



REPORT TO CONGRESS
FOR
FISCAL YEAR 2006

EXECUTIVE SUMMARY

The Valles Caldera Preservation Act of 2000 (Public Law 106-248) authorized acquisition of the Baca Ranch in the Jemez Mountains of New Mexico. The Act designated the area as the Valles Caldera National Preserve and created the Valles Caldera Trust, a wholly owned government corporation, to manage the 88,900-acre tract.

In 2006, the Trust staff had 10 full-time permanent positions, down from 15 in 2005. Significant personnel changes included hiring of an Executive Director and an Administrative Officer.

The Trust received \$5,074,231 in appropriations, expended \$4,443,737 and ended 2006 with a balance of \$630,499. The Preserve had 9,938 visitors generating over \$500,000 in revenues. Total revenues, including commercial rentals and grants, were \$794,844. Visitation and revenues increased in each of the last three years.

Members of the Board of Trustees formed Los Amigos de Valles Caldera, a non-profit 501(c)(3). Los Amigos established a board of directors and began a fund raising campaign.

The value of structures on the Preserve, including the historic ranch buildings, was estimated at \$5,489,251 and deferred maintenance was estimated at \$1,189,512. Most of the structures need to be upgraded to meet current health and safety standards.

There were no human-caused fires on the Preserve in 2006; all lightning-caused fires were contained by initial attack. The Trust thinned 30 acres of high-risk forest in the southwest corner with Walatowa Woodlands Initiative, an economic development program of the Pueblo of Jemez. The Trust conducted its first prescribed fire covering 1,750 acres in Valle Toledo.

Elk hunting generated the most revenue (\$317,365) of any Preserve recreation programs. Hunters had a high level of success – 59 mature bulls were taken out of 73 permits issued by New Mexico and 107 antlerless elk were taken out of 204 permits issued.

The Trust held the first open house on the Preserve in August. Heavy rains before the event forced the Trust to close some roads. A total of 1,444 vehicles and 3,746 visitors entered the Preserve. More than 500 vehicles were turned away when the main gate was closed early.

The Trust suspended commercial grazing in the spring due to a combination of persistent drought, lack of winter snow and heavy grazing by about 3,000 elk. The winter of 2005-2006 was the second driest in 112 years, while the summer of 2006 was the wettest in 112 years.

The condition of nearly all watersheds has improved since 2001. Water quality of Preserve streams is still impaired, but temperatures have declined since 2001. Most of the watersheds on the Preserve are in moderate ecological condition based on biotic and abiotic variables.

Staff has inventoried 455 miles of Preserve roads, including 80 miles in 2006, and upgraded 14.5 miles of public access roads, including three miles in 2006. The potable water system was installed in 2006. The cost of upgrading and maintaining roads, trails, facilities and structures on the Preserve will probably be the greatest expense the Trust faces in the next decade.

Natural resource assessments indicate that extractive use of forage and timber will contribute modestly to long-term financial self-sufficiency. Small trees dominate Preserve forests, which are at risk for devastating crown fires under typical summer conditions.

The Trust has surveyed about 9% of the Preserve for prehistoric cultural resources and identified 345 sites, mostly obsidian artifact scatters that represent 10,000 years of continuous use. Rockshelters, field houses and agricultural terraces on the Preserve are at the highest elevation ranges known in North America.

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US House of Representatives
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INTRODUCTION

The Valles Caldera Preservation Act of 2000 (Public Law 106-248) authorized the acquisition of the Baca Ranch in the Jemez Mountains of New Mexico. The Act designated the acquired lands as the Valles Caldera National Preserve (VCNP) and created the Valles Caldera Trust (VCT), a wholly owned government corporation, to manage the 88,900-acre tract.

The Preserve was established to protect and preserve the scientific, scenic, geologic, watershed, fish, wildlife, historic, heritage, and recreational values of the Preserve, and to provide for multiple use and sustained yield of renewable resources within the Preserve. In addition, the Act required the tract to continue to be managed as a working ranch.

During 2006, the Trust worked diligently to meet the following legislative mandates:

- *protecting and preserving for future generations the scientific, scenic, historic, and natural values of the Baca ranch, including rivers and ecosystems and archaeological, geological, and cultural resources;*
- *providing opportunities for public recreation;*
- *establishing a demonstration area for an experimental management regime adapted to this unique property which incorporates elements of public and private administration in order to promote long term financial sustainability consistent with the other purposes enumerated in the Act; and*
- *providing for sustained yield management of Baca ranch for timber production and domesticated livestock grazing insofar as is consistent with the other stated purposes.*

TRUST OPERATIONS AND ACCOMPLISHMENTS

Administrative Operations

The administration of the Trust is a key component to creating a successful land management model. Administration at the Trust is focused on the following goals:

1. maintaining a small and competent staff;
2. integrated management and resource planning;
3. developing a financial model that supports management and planning; and
4. fostering a culture that balances public land management, recreation, science, resource utilization and resource protection with the goal of financial self sufficiency.

