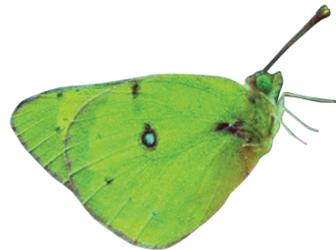




Valles Caldera National Preserve

MASTER PLAN for INTERPRETATION

2.0 RESOURCES for INTERPRETATION



Interpretation is about stories to be shared. Stories are always linked to features. This section documents these natural and cultural features to form the interpretive resources of the Preserve.

2.1 Biophysical Features

Some of the biophysical features that lend themselves most easily to interpretation include:

- **Caldera Formation**
 - Valles Caldera contains one of the best examples of a caldera formation in the world and provided important evidence for the theory of plate tectonics.
 - Volcanic activity created many dominant geologic features in and near the Preserve.
 - It is one of only three active calderas in the United States.
 - Redondo Peak is a resurgent dome formed just after the initial collapse of the caldera.
 - Obsidian formed as a result of intense, early volcanic eruptions that took place in the caldera.
- **Geothermal Springs**
 - These natural geothermal springs in the Preserve create unusual, diverse ecological communities.
- **Grasslands**
 - The Preserve's montane grasslands are one of the largest in the Southern Rocky Mountain Ecoregion.
- **Forests**
 - Over 60% of the forest has been previously logged.
 - Ponderosa pine stands near the current headquarters are over 300 years old.
- **Rare Plants**
 - The Preserve contains rare plant species of New Mexico.
 - Sapello Canyon larkspur is endemic to the Jemez, Sangre de Cristo and Sandia Mountains.
 - The only known occurrence of bog birch in New Mexico is found in the Preserve.
- **Freshwater Habitats**
 - Hot springs, cold-water springs, acid pools, bogs and two major mountain stream watersheds are located within the Preserve.
 - Alamo Bog is a "fen" fed by warm underground springs, which supports the bog birch, water sedge and club moss association found nowhere else in New Mexico.
- **Species Diversity**
 - Over 550 species of plants occur in the Preserve, including 20 species of noxious weeds.
 - Over 107 bird species use the Preserve at various times during the year; many use the preserve for breeding.
 - Sixty-three (63) species of butterflies are known to inhabit the Preserve.
 - The Preserve is the core breeding ground and nursery for the Jemez Mountains elk population.
 - Black bear, mountain lion and bobcat are rarely seen, but their populations are presumed to be viable.
 - Smaller mammals found on the Preserve include pikas and Gunnison's prairie dogs.
 - Native fish, like the Rio Grande cutthroat trout, have been displaced by brown and rainbow trout.
 - The Jemez Mountain salamander is endemic to the Jemez Mountains.
 - New species have been found, such as the Caldera caddisfly.

2.2 Cultural Heritage Features

Valles Caldera has its own cultural stories and plays an important role in many regional stories:

- **Spiritual Connections to the Valles Caldera and Jemez Mountains**

- These landscape features have special spiritual meaning to the Pueblos.
- Redondo Peak is sacred in the Jemez Pueblo and Zia Pueblo traditions.
- Many Rio Grande Pueblo communities maintain links to areas within the Preserve.
- The Utes, the Navajo and the Jicarilla Apache also have ties to the area.

- **Obsidian Quarries**

- This rock was used for tool making and attracted early hunters to the area who established three main quarries within the Valles Caldera.

- **Hunting History**

- Pueblo, Hispanic and Anglo-European groups hunted elk, deer, bear, turkey, grouse, mountain lion and other game animals in the caldera. Anglo-Europeans introduced recreational hunting, which continues to an important activity.

Los Alamos Historical Society



2.3 History as a Working Ranch

The Preserve is often referred to locally and regionally as “The Baca” reflecting its origin as private land. The term is used in this document to refer to the regional perception of this land as a long-standing, private ranch with deep routes in the community.

Land Grant History

- The Preserve was once the Baca Location No. 1, and was privately owned from 1860 to 2000.

Sheep Ranching

- The caldera’s grasslands attracted Hispanic shepherds and sheep ranchers, some of whom left names and dates carved on aspen trees.
- The Jemez Pueblo also grazed flocks of sheep in the Valles Caldera.
- Ranching was the main activity that connected the Hispanic people to the Valles Caldera.
- The sheep industry’s growth in the late 1800s and 1900s has influenced today’s native plant composition on the Preserve.

Cattle Grazing

- Cattle grazing replaced sheep grazing in the caldera after World War II—cattle are still grazed in the caldera today.

Harvesting the Forest

- Past logging operations from 1946 through to the mid-1970s, removed most old-growth stands.
- Between 1963 and 1971, New Mexico Timber cleared more than 1,000 miles of road.

Geothermal Exploration

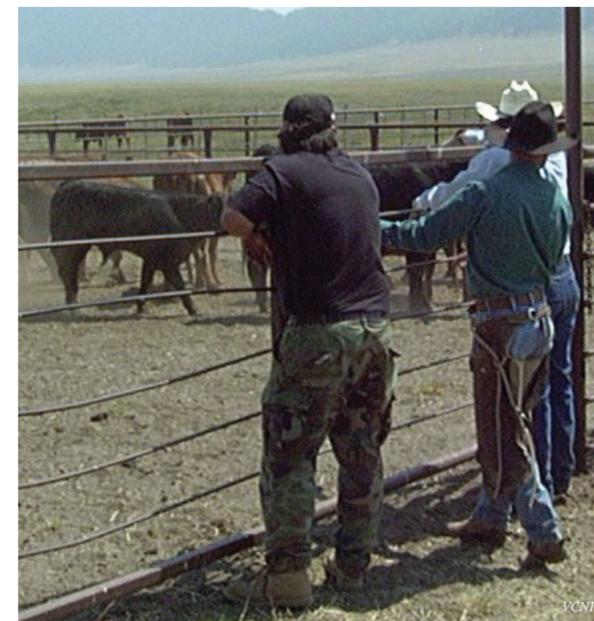
- Remnant well sites and buildings once used for geothermal exploration still exist in the Preserve.

