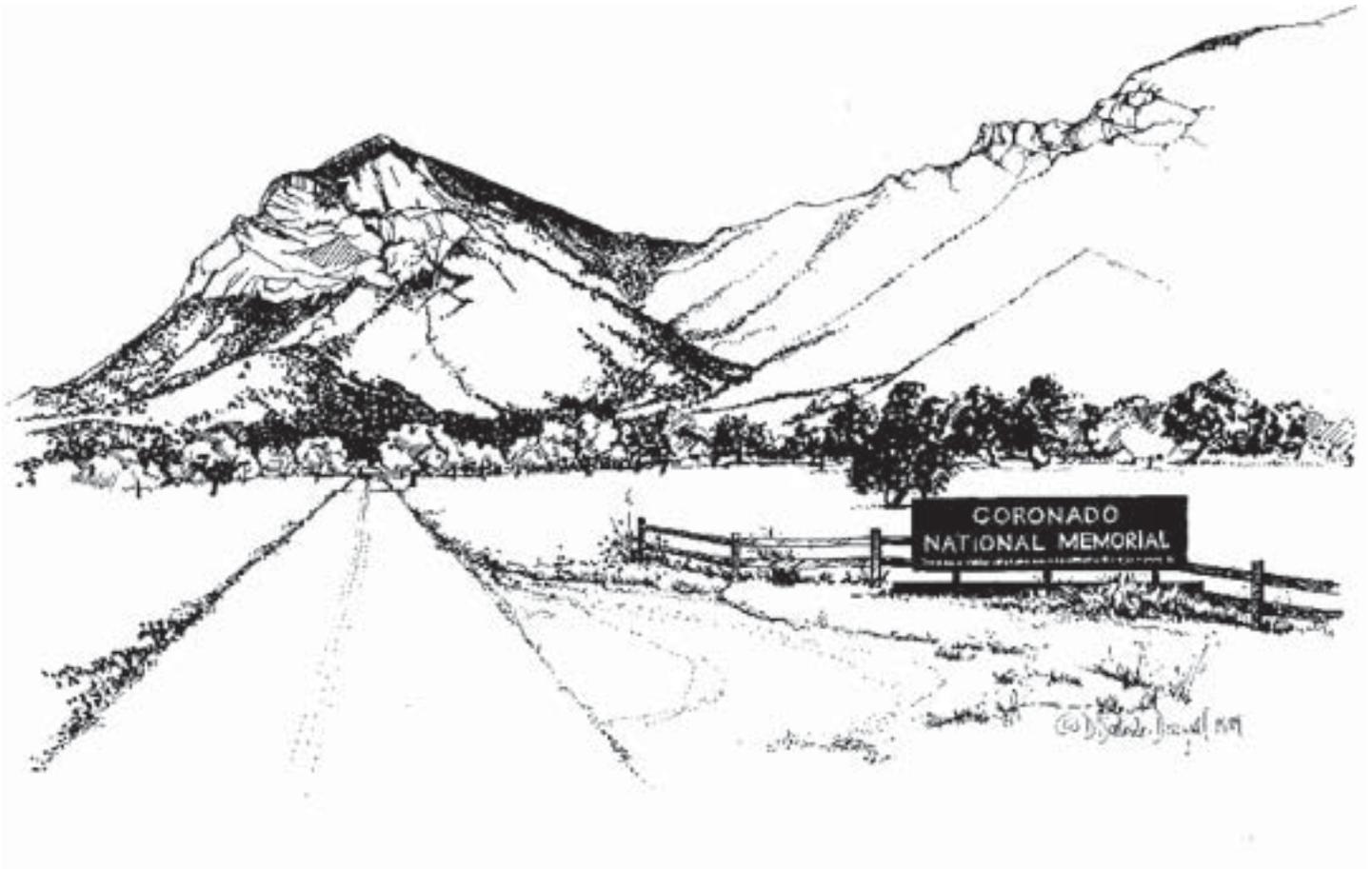


APPENDIXES/REFERENCES/
PREPARERS/INDEX



APPENDIX A: LEGISLATION

An Act To provide for the establishment of the Coronado International Memorial, in the State of Arizona, approved August 18, 1941 (55 Stat. 630)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,
That for the purpose of permanently commemorating the explorations of Francisco Vásquez de Coronado, the President of the United States is authorized to declare, by proclamation, any lands within the following-described area, subject to all valid existing rights, to be established as the "Coronado International Memorial":

Coronado International Memorial, Establishment.

Description of area.

Gila and Salt River meridian: Township 24 south, range 20 east, section 10, south half southwest quarter, south half southeast quarter; section 11, south half southwest quarter; section 13, southwest quarter northwest quarter, south half; section 14, northwest quarter, south half, northwest quarter northeast quarter, south half northeast quarter; section 15, all; section 22, all; section 23, all; section 24, all; township 24 south, range 21 east, section 17, south half southwest quarter; section 18, southwest quarter, south half southeast quarter; section 19, all; section 20, lots 3 and 4; aggregating approximately two thousand eight hundred and eighty acres: *Provided*, That said proclamation shall not be issued until the President of the United States shall have been advised through official channels that the Government of Mexico has established, or provided for the establishment of, an area of similar type and size adjoining the area described herein. (16 U.S.C. sec. 450y.)

Proviso.

Establishment of adjoining area by Mexico.

Regulation, etc., by National Park Service.

16 U.S.C. secs. 1-4.

Proviso.

Development within strip north of international boundary.

SEC. 2. The National Park Service, under the direction of the Secretary of the Interior, shall promote and regulate the use of the Coronado International Memorial for the benefit and enjoyment of the people of the United States. Insofar as applicable and not in conflict with this Act, the Act of August 25, 1916 (39 Stat. 535), providing for the establishment of a National Park Service, as amended and supplemented, shall govern the promotion and regulation of the designated memorial area: *Provided*, That nothing in this Act shall be construed to authorize any recreational or other development by the National Park Service within the sixty-foot strip north of the international boundary between the United States and Mexico withdrawn by proclamation of the President dated May 27, 1907 (35 Stat., part II, p. 2136), unless such development has received the prior approval of the Secretary of State. (16 U.S.C. sec. 450y-1.)

SEC. 3. The Secretary of the Interior, under such regulations as shall be prescribed by him, which regulations shall be substantially similar to those now in effect, shall permit—

(a) Grazing of livestock within the memorial area to the extent now permitted within the said area when such grazing will not interfere with recreational development authorized by this Act; and

Grazing, mining, etc., within memorial area.

(b) Prospecting and mining within the memorial area, when not inconsistent with the public uses thereof. Rights to minerals in the area shall not extend to the lands containing such minerals, but the Secretary of the Interior shall grant rights to use so much of the surface of the lands as may be required for all purposes reasonably incident to the mining and removal of the minerals. (16 U.S.C. sec. 450y-2.)

SEC. 4. In the administration of the memorial area the Secretary shall not permit the construction of fences except (a) along the international boundary, (b) beside memorial roads or approach roads, and (c) around memorial areas within which improvements have been located by the National Park Service: *Provided*, That any roads constructed within the memorial area by the National Park Service shall include necessary cattle underpasses properly located for the passage of cattle across such roads: *And provided further*, That the right to the exclusive beneficial consumptive use for stock-watering purposes of any water heretofore developed or used for such purposes within the memorial area shall remain in the present holders thereof, their heirs, assigns, successors, and administrators, so long as such water continues to be used exclusively for such purposes: *And provided further*, That nothing in this Act shall be construed to alter or affect any water right in the State of Arizona or the jurisdiction of said State over its waters: *And provided further*, That neither roads nor public campgrounds shall be constructed by the National Park Service within the south half southwest quarter of said section 10. (16 U.S.C. sec. 450y-3.)

Construction of fences, roads, etc.

Provisos.

Cattle underpasses.

Stock-watering rights.

Water rights, Arizona.

Restriction.

SEC. 5. Upon submission of title satisfactory to him, the Secretary of the Interior, on behalf of the United States, may accept lands and interests in lands which are within the memorial area but are not in Federal ownership and which are offered to the United States without cost. (16 U.S.C. sec. 450y-4.)

Acceptance of non-Federal lands, etc.

2. Coronado National Memorial

	Page
Amendment to Act of August 18, 1941, establishing the Coronado International Memorial, substituting the words "Coronado National Memorial" for "Coronado International Memorial"-----Act of July 9, 1952	370
Revision of boundaries of memorial and repair and maintenance of access road thereto authorized-----Act of September 2, 1960	370

An Act To amend the Act entitled "An Act to provide for the establishment of the Coronado International Memorial, in the State of Arizona," approved August 18, 1941 (55 Stat. 630), approved July 9, 1952 (66 Stat. 510)

Coronado
National
Memorial, Ariz.
16 U.S.C.
§§ 450y—
450y-4.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the words "Coronado National Memorial" are hereby substituted in lieu of the words "Coronado International Memorial" wherever such words occur in the Act of August 18, 1941 (55 Stat. 630).

SEC. 2. That section 1 of the aforesaid Act is hereby amended by striking out "": *Provided*, That said proclamation shall not be issued until the President of the United States shall have been advised through official channels that the Government of Mexico has established, or provided for the establishment of, an area of similar type and size adjoining the area described herein". (16 U.S.C. § 450y note. See, *Laws Relating to the National Park Service*, Supp. I, (1944) p. 142-143.)

