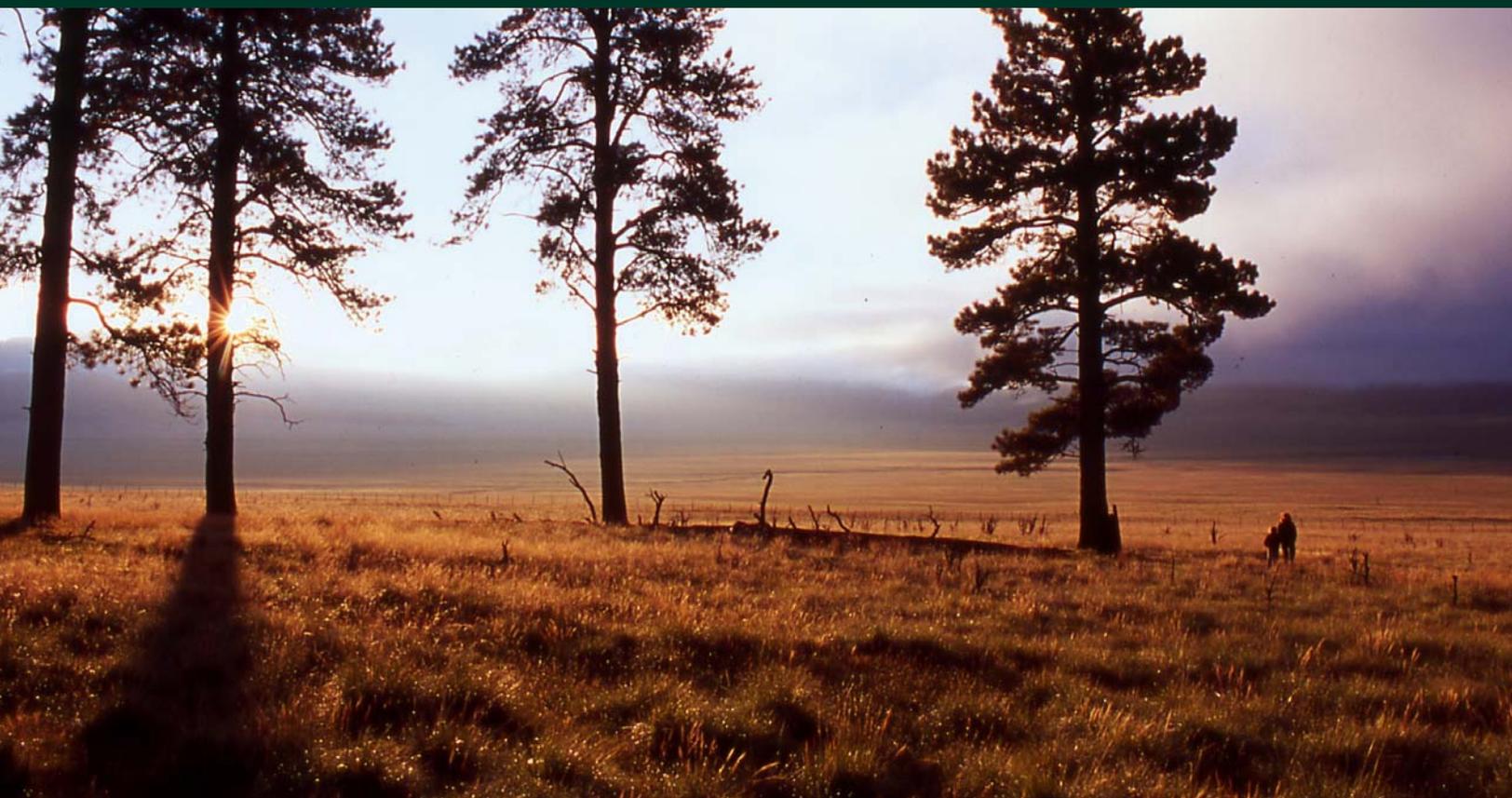
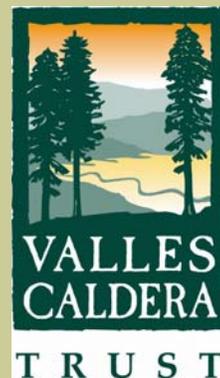


State of the Preserve 2002–2007



Valles Caldera National Preserve



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EXECUTIVE SUMMARY

The *State of the Preserve* report is unique to the Valles Caldera Trust (“Trust”). It is a key component of comprehensive management of the Valles Caldera National Preserve (“Preserve”), which also includes stewardship actions implemented by the Trust and strategic guidance adopted by the Board of Trustees (“Board”). The purpose of the *State of the Preserve* is to provide the Board with the technical and scientific basis for comprehensive management. Because the Trust must prepare a *State of the Preserve* at least once every 5 years, it is also the basis for adaptive management and an important reference for interested public. This is the first *State of the Preserve* published by the Trust; it examines past, present (2002-2007) and reasonably foreseeable future stewardship actions and their cumulative effects.