Staffing

In 2006, VCT staff comprised 10 full-time permanent positions, down from 15 full-time permanent positions in 2005. Significant personnel changes in 2006 include hiring Jeffrey Cross as the Executive Director and Debbie Boggess as the Administrative Officer. A part-time accounting technician was also hired to improve the accounting function.

Permanent personnel who left the Trust in 2006, and who have not been replaced, include: the Communications Manager, Recreation Coordinator, Events Coordinator, Cultural Resources Coordinator and GIS Coordinator. A term employee now performs the duties of the Cultural Resources Coordinator. Most of the duties of the Recreation Coordinator have been shifted to the Information Technology Coordinator, who now divides his time between Recreation and IT.

The Trust employs seasonal hires when the Preserve is open to the public uses contractors to augment operations and implement short-term management decisions where appropriate. The

Trust is keeping the permanent staff small to control costs and to maintain flexibility to respond to management decisions resulting from the adaptive management approach.

Board of Trustees

There was minimal turnover among the Board of Trustees (BOT) 2006. William Keleher was appointed to fill the vacant History and Culture position. In January 2007, the terms of three of the nine board members will expire. New board members have not been announced. Gilbert Zepeda, Santa Fe National Forest Supervisor, recently moved from his position on the Forest. The new Santa Fe National Forest Supervisor and ex-officio board member is Dan Jiron.

In 2006, the BOT comprised:

John Caid

Board Position: Wildlife and Fish Management
Term Expires: January 2007

James Gosz

Board Position: Forest Management
Term Expires: January 2009

Tracy Hephner

Board Position: Chairman, Livestock Management
Term Expires: January 2009

Larry Icerman

Board Position: Financial Management
Term Expires: January 2007

Barbara H. Johnson

Board Position: Nonprofit Conservation Organization
Term Expires: January 2007

William Keleher

Board Position: Vice Chairman, Cultural and Natural History
Term Expires: January 2009

Darlene Koontz

Board Position: Superintendent, Bandelier National Monument
Term Expires: *ex officio*

Raymond Loretto

Board Position: Secretary, State and Local Government
Term Expires: January 2009

Gilbert Zepeda

Board Position: Forest Supervisor, Santa Fe National Forest
Term Expires: *ex officio*

Financial Management

The finances of the Trust comprise federal appropriations, fees from recreational and resource use and private donations. The Trust was under interim management of the Forest Service from inception through August 2, 2002, when management control was transferred to the Trust's Board of Trustees. The Forest Service administered the finances of the Trust through fiscal year 2003. The Trust assumed full financial control of their accounts at the beginning of fiscal year 2004.

Status of Trust financial resources

The majority of Trust funds in 2006 were congressional appropriations; additional funds were collected from public recreation programs. The following table presents the financial position of the Trust for fiscal year (FY) 2006.

FY 2005 Carryover	FY 2006 Appropriations	FY 2006 Expenditures	FY 2006 Ending Balance
\$5	\$5,074,231	\$4,443,737	\$630,499

The following table presents the recent history of congressional appropriations to the Trust.

	FY 2004	FY 2005	FY 2006
President's Budget Request (submitted by the Forest Service)	\$984,000	\$992,000	\$992,000
Appropriations (National Forest Systems)	3,150,000	3,650,000	3,650,000
Special Appropriations			1,500,000
Rescissions	<u>38,814</u>	<u>50,708</u>	<u>75,769</u>
Total	\$3,111,186	\$3,599,292	\$5,074,231

Public visitation to Valles Caldera National Preserve increased in each of the past three years. The following table presents the recent history of visitation to the Preserve.

	FY 2004	FY 2005	FY 2006
Public Visitation	7,500	9,220	9,938

Revenues collected by the Trust have increased in each of the past three years. The following table presents the recent history of revenues collected by the Trust.

	FY 2004	FY 2005	FY 2006
Elk Hunting	\$210,850	\$285,625	\$317,365
Fishing	62,793	71,645	60,415
All Other Events	129,562	109,449	76,656
Concessions	<u>13,256</u>	<u>9,558</u>	<u>48,496</u>
Subtotal	\$416,461	\$476,277	\$502,932
Commercial Rental	8,000	5,000	45,095
Grazing	42,110	39,654	0
Miscellaneous*	<u>50,890</u>	<u>131,288</u>	<u>246,817</u>
Total	\$517,461	\$652,219	\$794,844

*Miscellaneous revenues include donations, sales of livestock and grants received by the Trust for inventory, monitoring, research and restoration projects.

The public can make reservations for activities, enter lotteries for hunting and fishing, and book events through a web site maintained by the Trust (www.vallescaldera.gov). Of the total revenues collected, 86% came through the web site in 2005 and 90% came through the web site in 2006.