An Act To revise the boundaries of the Coronado National Memorial and to authorize the repair and maintenance of an access road thereto, in the State of Arizona, and for other purposes, approved September 2, 1960 (74 Stat. 736)

Coronado Na-
tional Memo-
rial, Ariz.
Revised bound-
aries.
16 U.S.C. 450y.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, in furtherance of the purposes of the Act of August 18, 1941 (55 Stat. 630), as amended, and to facilitate the administration and development of the Coronado National Memorial, Arizona, the boundaries thereof are hereby revised by the following additions and deletions of land:

(1) Inclusion in the memorial and exclusion from the Coronado National Forest of lots 2 and 7 and a portion of Homestead Entry Survey 310 situated in section 18, township 24 south, range 21 east, Gila and Salt River base and meridian, said portion of Homestead Entry Survey 310 being more particularly described as follows: Beginning at the southwest corner (identified as corner number 1), of Homestead Entry Survey 310, said point being located on the present boundary of Coronado National Memorial and marked by an iron pipe with a brass cap and a rock cairn placed by the United States Bureau of Land Management in 1955; thence north zero degrees

thirty-three minutes west, one thousand two hundred ninety-four and twenty-six hundredths feet, more or less, along the west boundary of said tract, which line is also the present boundary of said memorial, to the northeast corner of lot 8, section 18, said point being marked by an iron pipe with a brass cap and a rock cairn placed by the United States Bureau of Land Management in 1955; thence north zero degrees twenty-three minutes east, two hundred thirty and eight-tenths feet, more or less, along the west boundary of Homestead Entry Survey 310 to a point on a circular curve marked by an iron pipe with a National Park Service brass cap, said point being located south eighty-one degrees forty-four minutes east, exactly one hundred forty feet from the point of curvature of said curve; thence southeasterly five hundred forty-eight and two-tenths feet along said circular curve to the right of radius one thousand seven hundred thirty-two and four-tenths feet and having a beginning tangent bearing of south eighty-four degrees three minutes east (from point of curvature to point of intersection), to the point of tangency of said curve; thence south sixty-one degrees sixteen minutes east, two hundred twenty-four and eight-tenths feet to the point of curvature of a circular curve to the right; thence southeasterly two hundred ninety-two and six-tenths feet along said circular curve to the right of radius six thousand twenty-nine and six-tenths feet to the point of tangency of said curve; thence south fifty-eight degrees twenty-nine minutes east, five hundred eighty-eight and seven-tenths feet to the point of curvature of a circular curve to the right; thence southeasterly two hundred twenty-five and nine-tenths feet along said circular curve to the right of radius two thousand two hundred nine and nine-tenths feet to the point of tangency of said curve; thence south fifty-two degrees thirty-eight minutes east, twenty-eight and eight-tenths feet to the point of curvature of a circular curve to the left; thence southeasterly two hundred sixteen and nine-tenths feet along said circular curve to the left of radius one thousand six hundred nine and nine-tenths feet to the point of tangency of said curve; thence south sixty degrees twenty-one minutes east, thirty and seven-tenths feet to the point of curvature of a circular curve to the right; thence southeasterly seven hundred thirteen and six-tenths feet, more or less, along said circular curve to the right of radius one thousand two hundred fifty-four and nine-tenths feet to a point on the southern boundary line of Homestead Entry Survey 310 marked by an iron pipe with a National Park Service brass cap, said point also being located on the present northern boundary line of Coronado National Memorial; thence north eighty-nine degrees forty-nine minutes west two thousand three hun-

dred and sixty-one feet, more or less, along the southern boundary line of Homestead Entry Survey 310, which line is also the present northern boundary of the said memorial, to the point of beginning (all bearings referred to the true meridian).

(2) Inclusion in the Memorial and exclusion from the Coronado National Forest of lots 5 and 6 in section 20, township 24 south, range 21 east, Gila and Salt River base and meridian.

(3) Exclusion from the Memorial and inclusion in the Coronado National Forest of the north half southwest quarter northwest quarter section 13, and the north half southeast quarter northeast quarter section 14, all in township 24 south, range 20 east, Gila and Salt River base and meridian. (16 U.S.C. § 450y-5 [Supp. II].)

Land
acquisition.

16 U.S.C. 1.
16 U.S.C.
450y-1-3.

16 U.S.C. 171-2.

Appropriation.

SEC. 2. The Secretary of the Interior is authorized to acquire lands and interests in lands within the revised boundaries of the Coronado National Memorial by purchase, donation, with donated funds, or by such other means as he may consider to be in the public interest. Lands and interests in lands acquired pursuant to this Act shall become a part of the Memorial and be administered by the Secretary of the Interior in accordance with the provisions of the Act of August 25, 1916 (39 Stat. 535), as amended, and pursuant to sections 2, 3, and 4 of the Act of August 18, 1941 (55 Stat. 630), as amended. (16 U.S.C. § 450y-6 [Supp. II].)

SEC. 3. The Act approved August 7, 1946 (60 Stat. 885), is hereby amended by substituting a semicolon for the period at the end of subsection (a), section 1, and inserting immediately thereafter the following: "repair and maintenance of the class 'C' road lying between the terminus of F.A. 383 at the east boundary of Coronado National Forest and the point where said class 'C' road enters Coronado National Memorial in the vicinity of Montezuma Pass, approximately 5.3 miles." (16 U.S.C. § 17j-2 [Supp. II].)¹

SEC. 4. There is hereby authorized to be appropriated the sum of not to exceed \$3,000 for the purpose of acquiring lands, interests in lands, and improvements thereon as may be necessary for carrying out this Act. (16 U.S.C. § 450y-7 [Supp. II].)

¹ See also General Legislation, pp. 16-17.

APPENDIX B: SUMMARY OF KEY LEGAL MANDATES

Legal mandates provide direction for what can and cannot be considered in this plan. Several provisions of key legal mandates are summarized below.

NATIONAL PARKS AND RECREATION ACT OF 1978 (PL 95- 625)

Section 604(b) of the National Parks and Recreation Act requires that general management plans be prepared and revised in a timely manner for each unit in the national park system. The act further specifies that general management plans shall include measures for the preservation of the area's resources, indications of the types and intensities of development associated with public use of the unit, visitor carrying capacities for all areas of the unit, and indications of potential modifications of the unit's external boundaries if needed.

ENDANGERED SPECIES ACT OF 1973, AS AMENDED (16 USC 1531 ET SEQ.)

The purpose of the Endangered Species Act is to protect animal and plant species that are currently in danger of extinction (endangered) and those that may become so in the foreseeable future (threatened). Section 7 requires all federal agencies to ensure that their activities do not have adverse impacts on the continued existence of threatened or endangered species or on designated areas (critical habitats) that are important in conserving those species. Thus, the National Park Service is required to fully integrate endangered species conservation planning into park system management. Agencies also are required to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat. The result of formal or informal consultation with the Fish and Wildlife Service should be documented in an environmental assessment or environmental impact statement.

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA — PL 91- 190)

The National Environmental Policy Act sets forth the federal policy to preserve important historic, cultural, and natural aspects of our national heritage. Another purpose of the act is to help public officials make decisions that are based on an objective understanding of environmental consequences and to take actions that protect, restore, and enhance the environment. The act applies to all federal projects or projects that require federal involvement. All federal agencies are directed to use a systematic interdisciplinary approach that integrates natural and social sciences in planning and decision-making that may affect the human environment. This act and the Council on Environmental Quality implementing regulations describe the process that must be followed by a proposed federal action such as this plan. Among the steps in the process, this act and the regulations require early coordination, called "scoping," to determine the scope and significance of issues to be addressed in an environmental impact statement. A structured format for public involvement during the public review process is specified. When preparing an environmental impact statement, federal agencies are further required to rigorously explore and objectively evaluate all reasonable alternatives to the proposed action.

NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED (16 USC 470, ET SEQ.)

The National Historic Preservation Act establishes as federal policy that the historical and cultural foundations of the nation's heritage be preserved. Section 106 of the act requires that federal agencies that have direct or indirect jurisdiction over undertakings take into account the effect of those undertakings on properties eligible for or listed on the National Register of Historic Places. The section also gives the Advisory Council on Historic Preservation and the state historic preservation officer an

opportunity to comment on the undertaking. The 1992 amendments to the act have further defined the roles of American Indian tribes and the affected public in the section 106 consultation process. Section 110 of the act requires that federal managers, in consultation with the state historic preservation officers, establish programs to identify, evaluate, and nominate properties to the National Register of Historic Places. National register eligible or listed properties and national historic landmarks are afforded special protection in federal project planning and implementation. In 1999 the Advisory Council on Historic Preservation issued revised section 106 regulations. The role of early and continuing consultation with the state historic preservation office and American Indian groups is clarified.

Under the terms of stipulation VI. E of the 1995 programmatic agreement among the National Park Service, the Advisory Council on Historic

Preservation, and the National Conference of State Historic Preservation Officers, the National Park Service, “in consultation with the SHPO, will make a determination about which undertakings are programmatic exclusions under IV. A and B, and all other undertakings, potential effects on those resources to seek review and comment under 36 CFR 800.4–6 during the plan review process.” The implementation of all construction actions in the preferred alternative would require consultation and review at the scoping, conceptual, and design stages by the Arizona state historic preservation office. American Indian groups would participate in these reviews as well.

In the following table the specific undertakings are listed, along with the National Park Service’s determination of how those individual undertakings relate to the 1995 programmatic agreement.

TABLE B- 1: ACTIONS THAT MAY AFFECT CULTURAL RESOURCES AND ASSOCIATED COMPLIANCE REQUIREMENTS
(Requirements of the Arizona State Historic Preservation Office and/or the Advisory Council on Historic Preservation)

Action	Compliance Requirement
Rehabilitate visitor center	Further SHPO review necessary
Construct visitor center annex	No further SHPO review unless construction would affect National Register of Historic Places archeological sites or unless location would affect a cultural landscape
Develop trails and wayside exhibits	No further SHPO review necessary
Demolish Montezuma Ranch structures	No further SHPO review unless ranch determined eligible for National Register of Historic Places
Upgrade facilities at Montezuma Pass	No further SHPO review necessary
Do rehabilitation work in housing area	Further SHPO review necessary

APPENDIX C: WILDERNESS SUITABILITY ASSESSMENT

DRAFT MEMORANDUM

To: Director

From: Regional Director, IMR

Subject: Wilderness Suitability Assessment - Coronado National Memorial

In keeping with the instructions of the Wilderness Act (P.L. 88- 577, 78 Stat. 890; 16 U.S.C. 1131-1136) and National Park Service Management Policies (Chapter 6: Wilderness Preservation and Management), we have completed an in- park wilderness suitability assessment evaluating the memorial, an area of 4,750 acres.

