

2011

VCNP Livestock Grazing Report



Photo: TK Thompson

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Valles Caldera National Preserve

Executive Summary

The Valles Caldera Trust manages for the multiple use and sustained yield of renewable resources including timber and forage. In FY 2011, for the third consecutive year, the Trust hosted a multi-faceted grazing program conducted by New Mexico State University Cooperative Extension Service and the New Mexico Beef Cattle Performance Association. The university continued operating three small, multiple objective educational programs on the Preserve designed to address animal health and ecological issues important in the regional area.

This was the third year that the grazing program operated under the forage Environmental Assessment. In December of 2008, the Trust made an Environmental Assessment available for a public review and comment period ending February 2, 2009. The EA considered actions and environmental consequences of the proposed Multiple Use and Sustained Yield of Forage Resources on the Valles Caldera National Preserve. The Trust issued a "Finding of No Significant Impact" on the implementation of a grazing program.

During the 2011 grazing season, while the total number of cattle on the Preserve fluctuated because of impacts from the Las Conchas fire, 624 head of cattle started the season and grazed in large pastures away from riparian areas and away from the main recreation programs. Following the fire, 124 heifers were removed due to loss of forage availability in their burned pasture. In total, the Trust received \$31,472 in grazing fees during the 2011 grazing season. Again this year, cattle had a minimal impact on the recreation programs due to a concerted effort to keep cattle out of major recreation areas. The program involved local cattle growers, included an extension and research component, a youth ranch camp, and culminated in a successful on-site bull sale and educational field day.

Introduction

The lands of the Valles Caldera National Preserve (VCNP) have been grazed for as long as man has tended domestic livestock. The name "Valles Caldera" comes from a geologic term for the unique collapsed volcanic dome. The ranch was long known as Baca Location 1.

The 89,000+ acre Valles Caldera National Preserve was created by the federal government in 2000. A wholly-owned federal corporation, guided by a Board of Trustees, the Preserve represents a new approach for managing public lands. The Valles Caldera Preservation Act of 2000 directs the Trust to operate as a working ranch, while protecting and preserving the health of the land and its resources. Multiple use and sustained yield of the renewable resources and public use of and access to the Preserve for recreation are also among the mandates in the Act.

In FY 2011, for the third consecutive year, the Trust hosted a multi-faceted grazing program conducted by New Mexico State University Cooperative Extension Service and the New Mexico Beef Cattle Performance Association. During the start of the 2011 grazing season, roughly 600 head were brought onto the Preserve on a four month grazing schedule. Due to the Las Conchas Fire and loss of habitat, we removed 124 yearling heifers in July. In total, the Trust received \$31,472 in grazing fees.

Determining Range Conditions and Grazing Capacities

Before each VCNP livestock grazing season, a range assessment is done to determine the number of cattle that will be allowed to graze at the Preserve. This year, in an effort to provide an updated forecast of range conditions and potential stocking densities of livestock for the 2011 grazing season, Dr. Bob Parmenter provided a memorandum to the Executive Director which giving an update on conditions of the Preserve as of the end of March, 2011 (Appendix A). The update included current moisture conditions (precipitation), three month forecasts of precipitation and temperature, the status of the El Niño/La Niña phenomenon, and a summary of the autumn 2010 standing crop biomass in the grasslands of the Preserve. Livestock carrying capacity was calculated in animal units (AUs) and animal unit months (AUMs) based on the assessment data.

In addition, a multi-disciplinary team of resource managers (Trust biologists, BLM range specialists, USDA ARS range scientists, university scientists, private consultants and the public) assessed rangeland conditions in the spring of 2011, prior to livestock entering the Preserve. The assessments included current and forecasted climate conditions (especially precipitation and temperature), soil moisture, hydrologic data from stream gauges on the Jemez River, standing crop biomass (available forage) and stubble height of various grass species (an indication of recent/current grazing pressure from elk).

In previous years, cattle stocking rates on the Preserve have been adjusted upward or downward depending on resource conditions. For example, the 2008 range readiness reports found excellent range conditions that would support the maximum allowable numbers of steers (2,000) under the previously existing environmental assessment. In contrast, the drought of 2005-2006 resulted in a very poor range conditions in the spring of 2006, which resulted in the decision to suspend livestock grazing for the summer of 2006. The process of formal, multi-disciplinary range readiness assessments each spring provide a science-based adaptive management tool for the livestock operations program.

The initial number of cattle allowed on the Preserve is determined using these data intensive field assessments. The purpose of this type of range assessment is to determine the potential ecological outcome of the proposed livestock grazing program on the VCNP.

Livestock Stocking Levels Model

Based on forage data collected from 2002 – 2008, forage utilization and elk/livestock abundance was estimated for five levels of precipitation and forage production, ranging from historic high levels to low levels. Average capacity for the VCNP is estimated at 1,216 Animal Units for 4 months of grazing, including a revised elk herd estimated by the NM Department of Game and Fish of 2,000-2,500 animals. The forage allocation calculations are based on total utilization by elk and livestock of 40% of available forage production, with 60% of the forage remaining behind for ecosystem services (soil erosion prevention, carbon sequestration, and health of forage plants).

Using the model described in the Multiple Use and Sustained Yield EA and incorporating the precipitation amounts that had fallen on the VCNP, the forecasted precipitation through the remainder of the winter-spring period, and the forage on the VCNP, it was determined:

- *Current Precipitation (Oct-Feb):* Below average. Across all stations, the Preserve is 66% of normal precipitation for this time of year; this represents a continuing drying trend (we were 77% of normal last month, so below-average precipitation in March has worsened our water balance).
- *Forecast for precipitation (Mar-May):* Below average. This is due to the existing La Niña.
- *Forecast for summer precipitation (Jun-Aug):* Average.
- *Autumn 2010 forage remaining:* 8% Above Long-term Average, but lowest in last 5 years.

Hence, based on these measurements, the potential stocking rate for livestock on the VCNP was reported to be near a modeled mid-low level. As such, the stocking density was set at 452 animal units for 2011.

Lease Service Agreement

Based on the findings and successes of the 2009 and 2010 livestock programs, and the ability of NMSU to meet all factors associated with a successful grazing program, the Valles Caldera Trust opted to continue the relationship with NMSU through a multi-year agreement termed a "lease service agreement". The purpose of the lease service agreement is for the Trust to permit livestock activities, research, and extension services to occur on the Valles Caldera National Preserve under authorized conditions for the next four years with a required annual renewal. The grazing program is meeting the mandate to continue the operation of the Preserve as a working ranch, consistent with the protection and preservation of the scientific, scenic, geologic, watershed, fish, wildlife, historic, cultural, and recreational values of the Preserve; the multiple use and sustained yield of the Preserve's renewable resources; and public use and access to the Preserve for recreation.

As part of developing the lease service agreement, there were several factors which were considered critical in developing a successful grazing program at the Preserve: (1) The grazing program should provide the Trust with the greatest flexibility to respond to varying environmental and market conditions, to meet multiple goals and to incorporate an experimental management style that mixes elements of public and private administration, (2) The program should be aimed at reducing the Trust's administrative costs and efforts, (3) Maximizing the total number of head on the Preserve may not necessarily generate the most revenue for the Trust. Operating smaller numbers of livestock, while at the same time seeking to develop programs that increase revenue through other activities, might prove to be a better long-term strategy for economic return. These activities could include such things as smaller numbers of higher value animals (such as the high elevation bull/heifer programs), fees and grants received for educational programs, and conservation stewardship programs, (4) The livestock, elk, and other consumers of forage are allocated 40% of the Preserve's forage on suitable land. This allocation can be calculated using various methods and does allow for different grazing strategies on the Preserve, and (5) The program should provide for the ability to respond to changing conditions, future development or changes on the Preserve, balance all the goals from the Act, and address the competing demands from the public.

