Delphinium scaposum Greene	tall mountain larkspur	X
Myosurus minimus Linnaeus	tiny mousetail	X
Rhamnaceae		
Ceanothus greggii A. Gray	desert ceanothus	U
Condalia correllii M.C. Johnston	Correll's snakewood	X
Condalia globosa I.M. Johnston	bitter snakewood	U
Ziziphus obtusifolia (Hook. ex Torr. & A. Gray) A. Gray	lotebush	X
Ziziphus obtusifolia var. *canescens* (A. Gray) M.C. Johnston	lotebush	X
Rubiaceae		
Diodia teres Walt.	poorjoe	O
Salicaceae		
Populus fremontii S. Watson	Fremont cottonwood	X
Salix gooddingii Ball	Goodding's willow	X
Salix taxifolia Kunth	yewleaf willow	X
Santalaceae		
Phoradendron californicum Nutt.	mesquite mistletoe	X
Scrophulariaceae		
***Leucophyllum frutescens* (Berl.) I.M. Johnston (not treated)**	**Texas barometer bush**	**X**
Simaroubaceae		
***Ailanthus altissima* (P. Mill.) Swingle**	**tree of heaven**	**X**
Solanaceae		
Calibrachoa parviflora (Juss.) D'Arcy	seaside petunia	X
Chamaesaracha coronopus (Dunal) A. Gray	greenleaf five eyes	U
Datura quercifolia Kunth (not treated)	Chinese thorn-apple	X
Datura wrightii Regel	sacred thorn-apple	X
Lycium andersonii A. Gray	water jacket X	
Lycium berlandieri Dunal	Berlandier's wolfberry	U
***Nicotiana glauca* Graham**	**tree tobacco**	**X**
Physalis acutifolia (Miers) Sandw.	sharpleaf groundcherry	X
Physalis longifolia Nutt.	longleaf groundcherry	X
Solanum elaeagnifolium Cav.	silverleaf nightshade	X

Talinaceae		
Talinum paniculatum (Jacq.) Gaertn.	jewels of Opar	X
Tamaricaceae		
***Tamarix ramosissima* Ledeb.**	**saltcedar**	**X**
Urticaceae		
Parietaria pensylvanica Muhl. ex Willd.	Pennsylvania pellitory	X
Verbenaceae		
Glandularia gooddingii (Briq.) Solbrig	southwestern mock vervain	X
Tetraclea coulteri A. Gray	Coulter's wrinklefruit	X
Vitaceae		
Vitis arizonica Engelm.	canyon grape	X
Zygophyllaceae		
Kallstroemia grandiflora Torr. ex A. Gray	Arizona poppy	X
Larrea tridentata (Sessé & Moc. ex DC.) Coville	creosote bush	X
***Tribulus terrestris* Linnaeus**	**puncturevine**	**X**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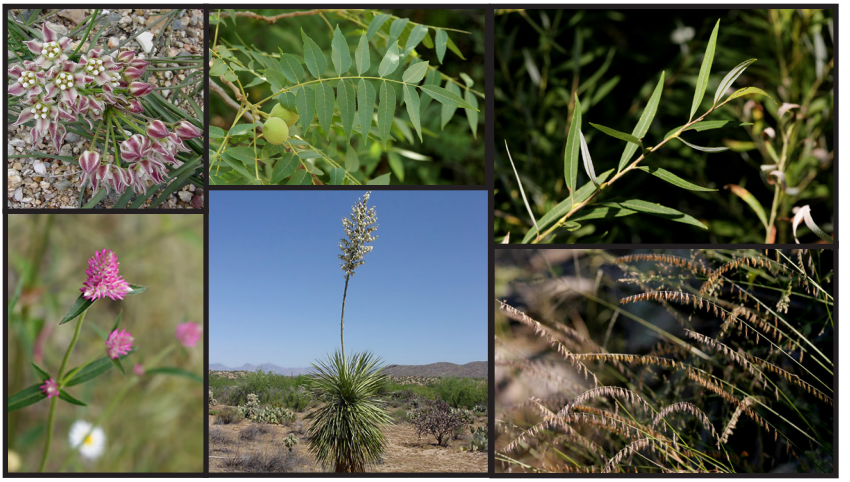
Plants of Tumacácori National Historical Park



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National Park Service

Sonoran Desert Network
Inventory and Monitoring Program

The Department of the Interior protects and manages the nation's natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

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National Park Service
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