In accordance with law and NPS Management Policies, Coronado National Memorial has reviewed the memorial's land and determined that they are neither roadless nor undeveloped, nor are of sufficient size to make practicable their preservation as wilderness.

The Wilderness Act defines wilderness as "an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation which is protected and managed so as to preserve its natural conditions..."

Our suitability assessment finds that the majority of this memorial's land would not meet the primary definitions of wilderness, as defined in the Wilderness Act. This determination applied the following Wilderness Act and Management Policy criteria: in that it is an area:

- the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain;
- the area is undeveloped and retains its primeval character and influence, without permanent improvements or human habitation;
- the area generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable;
- the area is protected and managed so as to preserve its natural conditions; and,
- the area offers outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Our assessment did recognize that the area was operated as working cattle ranch and contained pastures for grazing during most of the period of private and public ownership, and the area does contain some physical evidence of this occupation. In addition, the area contains physical evidence from various mining operations in the area and an active partially- paved road that bisects the national memorial. In addition, other active roads are found on the memorial land. The evaluation on these criteria determined that the national memorial lands do not meet the

undeveloped/roadless, size, or wilderness character criteria and are therefore unsuitable for preserving as wilderness.

The memorial lands are fragmented by dirt and paved roads, parking lots, picnic areas, power and phone lines, private and governmental structures, and a utility corridor. There is no plan in the foreseeable future to remove these features.

Significant portions of the national memorial generally appear to be affected by human activity. Although these areas offer some opportunities for solitude and primitive and unconfined recreation, the small size of the areas and proximity of roads make these opportunities limited at best.

The free play of natural forces and processes have been altered by road, utility line construction and maintenance; fire suppression since the late 1880s; 100 years of grazing in grassland areas; mining; vegetation manipulation and invasion of exotic species; changes to diversity, populations levels and structure, and behavior of wildlife; and continued human presence and development.

Attached is a draft *Notice of Final Determination of Non-Suitability* for publication the *Federal Register* should you approve this memorandum as the NPS' final wilderness assessment suitable determination for Coronado National Memorial.

Sincerely,

**Draft
Findings**

**Wilderness Suitability Assessment
Coronado National Memorial**

These actions are in accordance with long standing policy and law. The Wilderness Act of 1964, regulations in the Code of Federal Regulations (Title 43 *Public Lands: Interior*, Part 19 *Wilderness Preservation*), Secretarial Order 2920, and NPS Management Policies (2001; *Chapter 6, Wilderness Preservation*) require that the National Park Service review roadless and undeveloped areas, including new areas or expanded boundaries, within the National Park System to determine whether they are suitable or not suitable for preserving as wilderness.

NEPA requirements for this process are met by applying the Categorical Exclusion 3.4 (E)(6) regarding actions related to inventories.

Parcel Description

Coronado National Memorial was formerly a part of Coronado National Forest and working ranches on the United States- Mexico border. It is in southeast Arizona, 21 miles south of Sierra Vista and 26 miles west of Bisbee. It comprises 4.750 acres with two small private in holdings. Currently, two areas of the memorial are leased for grazing. A road through the memorial is paved about a mile beyond the visitor center and then becomes a mountainous dirt- and- gravel road that leads to Montezuma Pass. Other dirt roads transverse the memorial providing access to private in holding, grazing allotments, and are service roads for the park staff. The area contains housing, visitor facilities, and administrative facilities for the park. Presently, structures associated with the Montezuma Ranch can be found in the grassland area of the memorial south of the entrance road. The ranch has been acquired by the National Park Service and either will be adaptively used for park purpose or the structures removed and the area restored to grassland.

Suitability Assessment

According to law, regulation, and policy, a suitability assessment is a factual determination, based on available objective criteria and best professional judgment of park staff, of whether the memorial 1) are undeveloped or roadless, 2) are of sufficient size to make management as wilderness practicable or are more than 5,000 acres and 3) meet criteria of wilderness character. The following information addresses those requirements and criteria.

1) Is the memorial undeveloped or roadless?

According to Department of Interior regulations at 43 CFR 19, the memorial's lands do not fit the definition of "roadless": the memorial is bisected by road which is paved about a mile beyond the visitor center and then becomes a mountainous dirt- and- gravel road that leads to Montezuma Pass. This road is regularly maintained and is drivable in a passenger car without four wheel drive; this road is the primary access to into the memorial. The road to the two private in holdings are maintained and drivable in a passenger car without four wheel drive. East Forest Land and Windmill Road are not regularly maintained, but are drivable with four wheel drive vehicles.

The memorial's land does not qualify as undeveloped: see Wilderness Character criteria below.

2) Is the land more than 5,000 acres or of sufficient size to make practicable preservation and use in an unimpaired condition?

The total acreage for the memorial is 4,750 acres. Development within the memorial has further fragmented park lands. The one area in the national memorial that is protected from road noise is the south slope of Smuggler's Ridge but this is only 670 acres. The small size of this memorial's lands, the general fragmentation by roads and utility corridors and, for the most part, the isolation from designated wilderness.

Specifically, the following would be impediments to the practical management of this area as wilderness:

- While a few of the ecological changes noted under the Wilderness Character criteria (below) could be restored to a more natural condition, most of them would be difficult or impossible to improve due to the small size of the area, incompatible uses on adjacent lands, and the roads and utility corridors.
- The small size of the memorial combined with the numerous developments makes it difficult to ensure that the imprint of human's work would appear to be substantially unnoticeable or that the area would retain its primeval character. Extensive restoration work, with possible loss of cultural resources would be necessary and would still not change the incompatible uses on surrounding lands that also detract from these qualities.
- Because the area's naturalness is compromised by past and current uses, extensive restoration would be required to "preserve natural conditions," which would compromise the wildness of the area.
- The small size of the area and the proximity to roads, development, and adjacent incompatible uses make it difficult to provide for opportunities for solitude or a primitive and unconfined type of recreation.

3) Criteria regarding the nature and quality of Wilderness Character

Criterion 1: The earth and its community of life are untrammelled by humans, where humans are visitors who do not remain.

The free play of natural forces and processes has been altered in the following ways:

- Fire suppression: Fire has been suppressed here since the late 1880s, resulting in significant changes in vegetation, fuel loads, and fire intensity. Land use around the memorial (timber production, grazing, and private homes) may prevent the application of management tactics that would eventually return a natural fire regime.
- Grazing: Grazing has occurred on memorial lands since the early 1900s and today the memorial contains two grazing allotments. One of which (Joe's Spring) is activity being used though under the guidance of the memorial's livestock management plan and the other (Montezuma) has not been grazed since 1990. Grazing often has some or all of the following effects: reduction of biomass available to wildlife for forage and cover; introduction of invasive alien species; change in species composition; and increased erosion.
- Vegetation manipulation: An orchard was planted in the area of Montezuma Ranch as well as some non-native plants near ranch buildings. The orchard has been removed. Vegetation removal will probably continue along the road and power line corridor as part of routine maintenance. Various invasive alien species, are common in the pasture

area. The majority of grass and grass-like species within the area are invasive non-natives.

- **Road construction and maintenance:** The construction and maintenance of the road, the ranch infrastructure, mining infrastructure, and visitor and administrative infrastructure have over time increased sedimentation and changed natural drainages, which in turn has affected vegetation and habitat. The road and buildings also increases the chance of alien species introduction and other edge effects.
- **Wildlife:** Diversity, population levels and structure, behavior, and gene flow of wildlife may have been affected by hunting, predator control, and human presence prior to establishment of the national memorial. The fragmentation of the area by the main memorial road reduces its value to wildlife.
- **Visitation:** Public visitation and illegal activities occur on memorial lands throughout the year.

Criterion 2. The area is undeveloped and retains its primeval character and influence, without permanent improvements or human habitation.

- **Developments and permanent improvements:** the main memorial road, East Forest Lane, Windmill Road, power line, underground utilities, dumps, fences, stock tanks, remains of ranch house and associated structures, visitor center, picnic area, maintenance facilities, administrative offices, park housing, parking lots, private homes, and mine sites.
- **Primeval character and influence:** This is compromised by both the developments and the ecological modifications noted under criterion 1.
- **Human habitation:** Residence for three park staff (and their families) and two private homes.

There is no plan to remove the main memorial road, active power lines, or phone lines in the foreseeable future, and these corridors would not qualify for wilderness designation. Excluding them would leave segments areas of a few hundred acres.

Criterion 3: The area generally appears to have been affected primarily by the forces of nature, with the imprint of humans' work substantially unnoticeable.

Most of the ecological changes noted under criterion 1 would be noticeable to a trained observer. The development noted under criterion 2 would be noticeable by untrained visitors from all of the area except south of Smuggler's Ridge. Some of the ecological changes, such as the change in fire regime or vegetation, would be noticeable to the untrained observer, although they might not realize the anthropogenic nature of the change.

Criterion 4. The area is protected and managed so as to preserve its natural condition.

The parking lots, picnic area, visitor center area, maintenance area, housing area, maintenance along the main memorial road, power lines, roads and area around the private in holdings would continue to be maintained by manual and mechanical methods. All fires are suppressed in the memorial.

Criterion 5. The area offers outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Visitation to the area is moderate to heavy with many visitors taking a short hike on one of the park trails. The chance of seeing another person during a half day visit to the area is greater than 90%. The paved road bisects the national memorial, and most of the memorial's lands are less than 1 mile from the road, which is visible from most areas within the boundary. Road noise can be heard from most places.

Other Considerations: A wilderness may also contain significant ecological, geological, or other features of scientific, educational, scenic, or historic value.