Los Amigos de Valles Caldera

In 2006, members of the board of trustees formed a non-profit 501(c)(3) group, Los Amigos de Valles Caldera (Los Amigos). Los Amigos supports the Preserve for present and future generations through outreach, education, restoration and collaboration. Los Amigos established a board of directors comprised of ex-trustees and members of local non-government

organizations. They have begun fund raising and are seeking to lease office space from the Trust. Los Amigos, supported by the New Mexico Environment Department, acquired a grant for \$143,000 for wetland inventory and restoration on the Preserve.

Preserve Administration

Facilities

In 2006, the Trust hired a contractor to assess the value, condition and deferred maintenance of 38 structures on the Preserve. The structures are valued at over five million dollars and deferred maintenance is estimated at over one million dollars. Most of the structures need to be upgraded to meet current standards, including health and safety requirements (see the following table). The project cost \$62,500; the funds came from 2006 special appropriations.

	ESTIMATED VALUE	DEFERRED MAINTENANCE COSTS	ANNUAL MAINTENANCE COSTS	PROBLEMS IDENTIFIED
ADMINISTRATIVE				
Union Building	\$677,760	\$50,855	\$5,080	asbestos removal, cosmetics
Bond Cabin	439,320	91,416	9,140	rodents, foundation, roof
Office Cabin	127,465	75,967	8,200	rodents, foundation, cosmetics
Hilton Cabin	28,800	11,272	1,100	rodents, foundation, cosmetics
Main Entrance Morgan	17,000	\$5,469	550	new structure
VISITOR INFORMATION				
Gift Shop Morgan	24,480	6,089	600	new structure
"The Missing" Cabin	142,300	15,768	1,570	rodents, cosmetics, utilities
Banco Bonito Morgan	28,560	3,459	350	new structure
HOUSING				
Cowboy Cabin	218,400	83,602	8,360	rodents, structural, cosmetic
Otero Cabin	169,680	70,849	7,085	rodents, foundation, bracing
Foreman's Cabin	336,840	95,039	9,500	rodents, foundation, posts
Lower A-Frame	203,500	31,236	3,120	cosmetic, porch bracing
Upper A-Frame	203,500	33,305	3,330	cosmetic, porch bracing
Movie Set #3	120,990	44,360	4,430	rodents, structural, foundation
San Antonio Cabin	94,350	33,153	3,310	rodents, cosmetic
PUBLIC RENTAL				
Bunkhouse Cabin	410,400	41,154	4,120	roof, post fasteners
Casa de Baca Lodge	1,148,160	25,821	2,580	roof
Garita & Abrigo Yurts	25,120	0	5,240	new structure
STORAGE BUILDINGS AND BARNES				
Commissary	43,800	52,396	5,240	foundation, roof, porch bracing
Paddock (Horse Barn)	577,656	34,045	3,410	roof, foundation, structural
6 Sheds and Shops	172,100	114,388	11,440	foundations, structural
5 Barns	178,920	169,286	17,000	structural, foundations, roofs
UTILITY BUILDINGS				
Water System Building	22,050	100	100	new structure
UNUSED FACILITIES				
5 Out Buildings	78,100	100,483	10,500	foundations, structural
TOTAL	\$5,489,251	\$1,189,512	\$120,115	

Earthen Tanks

The Trust obtained a structural assessment of the four large earthen tanks on the Preserve by a professional state engineer. The assessment included condition of the dam and the hydrological basin. The assessment included immediate risks, recommended repairs and maintenance and necessary permits. The Trust will use this information in planning for watershed restoration, fire and range management and recreation management.

Forest Management

As a result of many years of aggressive fire suppression and intensive logging, forests on the Preserve need extensive treatment to reduce fire hazards and restore them to more natural conditions. The southwest corner of the Preserve is a high-risk area for catastrophic canopy fire because of the high density of young trees ("dog hair thickets") and prevailing southwesterly winds. A forest fire originating in this area (either on or off the Preserve) would burn toward the center of the Preserve and destroy much of the forests in the Redondo Peak region.

In 2006, the Trust continued forest thinning activities in the southwest corner of the Preserve through a cooperative grant with the Walatowa Woodlands Initiative (WWI), an economic development program of the Pueblo of Jemez. WWI crews thinned nearly 30 acres along the Highway 4 corridor. Biomass from the thinning was either removed and used by WWI, or masticated and piled on site. The masticated material will be used for erosion control after constructing the new entrance the Preserve in 2007. Transportation and placement of the material is funded by a collaborative grant with New Mexico Recycling Coalition, which promotes onsite use of biomass for forest restoration activities.

In 2005 the Trust completed the final delineation of plant communities and forest structure of the Preserve. These data were used in 2006 to stratify the forest for field sampling and a contract for field sampling was developed. Field sampling will take place when funds are available. Field sampling is the final step required to develop Preserve-wide plans (NEPA compliant) for forest and fire management programs.

