



National Natural Landmarks Program



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Natural Landmark Landmarks

- Natural areas that contain outstanding examples of biological and/or geological features
- Public and private ownership
- Collectively represent the story of America's natural heritage

600



Trona Pinnacles, CA

Photo by C. Stocks



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Landmark Designation

- Honors landowners for preserving a nationally significant site
- Increases awareness to encourage well-informed land-use planning decisions
- Creates connections for cooperative conservation



Landmark Designation



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- is **not** a land withdrawal
- does **not** change ownership of the site
- does **not** necessitate public access
- does **not** dictate land use activities



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Conservation of NNL resources is achieved because of the voluntary commitment of landowners



Archbold Biological Station, FL

Photo by R. Bowman



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Current Proposals

- ✓ Written landowner permission received
- ✓ Evaluated and recommended for NNL designation by scientists familiar with the site's resources
- ✓ Peer reviewed by 3 additional scientists
- ✓ Considered by the NNL Committee
- ✓ 60-day public comment period



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NNL Significance Criteria



Horseshoe Lake Nature Preserve, IL

Photo by M. Dague

Primary Natural Features

- Illustrative Character
- Present Condition

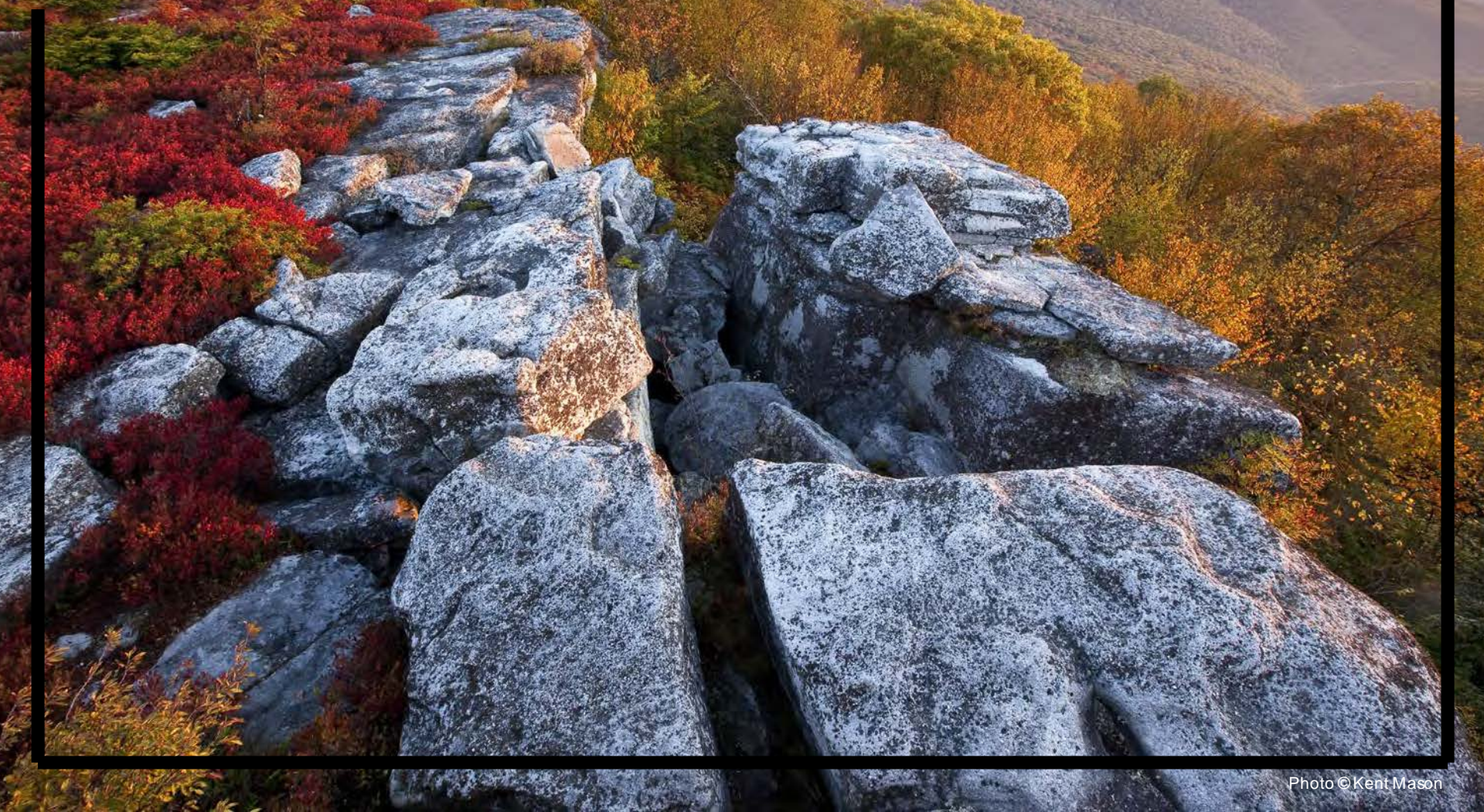
Secondary Natural Features

- Diversity
- Rarity
- Value for Science & Education



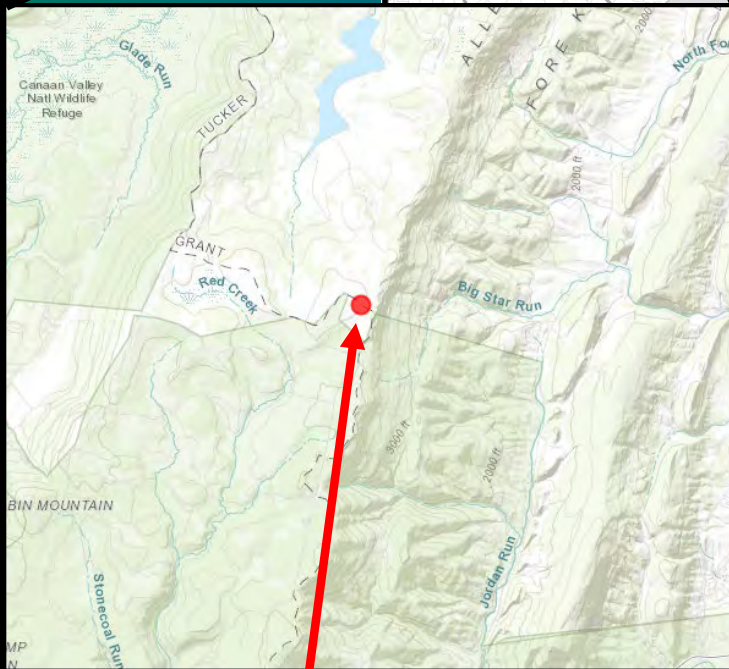
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Bear Rocks and Allegheny Front Preserve, West Virginia



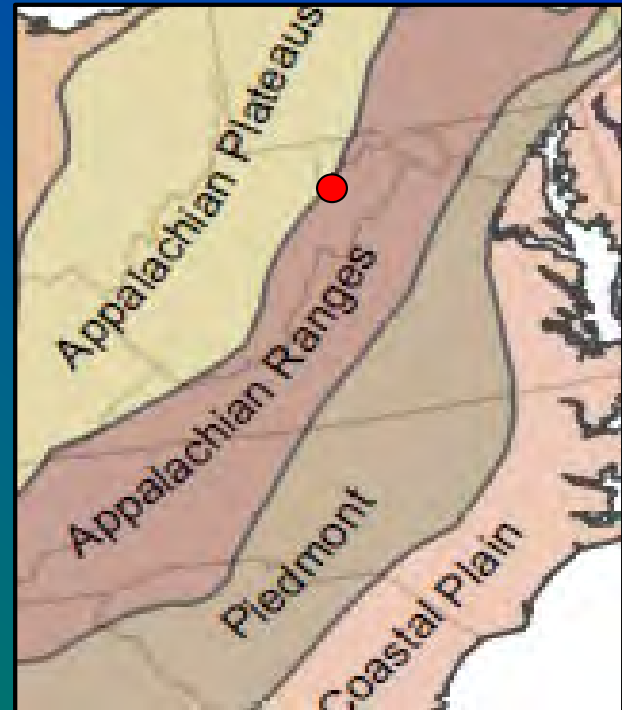


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Located between the city of Petersburg (Grant County) and the town of Davis (Tucker County)

Site Location



Appalachian Plateaus
Physiographic Province



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Owned and
Managed by:

The Nature
Conservancy

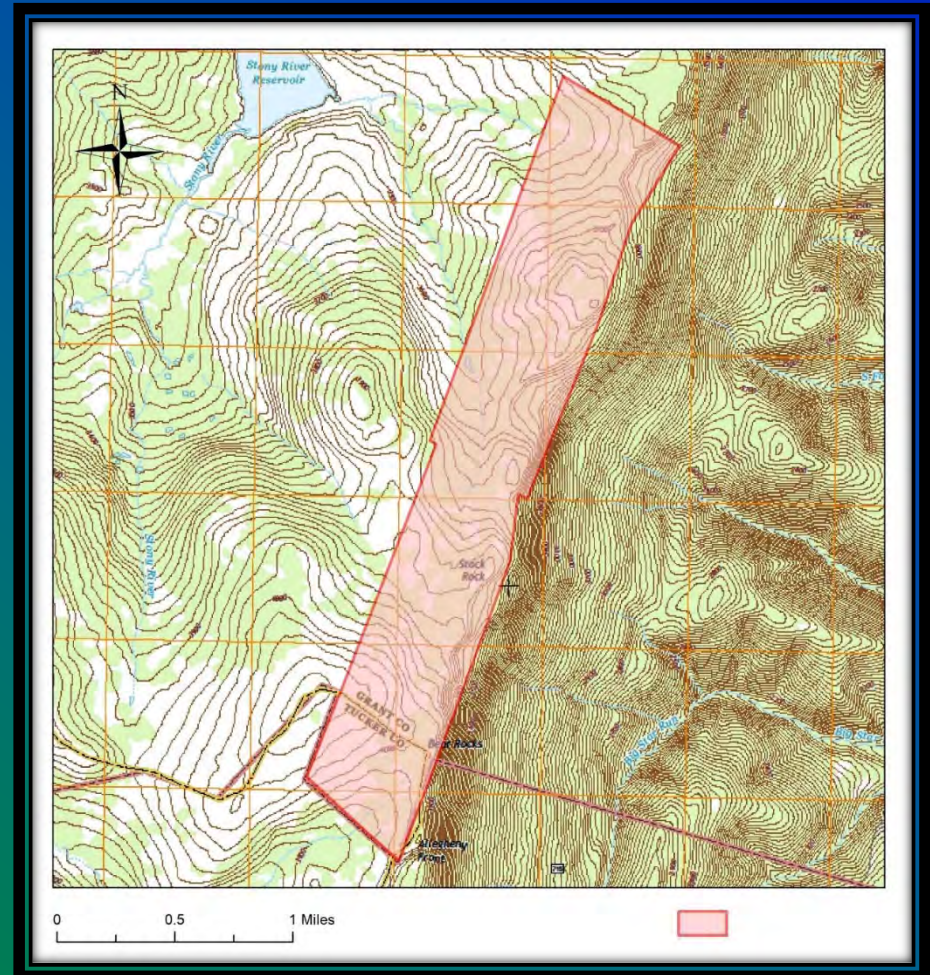


Evaluated by:

- Dr. Todd R. Lookingbill
 - University of Richmond
- Dr. Katharina A. M. Engelhardt
 - University of Maryland
Center for Environmental
Science
- Dr. David E. Kitchen
 - University of Richmond
- Aug 2019

Study Area & Proposed Landmark Boundary:

- 1204 acres





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Primary Natural Features...

Plains, Plateaus & Mesas / Plateaus



Photo by Todd Lookingbill



Photo © Kent Mason



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Secondary Natural Features...



Photo by Natalie Somerville

Boreal Forest /
Appalachian Highlands



Photos by Todd Lookingbill

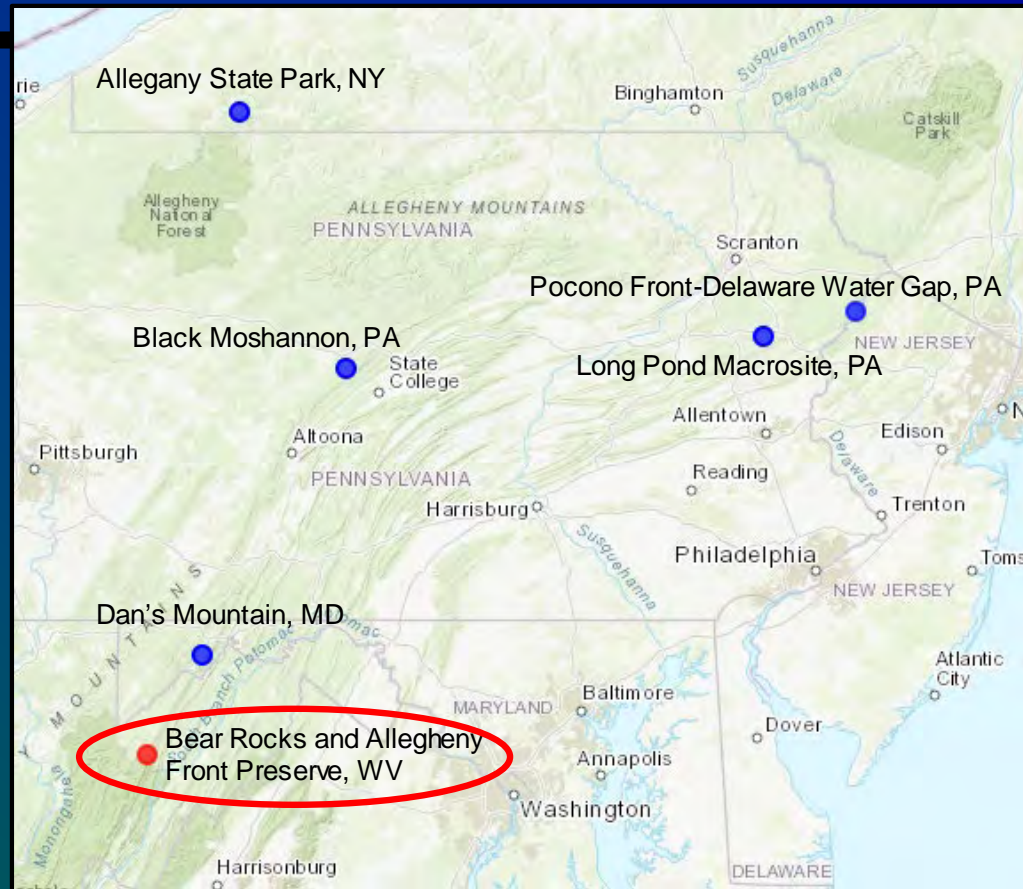


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Comparative Assessment



Photo © Kent Mason



Illustrative Character:

- Escarpment separating the Appalachian Plateaus and Ranges Provinces
- Clear and accessible front
- Bear Rocks towering elevation makes this site most illustrative



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Present Condition:

- Little human impact in the preserve
- Does not require much active management
- Management emphasizes maintaining resources of high ecological value

Diversity:

- Several large, well-defined potholes, highlighting weathering processes
- Diverse plant communities:
 - Climax spruce forest developmental stages
 - Cranberry bogs & blueberry bushes



Photos by Todd Lookingbill
and Natalie Somerville



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Rarity:

- Bear Rocks notable species:
 - Northern goshawk (*Accipiter gentilis*),
 - bog copper butterfly (*Lycaena epixanthe*),
 - Allegheny woodrat (*Neotoma magister*), and
 - Pink-edged sulphur butterfly (*Colias interior*)
- Several globally and state rare shrub and heathland communities



Photo by Todd Lookingbill

Value for Science and Education:

- Affords a readily accessible outdoor museum
- Ecologically, Bear Rocks has great scientific value for its comprehensible display of plant succession and diversity of species



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National Significance

Bear Rocks and Allegheny Front Preserve is the best example of a plateau within the Appalachian Plateaus Province, providing an outstanding illustration of how tectonic activity and continental collision form regionally important mountain and plateau landscapes. The high elevation and cool climate of the preserve supports a diverse ecology.



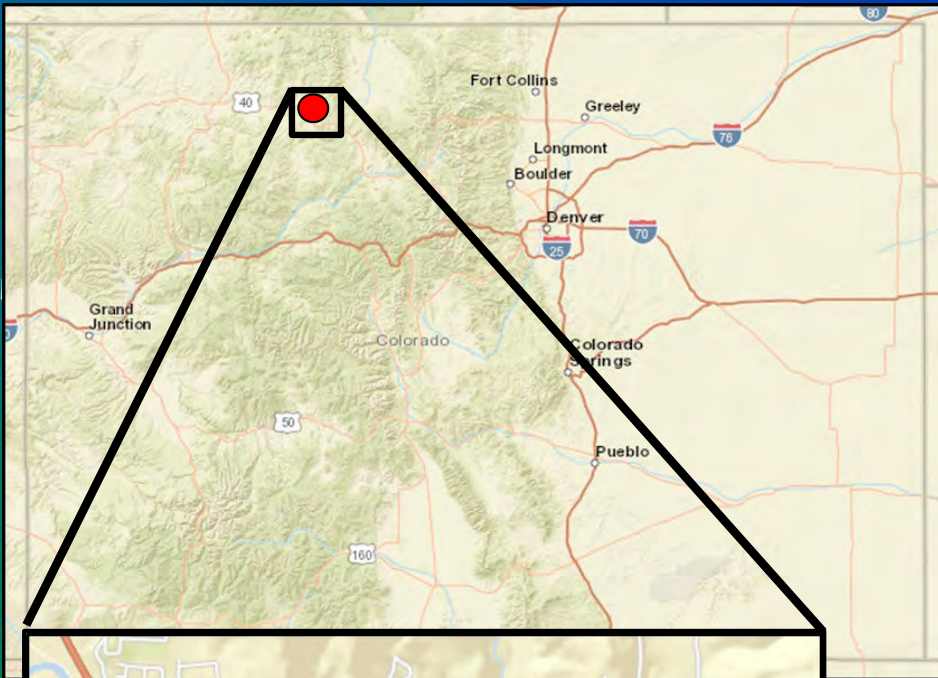
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Sulphur Cave and Spring, Colorado



Photo by Norm Thompson

Site Location



Located within Steamboat Springs in Routt County



Southern Rocky Mountains
Physiographic Province



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Managed by:

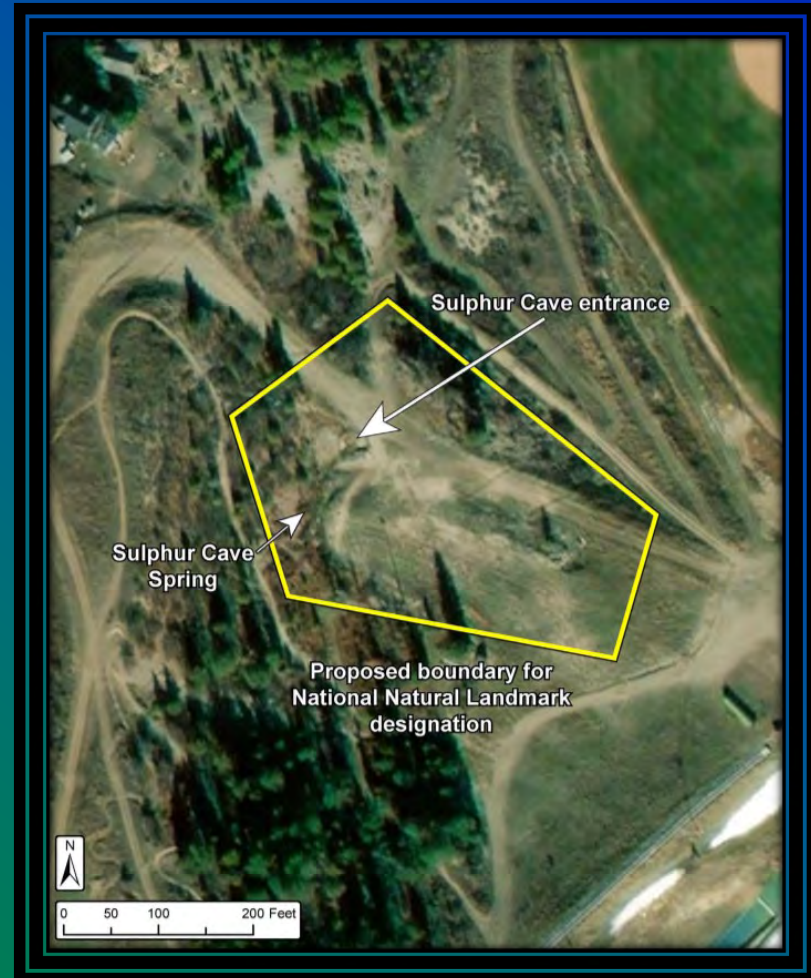
City of
Steamboat Springs
Parks & Recreation

Evaluated by:

- Dr. Fred Luiszer, University of Colorado, Boulder
- April 2020

Study Area & Proposed
Landmark Boundary:

- 2.45 acres





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Primary Natural Features...

Caves and Springs /
Solution Caves



Photos by Norm Thompson



Secondary Natural Features...

Underground Systems / Cave Ecosystems



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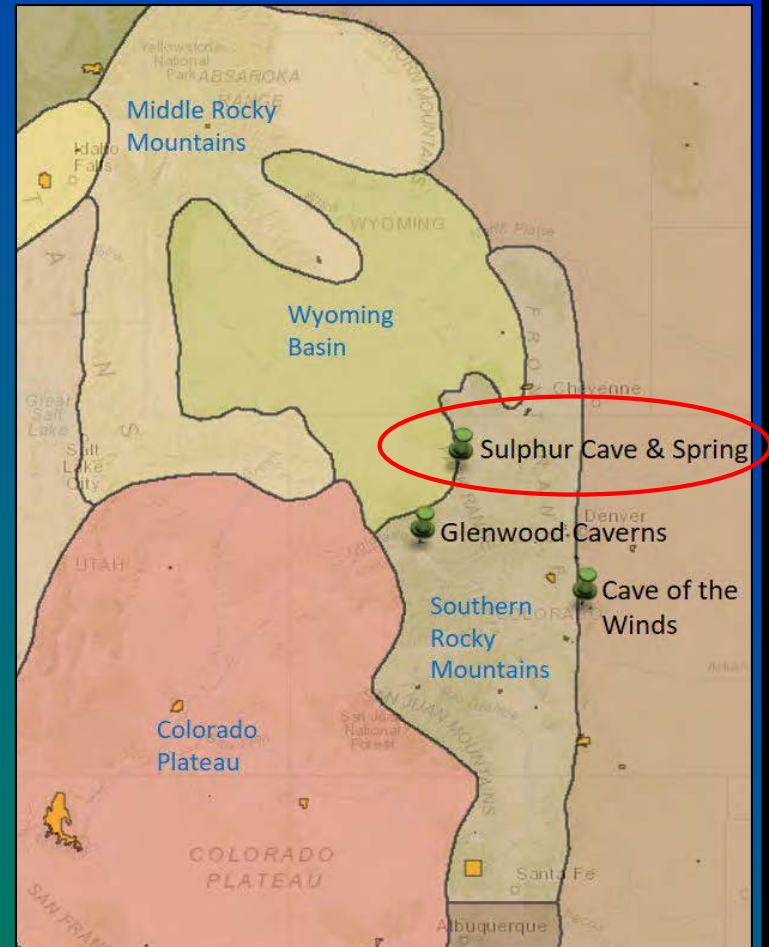
Comparative Assessment

Illustrative Character:

- Sulphur Cave is the only known cave within CO formed solely by sulfuric acid
- Still actively forming and growing

Present Condition:

- Access infrequent and highly controlled
- Protected by a fence and warning signs





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Diversity and Rarity:

- Rare native sulfur, gypsum speleothems, biovermiculations, and snottites
- Blood red worms that are globally unique



Photos by Norm Thompson

Value for Science and Education:

Sulphur Cave has one of the greatest opportunities for science

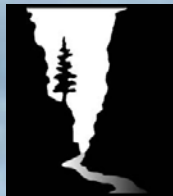
- Study of extremophiles
- Scientific discovery of past and present cave fauna and paleoclimate
- Increased understanding of hypogene sulfuric acid speleogenesis and evolution of karst aquifers



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National Significance

Sulphur Cave and Spring is a superb example of the process and products of bacterially-mediated sulfuric acid speleogenesis. The cave contains many uncommon cave features, including the recently discovered blood-red worm, which is unique to the cave, found nowhere else in the world.