- **Ecological:** The memorial contains habitat for the lesser long-nosed bat (endangered), the Mexican long-tongued bat (species of concern), Mexican spotted owl (threatened) and loggerhead shrike (species of concern).
- **Geological:** There is nothing significant.
- **Scientific:** There is nothing
- **Educational:** Dramatic views of land areas in the U.S. and Mexico where the Coronado Expedition may have traveled.
- **Scenic:** Dramatic views of land areas in the U.S. and Mexico where the Coronado Expedition may have traveled.
- **Historical:** Historic and pre-historic use of the area occurred and there have been archeological survey of the area. The area has been mined, logged, ranched, homesteaded, traveled through, and hunted over the years.

Public Input

A newsletter issued in June 2001 requesting public thought on the suitability of Coronado National Memorial for wilderness designation. The newsletter was sent to the mailing list of about 400 agencies and individuals as well as some 23 conservation groups. The newsletter was placed on the internet for broader public access. A wide range of opinions was received in the 38 electronic and mailed comments. Some people wrote in favor of all of formal wilderness designation while others opposed any wilderness designation.

A follow-up newsletter was published in February 2001 explaining the National Park Service determination that neither Coronado National Memorial nor a portion of the memorial was not suitable for wilderness designation. The results from the park service's evaluation are being placed in the draft Coronado National Memorial General Management Plan/Environmental Impact Statement.

APPENDIX D: DEVELOPMENT OF PREFERRED ALTERNATIVE

The preferred alternative (alternative B) was developed in 2001 using an evaluation process called “Choosing By Advantages.” The planning team used the process to examine an initial set of alternatives (alternatives A–E) and to evaluate the attributes of each against a set of factors to determine the relative advantage of one alternative action over another. The factors were as follows:

- Maximize the preservation and protection of natural and cultural resources.
- Maximize the national memorial’s operational efficiency and sustainability.

- Maximize the range of visitor services, educational activities, and interpretive opportunities.

The evaluation resulted in a numerical ranking of the greatest advantages offered by each alternative. Each alternative offered certain strong advantages. Adding the factor of cost led to the selection of a preferred alternative. This process was a preliminary internal exercise and remains subject to change based on public comments and other factors.

APPENDIX E: SCIENTIFIC NAMES OF PLANTS AND ANIMALS DISCUSSED IN THIS PLAN

Common Name	Scientific Name
ANIMALS	
Desert cottontail	<i>Sylvilagus audubonii</i>
Acorn woodpeckers	<i>Melanerpes formicivorus</i>
Black- tailed jackrabbit	<i>Lepus californicus</i>
White- tailed deer	<i>Odocoileus virginianus</i>
Mule deer	<i>Odocoileus hemionus</i>
American kestrel	<i>Falco sparverius</i>
Arizona shrew	<i>Sorex arizonae</i>
Bald eagle	<i>Haliaeetus leucocephalus</i>
Barking frog	<i>Eleutherodactylus augusti</i>
Barred tiger salamander	<i>Ambystoma mavortium</i>
Blackneck garter snakes	<i>Thamnophis cyrtopsis</i>
Black- tailed prairie dog	<i>Cynomys ludovicianus</i>
Cactus ferruginous pygmy- owl	<i>Glaucidium brasilianum cactorum</i>
Chihuahuan blackhead snake	<i>Tantilla wilcoxi</i>
Coachwhip	<i>Masticophis flagellum</i>
Common king snake	<i>Lampropeltis getula</i>
Cooper's hawk	<i>Accipiter cooperii</i>
Desert shrew	<i>Notiosorex crawfordi</i>
Elegant trogon	<i>Trogon elegans</i>
Great plains skink	<i>Eumeces obsoletus</i>
Jaguar	<i>Panthera onca</i>
Jaguarundi	<i>Felis yagouaroundi</i>
Lesser long- nosed bat	<i>Leptonycteris curasoae</i>
Loggerhead shrike	<i>Lanius ludovicianus</i>
Lyre snake	<i>Trimorphodon biscutatus</i>
Madrean alligator lizard	<i>Elgaria kingii</i>
Mexican long- tongued bat	<i>Choeronycteris mexicana</i>
Mexican spotted owl	<i>Strix occidentalis lucida</i>
Mexican wolf	<i>Canis lupus baileyi</i>
Mojave rattlesnake	<i>Crotalus scutulatus</i>
Mountain patchnose snake	<i>Salvadora grahamiae</i>
Ocelot	<i>Felis pardalis</i>
Prairie lizard	<i>Sceloporus undulatus</i>
Red- tailed hawk	<i>Buteo jamaicensis</i>
Short- horned lizard	<i>Phrynosoma douglasii</i>
Sonora tiger salamander	<i>Ambystoma tigrinum stebbinsi</i>
Sonoran mountain king snake	<i>Lampropeltis pyromelana</i>
Big bend patchnose snake	<i>Salvadora deserticola</i>
Night snake	<i>Hypsiglena torquata</i>
Whooping crane	<i>Grus Americana</i>
Woodhouse's toad	<i>Bufo woodhousii</i>
Yaqui topminnow	<i>Poeciliopsis occidentalis sonorensis</i>

APPENDIXES

Common Name	Scientific Name
PLANTS	
Alligator juniper	<i>Juniperus deppeana</i>
Arizona agave	<i>Agave arizonica</i>
Arizona rosewood	<i>Vauquelinia californica</i>
Arizona sycamore	<i>Platanus wrightii</i>
Arizona white oak	<i>Quercus arizonica</i>
Beargrass	<i>Nolina microcarpa</i>
Blue grama	<i>Bouteloua gracilis</i>
Brickellia	<i>Brickellia sp.</i>
Cane cholla	<i>Opuntia spinosior</i>
Canelo Hills Ladies Tresses	<i>Spiranthes delitescens</i>
Catclaw acacia	<i>Acacia greggii</i>
Cochise pincushion cactus	<i>Coryphantha vivipara</i>
Desert spoon	<i>Dasyilirion wheeleri</i>
Desert willow	<i>Chilopsis linearis</i>
Emory oak	<i>Quercus emoryi</i>
Fairy duster	<i>Calliandra eriophylla</i>
Hedgehog cactus	<i>Echinocereus pectinatus</i>
Honey mesquite	<i>Prosopis glandulosa</i>
Huachuca water umbrel	<i>Lilaeopsis schaffneriana spp. recurva</i>
Lehmann lovegrass	<i>Eragrostis lehmanniana</i>
Manzanita	<i>Arctostaphylos spp</i>
Marguay verde	<i>Agave salmiana crassispina</i>
Mexican blue oak	<i>Quercus oblongifolia</i>
Mexican piñon pine	<i>Pinus discolor</i>
Mountain mahogany	<i>Cercocarpus montanus</i>
Needle grass	<i>Stipa sp.</i>
Palmer's agave	<i>Agave palmeri</i>
Poison ivy	<i>Toxicodendron radicans</i>
Rabbit brush	<i>Chrysothamnus nauseosus</i>
Side oats grama	<i>Bouteloua curtipendula</i>
Sumac	<i>Rhus virens</i>
Wild grape	<i>Vitis arizonica</i>

APPENDIX F: LETTER FROM U.S. FISH AND WILDLIFE SERVICE REGARDING THREATENED OR ENDANGERED SPECIES



United States Department of the Interior
U.S. Fish and Wildlife Service
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 640-2720 FAX: (602) 640-2730



In Reply Refer To:

AESO/SE
2-21-99-I-003

March 27, 2000

Memorandum

To: Natural Resource Specialist, National Park Service, Planning and Site Design,
Denver, Colorado

From: Field Supervisor

RE: Coronado National Memorial – General Management Plan/EIS

This memorandum responds to your March 14, 2000, request for an inventory of threatened or endangered species, or those that are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may potentially occur in your project area (Cochise County). The attached list may include candidate species as well. We hope the attached county list of species will be helpful. In future communications regarding this project, please refer to consultation number 2-21-99-I-003.

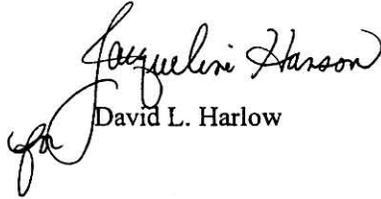
The attached list of the endangered, threatened, proposed, and candidate species includes all those potentially occurring anywhere in the county, or counties, where your project occurs. Please note that your project area may not necessarily include all or any of these species. The information provided includes general descriptions, habitat requirements, and other information for each species on the list. Also on the attached list is the Code of Federal Regulations (CFR) citation for each list and is available at most public libraries. This information should assist you in determining which species may or may not occur within your project area. Site-specific surveys could also be helpful and may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts.

Endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency must request formal consultation with the Service. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed critical habitat, the action agency must enter into a section 7 conference with the Service. Candidate species are those which are being considered for addition to the list of threatened or endangered species. Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.

If any proposed action occurs in or near areas with trees and shrubs growing along watercourses, known as riparian habitat, the Service recommends the protection of these areas. Riparian areas are critical to biological community diversity and provide linear corridors important to migratory species. In addition, if the project will result in the deposition of dredged or fill materials into waterways or excavation in waterways, we recommend you contact the Army Corps of Engineers which regulates these activities under Section 404 of the Clean Water Act.

The State of Arizona protects some plant and animal species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species in your project area.

The Service appreciates your efforts to identify and avoid impacts to listed and sensitive species in your project area. If we may be of further assistance, please feel free to contact Tom Gatz.



David L. Harlow

Attachment

cc: John Kennedy, Habitat Branch, Arizona Game and Fish Department, Phoenix, AZ

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

08/26/1999

1)LISTED

TOTAL= 20

NAME: CANELO HILLS LADIES' TRESSES

SPIRANTHES DELITESCENS

STATUS: ENDANGERED

CRITICAL HAB No

RECOVERY PLAN: No

CFR: 62 FR 665, 01-06-97

DESCRIPTION: SLENDER ERECT MEMBER OF THE ORCHID FAMILY (ORCHIDACEAE).