Past Actions. The *State of the Preserve* considers human impacts from the late 1800s forward, including grazing, logging, road building and fire exclusion. Grazing was the first significant extractive use – at times during the summer, as many as 100,000 sheep (1910s) and 12,000 cattle (1950s) grazed on the Preserve. Natural fires apparently ceased in the 1880s. Intensive livestock grazing and subsequent active fire suppression greatly reduced fire frequency and increased the divergence of forest structure, composition and function from the natural range of variability. Over 1,400 miles of roads were built on the Preserve in the 20th century and about 60% of the forests were harvested. Subsistence hunting, which began in pre-historic times, increased in the late 19th and early 20th centuries and decimated wildlife populations.

Present Actions. The Board of Trustees assumed management of the Preserve from the U.S. Forest Service in August 2002 and implemented interim public access programs, including recreation, special uses (research, commercial and cultural) and education. The number of visitors increased from 200-300 people per year when the ranch was in private hands, to over 12,000 in 2007. Revenues from public access, commercial uses, product sales, donations and grants increased from \$321,000 in 2002 to \$750,000 in 2007.

Historically, the Preserve was a working ranch with a functioning summer livestock operation. There are 118 miles of fences, 136 stock tanks, eight corrals and numerous cattle guards and bypass gates. Since 2002, the Trust has grazed cattle in cow/calf, replacement heifer, conservation stewardship and yearling programs. Drought in the spring of 2006 caused the Trust to cancel the grazing program. In 2007, the Trust managed 500 yearlings for four months under a contract awarded to an owner/operator through a competitive request for proposals.

When the ranch was in private hands, only a few vehicles entered the Preserve each day; currently, 6,000-7,000 vehicles enter the Preserve from spring through fall each year. The Trust has upgraded 13 miles of ranch roads, which restored the natural hydrology to over 3,000 acres of wetlands. Upgrading roads can cost upwards of \$100,000 per mile. The Preserve has three parking areas with space for about 200 cars. Existing logging roads are used for hiking programs. Two free trails are accessible from New Mexico Highway 4; there are three additional trails up to 7 miles long for hiking and eight equestrian trails up to about 20 miles long.

The majority of the 38 facilities on the Preserve were present at the time of federal acquisition. The average age of these facilities is about 60 years and the overall condition is fair to good. The facilities have a variety of uses, including workspace, visitor facilities and living quarters. They are valued at \$5.5 million; deferred maintenance is estimated at \$1.2 million and annual maintenance at \$120,000.

The Trust planned and implemented forest thinning in two areas at risk from wildfire. Over 130 acres were thinned south of, and 90 acres north of, Highway 4 on the Banco Bonito; 150 acres were thinned around ranch Headquarters. In 2005, The Trust conducted a prescribed fire in the Valle Toledo. The fire improved forage quality with no detectable deleterious effects on plant populations, soil erosion, stream water quality and fish and invertebrate communities. Currently, all natural or human-caused ignitions are managed as wildfires and suppressed.

In 2006 and 2007, 43 groups and 1,226 people participated in educational programs on the Preserve. Education activities include K-12 students, university students, citizen groups, workshops and seminars, interpretation and educational television productions.

The Trust established a science program (inventory, monitoring and research) to provide information for adaptive management of Preserve resources and for preparation of environmental documents in 2001. Natural and cultural resources have been inventoried to establish a baseline against which to measure the impacts of operations and management actions. The Trust monitors key indicators of climate, stream water quality, ecological condition, wildlife habitat and plant and animal populations. The Trust collaborates with universities, agencies and non-profit organizations on climate change; forest, range and fire management; forest restoration; hydrological cycles; infectious diseases; carbon cycling; fire history; elk and cattle interactions; coyote and predator studies; and cattle behavior. These collaborative efforts result in over \$1.5 million of research on the Preserve each year.