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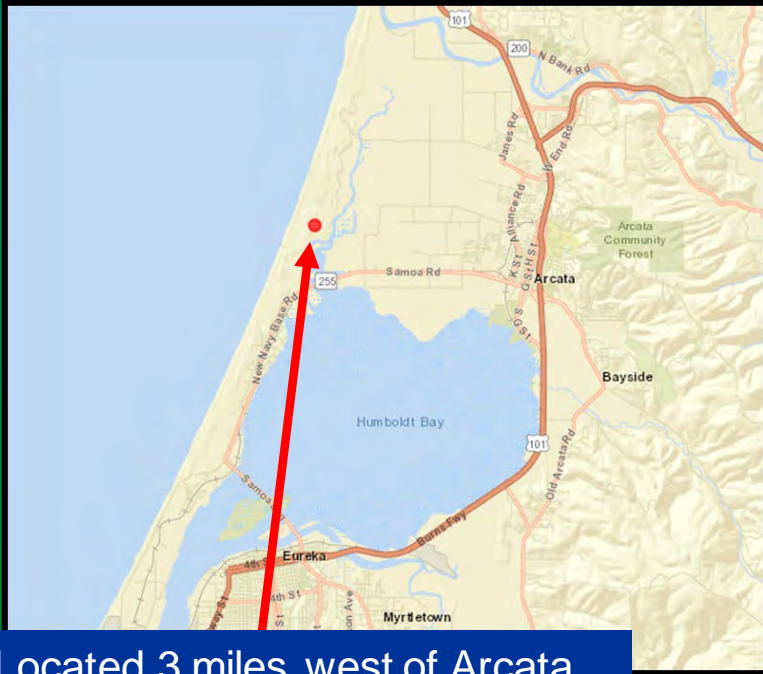
Lanphere and Ma-le'l Dunes, California



Photo by Andrea Pickart



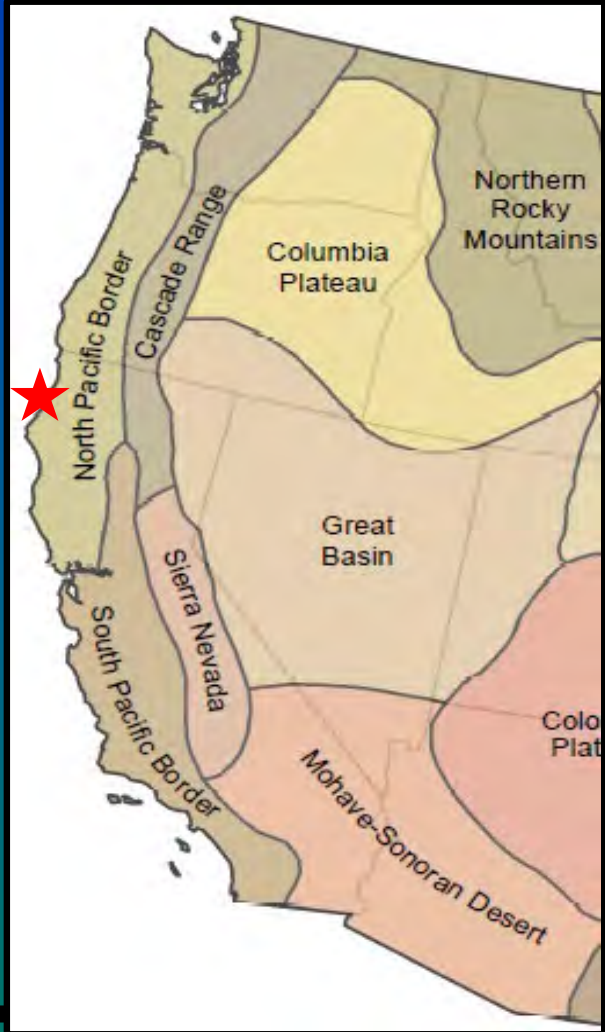
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Located 3 miles west of Arcata
in Humboldt County