Rangeland Management

The Trust completed a Preserve-wide watershed condition assessment through a contract with a Forest Service Enterprise Team. Data for plant communities and forest structure were combined with field data for range, soils and stream condition. The synthesized dataset was used to determine the suitability and capacity of Preserve grasslands for supporting sustainable grazing by livestock and elk, and the condition of Preserve watersheds. Results of this assessment (see *Status of the Preserve*) will be the basis for long-term plans for sustainable use of forage resources.

Fire Management

Wildland Fire is an inevitable occurrence, a natural process and an important management tool on the Preserve. The safe, beneficial and cost effective management of wildland fire requires a risk management plan based on the best available science. The Valles Caldera Fire Management Plan is integrated with the Santa Fe Zone Fire Action Plan. The Santa Fe Zone is an interagency fire operation center with responsibility for wildland fire response on federal, state and private land within its geographic area. The Trust is a member of the Zone Board.

There were no human caused fires on the Preserve in 2006. Crews dispatched from the Santa Fe Zone contained all lightning-caused fires on the Preserve during initial attack.

The Trust conducted its first prescribed fire in the Valle Toledo in November 2005. This fire covered approximately 1,600 acres of grassland and 150 acres of Ponderosa pine forest.

Preserve staff with support from the US Forest Service's Rocky Mountain Research Station in Albuquerque studied the impacts of the fire. Results of these studies have shown that:

- 1) mortality of grasses and trees was minimal,
- 2) grass re-growth was rapid after the fire,
- 3) nutritional value of re-growing grasses was higher than unburned grasses, thereby enhancing forage for wildlife and livestock,
- 4) elk use of the burned areas increased following the fire, and
- 5) water quality was not affected, except for a slight increase in ash in streambed sediments during the spring snowmelt.

Public Programs

Recreation Activities

Recreation programs brought in 9,938 visitors and generated over \$453,000 in 2006. The year began with a full series of elk hunts (bow, muzzle loader, rifle, youth and mobility impaired hunts), but dropped off during the winter because of the lack of snow. Summer recreation programs began on May 11 with fishing and included van tours, hiking, fishing, mountain bike riding, adult and youth fly fishing clinics, and hunting and outdoor skills workshop.

New programs in 2006 included a marathon, a landscape photography workshop, youth tracking workshops, an overnight equestrian event, a guided hike of Alamo Bog, unguided hike to Garita and a public open house ('Drive and Discover'). Guided hikes with interpretation were offered on Cerro del Abrigo and Cerro Seco trails. Two trails were offered free without reservations to visitors: Valle Grande and Coyote Call.

Trust staff added decks to the Abrigo and Garita yurts to for winter use in 2007 and rearranged several temporary buildings to improve operations and support visitors.

The following table compares visitation and revenues for activities on the Preserve in fiscal years 2005 and 2006. The Trust did not offer winter recreation programs in 2006 because the Preserve did not receive sufficient snowfall.

	FY 2005		FY 2006	
	Visitors (#)	Revenue (\$)	Visitors (#)	Revenue (\$)
Special Events	3,401	67,646	5,196	38,719
Tours	379	6,120	573	15,206
Wagon and Sleigh Rides	891	19,153	702	14,975
Skiing and Snowshoeing	705	7,050	0	935*
Hunting	1,162	285,625	1,332	317,365
Hiking	565	5,520	446	4,741
Fishing	1,919	71,645	1,585	60,415
Equestrian	198	3,960	104	2,080
TOTAL	9,220	\$466,719	9,938	\$453,501

*Revenue was generated from a non-refundable access lottery; the lodging fees collected by the Trust were returned to lottery winners because events were canceled.

Elk Hunting

Hunters on the Preserve had a high level of success; 59 mature bulls were taken out of 73 permits issued by New Mexico Department of Game and Fish and 107 antlerless elk were taken

out of 204 permits issued. Overall, there were 249 authorized hunters on the Preserve during 11 hunt weekends. All hunters had an opportunity to take an elk.

All hunters received a welcome letter, orientation packet and access agreement. Each hunter was required to attend an orientation session to learn about the hunting rules and safety requirements. Volunteers from the Rocky Mountain Elk Foundation and National Wild Turkey Federation donated 768 hours to help hunters on the youth, mobility impaired and antlerless hunts.

Hunters reported that the hunt was high quality and would like to return to hunt again. The Trust received letters of appreciation for the attention hunters received from staff, which added to their perception of the value of hunting on the Preserve. Elk hunts generated \$317,365 in revenues and cost approximately \$64,500 to market and conduct.