Specifically, the Lease Service Agreement included the following deliverables:

- Value added options, such as educational and extension seminars associated with ranching or range management, or workshops and demonstrations of ranching activities such as herding, and grading cattle should be developed by the operator. These value added options must be approved by the Trust prior to being conducted.
- A research component must be included as part of the grazing program. This could include such topics as investigating stocking rates, forage consumption, high altitude health problems, sensitive habitat protection, and beef marketing. Specifically, the initiation of the Top of Valle High Altitude Performance Test for registered bulls and heifers unveiled the VCNP as the venue for the nation's highest altitude performance test on a grass-only diet. By design, the high altitude performance test sought to define genetic and management variables contributing to cattle's susceptibility to HAD, an often fatal hypertension syndrome that costs the U.S. beef cattle industry more than \$60 million annually. During the 2011 program, a national expert on bovine high mountain

disease, Dr. Tim Holt, a Colorado State University assistant professor of veterinary medicine and biomedical science, continued to perform the pulmonary arterial pressure tests on the bulls to evaluate their individual adaptation to the high altitude. This aspect of the grazing program brought the Valles Caldera grazing program national acclaim on the basis of developing practical implications to combat this disease that plagues three to five percent of the more than 1 million cattle grazing altitudes above 6000 feet. The public sale offering of the top performing bulls and heifers presenting the lowest risk to HAD at the conclusion of the program capped-off this successful producer outreach and research endeavor at the VCNP. These research components must be approved by the Trust prior to being conducted.

- The operator is encouraged to involve as many local cattle producers as possible. The program should include extension type services to these producers as well as a conservation stewardship component. The inclusion of the Jemez Pueblo Livestock Association provided an opportunity to demonstrate a cooperative beef cattle management strategy. Utilizing a series of best management practices for small-scale beef producers in the Southwest, the program emphasized natural resource protection and improved marketing strategies. Participating producers adopted a comprehensive animal identification program and received hands-on instruction focused on low-stress cattle handling and effective administration of vaccinations. The four year program should involve as many local producers as feasible.
- The operator is required to help the Trust staff with range management and monitoring assistance during the grazing season. When possible, the operator should provide assistance in other grazing related projects such as wildlife monitoring and forage consumption, nutrient analysis, predator studies, and forage related data collection to enhance the understanding of the overall forage consumption and composition on the Preserve.
- The operator will provide suggestions for future revenue generating activities on the Preserve such as livestock sales and mineral block or high altitude feed supplement development and sales. An extension of the current agreement shall permit continued research and development opportunities focused on HAD in beef cattle, that will

ultimately benefit the industry and will benefit future revenue generating activities for the Trust.

2011 Grazing Operations Plan

The 2011 program was conducted using an annual operations plan prepared by Dr. Tim Haarmann (VCNP) and agreed upon by Dr. Manny Encinias (NMSU).

Among other things, the plan included the following information:

As far as stocking rates and pastures, the Preserve is currently at 75% of normal precipitation for the water year (October through present). Given that the conditions meet the MUSY EA's "Mid-Low Model" that would permit 452 Animal Units (AU) for a period of 4 months. The breakdown of how NMSU will be allowed to stock the AUs per pasture is as follows: Field Trap (Valle Grande): 32 AUs, Lake Trap (Valle Grande): 68 AUs, Rincon de los Soldados: 102 AUs, and Seco-San Luis-Santa Rosa: 250 AUs

Two other pastures could be utilized, the Posos and Obsidian Valley, but the total number of Animal Units on the Preserve cannot change. These pastures could only be utilized once a NEPA and Archaeological compliant fencing plan has been approved and the fencing has been put up to keep cattle out of the Valle Toledo. Horse paddocks at the bull barn can sustain a small number of approximately 10 AUs per paddock, but each paddock should be monitored frequently. The south horse pasture in the Headquarters area can also be used for research purposes and should also be monitored frequently. The total number of AUs on the Preserve cannot exceed 452 unless conditions change.

The livestock operations will consist of three separate programs: "Top of the Valle" Bull Development Program, a Heifer Development and Artificial Insemination Program, and if stocking rates allow, a Regional Cow/Calf Outreach and Grazing Program.

2011 Grazing Season

During the 2011 Grazing season, a total of 452 animal units (cow/calf pairs and mature bulls equal 1.0 A.U.s; yearling heifers and yearling bulls equal 0.7 A.U.s.) of cattle were delivered to the Preserve. The pastures being grazed at the start of the season included the field/lake traps, the bull paddocks, the south horse pastures near HQ, the Rincon pasture and the Valle Seco/Southwest San Antonio pastures, and the Santa Rosa/San Luis pastures.

AUs per pasture were as follows:

- Field Trap (Valle Grande): 32 AUs (bulls)
- Lake Trap (Valle Grande): 68 AUs (steer, 50 of these animal allowed in horse pasture for 60 day experimental trial)
- Rincon de los Soldados: 102 AUs (heifers)
- Seco-Southwest San Antonio 120 AUs (cow/calf pairs)
- San Luis-Santa Rosa: 100 AUs (cow/calf pairs)
- Bull Paddocks: 30 AUs (bulls)

Due to the Las Conchas fire and loss of forage, we removed 124 head of cattle from the Preserve in July. These cattle were removed from the Rincon de los Soldados pasture.

As was hoped, the program conducted by NMSU, in partnership with NMBCPA, established the framework for providing high altitude bulls, replacement heifers, and cow-calf pairs in the 2011 program. Specifically, the program included the following components:

High Altitude Bull Evaluation Program

Bulls grazed on the Preserve this summer and underwent a variety of tests before being used for breeding. Most important of these tests was the Pulmonary Arterial Pressure (PAP). The PAP test provides an indicator of the animal's resistance to Brisket Disease. Brisket Disease, also known as High Mountain Disease or Pulmonary Hypertension, is one of the Rocky Mountain region's most costly diseases. The disease is the result of elevated pulmonary arterial pressures or pulmonary hypertension and generally affects animals less than one year of age residing at an elevation above 5000 feet.

Brisket Disease is caused primarily by an oxygen shortage; oxygen availability reduces considerably at higher elevations causing increased resistance to blood flow in small arteries in the lungs. The heart compensates for higher resistance by stretching and building up a higher pressure. The pressure can continue to build up until fluids leak out of the blood stream and collect in the chest cavity, the brisket, and other places. Eventually, the heart wears out and stops beating.

Susceptibility or resistance to brisket disease is an inheritable trait. The goal of this program was to identify bulls with the greatest resistance to brisket and promote that genetic trait, adding value to the animal and reducing the incidence of the disease.

NMSU also measured the weight gain of these bulls. Gaining weight is the heart of the cattle industry. Identifying bulls that are good at gaining weight as well as resistant to brisket adds additional value to these animals.

Replacement Heifer Program

For this program, cattle producers from New Mexico brought in artificially inseminated heifers (female calf that has not been previously bred) for grazing and breeding, approximately 120 heifers. They were bred with bulls who are likely (through genetics) to produce a calf who will be small at birth but should gain weight nicely in the first year. When a young cow can give birth to a small calf her first delivery it reduces the likelihood of complications occurring during birthing. This not only protects her during this first birth but can lead to an overall improvement in her reproductive health through her life. Unfortunately, this was the group of cattle that was moved from the Preserve due to the fire.

Cow-Calf Pairs Program

For this program, local cattle producers brought in approximately 220 cows and their calves for grazing on the Preserve. Both the mother cows and their calves benefited from the abundant forage and will gain significant weight while on the Preserve.

Steer Experiment

A 60 day field trial was conducted on 50 head of steer to determine the impact of the feed supplement "Rumensin" on the PAP scores of those animals. Rumensin increases weight gain in animals, but it is believed to increase PAP scores as well.

The three primary cattle programs (bulls, heifers, and cow/calf) grazed in different pastures from each other to keep them physically separated. The bulls and steers were kept in the paddocks, lake and field pastures in the Valle Grande (but not adjacent to the East Fork of the Jemez River), the heifers were in the Rincon, east of the Valle Grande, and the cow-calf pairs were in the Seco/San Luis/Santa Rosa pasture south of the Valle San Antonio and San Antonio Creek. It was hoped that distributing these three small herds in these separate areas would greatly reduce the conflicts realized in 2008 when nearly 2000 yearlings were rotated throughout the Preserve. There were several, short-term occasions, lasting less than two weeks, during the beginning and end of the season that some of the cattle had to be moved through the San Antonio or Valle Grande, but these were short-term endeavors while the cattle were being moved to a different area.