Ranching Facilities

- Ranching structures and facilities can be found throughout the Preserve. Most are concentrated in the headquarters area and some are still in use.

Movie Sets

- Hollywood built movie sets in the Preserve that capitalized on the caldera’s beautiful vistas.





Valles Caldera National Preserve

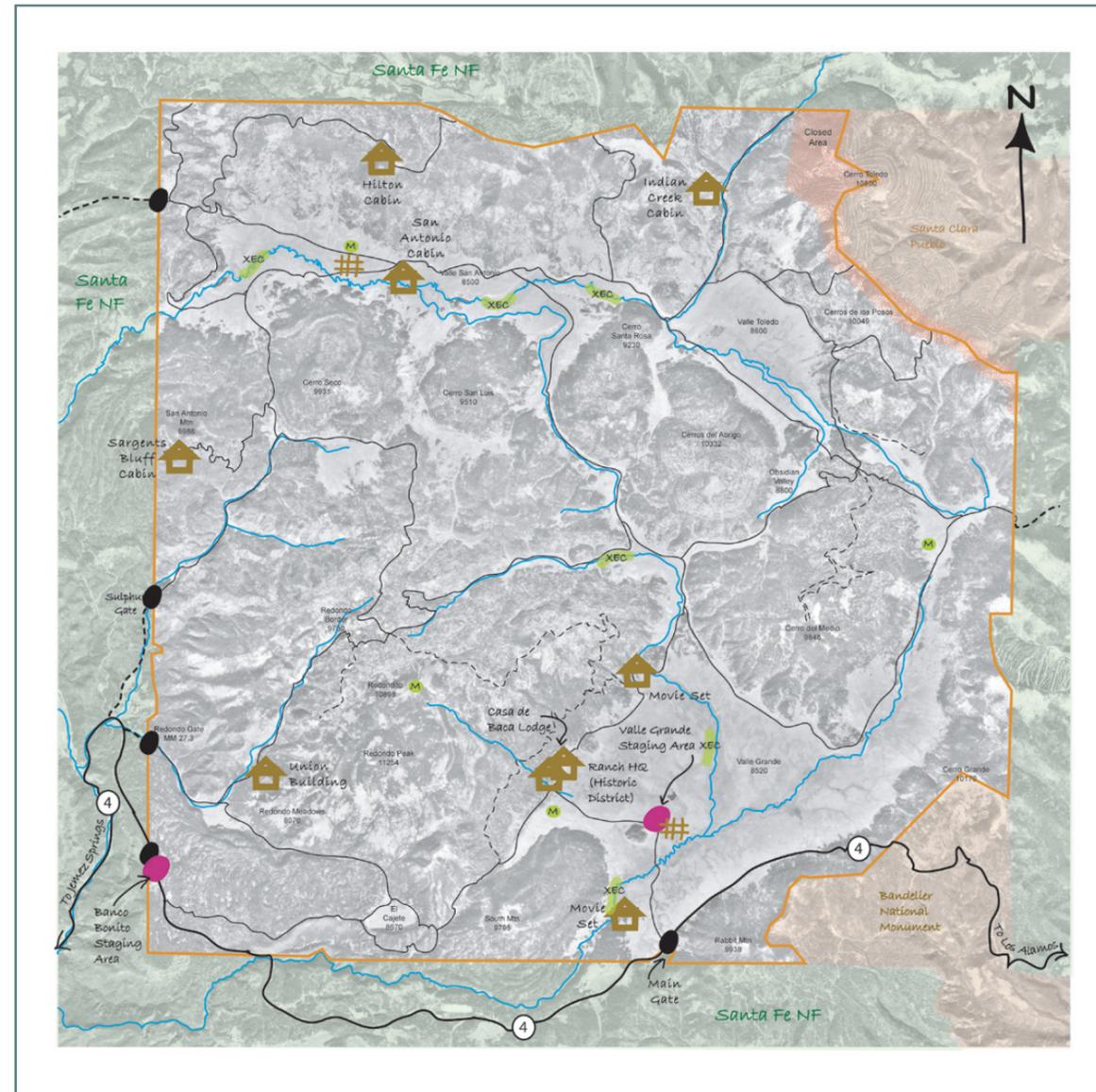
MASTER PLAN for INTERPRETATION

Legend

- Key Entry Areas
- Entry Roads - Other
- State Hwy 4
- Open Roads
- Staging Area
- Major Streams/Rivers
- Corral/Scales
- Current Buildings

Science & Research Polygons

- M = Meteorological Station
- XEC = Research elk/cow exclosures across streams (m = 6)*
(*okay for education & tours, not fishing or hiking right through study areas)