Fishing

Fishing was offered on San Antonio Creek along 10 established beats of about one mile each. For the season, 1,686 visitors filled the 2,220 available fishing slots (76%) and generated \$60,415 in revenues. The Trust also offered youth and adult fly-fishing clinics. Youth fly-fishing clinics generated \$490 in revenue with 49 of 60 slots filled (82%) and adult fly-fishing clinics generated \$6,390 in revenue with 45 of 80 slots filled (56%). Together, the fishing programs generated \$67,295 in revenues and cost approximately \$34,400 to market and conduct.

Drive and Discover

The Trust held the first ever open house on the Preserve on August 26, 2006. The public had an opportunity to drive their vehicles on the Preserve with no entry fee. Due to heavy rains before the event, parts of some roads were in poor condition and the Trust changed its original plan for two one-way routes to one two-way route. The two-way route caused bottlenecks and impeded traffic flow. Due to the large volume of traffic, vehicles became gridlocked around mid-day. The main gate at Highway 4 was closed about 1:00 PM instead of the scheduled 4:00 PM. A total of 1,444 vehicles carrying 3,746 passengers entered the Preserve; more than 500 vehicles were turned away. The large numbers of vehicles caused some damage to roads, but overall, road damage and resource impacts were minimal. Almost 98% of the visitors were from New Mexico, with 80% from five northern New Mexico cities. Of the visitors asked to rate their experience, 68% had an exceptional or interesting experience and 19% had a poor experience, undoubtedly due to the traffic congestion and crowding.

Special Use Programs

Grazing

The 2006 grazing program was suspended in the spring due to a combination of persistent drought, lack of winter snow on the Preserve and heavy grazing by nearly 3,000 elk. A range readiness analysis conducted in April by a team of range specialists, botanists, volunteers, and Trust staff measured forage production and estimated the level of grazing the range could support. This assessment revealed that there was enough forage for only about 700 head of cattle, about half what the Trust estimated it needed to run to break even financially. As a result, the Trust suspended commercial grazing in 2006.

The Trust conducted a grazing experiment with 200 yearlings with New Mexico State University (NMSU) to assess the value of prescribed fire in grasslands for enhancing livestock production and improving wildlife habitat. Initial findings indicate that burning improved the forage quality of re-growing grass and that weight gain was about 9% greater among cattle feeding within

the pasture treated by prescribed fire (Valle Toledo) compared to cattle feeding on unburned grasslands (Valle Grande). The final report from NMSU is due in 2007.

Filming and Photography

The Preserve was used for several commercial filming and photography activities, including still pictures for magazine and catalog advertisements and one major motion picture. These activities generated \$45,095 in revenues.

Inventory, Monitoring and Research Programs

The success of adaptive management depends on the availability of high quality data to address management questions. The Trust obtains data about Preserve resources through its inventory, monitoring and research program. Inventories are basic assessments (presence and distribution) of natural and cultural resources. Monitoring studies measure temporal changes and impacts to these resources as a result of Trust operations (e.g., recreation, hunting, fishing, fire management, forest thinning). Research projects are undertaken by outside scientists with external funding. The total extramural funding committed to the Trust for inventory, monitoring and research in 2006 was greater than \$1.2 million. These projects are highlighted below.

Inventory

- The forest stand assessments using aerial photographs were completed and ground-truth fieldwork began. The forest stand map will be completed in 2007 if funds are available to complete the data analyses. Once the stand data are collected and analyzed, the Preserve can begin to develop a forest/fire management plan.
- Fieldwork on the new Preserve geology map was completed and map production and text editing began. The geology map will be completed in 2007 if funds are available.
- Final fieldwork for a Preserve soils map was begun and data analyses and map production began. The soils map will be completed in 2007 if funds are available.

Monitoring

- The condition of nearly all Preserve watersheds has improved since 2001. Improvements included recovery of riparian vegetation, improved sediment condition and more natural channel morphology.
- Stream water quality is still impaired (based on New Mexico Environment Department standards), but water temperatures have declined since 2001.
- The winter of 2005-2006 was the second driest in 112 years of record keeping; the summer of 2006 was the wettest in 112 years. Summer monsoon rains that began in late June and continued through August resulted in record forage production.
- Fish populations in San Antonio Creek and the East Ford of the Jemez River remain stable with the current fishing program on the Preserve.
- Elk population estimates are comparable to previous years. The cow:calf ratio (measure of reproductive success) increased during 2006 over relatively low levels in 2005.

Research

- The University of Arizona and Los Alamos National Laboratory installed three instrument towers (~\$150,000) in grasslands and Ponderosa pine and spruce forests to measure water budgets (inputs from rain and snow; losses from evaporation, sublimation, plant transpiration, runoff and soil infiltration). Groundwater that comprises the base flows of streams and springs are only 2-3 years old, so short-term summer droughts and lack of

snowpack affect streamflows. Dense forests on the Preserve accelerate water loss via snow sublimation. The results suggest that thinning treatments could be developed to maximize snow-water retention and spring runoff production in the Jemez River basin.