FLOWER: STALK 50 CM TALL, MAY CONTAIN 40 WHITE FLOWERS

SPIRALLY ARRANGED ON THE FLOWERING STALK.

ELEVATION

RANGE: about 5000 FT.

COUNTIES: COCHISE, SANTA CRUZ

HABITAT: FINELY GRAINED, HIGHLY ORGANIC, SATURATED SOILS OF CIENEGAS

POTENTIAL HABITAT OCCURS IN SONORA, MEXICO, BUT NO POPULATIONS HAVE BEEN FOUND.

NAME: COCHISE PINCUSHION CACTUS

CORYPHANTHA ROBBINSORUM

STATUS: THREATENED

CRITICAL HAB No

RECOVERY PLAN: Yes

CFR: 51 FR 952, 1-9-1986

DESCRIPTION: A SMALL UNBRANCHED CACTUS WITH NO CENTRAL SPINES AND 11-17

WHITE RADIAL SPINES. THE BELL-SHAPED FLOWERS ARE BORNE ON

THE ENDS OF TUBERCULES (Protrusions). FLOWERS: BELL SHAPED,

PALE YELLOW-GREEN. FRUITS: ORANGE-RED TO RED

ELEVATION

RANGE: >4200 FT.

COUNTIES: COCHISE AND SONORA, MEXICO

HABITAT: SEMIDESERT GRASSLAND WITH SMALL SHRUBS, AGAVE, OTHER CACTI, AND GRAMA GRASS.

GROWS ON GRAY LIMESTONE HILLS.

NAME: HUACHUCA WATER UMBEL

LILAEOPSIS SCHAFFNERIANA ssp RECURVA

STATUS: ENDANGERED

CRITICAL HAB Yes

RECOVERY PLAN: No

CFR: 62 FR 665, 01-06-97

DESCRIPTION: HERBACEOUS, SEMI-AQUATIC PERENNIAL IN THE PARSLEY FAMILY

(UMBELLIFERAE) WITH SLENDER ERECT, HOLLOW, LEAVES THAT GROW

FROM THE NODES OF CREEPING RHIZOMES. FLOWER: 3 TO 10

FLOWERED UMBELS ARISE FROM ROOT NODES.

ELEVATION

RANGE: 3500-6500 FT.

COUNTIES: PIMA, SANTA CRUZ, COCHISE

HABITAT: CIENEGAS, PERENNIAL LOW GRADIENT STREAMS, WETLANDS

AND IN ADJACENT SONORA, MEXICO, WEST OF THE CONTINENTAL DIVIDE. POPULATIONS ALSO ON FORT HUACHUCA MILITARY RESERVATION. CRITICAL HABITAT IN COCHISE AND SANTA CRUZ COUNTIES (63 FR 37441)

APPENDIXES

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY: COCHISE
08/26/1999

NAME: LESSER LONG-NOSED BAT *LEPTONYCTERIS CURASOAE YERBABUENAE*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 53 FR 38456, 09-30-88

DESCRIPTION: ELONGATED MUZZLE, SMALL LEAF NOSE, AND LONG TONGUE.
YELLOWISH BROWN OR GRAY ABOVE AND CINNAMON BROWN BELOW.
TAIL MINUTE AND APPEARS TO BE LACKING. EASILY DISTURBED.

ELEVATION
RANGE: <6000 FT.

COUNTIES: COCHISE, PIMA, SANTA CRUZ, GRAHAM, PINAL, MARICOPA

HABITAT: DESERT SCRUB HABITAT WITH AGAVE AND COLUMNAR CACTI PRESENT AS FOOD PLANTS

DAY ROOSTS IN CAVES AND ABANDONED TUNNELS. FORAGES AT NIGHT ON NECTAR, POLLEN, AND FRUIT OF PANICULATE AGAVES AND COLUMNAR CACTI. THIS SPECIES IS MIGRATORY AND IS PRESENT IN ARIZONA, USUALLY FROM APRIL TO SEPTMBER AND SOUTH OF THE BORDER THE REMAINDER OF THE YEAR.

NAME: MEXICAN GRAY WOLF *CANIS LUPUS BAILEYI*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67; 43 FR 1912, 03-09-78

DESCRIPTION: LARGE DOG-LIKE CARNIVORE WITH VARYING COLOR, BUT USUALLY A SHADE OF GRAY. DISTINCT WHITE LIP LINE AROUND MOUTH. WEIGH 60-90 POUNDS.

ELEVATION
RANGE: 4,000-12,000FT.

COUNTIES: APACHE, COCHISE, GREENLEE, PIMA, SANTA CRUZ

HABITAT: CHAPPARAL, WOODLAND, AND FORESTED AREAS. MAY CROSS DESERT AREAS.

HISTORIC RANGE IS CONSIDERED TO BE LARGER THAN THE COUNTIES LISTED ABOVE. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE (COCHISE, PIMA, SANTA CRUZ) CONTINUE TO BE RECEIVED. INDIVIDUALS MAY STILL PERSIST IN MEXICO. EXPERIMENTAL NONESSENTIAL POPULATION INTRODUCED IN THE BLUE PRIMITIVE AREA OF GREENLEE AND APACHE COUNTIES.

NAME: OCELOT *LEOPARDUS (=FELIS) PARDALIS*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 47 FR 31670; 07-21-82

DESCRIPTION: MEDIUM-SIZED SPOTTED CAT WHOSE TAIL IS ABOUT 1/2 THE LENGTH OF HEAD AND BODY. YELLOWISH WITH BLACK STREAKS AND STRIPES RUNNING FROM FRONT TO BACK. TAIL IS SPOTTED AND FACE IS LESS HEAVILY STREAKED THAN THE BACK AND SIDES.

ELEVATION
RANGE: <8000 FT.

COUNTIES: SANTA CRUZ, PIMA, COCHISE

HABITAT: HUMID TROPICAL & SUB-TROPICAL FORESTS, SAVANNAHS, AND SEMI-ARID THORNSCRUB.

MAY PERSIST IN PARTLY-CLEARED FORESTS, SECOND-GROWTH WOODLAND, AND ABANDONED CULTIVATION REVERTED TO BRUSH. UNIVERSAL COMPONENT IS PRESENCE OF DENSE COVER. UNCONFIRMED REPORTS OF INDIVIDUALS IN THE SOUTHERN PART OF THE STATE CONTINUE TO BE RECEIVED.

Appendix F: Letter from U.S. Fish and Wildlife Service Regarding Threatened or Endangered Species

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:

COCHISE

08/26/1999

NAME: YAQUI TOPMINNOW

POECILIOPSIS OCCIDENTALIS SONORIENSIS

STATUS: ENDANGERED

CRITICAL HAB No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-1967

DESCRIPTION: SMALL (2 INCHES) TOPMINNOW GUPPY-LIKE, LIVE BEARING, LACKING DARK SPOTS. BREEDING MALES JET BLACK WITH YELLOW FINS.

ELEVATION
RANGE: <4500 FT.

COUNTIES: COCHISE

HABITAT: SMALL TO MODERATE SIZED STREAMS, SPRINGS, & CIENEGAS GENERALLY IN SHALLOWS

NAME: BALD EAGLE

HALIAEETUS LEUCOCEPHALUS

STATUS: THREATENED

CRITICAL HAB No RECOVERY PLAN: Yes CFR: 60 FR 35999, 07-12-95

DESCRIPTION: LARGE, ADULTS HAVE WHITE HEAD AND TAIL. HEIGHT 28 - 38"; WINGSPAN 66 - 96". 1-4 YRS DARK WITH VARYING DEGREES OF MOTTLED BROWN PLUMAGE. FEET BARE OF FEATHERS.

ELEVATION
RANGE: VARIES FT.

COUNTIES: YUMA, LA PAZ, MOHAVE, YAVAPAI, MARICOPA, PINAL, COCONINO, NAVAJO, APACHE, SANTA CRUZ, PIMA, GILA, GRAHAM, COCHISE

HABITAT: LARGE TREES OR CLIFFS NEAR WATER (RESERVOIRS, RIVERS AND STREAMS) WITH ABUNDANT PREY

SOME BIRDS ARE NESTING RESIDENTS WHILE A LARGER NUMBER WINTERS ALONG RIVERS AND RESERVOIRS. AN ESTIMATED 200 TO 300 BIRDS WINTER IN ARIZONA. ONCE ENDANGERED (32 FR 4001, 03-11-1967; 43 FR 6233, 02-14-78) BECAUSE OF REPRODUCTIVE FAILURES FROM PESTICIDE POISONING AND LOSS OF HABITAT, THIS SPECIES WAS DOWN LISTED TO THREATENED ON AUGUST 11, 1995. ILLEGAL SHOOTING, DISTURBANCE, LOSS OF HABITAT CONTINUES TO BE A PROBLEM. SPECIES HAS BEEN PROPOSED FOR DELISTING (64 FR 36454) BUT STILL RECEIVES FULL PROTECTION UNDER ESA.

NAME: CACTUS FERRUGINOUS PYGMY-OWL

GLAUCIDIUM BRASILIANUM CACTORUM

STATUS: ENDANGERED

CRITICAL HAB Yes RECOVERY PLAN: No CFR: 62 FR 10730, 3-10-97

DESCRIPTION: SMALL (APPROX. 7"), DIURNAL OWL REDDISH BROWN OVERALL WITH CREAM-COLORED BELLY STREAKED WITH REDDISH BROWN. SOME INDIVIDUALS ARE GRAYISH BROWN

ELEVATION
RANGE: <4000 FT.