2.4 Site Analysis

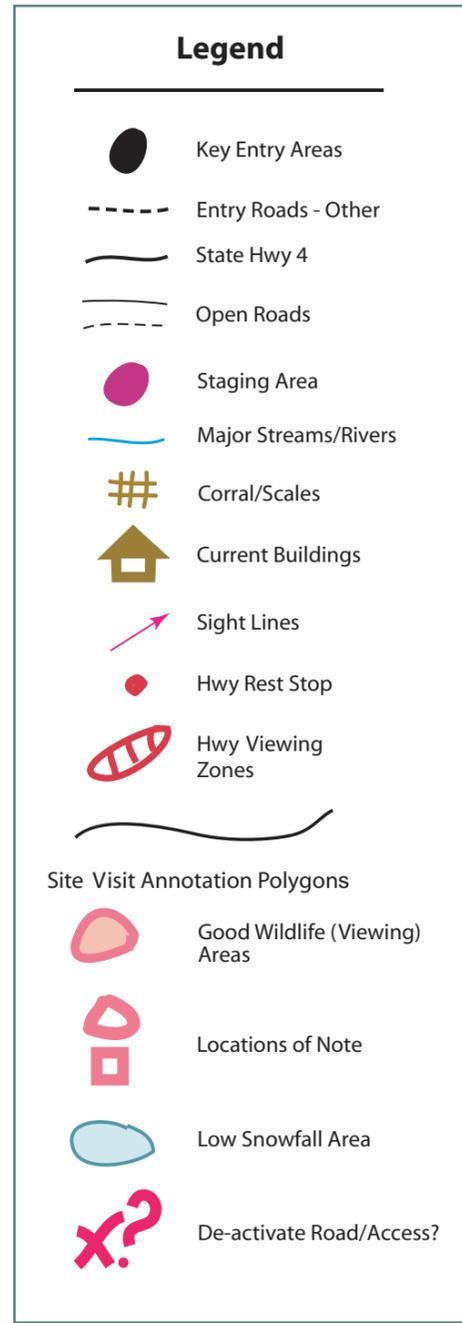
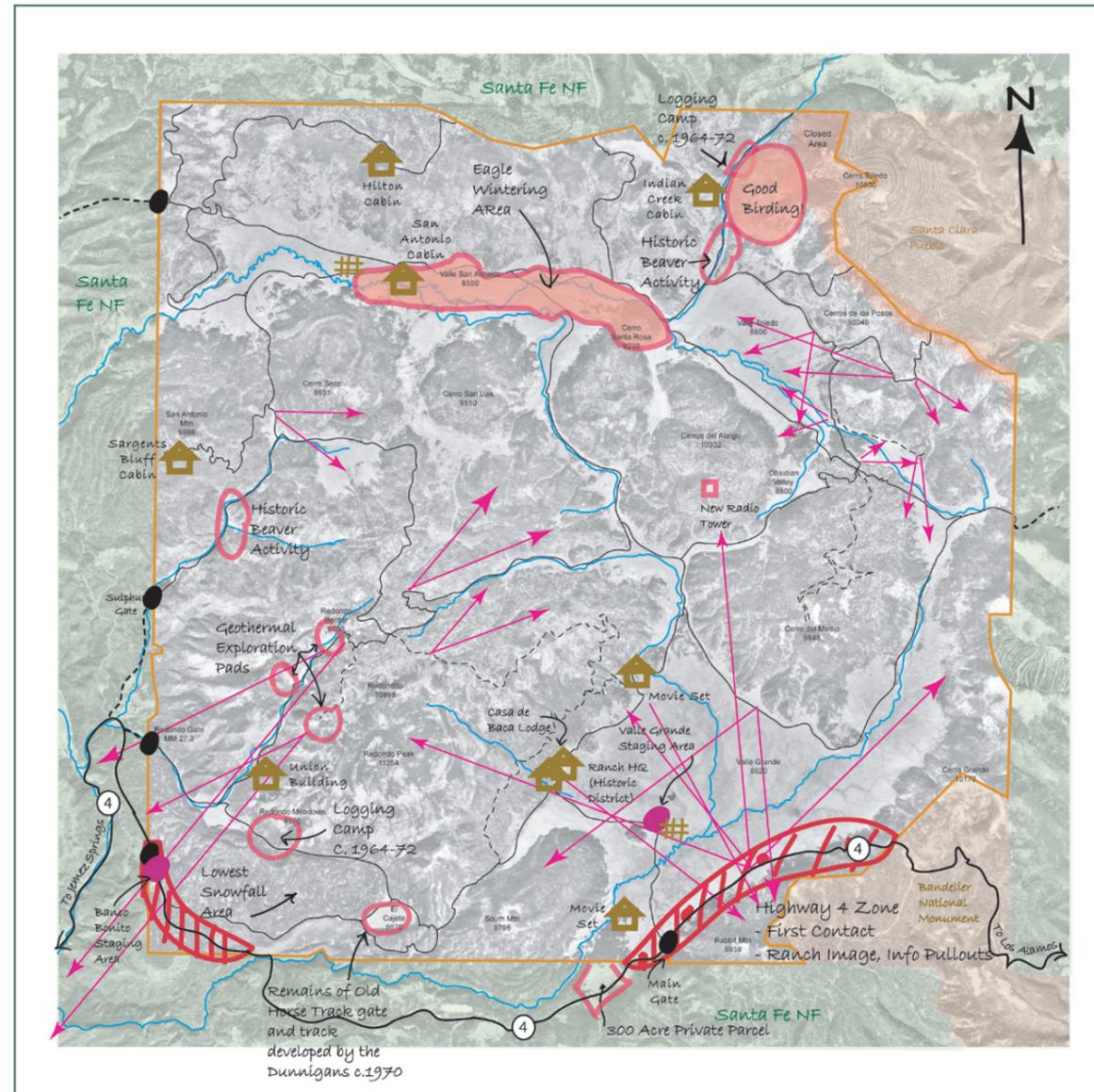
The Trust has comprehensive information on the Preserve's cultural and physical resources and their locations. This analysis addresses existing constraints and opportunities, and current and proposed interpretation-related uses of the site.

Figure 1: 2003/2004 Resource Uses on Site

Currently, the valles may be used for grazing or for scientific research. Sections of forest are currently preserved intact with some thinning to improve forest health and reduce fire hazards. Timber harvesting may be part of future resource use. Scientific data collection and studies may take place anywhere on the site and may change annually. Elk calving and bald eagle wintering areas are subject to seasonal closures. The most prominent historic site is the Ranch Headquarters. Redondo Peak above 10,000 feet is an important spiritual area for Pueblo people. Motorized access is restricted above this elevation.