- Studies on the Preserve of wildlife infectious diseases confirmed hypotheses that high elevation forests are “refugia” for Hantavirus and plague. Optimal habitats in the mountains are refugia for pathogens and rodents, which can survive under a wide range of environmental conditions (e.g., droughts). Under favorable conditions (e.g., wet El Niño periods), rodent populations and pathogens increase and expand to lower elevations, eventually spreading into areas occupied by humans, which leads to increased risk of disease transmission. In December 2005, scientists predicted higher risk for human Hantavirus disease in 2006 in northern New Mexico and southern Colorado. Human cases in 2006 were double the annual average. This work funded by the National Science Foundation will lead to more accurate disease forecasting models.
- A team from USGS, University of Arizona, and Preserve staff received a grant for \$225,000 from the Joint Fire Sciences Program (an interagency federal group dealing with wildfire issues) to develop a fire history in the grasslands of the Preserve. Preliminary reconnaissance was completed in 2006 and fieldwork will occur in 2007.

Public Outreach and Education

- The Parajito Environmental Education Center conducted a 5-day program in the Valle Grande that was attended by 28 students, which was up from the six students that attended “Nature Odyssey” in 2005. Educational activities included plant, invertebrate and animal observations; exploration of riparian microenvironments; and water quality measurements.
- The Trust co-organized the First Annual Field Conference of the New Mexico Archaeological Council.
- Trust staff presented invited lectures and field trips on the cultural resources of the Preserve for the Albuquerque Archaeological Society, School of Advanced Research, Bandelier National Monument, New Mexico Site Watch, University of New Mexico and University of California-Berkeley archaeology field schools and University of New Mexico.
- Trust staff presented a poster symposium at the annual meeting of the Society for American Archaeology on topics ranging from obsidian fire-effects, GIS projects, intra-caldera geoarchaeology and obsidian geochemistry and quarries.
- A PBS television show about New Mexico volcanoes released in 2006 featured the Valles Caldera National Preserve. The film, entitled “Sacred Fires, Sleeping Monsters,” discussed the geologic history of the Valles Caldera, the role of the 1.25 million year old volcano in shaping the landscape of northern New Mexico, and the importance of obsidian deposits for prehistoric manufacture of human tools and weapons.
- The Valles Caldera National Preserve hosted the PBS Program “The Desert Speaks” for a segment on the history of climate changes and forest fires in the American Southwest. The TV program featured scientific research conducted on the Preserve on drought impacts on forests, including fires, insect outbreaks and influences on the regional water cycle. The program originally aired in May, 2006, and was rebroadcast several times.

Benefits To Local Communities

- Trust employs approximately 15 local residents on a seasonal basis to staff and run public recreation programs.
- The August Open House was a free event attended by almost 3,500 people. Nearly 80% of the visitors were from the northern New Mexico cities of Los Alamos (31%), Albuquerque (30%), Santa Fe (9%), Jemez Springs (5%) and Española (5%).
- The Trust provided a free survival demonstration and nature walk for 20 kids at a Santa Fe grade school.
- New Mexico State University obtained 200 yearlings for the grazing experiment from a ranch in Springer, New Mexico. The four-month experiment provided an opportunity for two range management students to live and work on the Preserve.
- Several commercial filming and photography companies used the Preserve for film and advertising shoots; the casts and crews stayed in hotels in Los Alamos and Santa Fe.
- Trust sponsored an elk shed pickup program for local youth groups; antlers were pooled and sold to local dealers. The Trust gave each non-profit youth organization \$150.00. The program helps discourage poaching by removing the antlers from the Preserve.
- The Trust collaborated with the Walatowa Woodlands Initiative on a forest thinning project on the Preserve. Because of the collaboration, Jemez Pueblo was able to keep their lumber mill in operation. Forest materials taken from the Preserve were sold for firewood, rough-cut lumber and vigas.
- A Collaborative Forest Restoration Program grant provided jobs, training, and equipment to the Walatowa Woodlands Initiative, an economic development program in the Pueblo of Jemez. In total, \$358,000 was awarded to the Pueblo to complete the thinning, purchase equipment, hire and train thinning crews, and develop a marketing strategy.
- A Collaborative Forest Restoration Program grant supported interagency workshops and hired a local inventory crew to create a demonstration site for The Nature Conservancy's Fire Learning Network. Thinning will be implemented with local crews in 2007.
- The Trust granted free access to a group of elders from the Pueblo of Jemez to tour the Preserve and obtain historical information.
- The Trust worked cooperatively with the Santa Clara Pueblo to provide access through the Preserve to their planning area. Trust staff provided technical advice on a fire-planning project and permitted access to Santa Clara staff for an elk-monitoring project.