Workshops/Seminars

NMSU hosted several informal workshops with the producers instructing them on animal health, livestock and range management. However, two events were most notable in this year's program--The youth ranch management camp and the educational field day associated with the bull sale.

NMSU Youth Ranch Management Camp

NMSU hosted an inaugural youth ranch management camp. It was a success on multiple levels. More information on the ranch camp can be found online at:

<http://nmyrm.nmsu.edu/>

A NMSU press release (7-13-11) described the youth ranch camp as follows:

VALLES CALDERA NATIONAL PRESERVE, N.M. Twenty-nine teens from family-owned New Mexico ranches, an enthusiastic group of instructors from New Mexico State University's Cooperative Extension Service, and the picturesque landscape of the Valles Caldera National Preserve in northern New Mexico created a unique event for the future ranch managers.

"When you capture this much positive energy into a single event, great things happen," said Manny Encinias, New Mexico State University Extension beef cattle specialist and a member of

the camp's organizing task force. The youth ranch management program focused on providing hands-on training for future ranch managers and stewards of New Mexico's natural resources. The program is an expansion of the research and education contractual agreement between NMSU and the Valles Caldera Trust.

Camp participants selected for the program came from ranches in 19 New Mexico counties to learn science-based skills used successfully on modern-day ranches to improve beef production, natural resource stewardship, wildlife management and fiscal management.

Attending the camp were Michael Meyers of Albuquerque; Bennie Lovato of Algodones; Colton Allen of Animas; Lukas Mott of Chaparral; Denton Harris of Clayton;; Ashley Thompson of Edgewood; Randall Rush and Richard Rush of Forrest; Shania Begay of Fruitland; Brianna Kimsey and John Gilbert, both of Grenville; Sage Mijares of Canon; Brannon Mobley of Las Cruces; Ramos Aragon of Las Vegas; Landon Williams of Lordsburg; Shelby Auge, John Michael Nagy, Leonard Trujillo and Jonah King, all of Los Lunas; Enrique Cain of Mountainair; Tanner Monroe of Raton; Joshua Flores of Santa Rosa; Lane Barraza and Kullen Wooten, both of Roswell; Matthew Denetclaw of Shiprock; Kristen Cornelius of Socorro; Katrina Benson of Taos; Daniel Hight of Tatum; and Matthew Welty of Winston.

"During the week-long camp, participants were challenged 12 hours a day with a college-level curriculum of hands-on activities and lectures," Encinias said. "Each day's activities contributed information that the youth used to develop a ranch management plan for designated areas of the 89,000-acre Valles Caldera National Preserve."

Information presented by NMSU Cooperative Extension specialists and county agricultural agents included Beef Quality Assurance training; pros and cons of artificial insemination and estrus synchronization; uses of real-time ultrasound technology to determine pregnancy and estimate carcass traits; and range plant identification and range management techniques to determine stocking rates for grazing. NMSU Extension wildlife specialists and representatives from the New Mexico Game and Fish Department talked about the importance of co-existing with wildlife, how to estimate wildlife populations and how to improve wildlife habitats. The youth were also exposed to various ways to market cattle. They participated in a traditional

sale-barn mock sale conducted on-site. They also learned about forward contracting cattle through video and online sales, as well as marketing beef and beef products directly to the consumer.

Other camp highlights included fabricating a beef carcass into retail cuts for the camp cooks to prepare during the week, and watching a ranch horse training demonstration. The campers also tested their shooting skills at an air rifle mobile recreation unit and an archery range.

“We challenged these young people with a rigorous program for five full days,” Encinias said. “They never seemed to weaken. They were like sponges absorbing knowledge all week.”

To put all of the passion, logical thinking and brainpower to good use, the youth were divided into six teams that developed ranch management plans for assigned areas of the preserve, which ranged in size from 4,000 to 5,000 acres. The plans were presented to a panel of judges made up of successful New Mexico ranch managers, and an audience that included dignitaries and parents. Winning team members were Richard Rush of Melrose, Michael Meyers of Albuquerque, Lukas Mott of Chaparral, Katrina Benson of Taos and Leonard Trujillo of Los Lunas.

“We all grew from this phenomenal experience, adults included,” Encinias said. “These young people met every challenge we threw at them, head-on. They demonstrated their unique leadership abilities and team skills. They definitely got out of their comfort zones. And most amazing, they expressed their genuine appreciation and respect for humanity, livestock and the land.

“If these young people are a demonstration of what is in store for our industry, the future looks bright,” Encinias said

Field Day Bull Sale

In addition to the annual bull sale, an educational field day was hosted by NMSU. More information can be found online at:

<http://aces.nmsu.edu/aes/highcountrybeef/index.html>

An NMSU press release (8-29-11) describes the event as follows:

VALLES CALDERA NATIONAL PRESERVE, N.M. – The inaugural field day at New Mexico State University's Top of the Valle research facility at the Valles Caldera National Preserve will give cattle producers an opportunity to learn more about bovine high altitude disease and the research being done to reduce the risk of cattle dying from hypertension while grazing in the mountains of the western United States.

The field day will begin at 10 a.m., Sept. 24, at the historic 89,000-acre Baca Ranch, now owned by the United States government. Demonstrations and presentations on the research will be given, and cattlemen will be able to view the bulls and cows that have participated in the research.

"Each year we add another dimension of research as we work to quantify practices that help cattle survive and thrive while grazing at altitudes above 7,000-feet," said Manny Encinias, NMSU Extension beef cattle specialist and director of operations for the research facility. "We have always suspected that genetics is a major driver of how an animal performs at high altitude. We're trying to understand how significant genetics actually is and what other underlying factors make cattle susceptible to developing hypertension at higher elevation."

It is estimated that the beef industry loses \$60 million annually because of the impact of high altitude disease. The three areas being studied are defining genetic markers across multiple breeds for bovine high altitude disease, commonly called brisket disease; the impact of nutritional management prior to cattle being shipped to seasonal high altitude grazing; and the impact of pulmonary hypertension on reproduction efficiency.

NMSU's College of Agricultural, Consumer and Environmental Sciences is coordinating the study that involves researchers from three universities – NMSU, Colorado State University and the

University of Illinois – and cattle breeders from several states.

National expert on bovine high mountain disease Tim Holt, veterinarian and assistant professor at Colorado State University's School of Veterinary Medicine and Biomedical Science, is participating in the Top of the Valle project by performing the pulmonary arterial pressure (PAP) test on the bulls to evaluate their individual adaptation to the high altitude after 60 days grazing at the Valles Caldera. The PAP test detects early signs of hypertension through the animal's blood pressure.

Genetics researcher Jonathan Beever, associate professor at the University of Illinois Department of Animal Science, is analyzing DNA samples gathered from the registered cattle at the Top of Valles facility to define the genetic markers associated with high altitude disease (HAD).

Holt, while conducting PAP tests in the field since the early 1980s, has observed numerous trends associated with higher rates of HAD. Encinias and the staff at NMSU's Clayton Livestock Research Center have initiated a study to quantify one of Holt's field observations.

This year, they are studying the impact of commonly used feed additives in mineral supplements for growing beef cattle prior to shipment to high altitude grazing.

"In the field, Holt has observed negative associative effects of commonly used feed additives," Encinias said. "So we are watching growth and reproductive performance, as well as pulmonary arterial pressure, of cattle supplemented with these feeds additives."

During the field day, Encinias will present an overview of the goals and objectives of the Top of the Valles program. Holt will conduct a demonstration of the PAP test and address the need for the research.