COUNTIES: MARICOPA, YUMA, SANTA CRUZ, GRAHAM, GREENLEE, PIMA, PINAL, GILA, COCHISE

HABITAT: MATURE COTTONWOOD/WILLOW, MESQUITE BOSQUES, AND SONORAN DESERTSCRUB

RANGE LIMIT IN ARIZONA IS FROM NEW RIVER (NORTH) TO GILA BOX (EAST) TO CABEZA PRIETA MOUNTAINS (WEST). ONLY A FEW DOCUMENTED SITES WHERE THIS SPECIES PERSISTS ARE KNOWN, ADDITIONAL SURVEYS ARE NEEDED. CRITICAL HABITAT IN PIMA, COCHISE, PINAL, AND MARICOPA COUNTIES (64 FR 37419).

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:
08/26/1999

COCHISE

NAME: WHOOPING CRANE

GRUS AMERICANA

STATUS: ENDANGERED CRITICAL HAB Yes RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-1967; 43
DESCRIPTION: TALLEST AMERICAN BIRD (UP TO 5 FEET) SNOWY WHITE, LONG NECK FR 20938, 05-15-78
AND LEGS, BLACK WING TIPS, RED CROWN, AND BLACK WEDGE
SHAPED PATCH OF FETHERS BEHIND ITS EYE. ELEVATION
RANGE: 4500 FT.

COUNTIES: COCHISE

HABITAT: MARSHES, PRAIRIES, RIVER BOTTOMS

BIRDS IN THE ROCKY MOUNTAIN POPULATION ARE OCCASIONAL VISITORS IN ARIZONA DURING MIGRATION.
USUALLY NEAR WILCOX PLAYA.

NAME: SONORA TIGER SALAMANDER

AMBYSTOMA TIGRINUM STEBBINSI

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: No CFR: 62 FR 665, 01-06-97
DESCRIPTION: 2.6 TO 4.9" SNOUT-VENT LENGTH WITH LIGHT-COLORED BANDS ON A
DARK BACKGROUND. AQUATIC LARVAE ARE UNIFORM DARK COLOR
WITH PLUME-LIKE GILLS AND TAIN FINS. ELEVATION
RANGE: 4000-6300 FT.

COUNTIES: SANTA CRUZ, COCHISE

HABITAT: STOCK TANKS AND IMPOUNDED CIENEGAS IN SAN RAFAEL VALLEY, HUACHUCA MOUNTAINS

ALSO OCCURS IN THE FOOTHILLS OF THE EAST SLOPE OF THE PATAGONIA AND HUACHUCA MOUNTAINS.
POPULATIONS ALSO ON FORT HUACHUCA.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:
08/26/1999

COCHISE

3) CANDIDATE

TOTAL= 4

NAME: LEMMON FLEABANE

ERIGERON LEMMONII

STATUS: CANDIDATE

CRITICAL HAB No RECOVERY PLAN: No CFR:

DESCRIPTION: A PROSTRATE PERENNIAL IN THE SUNFLOWER FAMILY. STEMS AND LEAVES ARE DENSELY HAIRY. FLOWERS LOOK LIKE SMALL DELICATE DAISIES, WITH WHITE TO LIGHT PURPLE OUTER PETALS AND YELLOW INNER PETALS.

ELEVATION
RANGE: 1500-6000 FT.

COUNTIES: COCHISE

HABITAT: GROWS IN DENSE CLUMPS IN CREVICES, LEDGES, AND BOULDERS IN CANYON BOTTOMS IN PINE-OAK WOODLAND

ONE SITE ON FORT HUACHUCA MILITARY RESERVATION

NAME: GILA CHUB

GILA INTERMEDIA

STATUS: CANDIDATE

CRITICAL HAB No RECOVERY PLAN: No CFR:

DESCRIPTION: DEEP COMPRESSED BODY, FLAT HEAD. DARK OLIVE-GRAY COLOR ABOVE, SILVER SIDES. ENDEMIC TO GILA RIVER BASIN.

ELEVATION
RANGE: 2000 - 3500 FT.

COUNTIES: SANTA CRUZ, GILA, GREENLEE, PIMA, COCHISE, GRAHAM, YAVAPAI

HABITAT: POOLS, SPRINGS, CIENEGAS, AND STREAMS

MULTIPLE PRIVATE LANDOWNERS, INCLUDING THE NATURE CONSERVANCY, THE AUDUBON SOCIETY, AND OTHERS. ALSO FT. HUACHUCA. SPECIES ALSO FOUND IN SONORA, MEXICO.

NAME: HUACHUCA SPRINGSNAIL

PYRGULOPSIS THOMPSONI

STATUS: CANDIDATE

CRITICAL HAB No RECOVERY PLAN: No CFR:

DESCRIPTION: VERY SMALL (1.7-3.2mm) CONICAL SHELL. IDENTIFICATION MUST BE VERIFIED BY CHARACTERISTICS OF REPRODUCTIVE ORGANS.

ELEVATION
RANGE: 4500-8000 FT.

COUNTIES: COCHISE, SANTA CRUZ

HABITAT: AQUATIC AREAS, SMALL SPRINGS WITH VEGETATION SLOW TO MODERATE FLOW.

INDIVIDUALS FOUND ON FIRM SUBSTANCES (ROOTS, WOOD, AND ROCKS) OTHER POPULATIONS FOUND ON FORT HUACHUCA MILITARY PROPERTY

APPENDICES

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY:
COCHISE

COCHISE

CONSERVATION AGREEMENT

TOTAL= 1

NAME: RAMSEY CANYON LEOPARD FROG

RANA SUBAQUIVOCALIS

STATUS: NONE

CRITICAL HABITAT NO RECOVERY PLAN: NO CFR:

DESCRIPTION: BROWN OR GREEN FROG, 2.5 TO 4 INCHES LONG; SPOTS ROUNDED
WITH LIGHT BORDERS; DORSOLATERAL FOLDS ARE INTERRUPTED
POSTERIORLY AND DEFLECTED MEDIANLY; YELLOWISH PROMINENTATION
ON THE GROIN WHICH MAY EXTEND INTO THE POSTERIOR VENTER

ELEVATION
RANGE: 4000 FT FT.

COUNTIES: COCHISE

HABITAT: STREAM AND PONDED AQUATIC HABITATS

CONSERVATION AGREEMENT BETWEEN THE SERVICE, ARIZONA GAME AND FISH DEPARTMENT, THE NATURE
CONSERVANCY, BUREAU OF LAND MANAGEMENT, COCHISE NATIONAL FOREST, THE US ARMY INTELLIGENCE
CENTER AND FORT HUachuca, AND A PRIVATE LANDOWNER WERE FINALIZED JULY 1998

SELECTED REFERENCES

LITERATURE CITED

Arizona Department of Economic Security

- 2001 *Arizona's Historical Labor Force and Nonfarm Jobs Data, Arizona Counties*. Accessed on the Internet at <www.de.state.az.us/links/economic/webpage/page4.html>

Arizona Department of Environmental Quality

- 1998 *Arizona Unified Watershed Assessment*. Available on the Internet at <www.adeq.state.az.us/environwater/mgmt/download/unified.pdf>. Accessed July 2002.
- 2000a *Air Quality Annual Report*. Accessed on the Internet at <www.adeq.state.az.us/comm/pubs/download/2001/cir3.pdf>.
- 2000b *Annual Report*.
- 2001 *Air Quality Annual Report*. Accessed on the Internet at <www.adeq.state.az.us/comm/pubs/download/2001/cir3.pdf>

Arizona Game and Fish Department

- 1954 *The Mammals of the Huachuca Mountains, Southeastern Arizona*, by D. F. Hoffmeister and W. W. Goodpaster. Illustrated Biology Monograph 24. Phoenix, AZ.
- 1988 *List of Wildlife of Special Concern in Arizona*. Phoenix, AZ.
- 1989a "Nongame Field Note: Barking Frog," by Cecil R. Schwalbe. Phoenix, AZ.
- 1989b *Threatened Native Wildlife in Arizona*. Phoenix, AZ.
- 1990 *Threatened Native Wildlife in Arizona*. Phoenix, AZ.
- 1993 *Bat Inventory of Abandoned Mines, Bureau of Land Management, Phoenix District*, by T. K. Snow, S. V. Castner, and D. C. Noel. Technical Report, Nongame and Endangered Wildlife Program. Phoenix, AZ.
- 1995 *Recovery Plans and Conservation Agreements for Listed and Candidate Species in Arizona*. Phoenix, AZ: Heritage Data Management System.
- 1996 *Wildlife of Special Concern in Arizona*. Phoenix, AZ. In preparation.

Arizona Natural Heritage Program

- 1981 "Western Barking Frog." Report prepared under contract for the U.S. Forest Service.

Arizona Regional Image Archive

- 1999a "Ranching in Cochise County: Background Information on Ranching." Courses, Arizona Regional Image Archive. Available on the Internet at <<http://aria.arizona.edu/courses/ar1642/cochise98/ranching/background.html>>.
- 1999b "Ranching in Cochise County: Interpretation of Comparative Case Studies." Courses, Arizona Regional Image Archive. Available on the Internet at <<http://aria.arizona.edu/courses/ar1642/cochise98/ranching/interpretations.html>>.

Arizona Trail Association

- N.d. *The Arizona Trail*. Brochure.

Armour, C. L., D. A. Duff, and W. Elmore

- 1991 "The Effects of Livestock Grazing on Riparian and Stream Ecosystems." *Fisheries* 16:7-11.