Reasonably Foreseeable Future Actions. Reasonably foreseeable future actions are those whose effects may contribute to the condition of the Preserve over the next 5 years. Decisions have been made to undertake these actions, or the actions are being considered.

Public Access and Use. Since 2002, the Trust has managed interim programs for public access and use for recreation, education and other purposes with existing infrastructure and temporary buildings. The Trust held public meetings in the summer of 2007 to gather information to use in developing an access and use management plan that will address visitation, visitor programs and infrastructure for the next decade. Alternatives will be developed to address capacity, scale and location of infrastructure and types of programs offered. Concomitantly, the Trust will develop a business plan that analyzes market opportunities for programs, activities and infrastructure to address the mandate of becoming financially self-sustaining by 2015.

Preserve Management. Facilities (structures and utilities), roads, ranch infrastructure (fences, corrals and earthen tanks), renewable resources (forage and timber) and fire comprise Preserve management. The Trust will consider long-term plans for preservation and maintenance of structures, including historic cabins. The Trust will consider a permanent visitor center,

administrative office and employee living quarters on the Preserve. The Trust will continue routine maintenance of roads based on safety, resource conditions, capacity and intended uses. A transportation plan will identify road access for public activities, administrative and traditional uses and unnecessary roads. The Trust will continue to maintain the 53.5 miles of boundary fences and sign the perimeter to control trespass. The effectiveness of interior fences and earthen stock tanks will be evaluated in plans for forage use by domestic livestock; unnecessary fences and stock tanks may be removed. Corrals on the Preserve are in good condition and are currently used for receiving, shipping and sorting cattle.

Renewable Resources. In December 2006, the Board authorized a stewardship action to develop a plan to allocate forage to support elk and other herbivores; to preserve and protect ecosystem processes and habitats; to support domestic livestock grazing and other commercial purposes; and to support scientific, education and other public uses. Public comments were accepted during the summer of 2007; an environmental assessment will be completed in 2008. The Trust is working on a forest inventory. That will be followed by development of a forest and fire management plan that will include an assessment of surface and canopy fuels and values at risk. Vegetation data will be used to predict the effects of wildland fire and to determine where and when prescribed and wildland fires can be used for resource benefits. The use of wood products will be considered to defray the cost of forest management. Until the plan is complete, thinning projects along Highway 4 and in the Headquarters area probably will continue.

Inventory, Monitoring and Research. Most inventories of natural resources will be completed in 2008. Additional forest inventories may be needed to support management projects, such as the sale of forest products. Cultural resource inventories will continue as the Trust undertakes ground-disturbing projects (trails and trailheads, road upgrades and infrastructure), and as more areas are opened to public use. Data will be gathered on the characteristics of visitors to the Preserve as the Trust plans for long-term public access and use.

Monitoring programs will continue to assess management actions that affect natural resources (fishing, livestock grazing) and cultural resources (ground disturbing projects, rehabilitation of historic structures). Baseline monitoring of climate, stream water quality and plant and animal populations will continue.

Research programs will focus on the hydrologic cycle and management actions to increase water budgets. Watershed restoration projects, including forest thinning, may reduce water loss from snow sublimation, increase soil moisture (increasing tree growth and forage production), and increase groundwater recharge and spring snowmelt runoff. Wildlife projects could be developed to study interactions among elk, deer, mountain lions, bears and coyotes, and how these species respond to human activities, land use patterns, fires and habitat restoration.

Cumulative Effects. Logging, grazing, fishing, road building and road maintenance affect Preserve streams, especially during snowmelt and summer rains. Ecological condition ratings were assigned to upland and riparian areas in 28 sub-basin watersheds. Five basins show little or no departure from reference (expected) conditions and 23 show moderate departure; no sub-

basins depart greatly from reference conditions. Four streams exceed New Mexico standards for temperature and turbidity. However, the number of days that stream temperatures exceeded the standards decreased by 20% from 2001 to 2006. These improvements resulted from conservative grazing practices, a shorter grazing season and limiting or excluding livestock from sensitive areas. Road maintenance, especially the replacement of culverts and bridges and the use of permeable fills, contribute to ecological improvement.

The Trust assessed forest conditions by comparing the existing vegetative structure to the reference (expected) structure for representative plant communities. Preserve forests depart significantly from reference conditions due to the cumulative effects of fire exclusion and logging. Unlike grasslands and riparian communities, forest conditions will not improve if left alone; they will only improve from management actions, such as silvicultural treatments and prescribed fire, or as a result of unplanned natural events (fire, disease and insects).