Other presentations on the field day agenda include:

- "Developing Genetic Tools to Manage High Altitude Disease" by Jonathan Beever of University of Illinois

- “Trichomoniasis in New Mexico Beef Cattle Herds” by John Wenzel, NMSU Extension veterinarian
- “New Mexico Youth Ranch Management Camp” by Dina Reitzel of New Mexico Beef Council
- “Fire ecology in the Southwest” by Doug Cram, NMSU Range Improvement Task Force
- “Las Conchas Fire: Burn Dynamics on the Valles Caldera” by Tim Haarmann, Valles Caldera National Preserve ranch manager
- “Post Fire: Recovery of Natural Resources” by Nick Ashcroft, NMSU Range Improvement Task Force
- “Effects of Fire on Grazing and Browsing Patterns of Cattle and Wildlife” by Sam Smallidge, NMSU Range Improvement Task Force

“Members of the New Mexico Beef Cattle Performance Association will have a group of high altitude tested bulls and females on display, and a select set for sale,” Encinias said.

Encinias added that the field day will give producers an opportunity to learn more about the work that the New Mexico Beef Cattle Performance Association and NMSU are doing to improve the region’s beef industry.

Average Daily Weight Gains

For the 2011 season, the average daily weight gain (ADG) for the coming two year old bulls in the high elevation program was 1.30 lbs. ADG was not collected for cow/calf pairs this year.

VCNP Range Management and Monitoring Efforts

Several methods of monitoring were employed by Trust staff to gather information about the grazing conditions before, during, and after the grazing season.

One of the methods of monitoring rangeland health during the grazing season used techniques recommended by the USDA’s Natural Resources Conservation Services (NRCS). In an attempt to

standardize the monitoring of the cattle program on the ground during the grazing season, records of the cattle program and range conditions were kept and assessed using the USDA NRCS, Grazing Recordbook: A field Guide for Range, Forage and Livestock Programs. Part of this process involved conducting basic pasture utilization surveys.

Surveys were conducted in (1) the south horse Pastures where 50 steers grazed for about 80 days, (2) the Lake/Field traps, where about 100 yearling bulls and steers grazed, (3) the bull paddocks where 42 yearling bulls were grazed, (4) Seco/Southwest San Antonio pastures, where 120 cow/calf pairs and bulls were kept during the grazing season, and (5) Santa Rosa/San Luis where 100 cow/calf pairs and bulls grazed.

The methods of the NRCS Rangeland Utilization Survey consist of selecting key areas in the pastures that are grazed. Step transects are done by walking in one direction and at every second step, stopping and estimating which Use Class is apparent for the key species nearest your foot. The Use Class is the amount of annual growth removed by grazing animals. At least 100 points are taken per survey. The Use Classes are described by NRCS and include 0-15% (none), 16-35% (light), 66-80% (heavy), 80-100% (severe). For example "None" is described as having very little use of key forage plants with only choice areas or choice plants being foraged. "Light" is described as having key forage plants that are lightly to moderately used, with practically no use of low-value plants, with most of the accessible range shows grazing. "Moderate" means that key forage plants are used about right for the season; with some use of low value forage plants and all fully accessible range areas are grazed. Some trampling may be evident. Table 1 includes the results from these field assessments.

Table 1. 2011 Grazing Season Utilization for VCNP Pastures Using USDA NRCS Use Class.

Pasture	Beginning of Season (May)	Mid Season (August)	End of Season (October)
South Horse Pasture	8.0 % 0-15% (none)	57.5% 36-65% (moderate)	59.8% 36-65% (moderate)
South Horse Pasture (Control)	8.0 % 0-15% (none)	8.0 % 0-15% (none)	8.0 % 0-15% (none)
Lake/Field Trap	8.0 % 0-15% (none)	43.8% 36-65% (moderate)	50.7% 36-65% (moderate)
Lake/Field Trap (Control)	8.0 % 0-15% (none)	8.0 % 0-15% (none)	8.0 % 0-15% (none)
Bull Paddocks	8.0 % 0-15% (none)	40.0 % 36-65% (moderate)	54.9 % 36-65% (moderate)
Bull Paddocks (Control)	8.0 % 0-15% (none)	8.0 % 0-15% (none)	8.0 % 0-15% (none)
Seco/SW San Antonio	8.0 % 0-15% (none)	44.0 % 36-65% (moderate)	47.2 % 36-65% (moderate)
Seco/SW San Antonio (Control)	8.0 % 0-15% (none)	8.0 % 0-15% (none)	8.0 % 0-15% (none)
Santa Rosa/San Luis	8.0 % 0-15% (none)	47.0 % 36-65% (moderate)	64.7 % 36-65% (moderate)
Santa Rosa/San Luis (Control)	8.0 % 0-15% (none)	8.0 % 0-15% (none)	8.0 % 0-15% (none)

South Horse Pastures

Results indicated that the control site for the South Horse pasture remained in the 0-15% (none) range for the entire grazing season, while the South Horse pasture itself, where about 50 head of cattle grazed for about 80 days went from a 57.5% mid-season utilization in July to a 59.8% utilization total for the end of the season . Both were classified as the NRCS 36-65% (moderate) utilization level.

Lake/Field Trap Pastures

Results indicated that the control site for the Lake/Field Trap pastures remained in the 0-15% (none) range during the entire grazing season. The Lake/Field pastures where about 100 head of yearling cattle grazed went from a 43.8% mid-season utilization in July to a 50.7% utilization total for the end of the season. Both were classified as the NRCS 36-65% (moderate) utilization level.

Bull Paddocks

Results indicated that the control site for the bull paddock pastures remained in the 0-15% (none) range for the entire grazing season, while the bull paddocks pastures, where 42 head of cattle grazed went from a 40.0% mid-season utilization in July to a 54.9% utilization total for the end of the season . Both were classified as the NRCS 36-65% (moderate) utilization level.

Seco/SW San Antonio Pastures

Results indicated that the control site for the Seco/Southwest San Antonio pastures remained in the 0-15% (none) range for the entire season, while the Seco/Southwest San Antonio pastures where about 120 head of cattle grazed went from a 44.0% mid-season utilization in July to a 47.2% utilization total for the end of the season. Both were classified as the NRCS 36-65% (moderate) utilization level.