SELECTED REFERENCES

- Ax, R. L., and W. Armer
 1993 *Ranch Business Management*. N.p. Available on the Internet at <<http://ag.arizona.edu/arec/pubs/rmg/ranchers.html>>.
- Bahre, C. J.
 1995 "Human Impacts on the Grasslands of Southeastern Arizona." In M. P. McClaran and T. R. Van Devender, eds., *The Desert Grassland*, pp. 230–303. Tucson, AZ: University of Arizona Press.
- Belsky, A. J., A. Matzke, and S. Uselman
 1999 "Survey of Livestock Influences on Stream Riparian Ecosystems in the Western United States." *Journal of Soil and Water Conservation* 54: 419–431.
- Blydenstein, J.
 1966 "Root Systems of Four Desert Grassland Species on Grazed and Protected Sites." *Journal of Range Management* 19: 93–95.
- Bock, C. E., and J. H. Bock
 1993 "Cover of Perennial Grasses in Southeastern Arizona in Relation to Grazing." *Conservation Biology* 7: 371–377.
- Bock, C. E., J. H. Bock, W. R. Kenney, and V. M. Hawthorne
 1984 "Responses of Birds, Rodents, and Vegetation to Livestock Enclosure in a Semidesert Grassland Site." *Journal of Range Management* 37: 239–242.
- Bock, C. E., H. M. Smith, and J. H. Bock
 1990 "The Effects of Livestock Grazing upon Abundance of the Lizard, *Sceloporus scalaris*, in Southeastern Arizona." *Journal of Herpetology* 24: 445–446.
- Bock, C. E., and B. Webb
 1984 "Birds as Grazing Indicator Species in Southeast Arizona." *Journal of Wildlife Management* 48: 1045–1049.
- Brady, W. W., M. R. Stromberg, E. F. Aldon, C. D. Bonham, and S. H. Henry
 1989 "Response of a Semidesert Grassland to 16 Years of Rest from Grazing." *Journal of Range Management* 42: 284–288.
- Brown, D. E., editor
 1982 "Biotic Communities of the American Southwest: United States and Mexico." *Desert Plants* 4:1–342. Cited in Ruffner and Johnson 1991.
- Bucci, M., Y. Petryszyn, and B. Alberti
 N.d. "The Use of an Experimental Bat Gate at Coronado National Memorial." Draft report in preparation for the National Park Service.
- Bureau of Land Management, U.S. Department of the Interior
 1989 *San Pedro River Riparian Management Plan and Final Environmental Impact Statement*.
- Bureau of Land Management, U.S. Department of the Interior
 1990a *Arizona Wetland Riparian Management Strategy*.
 1990b *The Final Safford District Resource Management Plan and Environmental Impact Statement*.
 1999 *BLM Strategic Plan: Who We Are and Where We're Going*. Available on the Internet at <<http://www.az.blm.gov:80/strategic.htm>>.

Colorado State Parks

- 1998 "Planning Trails with Wildlife in Mind: A Handbook for Trail Planners." Trails and Wildlife Task Force. Hullmund Associates, Denver, Colorado.

Cook, Joseph A.

- 1986 *The Mammals of the Animas Mountains and Adjacent Areas: Hidalgo County, New Mexico*. [Albuquerque, NM]: University of New Mexico. Occasional Papers, the Museum of Southwestern Biology.

Cockrum, E. L., and B. Hayward

- 1962 "Hummingbird Bats." *Natural History* 71: 39–44.

Cockrum, E. L., C. H. Lowe, S. M. Russell, D. Danforth, T. B. Johnson, and Y. Petryszyn

- 1979 *Survey of the Vertebrate Fauna of Coronado National Memorial*. Tucson, AZ: University of Arizona, Cooperative National Park Research Studies Unit. Technical report 5.

Council on Environmental Quality, Executive Office of the President

- 1978 "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act." *Code of Federal Regulations* Title 40, Parts 1500–1508. Washington, D.C.

Ellison, L.

- 1960 "Influence of Grazing on Plant Succession of Rangelands." *The Botanical Review* 26: 1–78.

Fleischner, T. L.

- 1994 "Ecological Costs of Livestock Grazing in Western North America." *Conservation Biology* 8: 629–644.

Fleming, T. H., R. A. Nunez, and L. L. Sternberg

- 1993 "Seasonal Changes in the Diets of Migrant and Non-migrant Nectarivorous Bats as Revealed by Carbon Stable Isotope Analysis." *Oecologia* 94: 72–75.

Forest Service, U.S. Department of Agriculture

- 1986a *Coronado National Forest, Land and Resource Management Plan*. Tucson, AZ.
 1986b *Record of Decision, Coronado National Forest, Land and Resource Management Plan: Final Environmental Impact Statement*.
 1995 *Arizona, Grand Canyon State: Recreation and Historic Sites Map: Campgrounds and Facilities on State, Federal and Tribal Lands*.
 1997 *East Huachuca Strategy Draft*. Prepared by Coronado National Forest, Sierra Vista District.
 1999 "Hopi Traditional Use and Property Overview, Coronado National Forest, Fiscal Year 1999 and 2000 Projects," by James A. McDonald. Tucson, AZ.

Forest Service, U.S. Department of Agriculture, Southwest Region, and Arizona Game and Fish Heritage Fund

- N.d. *Southeastern Arizona Outdoor Recreation Guide and Map*. Brochure.

SELECTED REFERENCES

- Forman, Richard T. T.
 2000 "Estimate of the Area Affected Ecologically by the Road System in the United States." *Conservation Biology* 14 (1), 31- 35.
- Forman, R. T. T. and L. E. Alexander
 1998 "Roads and Their Major Ecological Effects." *Annual Review of Ecology and Systematics* 29:207-231.
- Ganey, J. L., and R. P. Balda
 1994 "Habitat Selection by Mexican Spotted Owls in Northern Arizona." *Auk* 111(1): 162-169.
- Hass, C. C.
 2000 "Landscape Fragmentation and Connectivity for Carnivores in the Upper San Pedro Basin." Fort Huachuca Wildlife Office, Fort Huachuca, AZ.
- Hastings, J. R., and R. M. Turner
 1965 *The Changing Mile: an Ecological Study of Vegetation Change with Time in the Lower Mile of an Arid and Semiarid Region*. Tucson, AZ: University of Arizona Press.
- Hawks, M. M.
 1997 "The Status of Palmer's Agave at Coronado National Memorial." M.S. thesis, University of Arizona.
- Hodgeson, W. and R. DeLamater.
 1988 "Agave arizonica: Summary of Status and Report on Recent Studies." Unpublished report cited in Hawks 1997.
- Hoffmeister, D. F.
 1986 *Mammals of Arizona*. Tucson, AZ: The University of Arizona Press and the Arizona Game and Fish Dept.
- Howell, D. J.
 1974 "Acoustic Behavior and Feeding in Glossophagine Bats." *Journal of Mammalogy* 55: 293-308.
 1976 "Plant- Loving Bats, Bat- Loving Plants." *Natural History*. February, 52-59.
 1980 "Adaptive Variation in Diets of Desert Bats and Implications for Evolution of Feeding Strategies." *Journal of Mammalogy* 61: 730-733.
 1996 "Agave Palmeri on Fort Huachuca: Five Years of Research on Natural History and Response to Fire." Report to Fort Huachuca, Arizona.
- Howell, D. J., and B. S. Roth
 1981 "Sexual Reproduction in Agaves: the Benefits of Bats: Cost of Semelparous Advertising." *Ecology* 62: 3-7.
- Jepson- Innes, K., and C. E. Bock
 1989 "Response of Grasshoppers (*Orthoptera: Acrididae*) to Livestock Grazing in Southeastern Arizona: Differences between Seasons and Subfamilies." *Oecologia* 78: 430-431.
- Knight, R. L., and K. J. Gutzwiller
 1995 *Wildlife and Recreationists*. Covelo, CA: Island Press.
- Kunzmann, M. R., L. S. Hall, and R. R. Johnson
 1998 *The Birds of North America*. No. 357, "Elegant Trogon."

Lavender, David

1992 *DeSoto, Coronado, Cabrillo: Explorers of the Northern Mystery*. Washington, D.C.

Martinez- Morales, R., and S. E. Meyer

1985 "A Demographic Study of Marguey Verde (*Agave salmiana* ssp. *crassipina*) under Conditions of Intense Utilization." *Desert Plants* 7:61-64.

National Park Service, U.S. Department of the Interior

N.d. *Finding of No Significant Impact, Livestock Management Plan, Coronado National Memorial*. Hereford, AZ.

1975 "Coronado National Memorial, Survey Report" by Yvonne G. Stewart and Susan Purves, Western Archeological Center, Tucson, AZ.

1985 "Investigations at the Ratliff Property (AZ EE:12:34), An Early Homestead in Coronado National Memorial, Southeast Arizona," by Mary D. Tagg, Western Archeological Center, Tucson, AZ.

1993 Abandoned Mine Closure Project: Closure Proposals and Cost Estimates. Prepared by Mining and Minerals Branch, Washington, D.C.

1994 "Annual Statement for Interpretation, Fiscal Year 1994, Coronado National Memorial." Hereford, AZ.

1995 "List of Classified Structures, Coronado National Memorial." Hereford, AZ.

1997a *Coronado Cave*. Accessed on the Internet July 9, 2002, at <<http://www.nps.gov/coro/cave/htm>>.

1997b *Coronado National Memorial Natural and Cultural Resources Management Plan*.

1998a "Cultural Resource Management Guideline." (Prepared in 1997, released in June 1998, Director's Order 28). Washington, D.C.

1998b "Planner Sourcebook, Director's Order 2: Park Planning." Denver Service Center, Denver, CO.

1999a "Montezuma Ranch, Coronado National Memorial, Cultural Landscape Inventory (part 1)," Hereford, AZ.

1999b "Strategic Plan for Coronado National Memorial, October 1, 1999-September 30, 2002." Hereford, AZ.

2000a *Bird Sightings at Coronado National Memorial*. Accessed on the Internet in July 2002 at <www.nps.gov/coro/birdcolr.htm>.

2000b *Livestock Management Plan, Including Livestock Management Guidelines, Environmental Assessment, Joe's Spring Allotment Management Plan and Montezuma Allotment Management Plan: Coronado National Memorial, Cochise County, Arizona*. Hereford, AZ.

2000c "Strategic Plan for Coronado National Memorial, October 1, 2000-September 30, 2005." Hereford, AZ.

2001a *Director's Order 12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making*. [Washington, D.C.].

2001b "Engineering Assessment of Montezuma Canyon Road, Coronado National Memorial." Hereford, AZ.

2001c *Management Policies 2001*. Washington, D. C.