Figure 2: Other Potential Interpretive Resources

As a result of several tours of the site, areas of interest have been identified for interpretation. These include areas such as the Los Indios area which combines timber harvest and milling artefacts, historical cabins, good birding, and the opportunity for one way tours; the existing geothermal area along Redondo Creek which provide opportunities for overnight experiences – individuals using the exploration pads, groups using the bunkhouse; specific natural and cultural features; and some impressive and interpretively valuable views.



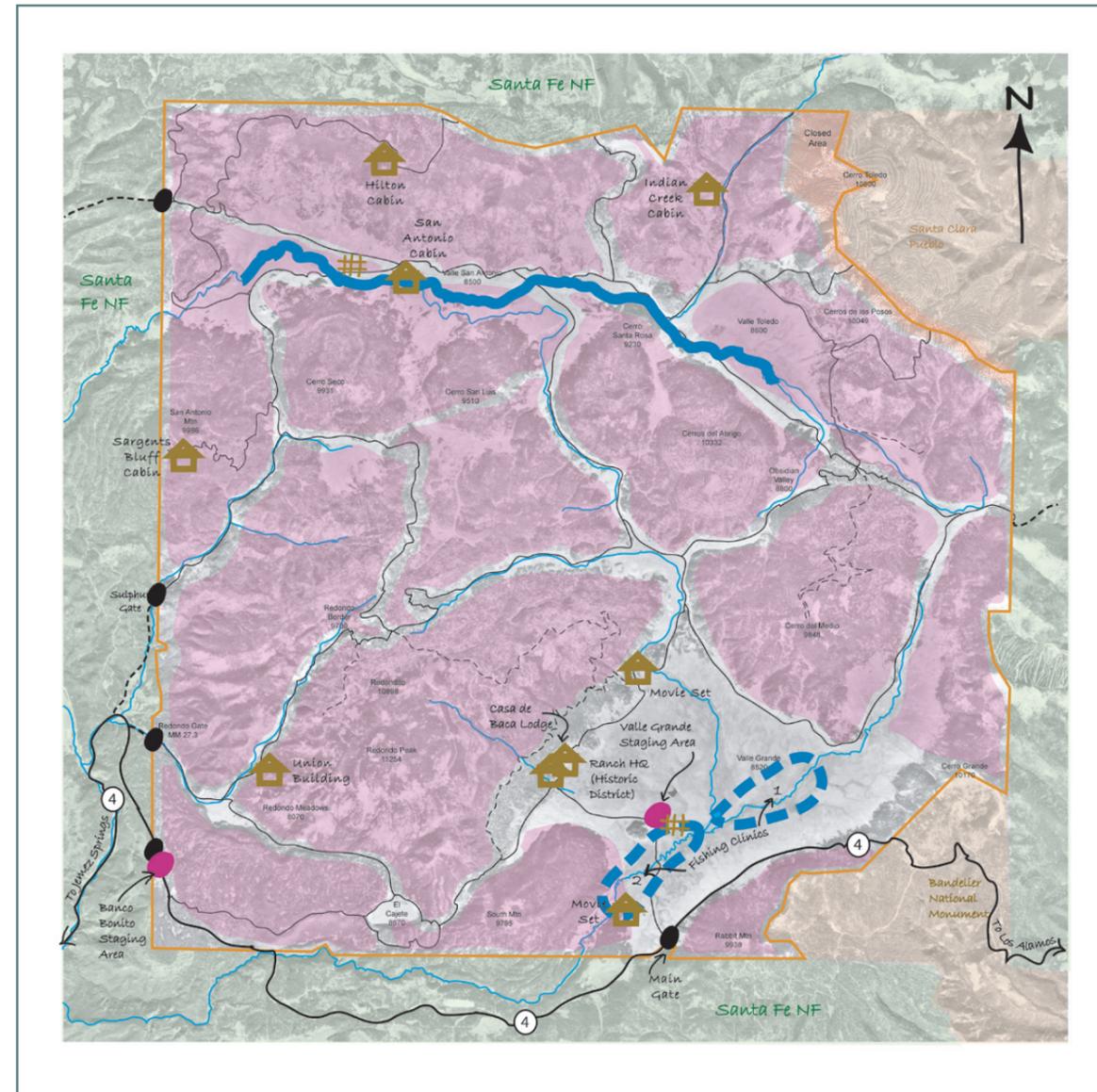


VALLES CALDERA NATIONAL PRESERVE

MASTER PLAN for INTERPRETATION

Legend

- Key Entry Areas
- Entry Roads - Other
- State Hwy 4
- Open Roads
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- Major Streams/Rivers
- Corral/Scales
- Current Buildings
- Fishing Beats
- Special Event Fishing Areas
- Hunting Zones



Hunting is currently the highest revenue-generating recreation activity followed by angling. Adult angling and fly-fishing clinics take place in the Valle Grande. Elk hunting takes place over much of the Preserve in the fall necessitating its closure to other recreation activities. Other hunting and fishing opportunities exist in the Preserve such as wild turkey shoots and fishing in other creeks, but the revenue generation to be derived would be significantly less than those produced by the existing activities.