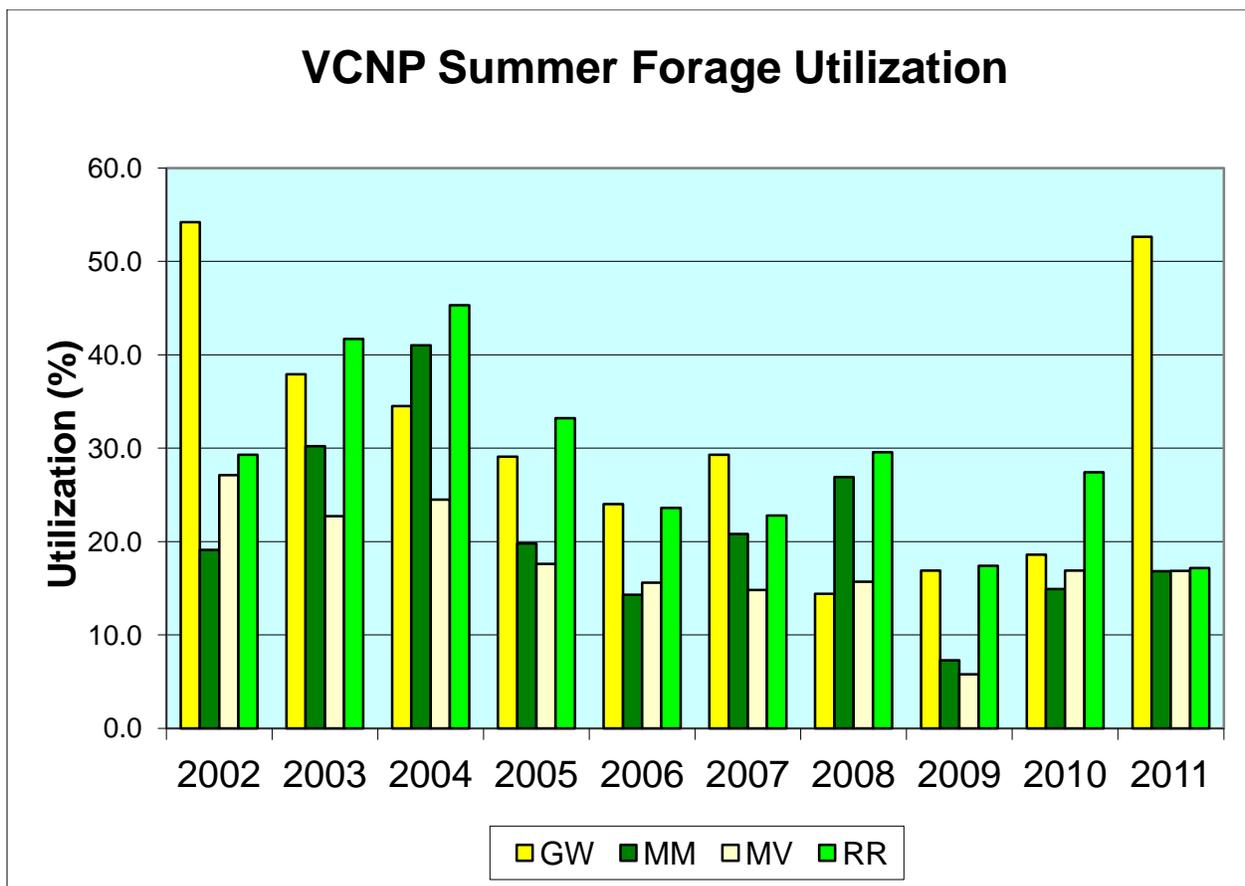
Santa Rosa/San Luis Pasture

Results indicated that the control site for the Santa Rosa/San Luis pasture remained in the 0-15% (none) range for the entire grazing season, while Santa Rosa/San Luis pasture itself, where the 100 head of cattle grazed went from a 47.0% mid-season utilization in July to a 64.7% utilization total for the end of the season . Both were classified as the NRCS 36-65% (moderate) utilization level.

The more extensive and rigorous data collection and studies of range health were conducted as part of the Science and Education Program’s range condition monitoring.

Total rainfall during the 2011 season was lower than average in terms of quantity. However, the monsoon season rains (July-Sept) were slightly higher than average. Based on data collected after the cattle had been removed from the Preserve, the forage utilization data for the cow-calf pairs showed that some areas within some of the pastures had been grazed beyond the 40% goal. As well, many areas of the Preserve that did not have cattle present during the grazing season also exceeded the 40% (Figure 1). These results were likely caused by the drought and some overgrazing by both cattle and elk.

Figure 1. Summer Forage Utilization on the Preserve



Grazeable Woodland (GW,) Mountain Valley (MV), Mountain Meadow (MM), Riparian (RR)

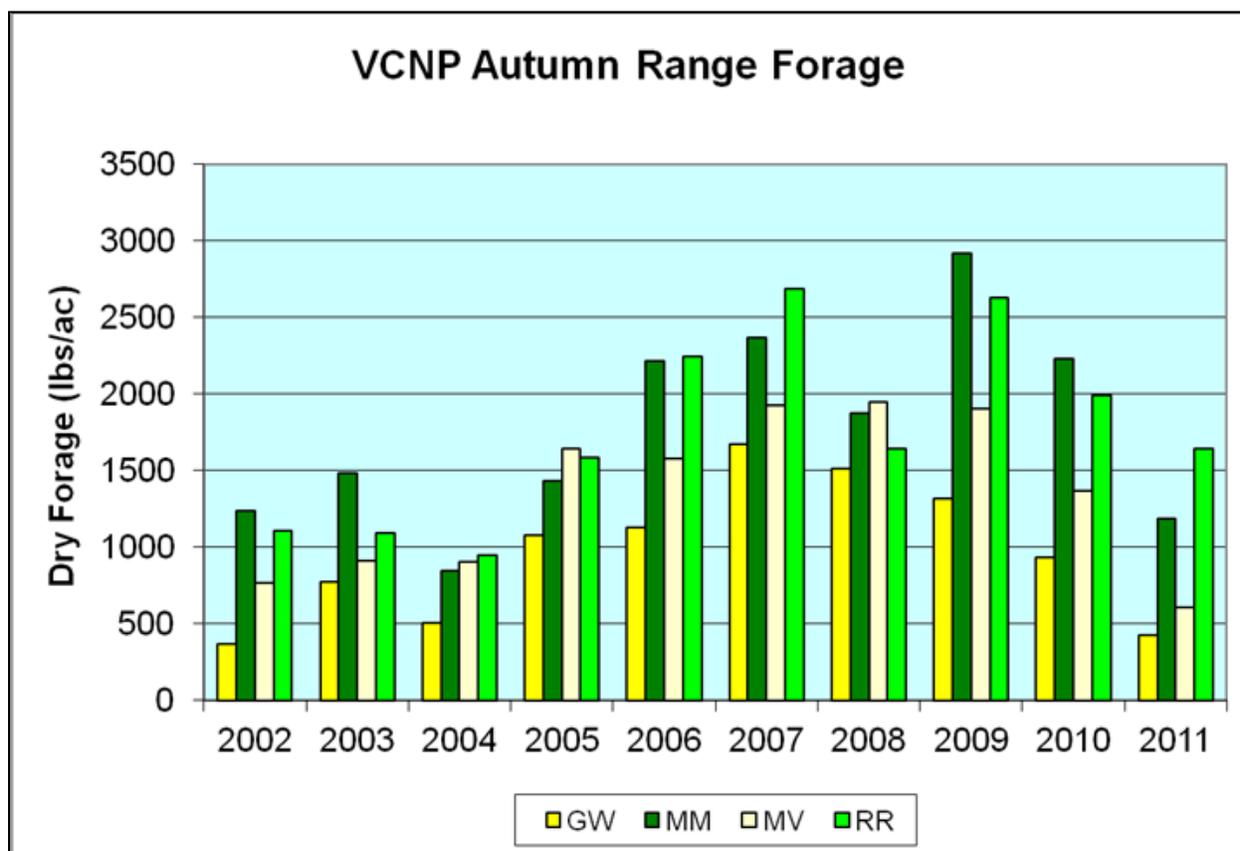
The utilization percentages varied by pasture. The South horse pasture, where the 50 steers grazed as part of the experiment did not have any plots that were specifically monitored this year. However the field/lake trap, where 97 steers grazed, showed a 3.6% utilization. The bull paddocks, where 30 bulls grazed, showed a 43.9% utilization. The Seco/Southwest San Antonio pastures where 120 cow/calf pairs and 4 bulls grazed showed a 82.6% at one plot and 0% at another plot (grew back faster than it was grazed). The Santa Rosa/San Luis pastures, where 100 cow/calf pairs and 4 bulls grazed showed a 46.2%, 0%, and 67.9% at different plots within the pastures.

For the entire Preserve, average production was 967 lbs/acre, down from the previous year's 1631 lbs/acre (Figure 1). Field data collected at the end of the 2011 grazing season indicate that the 40% allocation goal was met for the Preserve as a whole (Table 2), but not for some of the individual pastures. Table 3 shows the VCNP forage utilization data; all of 2011 data indicate utilization below the goal of 40%. Table 3 lists the average forage left standing after the livestock were removed for 2002-2011.

Table 2. Average amount of forage (dead and live) left standing in autumn after livestock have left the VCNP. Units are lb/acre.

<u>Summer Production (lb/acre)</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
Grazeable Woodland (GW)	368	773	507	1076	1127	1674	1513	1319	931	425
Mountain Valley (MV)	767	914	906	1642	1577	1928	1952	1902	1367	610
Mountain Meadow (MM)	1236	1484	845	1433	2216	2368	1874	2922	2232	1188
Riparian (RR)	1105	1093	946	1587	2249	2691	1646	2631	1992	1645
Overall Average Production:	869	1066	801	1435	1792	2165	1746	2193	1631	967

Figure 2. Average amount of forage (dead and live) left standing in autumn 2002-2011.