Forage conditions on the Preserve are good; plant cover exceeds 98% in the open valleys. Summer forage production, while higher than most rangelands in New Mexico, is extremely variable depending on rainfall. Between 2002 and 2007, net forage production ranged from 814 to 2,246 pounds per acre. The nutritional value of forage is fair to good during the summer, but very poor in the winter. The extent of grazable pastures on the Preserve is changing. In the 1960s and 1970s, logging created large clear cuts at high elevations that reached maximum productivity in the 1980s. Since that time, more than half of the upland pastures have disappeared due to forest regeneration.

Wildlife species and abundances in the Jemez Mountains have undergone substantial changes in the 20th century. Grizzly bears, wolves and elk were extirpated from New Mexico in the early 1900s. Elk were reintroduced after World War II and the population expanded to over 7,000 animals. A considerable amount of forage is required to support the 3,000 elk estimated to be on the Preserve. The 2006 summer monsoons produced record forage (1,796 pounds per acre) and forage use averaged 19% (goal for maximum use is 40%). Forage production was much lower in 2002 (915 pounds per acre) and use was 31%. In years of below average precipitation, elk consume a large portion of available forage, potentially limiting the stocking density of domestic livestock.

Road building, logging, geothermal development, infrastructure development and herbivore grazing affect archaeological resources. Because most archaeological resources on the Preserve are soil deposits that contain the remnants of prehistoric cultural activities, their condition is correlated with the recovery of vegetation communities, stream health and reduced erosion. Actions by the Trust that improve these values will maintain and enhance the condition of intact prehistoric cultural deposits.

State of the Preserve. Reading the Valles Caldera Preservation Act of 2000, one could conclude that at the time of acquisition, the Preserve was assumed to be in a reference ecological condition. Compared to pre-acquisition periods with extreme levels of grazing and logging, the Preserve is in excellent condition. However, the Trust's analyses of the ecological condition of

watersheds and forests suggest that the current condition departs from the reference condition described in the Act. If we assume that the baseline for comparison is the reference (expected) condition, 90% of the Preserve departs moderately, and multiple use and sustained yield capacity of the land are reduced. The current condition influences the potential and realized uses of the Preserve. The Valles Caldera Preservation Act did not set restoration of Preserve communities as a goal. If restoration is a goal, then adequate funding will be required.

Many of the issues the Trust must consider in moving from interim to long-term programs extend beyond Preserve boundaries, including management of the elk population, development for public access and use, grazing by domestic livestock and forest and fire management. Regional climate change is virtually assured; most forecasts for the southern Rocky Mountains predict increasing temperatures and loss of winter snowpack. Changes in precipitation patterns are more difficult to predict, but warmer temperatures will increase evaporation and plant transpiration. A warming climate will favor lower-elevation plant and animal species, potentially resulting in shifts in dominant trees and grasses. Invasive plant and animal pests, already common on the Preserve, may take advantage of the changing ecosystem conditions to expand their distributions and abundances.

Conclusion. The Valles Caldera Preservation Act contains the goals that direct Trust management actions. These goals stretch and challenge the Trust; they are realistic and achievable and will continue to guide the Trust as it moves from interim to long-term management of the Preserve. The Act identified three key benchmarks to measure Trust performance – public access, comprehensive management and financial self-sufficiency.

(1) The Act requires the Trust to provide reasonable access to the Preserve within 2 years of acquisition. This goal has been partially met with interim programs for recreation, education, research, cultural and personal uses and commercial uses. Visitation will undoubtedly increase in the future following completion of the public access and use management plan.

(2) The Act requires the Trust to develop a comprehensive management program. With the completion of the first *State of the Preserve*, the basic components of comprehensive management are in place (stewardship actions, *State of the Preserve* and strategic guidance). The comprehensive management program for the next decade will be guided by the forage use, public access and use, and forest and fire management plans.

(3) The Act defined financial self-sufficiency as “...management and operating expenditures equal to or less than proceeds derived from fees and other receipts for resource use and development and interest on invested funds.” Interim programs have grossed about 20% of current Trust appropriations (estimate of operating expenses). As long-term planning gets underway in 2008, a detailed market analysis and strategic business plan will guide the Trust. Other sources of revenue, such as grants and donations, will play an important role in restoration of the lands and facilities of the Preserve, and in support of Trust operations. The goal of financial self-sufficiency will continue to challenge not only the Trust, but also the stakeholders engaged in this experiment.