VALLES CALDERA NATIONAL PRESERVE

MASTER PLAN for INTERPRETATION

Legend

-  Key Entry Areas
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-  Current Buildings
-  Cross-Country Ski Routes
-  Mountain Bike Special Event Routes
-  Equestrian Trails
-  Sleigh Ride

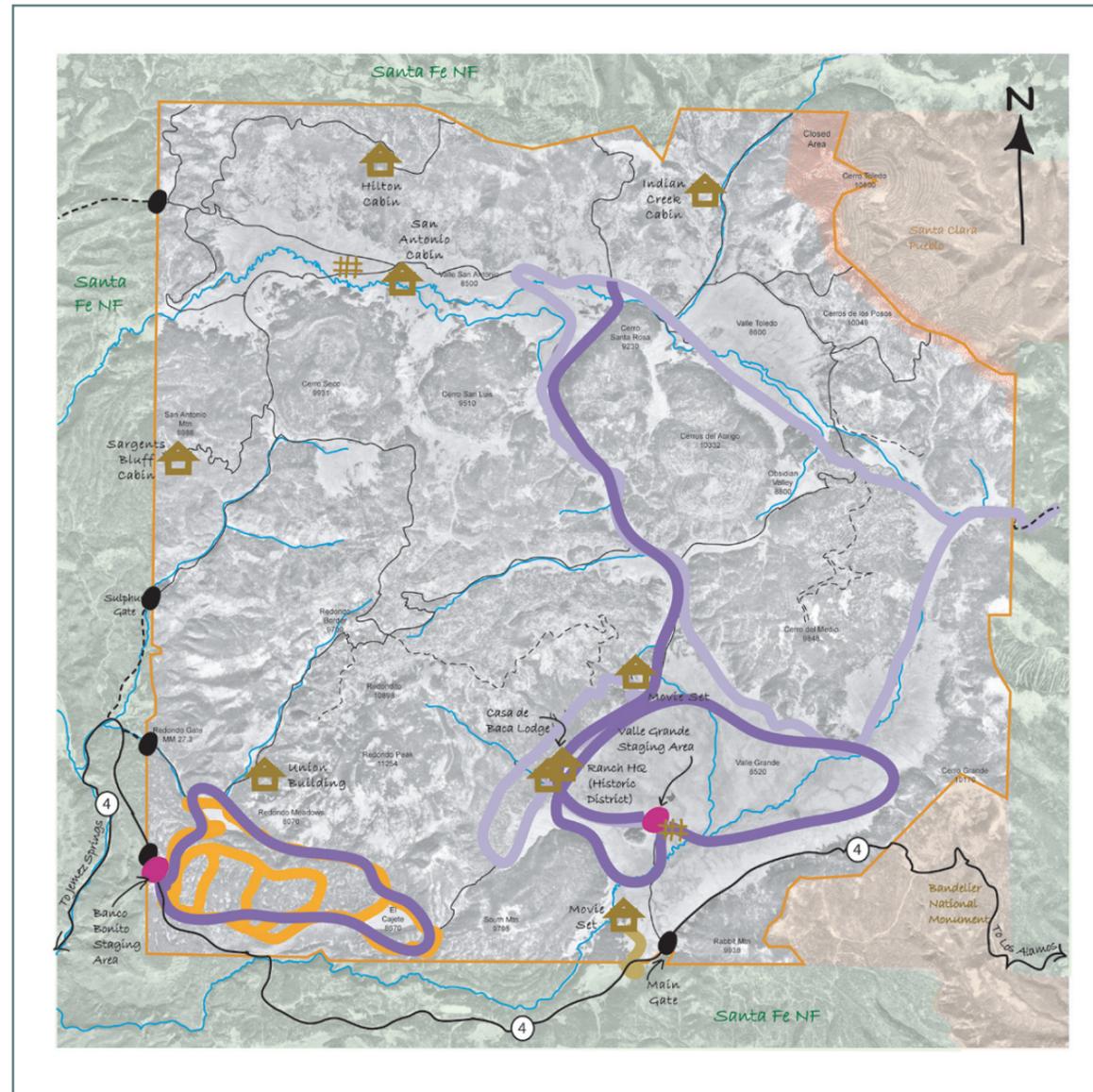
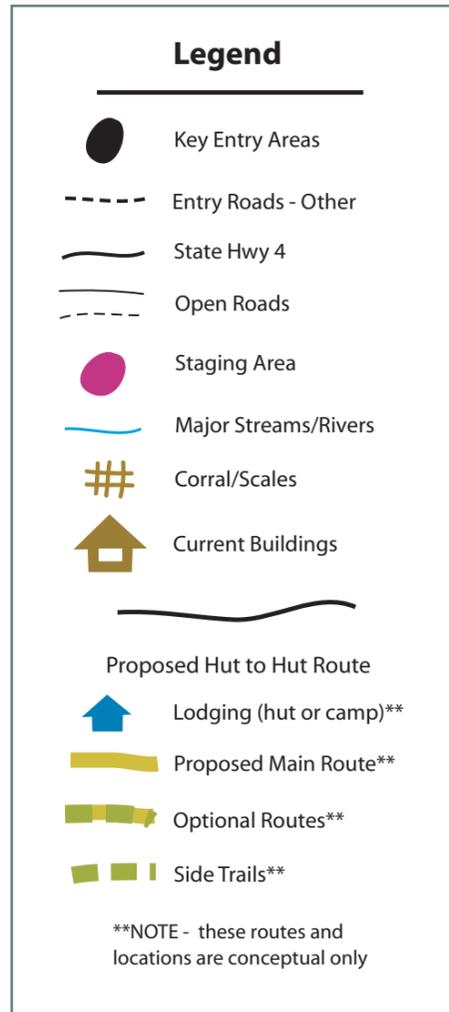
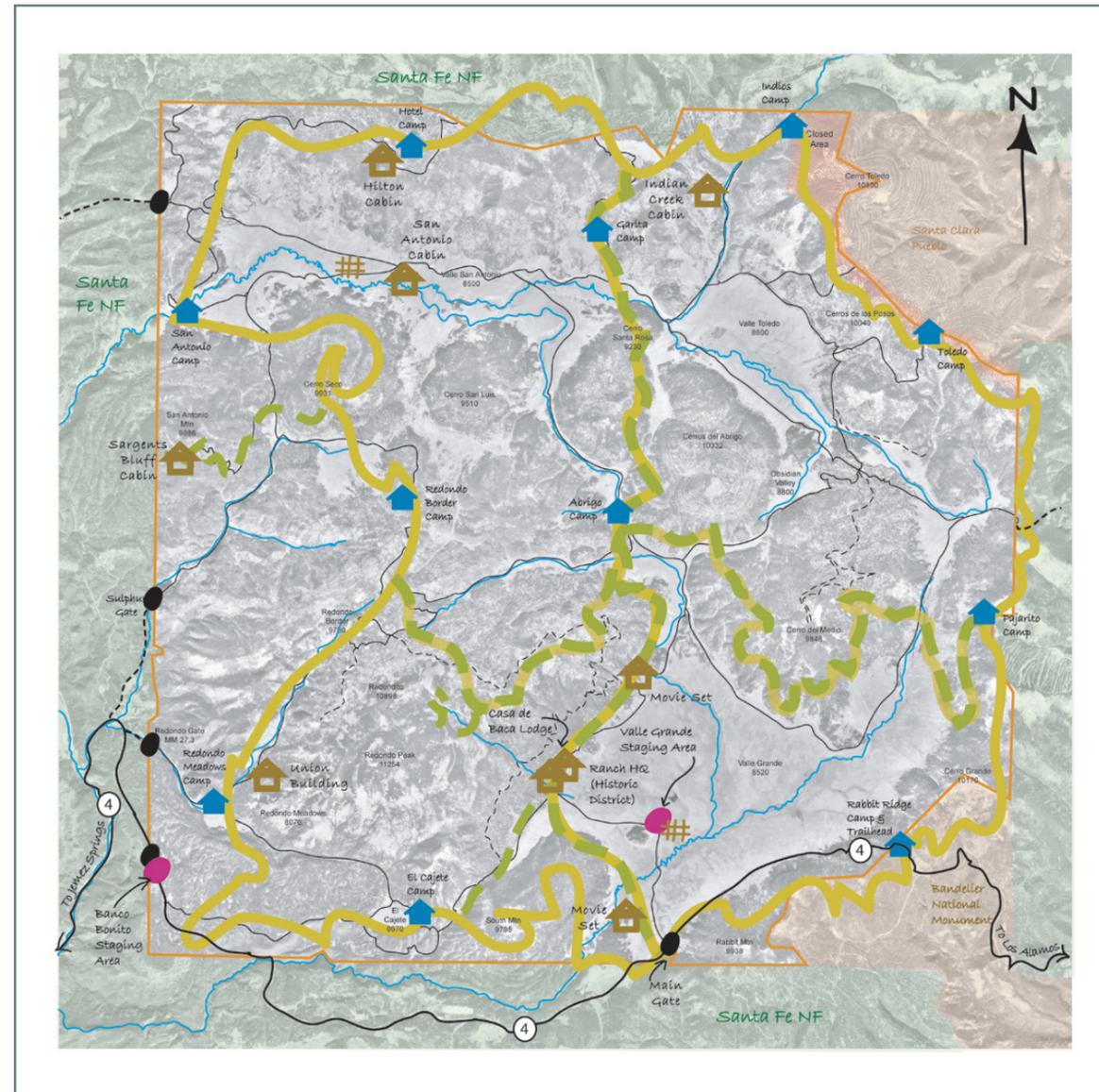