Grazeable Woodland (GW), Mountain Valley (MV), Mountain Meadow (MM), Riparian (RR)

Table 3. VCNP forage utilization (based on ratios of biomass outside vs. inside exclosures from autumn sampling, after livestock have left the VCNP).

Average Forage Utilization (%)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Grazeable Woodland (GW)	54.2	37.9	34.5	29.1	24.0	29.3	13.4	0.0	18.6	53
Mountain Valley (MV)	27.1	22.7	18.4	17.6	15.6	14.8	15.7	0.0	16.9	17
Mountain Meadow (MM)	19.1	30.2	41.0	19.8	14.3	20.8	26.9	0.0	14.9	17
Riparian (RR)	29.3	41.7	45.3	33.2	23.6	22.8	29.6	1.5	27.4	17
Overall Average Utilization:	32.4	33.1	34.8	24.9	19.4	21.9	21.4	0.4	19.5	25.9

Financial

In 2011, NMSU paid the Trust \$14.00 per head a month (\$56.00 total per head for the 4 month grazing season). NMSU actually grazed 624 head of animals the first half of the season, and about 500 the second half after the fire. The gross revenue was \$31,472 in revenue.

Ranch and science personnel, as well as vehicles and supplies, are required to operate the program. An estimate of the cost of these program specific operations expenditures is included in Table 4. Estimated expenditures for the program were \$21,581.

Table 4. 2011 Grazing Program Estimated Expenditures.

	Cost
Ranch Personnel	
--Ranch Foreman	\$8,184
--Natural Resource Coordinator	\$363
--Fence Crew	\$1,920
Ranch Vehicle	\$96
Fence Vehicle	\$480
Ranch Supplies	\$250
Ranch Subtotal	\$11,293
Science Personnel	
--Vegetation Crew	\$6705
--Field Supervisor	\$3540
Science Vehicle	\$173
Science Supplies	\$30
Science Subtotal	\$10,288
TOTAL	\$21,581

In summary:

- \$14.00 per head a month (\$56.00 per head for 4 month season)
- A total 624 head grazed first half of season, 500 for the second half due to fire
- Gross income was \$31, 472, operations costs were \$21,581
- **NET INCOME : \$9,891**

Conclusion and Recommendations

A total of \$31,471 was returned to the Trust, even though some animals were removed due to the fire. The 2011 cattle program was a success on several fronts. The continuing multi-faceted program again benefited multiple cattle growers (including many local producers), limited the impacts to sensitive habitats, limited impacts and interaction with recreation programs, and provided a research component related to issues unique to high altitude cattle. Furthermore, the New Mexico Youth Ranch Camp was a great success and received broad positive feedback.

There were several goals spelled out in last year's report. These goals were considered as we managed the 2011 grazing program at the Preserve. We made progress in reaching these goals and they will be used again as standards for next year's program. These include:

- The grazing program should provide the Trust with the greatest flexibility to respond to varying environmental and market conditions, to meet multiple goals and to incorporate an experimental management style that mixes elements of public and private administration.
- The program should be aimed at reducing our administrative costs and efforts.
- Operating smaller numbers of livestock, while at the same time seeking to develop programs that increase the revenue through other activities, might be a better long-term strategy for economic return. These activities could include a smaller numbers of higher value animals (such as the high elevation bull/heifer programs), fees and grants received for educational programs, conservation stewardship programs, or even recreational fees associated with herding or other cowboy activities.
- The program should provide for the ability to respond to changing conditions, future development or changes on the Preserve, balance all the goals from the Act, and address the competing demands from the public.

Furthermore, the upcoming 2012 program should have goals which also take into account the ecological impacts and other issues associated with the Las Conchas fire. These would include:

- Strive to include as many Santa Fe National Forest permittees as possible from the allotments that were impacted by the fire. Use the Valles Caldera as a "grass bank" for those permittees, in turn allowing burned areas on the National Forest to recover without grazing pressure.

- Work to improve range monitoring techniques on the Preserve using common methodology from other federal and state range management programs. This would include the development of systematic standards and guidelines for monitoring of the Valles Caldera grazing program and moving beyond using just utilization data.

Unfortunately, as has been the case in years past, trespass cattle continued to be a problem on the Preserve, mostly on the northern part of the Preserve. The fence is often cut throughout the grazing season and dozens of trespass cattle graze on the Preserve. Substantial effort was made to remove cattle off of the Preserve, having the owners come retrieve their cattle, as well as law enforcement citations. Continual cutting of the fence makes keeping trespass cattle off the Preserve a difficult task. This year we will explore hiring a ranch hand, with one of their primary duties being to remove trespass cattle.

In summary, for a third year in a row, the 2011 grazing season conducted by NMSU was successful. The fire had an impact on the program but we were able to overcome the challenges and move forward in providing a safe grazing environment. Again this year, great effort was made to keep the cattle in large pastures away from riparian areas and away from recreation programs. The cattle had a negligible impact on the recreation programs this year due to a concerted effort to keep cattle out of recreation areas. The program involved many local cattle growers, included an extension and research component, a small conservation program which allowed the resting of some tribal land, and for a third year, culminated in a successful on-site bull sale which also included a large educational field day. Furthermore, the youth ranch camp was a success and is being planned again for next year.

Appendix A

VCNP Memo: Estimate of Livestock Numbers

Date: 31 March 2011

Memo to: Gary Bratcher, Executive Director

From: Bob Parmenter, Director, Science & Education

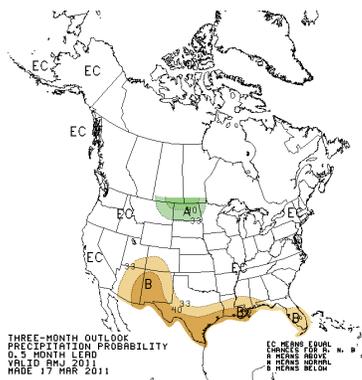
Subject: March 2011 estimate for livestock numbers in summer 2011

In an effort to provide an updated forecast of range conditions and potential stocking densities of livestock for the 2011 grazing season, I am providing this update on conditions of the Preserve as of the end of March, 2011. This update includes current moisture conditions (precipitation), 3 month forecasts of precipitation and temperature, the status of the El Niño/La Niña phenomenon, and a summary of the autumn 2010 standing crop biomass in the grasslands of the Preserve.

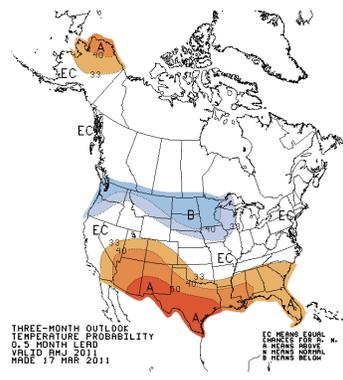
Precipitation pattern for 2010-2011: Thus far in the “water year” (measured during October through the end of March), the Preserve is running below average in terms of total precipitation (rain and snow) received. The summary data for total precipitation by station are as follows:

SITE	LONG-TERM AVERAGE	WATER YEAR 2010-2011	WATER YEAR % of NORMAL
Headquarters (Valle Grande):	243 mm	185 mm	76% of normal
Valle San Antonio:	205 mm	116 mm	57% of normal
Valle de Los Posos:	243 mm	161 mm	66% of normal
Redondito Peak:	379 mm	250 mm	66% of normal

Three-month forecast for precipitation and temperature: The forecast for the next three months (April, May, June of 2011) are for warmer and dryer than average conditions. The maps of the affected regions are shown below:



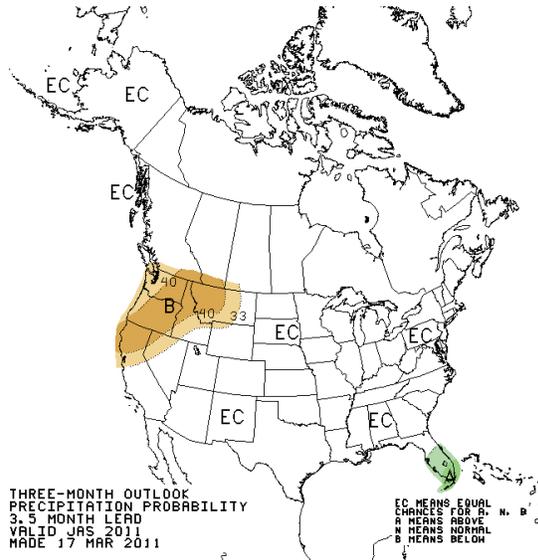
Precipitation Forecast, Apr-June 2011



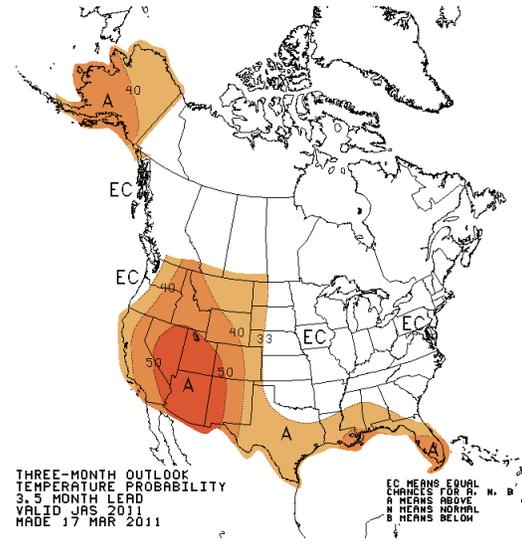
Temperature Forecast, Apr-June 2011

As is usual, the forecast capability for the summer monsoons is very poor; as such, there is equal probability for an average amount of monsoonal moisture this coming summer. The monsoon

usually starts in late June or early July. However, in spite of a forecast of a “normal” moisture amount, the forecast is calling for probabilities of a warmer than average summer temperature.

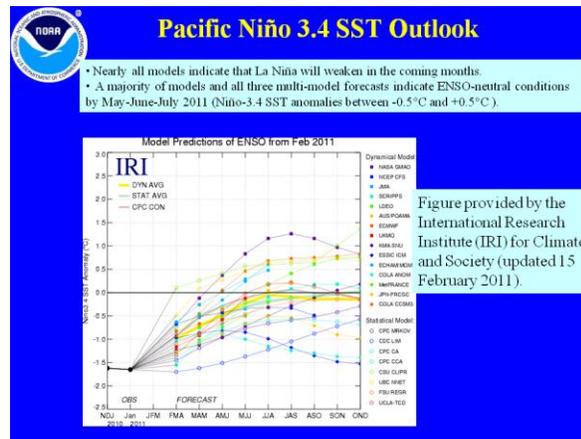
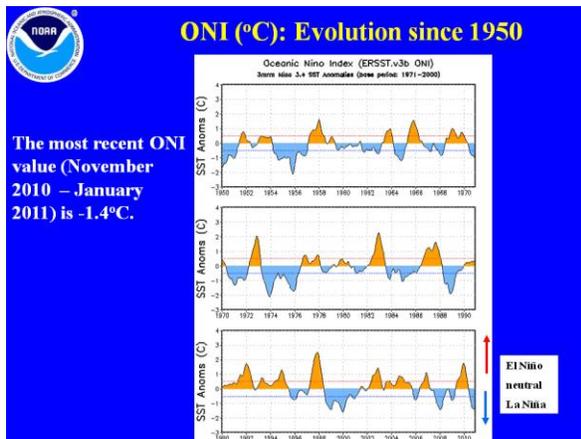


Precipitation Forecast, Jul-Sep 2011



Temperature Forecast, Jul-Sep 2011

El Niño Conditions: The current La Niña, which has brought dry conditions to the Southwest this winter/spring, continues to weaken, and is expected to dissipate by early summer. This still leaves us with the prospect of dryer than average conditions through April through June (as per the forecast on the previous page).



Forage availability on VCNP grasslands: The standing crop forage as of late September, 2010, in relation to past years of measurements is as follows:

Average Autumn Standing Biomass (lbs/ac)									
Site Type	2002	2003	2004	2005	2006	2007	2008	2009	2010
GW	368	773	507	1,076	1,127	1,674	1,513	1,319	931
MM	1,236	1,484	845	1,433	2,216	2,368	1,874	2,922	2,232
MV	767	914	906	1,642	1,577	1,928	1,952	1,902	1,367
RR	1,105	1,093	946	1,587	2,249	2,691	1,646	2,631	1,992
Average	869	1,066	801	1,435	1,792	2,165	1,746	2,193	1,630

From 2002 through 2009, the average autumn biomass was 1,508 lb/acre. The 2010 value was 8% above average, at 1,630 lb/ac. The 2010 value is the lowest average value recorded in the most recent five year period (2006-2010).

With respect to forage utilization, Preserve-wide forage utilization in 2010 was 19.5%, well below the 40% utilization maximum allowed under the EA for forage management. Several sites sustained utilization above 40%, indicating that additional efforts by livestock managers will be needed to move cattle among different sections of each pasture.

Average Utilization by Vegetation Type (%)									
Site Type	2002	2003	2004	2005	2006	2007	2008	2009	2010
GW	54.2	37.9	34.5	29.1	24.0	29.3	14.4	16.9	18.6
MM	19.1	30.2	41.0	19.8	14.3	20.8	26.9	7.3	14.9
MV	27.1	22.7	24.5	17.6	15.6	14.8	15.7	5.8	16.9
RR	29.3	41.7	45.3	33.2	23.6	22.8	29.6	17.4	27.4
Average	32.4	33.1	36.3	24.9	19.4	21.9	21.6	11.8	19.5

Pastures under direct livestock use illustrate the need for additional movement of livestock, so as to more evenly utilize forage resources and prevent utilization above the 40% maximum. Examples include the San Luis/Seco pasture area near the water tank, and the Santa Rosa Creek (also near the water). Similarly, in the HQ pasture, the north end was heavily grazed, while the south end was barely touched.

Summer 2010 biomass dynamics in livestock pastures.		
Summer net utilization (%)	Site	Vegetation Type
77.8	San Luis/Seco	Grazeable Woodland
19.8	San Antonio stockpond	Mountain Valley
62.2	Santa Rosa Creek	Mountain Meadow
20.9	Rincon - above riparian	Mountain Valley
38.8	Rincon - riparian	Riparian
0.0	West of horse paddocks	Mountain Valley
0.0	East horse paddocks	Mountain Valley
94.1	HQ pasture north	Mountain Valley
5.9	HQ pasture south	Mountain Valley

Model for Calculating Livestock Stocking Levels in the EA: Based on forage data collected from 2002 – 2008, forage utilization and elk/livestock abundance has been estimated for five levels of precipitation and forage production, ranging from historic high levels to low levels. Average capacity for the VCNP is 1,216 Animal Units for 4 months of grazing, in addition to a revised elk herd estimated by the NM Department of Game and Fish of 2,000-2,500 animals (in the model below, I have used a mid-point estimate of 2,250 elk). The forage allocation calculations are based on total utilization by elk and livestock of 40% of available forage production, with 60% of the forage remaining behind for ecosystem services (soil erosion prevention, carbon sequestration, and health of forage plants).