Site Location

North Pacific
Border
Physiographic
Province





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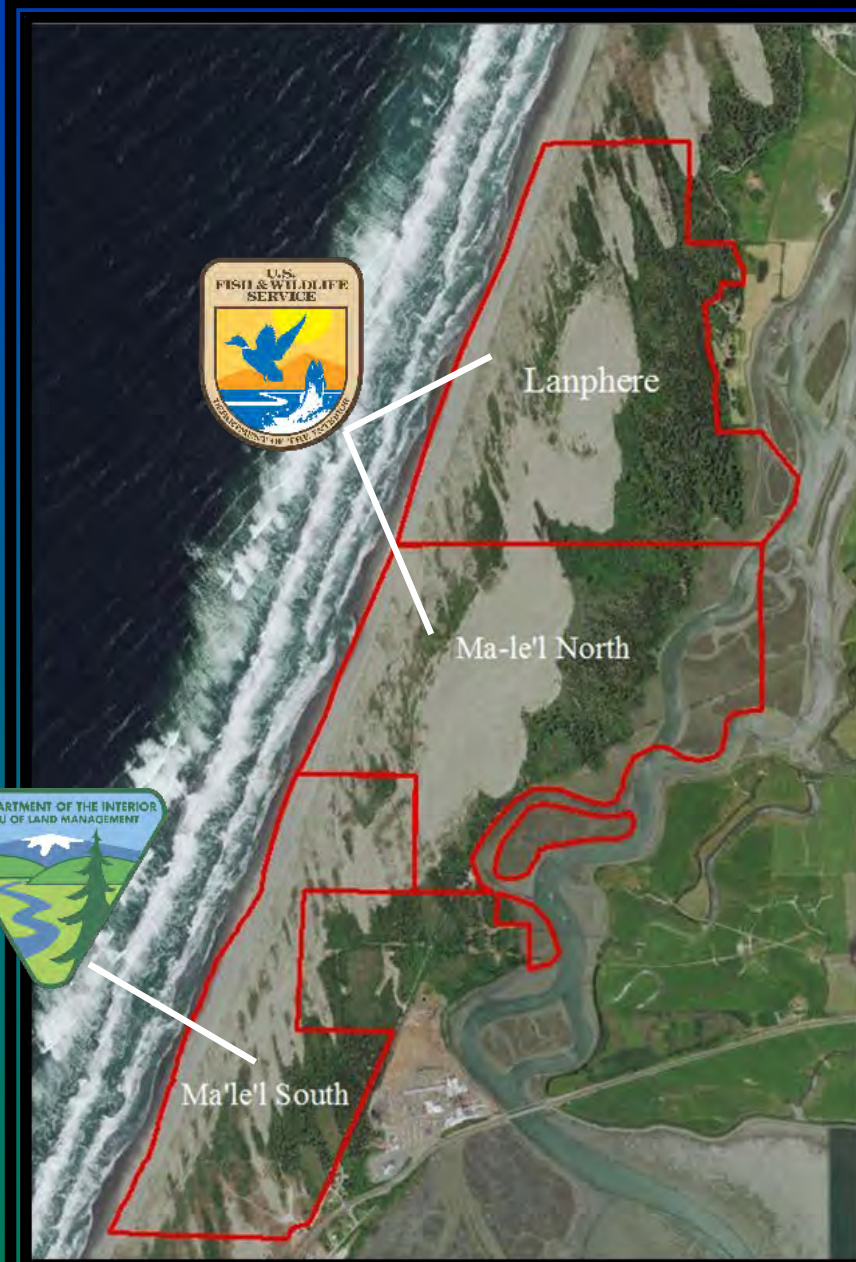
Jointly Managed Ma-le'l Dunes Cooperative Management Area

Evaluated by:

- Dr. Peter Alpert, University of Massachusetts, and
- Dr. James S. Kagan, Oregon Biodiversity Information Center
- May 2019

Study Area & Proposed Landmark Boundary:

- 834 acres





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Primary Natural Features

Sand dune ecosystems

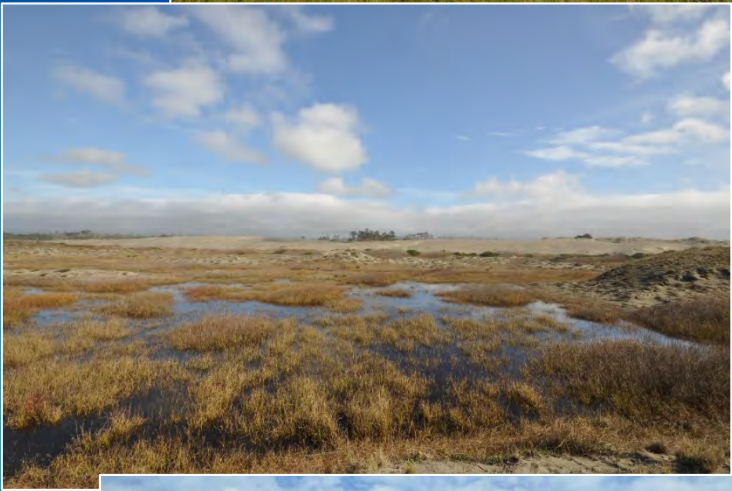
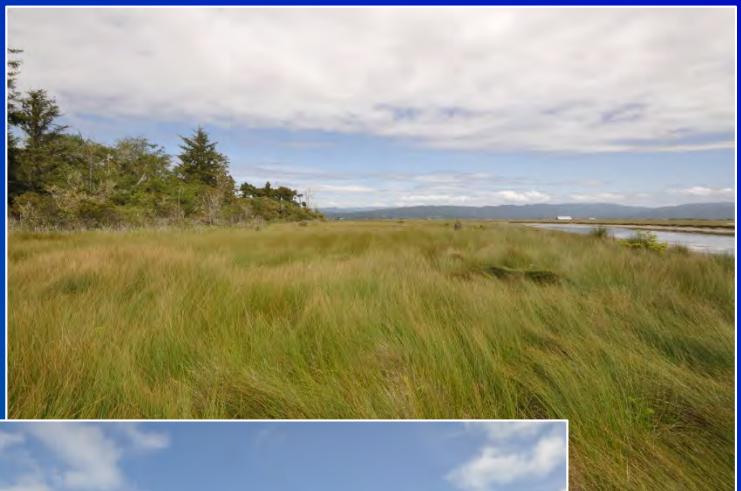