Figure 5: 2003/2004 Horse-riding, Skiing, Biking and Sleigh Rides

Horseback riding and biking were test activities in 2004. Horse touring was offered in the southwestern Banco Bonito area and confined to the roads in that area. At the behest of local cyclists, the Trust conducted a test "bike touring" day offering two routes in the eastern portion of the Preserve. All bike travel was confined to existing, selected roads. The bikers were supervised and had to travel in a group. Cross-country skiing on the Valle Grande will be offered this winter, snow permitting.

Figure 6: Potential Recreation Activities – Multi-Day

A new class of activities is being considered and evaluated for implementation. These offer overnight experiences, and could include hut-to-hut skiing, and equestrian or hiking programs which would offer longer trails. The scale of the “huts” and the final trail locations are to be determined.





Valles Caldera National Preserve

MASTER PLAN for INTERPRETATION

Legend

-  Key Entry Areas
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-  Major Streams/Rivers
-  Current Buildings
-  Current Buildings
-  Possible Equestrian Trails
-  Possible Van Tour Route
-  Possible Hiking Trails

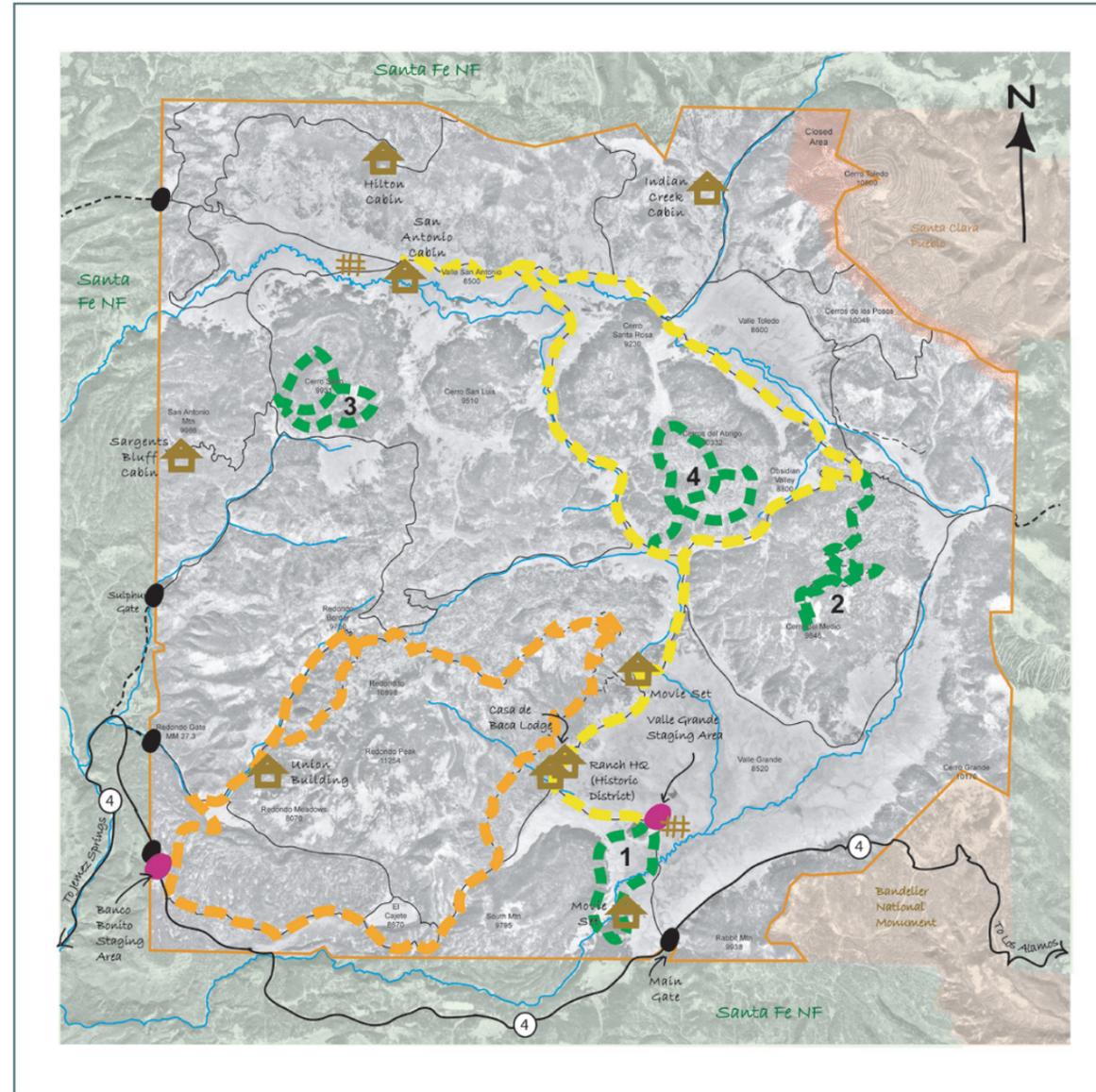


Figure 7: Potential Recreation Activities – Additional Trails and Tours

The trails and routes marked on this map were recommended as potential recreation and interpretation opportunities for additional hiking, van tours and horseback riding in the VCNP.

Hiking: The Hidden Valley hike (1) would tell a great wetland story. Cerro del Medio (2) would be an overnight trip to the top that provides excellent views of the Valles with the opportunity to provide additional interpretation of the Preserve. Cerro Seco (3) and Cerros del Abrigo (4) currently provide hiking opportunities, but these do not include circle routes or access to the top for views, etc. The trails marked on this map are possible alternate trail locations.

Van Tour: This van tour would highlight San Antonio Cabin (cultural history, geology, hydrology) and Obsidian Valley (geology, cultural history). Some of the tours may already take in parts or all of this route, but it should be noted as a key interpretation opportunity.

Equestrian: These options could provide longer trips with potential options for an overnight stay. The circle tour provides excellent opportunities to tell stories about the geology, hydrology, natural and cultural history of the VCNP.

2.5 Capacity Analysis

We have reviewed the literature on capacity in order to determine potential limits to use in the Preserve. The majority of these studies have focused on backcountry and wilderness areas in National Parks or National Forests. Resource and social impacts of recreation use constitute long-standing issues in the field of park and wilderness management, and these issues are often addressed within the context of carrying capacity. Some agencies have proposed zoning options (e.g., pristine, primitive): the 1985 backcountry encounters have often been identified at 12 parties per day (e.g., Zion National Park and many others) with limits to party size of 12 in a backcountry or wilderness campsites (e.g., North Cascade National Parks and many others).

The reasons for these limits are to ensure that visitors will have a chance to experience a natural landscape without causing unacceptable environmental damage. Typical criteria for public land include:

- Natural conditions and processes will be largely undisturbed by people. Culturally significant resources also may be maintained.
- Routes and paths may be defined and maintained if necessary to prevent resource damage; no other visitor facilities will be provided.
- Visitors can camp throughout the zone, although in some cases, camping sites will be designated to protect resources.
- Opportunities for a high degree of solitude will be provided throughout the zone.
- Use of these areas will be limited.

Rationalizing specific numbers has been a challenge. David N. Cole, Research Biologist at the Aldo Leopold Wilderness Research Institute, summarizes the inherent challenge succinctly:

Science has been tremendously helpful to management...however, at the core of the carrying capacity issue are value-based decisions about what ought to be and managers still struggle with these decisions. Science is less equipped to contribute to decisions about values. The rate of future progress on the carrying capacity issue will be determined more by the willingness of managers to make value judgments than by the ability of science to build a factual foundation. Science can contribute by developing varied sources of information about societal needs and values.



Rourke McDermott



Rourke McDermott

Others, such as Robert E. Manning and Steven R. Lawson from the School of Natural Resources at University of Vermont, have defined the inherent conflicts between the “values of science” and the “science of values”:

It is clear from the literature that management of carrying capacity involves matters of both science and values, and that both of these elements must be integrated into “informed judgements” on the part of park and wilderness managers. That is, managers must ultimately make value-based judgements about the maximum acceptable levels of visitor-caused impacts to the resource base and the quality of the visitor experience. However, such judgements should be informed to the extent possible by scientific data on the relationships between visitor use and resulting impacts, and the degree to which park and wilderness visitors and other interest groups judge such impacts to be acceptable. Such information represents the “values of science” to managing carrying capacity in parks and wilderness.