2001d "Visitation Figures for Coronado National Memorial," Washington Office, Statistical Unit.

SELECTED REFERENCES

- Natural Resources Conservation Service, U. S. Department of Agriculture.
2000 *Soil Survey of Coronado National Memorial*, by D. W. Denny and C. R. Peacock.
Technical report 63. Prepared for the National Park Service
- The Nature Conservancy. Arizona Chapter
N.d. *Ramsey Canyon Inn Bed & Breakfast*. Brochure.
- New Mexico Department of Game & Fish and Virginia Polytechnic Institute, Fisheries and
Wildlife Department
2000 *The Fish and Wildlife Information Exchange*. Other contributing agencies are the
Bureau of Land Management, U.S. Fish and Wildlife Service, and Bureau of
Reclamation, U.S. Department of the Interior; U.S. Forest Service, U.S. Department
of Agriculture; Army Corps of Engineers; New Mexico State Land Office; University
of New Mexico, New Mexico Natural Heritage Program; and Biota Information
System Of New Mexico (BISON). Available on the Internet at
<http://www.fw.vt.edu/fishex/nmex_main/species/050065.htm> (version 1/2000)
and <<http://www.fw.vt.edu/states.nm.htm>> OR
<http://www.cnr.vt.edu/fishex/nmex_main/species/050065.htm>.
- Ogden, P. R.
1995 "Coronado National Memorial Inventory and Grazing Management Alternatives for
Joe's Spring and Montezuma Allotments." Report prepared for the National Park
Service, Southern Arizona Office, Phoenix, AZ.
- Parfitt, B. D., and C. M. Christy
1992 "Coronado National Memorial Plant Checklist: A Synonymized List of the Vascular
Plants." Report prepared for the National Park Service, Southern Arizona Office,
Phoenix, AZ.
- Peterson, Roger Tory
1961 *A Field Guide to Western Birds*. Cambridge, MA: The Riverside Press.
- Roberson, E.
1996 *Impacts of Livestock Grazing on Soils and Recommendations for Management*. N.p.
Available on the Internet at <www.cnps.org/conservation/grazing.htm>.
- Petryszyn, Y., and B. Alberti.
N.d. "Bat Survey, Monitoring, and Activity at Agaves at Coronado National Memorial."
Draft report in preparation for the National Park Service.
- Ruffner, G. A., and R. A. Johnson
1991 *Plant Ecology and Vegetation Mapping at Coronado National Memorial, Cochise
County, Arizona*. Tucson, AZ: University of Arizona, Cooperative National Park
Resources Studies Unit. Technical report 41.
- Society for Range Management
1989 *A Glossary of Terms Used in Range Management*.
- Southern Arizona Magazine
N.d. *Kartchner Caverns*. Available on the Internet at <<http://soarizona.com/winter99/cave.html>>.
- Southern San Pedro Valley Area Plan Citizen Planning Committee, Cochise County Planning and
Management Information Systems Staff, Cochise County Planning Commission, and Cochise
County Board of Supervisors
2001 *Southern San Pedro Valley Area Plan*.

Southwest Parks and Monuments Association

- 1993 *A Checklist of the Birds of Coronado National Memorial, Arizona*. N.p. Available on the Internet at <<http://www.nps.gov/coro/birdlist.htm>>.

Swann, D. E., B. N. Alberti, and C. R. Schwalbe

- 2001 "Inventory and Recommendations for Long- term Monitoring of Reptiles and Amphibians at Coronado National Memorial, Arizona." Report prepared for the National Park Service, Southern Arizona Office, by University of Arizona, Cooperative National Park Resources Studies Unit.

Swann, D. E., T. Edwards, and C. R. Schwalbe.

- 1999 *Ecology of Banded- Rock Rattlesnakes and Sonoran Mountain Kingsnakes at Coronado National Memorial, Arizona*. Tucson, AZ: Prepared for the National Park Service Southern Arizona Office by University of Arizona, Cooperative National Park Resources Studies Unit.

Swann, D. E., C. R. Schwalbe, A. J. Kuenzi, and B. Alberti

- 2000 "An Inventory of the Terrestrial Mammals of Coronado National Memorial, Cochise County, Arizona." Report prepared for the National Park Service, Southern Arizona Office, by University of Arizona, Cooperative National Park Resources Studies Unit.

Toolin, L. J.

- 1980 *The Flora of Ramsey Canyon*. Tucson, AZ: The Arizona Nature Conservancy.

Trombulak, S. C., and C. A. Frissell

- 2000 "Review of Ecological Effects of Roads on Terrestrial and Aquatic Communities." *Conservation Biology* 14: 18–30.

U.S. Army

- 2001 *Final Draft: U. S. Army Intelligence Center and Fort Huachuca Integrated Natural Resources Management Plan and Environmental Assessment, 2001–2005*.

U.S. Department of Agriculture

- 1979 *Soil survey of Santa Cruz and parts of Cochise and Pima Counties, Arizona*, by M. L. Richardson, S. D. Clemmons, and J. C. Walker.

U.S. Department of the Interior

- 1996 *The Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for the Treatment of Cultural Landscapes*.

U.S. Fish and Wildlife Service, U. S. Department of the Interior

- 1979 *Classification of Wetlands and Deepwater Habitats of the United States*, by L. M. Cowardin,. V. Carter, F. C. Golet, and E. T. LaRoe. Washington, D.C. FWS/OBS-79/31.
- 1994 *Lesser Long- nosed Bat Recovery Plan*. Arizona Ecological Services State Office, Phoenix, AZ.
- 1995a "Endangered and Threatened Wildlife and Plants: Proposal to Determine Endangered Status of Three Wetland Species Found in Southern Arizona and Northern Sonora." *Federal Register* 60: 16836–16847.
- 1995b "Endangered and Threatened Wildlife and Plants: Proposed Revisions for Proposed Designation of Critical Habitat for the Mexican Spotted Owl." *Federal Register* 60: 12728–12730.
- 1995c *Lesser Long- nosed Bat Recovery Plan*. Prepared by Arizona Ecological Services State Office. Phoenix, AZ.

SELECTED REFERENCES

U.S. Fish and Wildlife Service, U. S. Department of the Interior (continued)

- 1998 *National Wetlands Inventory Maps: Montezuma Pass, Arizona Quadrant, Hereford SW, Arizona Quadrant. Drafts.*
- 1999 "Biological Opinion for Activities Authorized, Carried Out, or Funded by the Department of the Army at and near Fort Huachuca, Arizona."
- 2001 *Final Designation of Critical Habitat for the Mexican Spotted Owl. 50 CFR 17: February 1, 2001.*

U.S. Geological Survey

- 1999 *Hydrogeologic Investigations of the Sierra Vista Subwatershed of the Upper San Pedro Basin, Cochise County, Southeast Arizona*, by D. R. Pool and A. L. Coes. Water Resource Investigations Report 99- 4197.

U.S. Geological Survey and University of Arizona, Cooperative Park Studies Unit

- 1997 *Bajada, The Limestone Troll* 5(3), by Cecil Schwalbe, Barbara Alberti, and Mary Gilbert.

U.S. Immigration and Naturalization Service, U.S. Department of Justice

- 2000 *Final Environmental Assessment for Infrastructure within US Border Patrol Naco-Douglas Corridor, Cochise County, Arizona.*

Upper San Pedro Partnership

- N.d. *Upper San Pedro Partnership. Brochure.*
- 2001 "Progress Report, January."

Wallmo, O. C.

- 1955 "Vegetation of the Huachuca Mountains, Arizona." *American Midland Naturalist* 54: 466-480

INTERNET ADDRESSES

Arizona Department of Environmental Quality, Air Quality Division.

Internet address: <<http://www.adeq.state.az.us/environ/air/index.html>>.

Arizona Department of Transportation.

Internet address: <<http://map.azfms.com/datateam/trafmon.html>>.

Arizona Government, Superior Court Law Library

Internet address: <<http://www.superiorcourt.maricopa.gov/lawlibrary/Oirazgov.asp>>.

Arizona Hotel Directory

Available on the Internet at <<http://www.azhotels.com/KartchnerCaverns.asp>>.

Arizona State Parks

Internet address: <<http://www.pr.state.az.us/>>.

Arizona State Parks, Kartchner Caverns State Park

Kartchner Caverns State Park® Tour Reservation Internet address:
<<http://www.pr.state.az.us/parkhtml/kartchner.html>>.

Bureau of Land Management, U.S. Department of the Interior, Arizona Offices

Information available on the Internet at

<<http://www.az.blm.gov:80/tfo/spnca/sptrail.html>> or
<<http://www.az.blm.gov:80/tfo/spnca/palominas.html>>; or
<<http://www.blm.gov:80/education/tl/pages/page43.html>>.

Cochise County, Arizona (County Government)

Internet address: <<http://www.co.cochise.az.us/>>.

Coronado National Memorial, National Park Service, U.S. Department of the Interior

Internet address: <<http://www.nps.gov/coro>>.

Kartchner Caverns State Park

Internet address: <<http://soarizona.com/winter99/cave.html>>.

National Biological Information Infrastructure

U.S. Programs & Activities: Arizona. Available on the Internet at

<<http://www.nbio.gov/geographic/us/az-nbio.html>>.

NatureServe

“An Online Encyclopedia of Life.” Web application. Version 1.4. Arlington, VA.
Association for Biodiversity Information. Available on the Internet at
<<http://www.natureserve.org/>>. (Accessed: June 7, 2001).

Ramsey Canyon Inn Bed and Breakfast, Hereford, Arizona.

Internet address: <<http://www.innsite.com/inns/A000070.html>>.

Sky Islands Alliance

Internet address: <<http://www.skyislandsalliance.org>>.

Tombstone, AZ, City of

Internet address: <<http://cityoftombstone.com>>.

U.S. Fish and Wildlife Service, U. S. Department of the Interior.

Endangered species listing available on the Internet at <<http://endangered.fws.gov>>.

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