INFRASTRUCTURE DEVELOPMENT

The condition of infrastructure (roads, trails, facilities and structures) varies across the Preserve. Repair, maintenance, construction or reconstruction of infrastructure requires considerable investment to bring it up to current standards and make it useable for staff and the public. Investment in infrastructure will probably be the greatest expenditure by the Trust over the next decade.

Public Roads

The condition and location of roads and trails on the Preserve contributes to the experience of visitor activities and affects the cost and efficiency of all management activities. The staff has inventoried 455 miles of Preserve roads that are classified as passable – 261 miles in 2004, 114

miles in 2005 and 80 miles in 2006. About 100 miles remain to be inventoried. There are about 12 linear miles of road per square mile of land on the Preserve compared to the Forest Service objective of 2.5 linear miles per square mile of land. Most of the network of roads on the Preserve was constructed to facilitate logging.

The Trust will use the road inventory to develop a transportation plan that identifies roads that will be used for public access and administrative use, sections of roads that are causing resource damage (e.g., erosion that contributes sediments to streams), and roads that should be obliterated and reclaimed.

Since 2002, the Trust has used Federal Highway Administration funds to upgrade segments of Preserve roads (VC01 and VC02) that are used for public programs. The Trust has upgraded 14.5 miles of ranch roads from the main entrance at State Highway 4 to the backcountry of the San Antonio Creek to an all-weather road that complies with the Highway Safety Act. Three miles of the VC02 road were upgraded in 2006.

The improved roads on the Preserve are engineer-designed, single lane with turnouts. The road prism is reconstructed to a minimum 14 foot running surface. The roads are designed for the best surface drainage with installation of culverts and the best wetland mitigation by constructing permeable fills, where applicable. This allows springs and seeps to establish historic flow patterns and begin the restoration of hundreds of acres of wetland each year.

Main Entrance

State Highway 4 bisects the southern part of the Preserve along the tree line on the south side of Valle Grande. Highway 4 is the primary route used to access the Preserve; the main entrance is located at mile marker 39.2. The current traffic volume along Highway 4 is about 1,200 vehicles per day. When it was a private ranch, less than 200 vehicles per year used the main entrance; currently, about 10,000 people visit the Preserve each year. Road conditions at the entrance do not meet Mexico Department of Transportation standards. Using Federal Highways Administration funds, the Trust entered into a \$1.26 million contract to design and construct a safe and ascetically pleasing entrance to the Preserve. Working with the US Forest Service, New Mexico Department of Transportation and a private contractor, the design was completed in 2006; construction will occur in 2007.

Communications System

The Trust is implementing a comprehensive communication system on the Preserve that includes radio and telephone antennae, receivers, transmitters and repeaters. The wireless network will provide voice communication via cellular telephone and/or radio from all areas thereby increasing the safety of staff and visitors. It will also enable real-time broadband communication between automated data collection systems and their remote sensor arrays (e.g., weather stations, animal radio transmitters). The new equipment will help the Trust comply with federal regulations for digital radios, improve communications to remote areas and connect headquarters with field operations. The network was designed and the equipment was purchased in 2006; the equipment will be installed in 2007. Funds for the project (\$220,000) came from the 2006 special appropriation.

Water System

The Headquarters Water System, which provides potable water to buildings used by visitors and staff, was turned on in 2006 and will be operational in 2007. The Trust constructed a collection and infiltration system and a treatment facility that for surface water, and installed 5,400 feet of

distribution lines to all the buildings in the Headquarters area at a cost of \$470,000. We are currently training a staff member to become a certified water system operator.

STATUS OF THE PRESERVE

Natural Resources

The natural resources of the Preserve include large tracts of second growth forests, expansive valleys of grasslands and wetland meadows, and nearly 30 miles of clear mountain streams. Wildlife, particularly large mammals (elk, bears, coyotes, etc.) are abundant on the Preserve. The magnificent scenery and ecological diversity are outstanding attractions for outdoor enthusiasts. Extensive grasslands provide excellent forage for livestock and wildlife that contribute significantly to the region's communities and economy.

Forest Health and Productivity. Nearly 60,000 acres of the Preserve's 89,000 acres are forested. The forests have been characterized by tree size, species, age and stand structure. Large trees (greater than 16 inches diameter) dominate less than 300 acres. Small trees (9-16 inches diameter) dominate almost 50,000 acres. Field sampling will be done in 2007 to estimate the volume and value of available timber. Small trees can be used for small-wood products; however, the cost of removing the trees might exceed the value of the products produced.

Preserve forests are dominated by small trees and are at risk for devastating crown fires under typical summer conditions. Over 52,000 acres of forests have a canopy cover greater than 50%. The Trust needs to restore forest structure (density, size and species) to reduce the risk of loss from wildfire, pests and disease. This high density of young trees is due to suppression of fires over the past century and the extensive logging that occurred from the 1930s to the 1970s. A large percentage of Preserve forests is at high risk of uncontrollable fire due to the extended drought in New Mexico.