Valles Caldera National Preserve

MASTER PLAN for INTERPRETATION

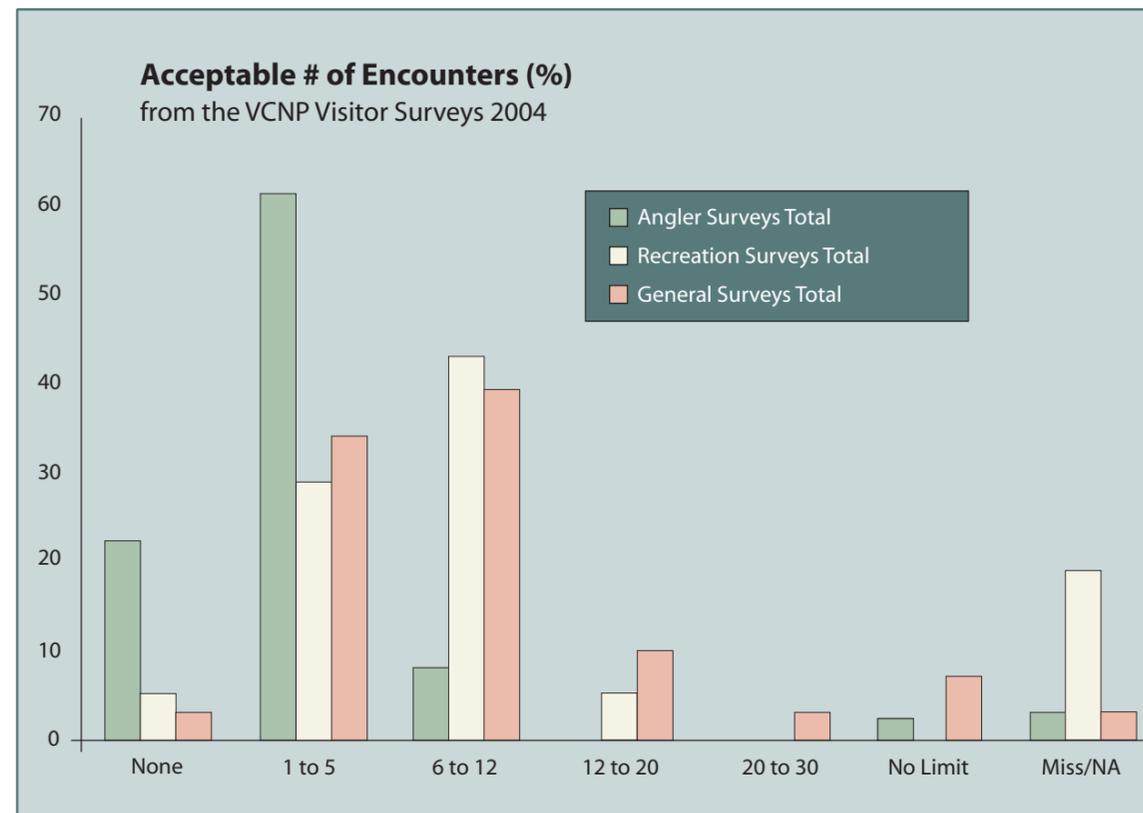
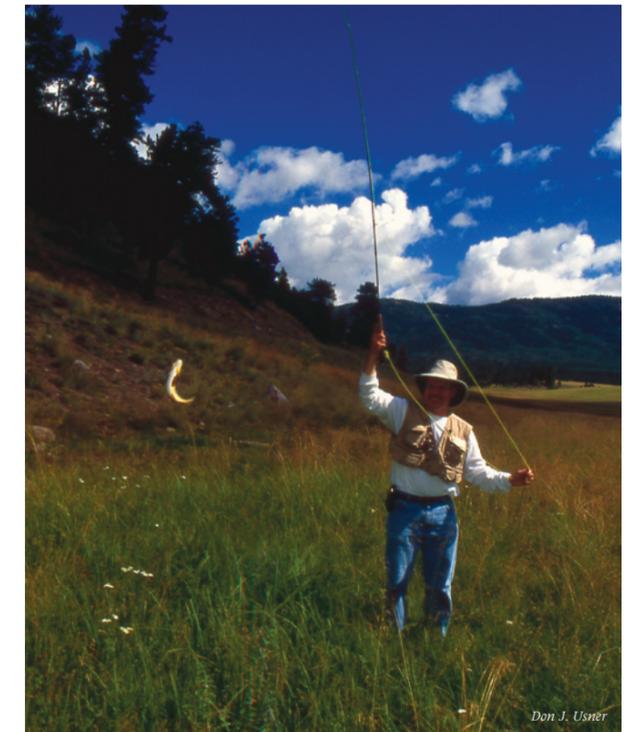
2.0 RESOURCES for INTERPRETATION

Implications for Carrying Capacity in the Preserve

Only some conclusions can be drawn from the existing public lands studies and policies because, as always, VCNP is in a unique situation. The Preserve is not pristine, primitive or any other wilderness designation. Visitor use and experience can be determined by the Trust, as, of course, can be the decision to include carrying capacity as part of the "bold experiment". A sampling of user surveys (n=99) suggests that existing recreation users value the relative privacy of their experiences.

These numbers reflect the interests and values of those currently using the site. Because most activities are marketed as essentially exclusive, private experiences, it is not surprising that relative solitude is seen as desirable by those choosing these activities. Representatives and individuals from the Los Alamos area, expressed the desire for less control regarding access so that they could enter the Preserve on their own schedule. Conversations with other communities, e.g., Jemez Springs and Ponderosa, resulted in fewer concerns about "solitude" and more about access to the historic ranch district and more social events.

Most, if not all, of these concerns can be met in the Preserve with the right management model. These are discussed more specifically in the Challenges and Strategies portion of the plan but are summarized here. The range of experiences and the numbers of visitors participating can be managed by a combination of zoning and scheduling, as can environmental impacts. Any new experiences offered should continue to be tested as one-of-a-kind until an assessment of the impacts can be determined.





Don J. Usner