Photo by Andrea Pickart

Terrestrial Habitats



Wetland Habitats





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Secondary Natural Features

Eolian Landforms / Sand Dunes





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Comparative Assessment

Illustrative Character:

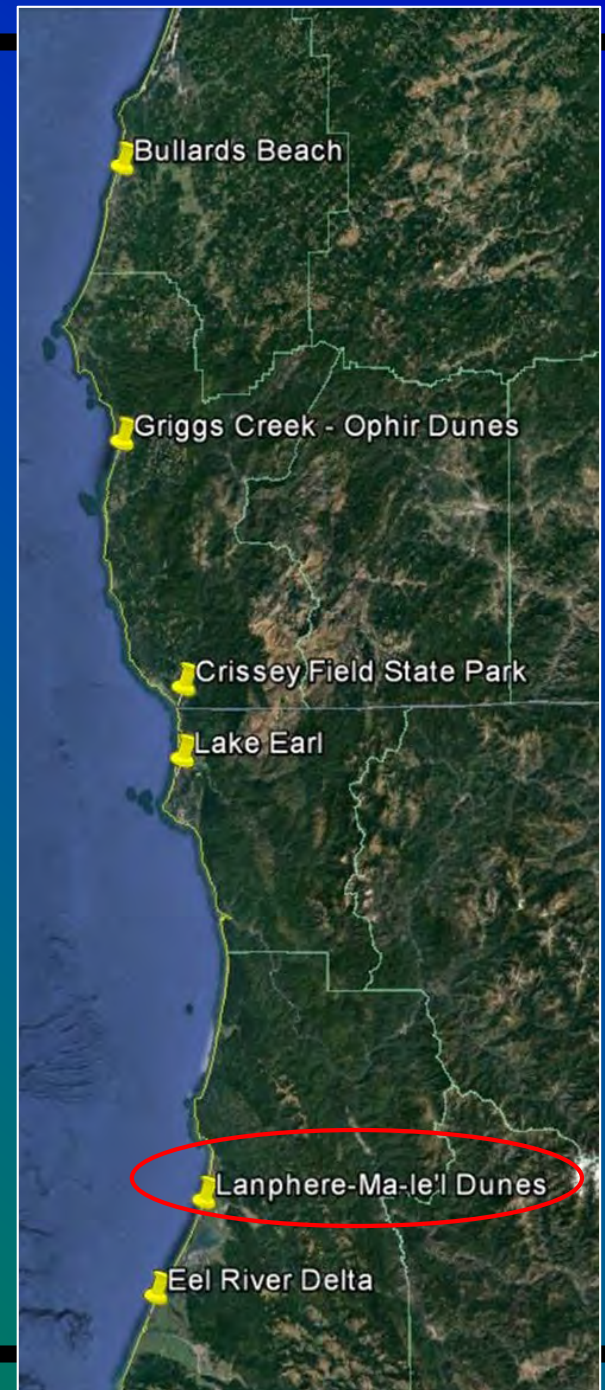
- Lanphere and Ma-le'l Dunes contains the best-quality dunes with the full suite of dunes ecosystems



Photo by Andrea Pickart

Present Condition:

- Fairly large, diverse area
- Only undisturbed native foredunes
- Low in weeds, with ongoing efforts to remove exotic species





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Diversity:

High-quality examples of dune landforms:

- beach, foredunes, transverse dunes, stabilized dune forests, and deflation plains

Rarity:

Lanphere and Ma-le'l Dunes support a number of endemic, rare, at-risk plant species:



Menzies wallflower
(*Erysimum menziesii*)



beach tidy-tips (*Layia canosa*)



Humboldt Bay owl's clover
(*Castilleja ambigua* ssp.
humboldtiensis)



Point Reyes bird's beak
(*Chloropyron maritimum* ssp.
palustre)

Value to Science & Education:

- Managed for education, research, conservation and a range of recreational opportunities
- Exceptional value for botanical and ecological research



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National Significance

Lanphere and Ma-le'l Dunes is the largest and best quality sand dune ecosystem, containing virtually all the typical species of vascular plants, plus a number of rare flora.





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Public Comments

Lanphere and Ma-le'l Dunes, CA

- 4 letters received
 - 3 in full support of NNL designation
 - 1 with concerns about a portion of the designation
 - Humboldt Bay Municipal Water District has recorded easements across the proposed NNL areas
 - Requested that “the area encompassing our easement rights over the property not be designated as NNL.”



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Supporting conservation of America's natural heritage



Walrus Islands, AK