The table below summarizes forest size class structure (distribution of tree size by dominant cover) and crown fire hazard conditions (based on size, species and structure) on the Preserve.

FOREST SIZE CLASS	ACRES
5-9 inches diameter	9,656
9-16 inches diameter	49,687
16+ inches diameter	284
CROWN FIRE HAZARD	ACRES
Very High	29,732
High	16,312
Moderate	3,932
Low	4,744
No Risk	28,266

By managing forest structure, the Trust estimates that water yields to the Jemez River can be increased by at least 10-15%. The Preserve currently produces about 20,000 acre-feet of water annually, which is about \$220 million at current market value. A 15% increase would yield water valued at \$33 million annually.

Rangeland Health and Productivity. The Trust synthesized five years of soil, plant and stream inventory and monitoring data to assess ecological condition and estimate the capacity for supporting grazing by livestock and wildlife. The ecological resources of the Preserve are in a

moderate state of health and productivity. The elk herd on the Preserve, approximately 3,000 animals, uses a significant portion of the forage available for livestock.

Much of the grasslands on the Preserve is still dominated by native plant species, but areas have been invaded by non-native species (e.g., Kentucky blue grass, yarrow and dandelions). Some Preserve watersheds and streams are in excellent condition, while livestock and elk have heavily impacted others.

Erosion from forest clear-cutting activities (road construction and soil disturbance) in the 1970s is a major source of stream sediments. In 2006, New Mexico Environment Department (NMED) determined that water quality was impaired for temperature in Jaramillo Creek and the East Fork of the Jemez River, and for turbidity in Jaramillo Creek. In 2003, NMED determined that water quality was impaired for turbidity in the East Fork of the Jemez River, for temperature and turbidity in Redondo and San Antonio creeks, and for conductivity and pH in Sulphur Creek.

Damage to stream banks caused by long-term grazing of cattle, sheep and elk contributes to temperature and turbidity impairments. Stream bank conditions have improved since they were first assessed in 2001. The reduction in livestock stocking rates from 5,000-7,000 in the 1990s to 500-800 during 2002-2006 has had a beneficial effect on watershed condition (recovery of riparian vegetation, improved sediment condition and more natural channel morphology).

The table below summarizes ecological condition of the Preserve based on upland and riparian biotic and abiotic ratings. The ratings were derived by comparing measured field conditions against the standards for various ecological sites.

ECOLOGICAL CONDITION	ACRES
High	7,861
Medium	80,932
Low	0

Resource assessments conducted by the Trust indicate that extractive use of forage and timber will contribute modestly to financial self-sufficiency. Proper management of these resources will yield significant economic value in increased water yield and provide premier outdoor recreation opportunities. In coming years, we will investigate innovative and non-traditional uses of Preserve resources to identify those that can contribute to financial self-sufficiency (e.g., harvest of native seed).

Cultural Resources

The cultural resources program identifies, evaluates and interprets prehistoric and historic archaeological sites, historic places and events, architectural values and traditional cultural properties on the Preserve. This work is accomplished in consultation with the New Mexico State Historic Preservation Office as well as Native American Pueblos and Tribes.

Little was known about cultural resources of the Preserve when the federal government purchased the Baca Ranch. Only 3% of Preserve lands had been surveyed and little of this inventory was conducted to modern standards. Since acquisition in 2000, the Trust has surveyed 5,500 acres (about 9% of the Preserve) and documented 345 cultural resources sites (mostly obsidian artifact scatters). These "lithic scatters" represent 10,000 years of continuous use of obsidian tool-making material that is uniquely abundant in the caldera. Several enormous prehistoric obsidian quarries (greater than 25 acres) have been documented at Cerro del Medio in the center of the caldera.

The Preserve's prehistory also includes rockshelters with ancient preserved cultural soil deposits, small masonry remains known as field houses, and agricultural terraces found here at the highest elevation ranges known in North America. More recent cultural resources on the Preserve include multiple historic structures from the last century of Baca ranching history, historic mill sites and early 20th century logging camps.

Staff archaeologists conducted inventory surveys, site evaluations and archaeological testing in 2006. Thirty-four new sites were documented in 1,300 survey acres, the largest area inventoried in one field season. These projects included surveys along 24 miles of Preserve roads and a sample survey in the Valle Toledo in association with a large prescribed burn.

Site evaluation projects included testing at archaeological sites at the Highway 4 (main) entrance and at the Valle Grande Staging Area to support the construction and infrastructure upgrades needed to accommodate increased and enhanced public access.

The Preserve awarded a contract for an historic architectural evaluation of 19 standing structures on the Preserve, several in the historic ranch headquarters area. Documentation and historic preservation plans will be completed in 2007. Combined with the 2006 facilities assessment that identified structural and other problems (see table p. 4), these studies will enable the Trust to proceed with facilities management planning that allows greater use of the structures for administrative, ranching and public functions.