Livestock Stocking Model for Valles Caldera National Preserve, NM		TOTAL FORAGE FOR UNGULATES (LBS DRY WEIGHT): Represents 40% of total available forage production				
Pasture Name	Total Acres	HIGH MODEL	MID-HIGH MODEL	AVERAGE MODEL	MID-LOW MODEL	LOW MODEL
Field Trap	329.5	291,957	239,136	186,230	141,172	96,159
Jaramillo Trap	805.1	459,886	379,367	298,731	227,973	157,294
Lake Trap	653.9	592,190	485,525	378,735	290,024	201,402
Lower San Antonio Trap	1,895.7	1,029,266	850,652	671,818	513,992	356,373
Middle San Antonio Trap	838.9	649,416	535,105	420,637	321,731	222,929
Mohawk Trap	749.3	327,898	269,747	211,516	161,593	111,721
Redondo	25,982.5	1,395,627	1,144,534	893,236	678,424	463,921
Rincon	3,835.0	911,027	748,285	585,327	443,884	302,617
Round Mountain	555.9	464,815	382,190	299,483	230,247	161,087
San Antonio Bench	11,237.2	1,045,614	861,092	676,381	512,152	348,181
Seco-San Luis-Santa Rosa	14,632.3	2,174,694	1,799,839	1,424,556	1,085,955	747,860
Shipping Trap	1,232.0	1,004,446	835,101	665,612	514,445	363,501
Toledo-Obsidian Valley-Posos Slot	15,619.3	2,904,053	2,415,809	1,926,998	1,476,697	1,027,079
Upper San Antonio Trap	2,316.3	1,269,223	1,048,402	827,277	634,882	442,683
Valle Grande	5,892.1	3,416,862	2,809,101	2,200,594	1,683,006	1,165,989
Total acres:	86,575.0					
Grant total pounds of forage: (lbs dry forage, autumn)		17,936,974	14,803,885	11,667,131	8,916,177	6,168,796
Elk allocation (2,250 elk * 6 months @540 lbs/month)		7,290,000	7,290,000	7,290,000	7,290,000	7,290,000
Remaining forage for livestock (lbs)		10,646,974	7,513,885	4,377,131	1,626,177	-1,121,204
Stocking Levels (Animal Units: AU), where 1 AU = 900 lb/month for 4 mo.		2,957	2,087	1,216	452	-311

Using the model described in the EA for forage management, and incorporating the current precipitation amounts that have fallen on the VCNP, the forecast for precipitation through the remainder of the winter-spring period, and the existing forage on the VCNP, the summary is as follows:

Current Precipitation (Oct-Feb): **Below average.** Across all stations, the Preserve is 66% of normal precipitation for this time of year; this represents a continuing drying trend (we were 77% of normal last month, so below-average precipitation in March has worsened our water balance).

Forecast for precipitation (Mar-May): **Below average.** This is due to the existing La Niña.

Forecast for summer precipitation (Jun-Aug): **Average.**

Autumn 2010 forage remaining: **8% Above Long-term Average, but lowest in last 5 years.**

Stocking Model Selection: The growth of forage plants is directly dependent on the total amount and timing of precipitation. Spring growth for forage depends on soil moisture, which in turn is based on the accumulated precipitation (rain and melting snow) during the winter and spring periods (October through May). Over the duration of weather records on the VCNP (2003-present), the driest winter-spring period was October 2005 through May 2006, during which only 52% of average precipitation fell on the Preserve. This would equate to the “LOW MODEL” of forage production if precipitation continued accumulating at that rate. Given that “AVERAGE MODEL” would have average precipitation, it is possible to scale the current water year with respect to AVERAGE and LOW. Given that the halfway point between average (100%) precipitation and lowest the Preserve has experienced (52% of average) would be 76% of average, and the 2010-2011 winter-spring precipitation is 66% of average, the Preserve is currently below the “MID-LOW MODEL” conditions based on precipitation. This would indicate that, if present precipitation trends continue into the early summer, the Preserve forage could support no more than around 450 animal units.

However, note that this number depends on forage across the entire Preserve, not just the four pastures that we’re currently using in upland areas. If one examines these four pastures (see table on next page), and assumes that with cattle (cows and bulls) in the pasture the elk would be reduced to insignificant impact, then the numbers of livestock total about 550 head under the “MID-LOW MODEL”.

Livestock Stocking Model for Valles Caldera National Preserve, NM		TOTAL FORAGE FOR UNGULATES (LBS DRY WEIGHT): Represents 40% of total available forage production				
Pasture Name	Total Acres	HIGH MODEL	MID-HIGH MODEL	AVERAGE MODEL	MID-LOW MODEL	LOW MODEL
Field Trap	329.5	291,957	239,136	186,230	141,172	96,159
Lake Trap	653.9	592,190	485,525	378,735	290,024	201,402
Rincon	3,835.0	911,027	748,285	585,327	443,884	302,617
Seco-San Luis-Santa Rosa	14,632.3	2,174,694	1,799,839	1,424,556	1,085,955	747,860
Total acres:	19,450.7					
Grant total pounds of forage: (lbs dry forage, autumn)		3,969,868	3,272,785	2,574,848	1,961,035	1,348,038
Elk allocation (2,250 elk * 6 months @540 lbs/month)		0	0	0	0	0
Remaining forage for livestock (lbs)		3,969,868	3,272,785	2,574,848	1,961,035	1,348,038
Stocking Levels (Animal Units: AU), where 1 AU = 900 lb/month for 4 mo.		1,103	909	715	545	374

Looking at these numbers by pasture, the following stocking levels are as follows:

Field Trap:

TOTAL FORAGE FOR UNGULATES (LBS DRY WEIGHT): Represents 40% of total available forage production						
Pasture Name	Total Acres	HIGH MODEL	MID-HIGH MODEL	AVERAGE MODEL	MID-LOW MODEL	LOW MODEL
Field Trap	329.5	291,957	239,136	186,230	141,172	96,159
Total acres:	329.5					
Grant total pounds of forage: (lbs dry forage, autumn)		291,957	239,136	186,230	141,172	96,159
Elk allocation (2,250 elk * 6 months @540 lbs/month)		0	0	0	0	0
Remaining forage for livestock (lbs)		291,957	239,136	186,230	141,172	96,159
Stocking Levels (Animal Units: AU), where 1 AU = 900 lb/month for 4 mo.		81	66	52	39	27

Lake Trap:

TOTAL FORAGE FOR UNGULATES (LBS DRY WEIGHT): Represents 40% of total available forage production						
Pasture Name	Total Acres	HIGH MODEL	MID-HIGH MODEL	AVERAGE MODEL	MID-LOW MODEL	LOW MODEL
Lake Trap	653.9	592,190	485,525	378,735	290,024	201,402
Total acres:	653.9					
Grant total pounds of forage: (lbs dry forage, autumn)		592,190	485,525	378,735	290,024	201,402
Elk allocation (2,250 elk * 6 months @540 lbs/month)		0	0	0	0	0
Remaining forage for livestock (lbs)		592,190	485,525	378,735	290,024	201,402
Stocking Levels (Animal Units: AU), where 1 AU = 900 lb/month for 4 mo.		164	135	105	81	56

Rincon de los Soldados:

Pasture Name	Total Acres	TOTAL FORAGE FOR UNGULATES (LBS DRY WEIGHT): Represents 40% of total available forage production				
		HIGH MODEL	MID-HIGH MODEL	AVERAGE MODEL	MID-LOW MODEL	LOW MODEL
Rincon	3,835.0	911,027	748,285	585,327	443,884	302,617
Total acres:	3,835.0					
Grant total pounds of forage: (lbs dry forage, autumn)		911,027	748,285	585,327	443,884	302,617
Elk allocation (2,250 elk * 6 months @540 lbs/month)		0	0	0	0	0
Remaining forage for livestock (lbs)		911,027	748,285	585,327	443,884	302,617
Stocking Levels (Animal Units: AU), where 1 AU = 900 lb/month for 4 mo.		253	208	163	123	84

Valle Seco – Valle San Luis – Valle Santa Rosa:

Pasture Name	Total Acres	TOTAL FORAGE FOR UNGULATES (LBS DRY WEIGHT): Represents 40% of total available forage production				
		HIGH MODEL	MID-HIGH MODEL	AVERAGE MODEL	MID-LOW MODEL	LOW MODEL
Seco-San Luis-Santa Rosa	14,632.3	2,174,694	1,799,839	1,424,556	1,085,955	747,860
Total acres:	14,632.3					
Grant total pounds of forage: (lbs dry forage, autumn)		2,174,694	1,799,839	1,424,556	1,085,955	747,860
Elk allocation (2,250 elk * 6 months @540 lbs/month)		0	0	0	0	0
Remaining forage for livestock (lbs)		2,174,694	1,799,839	1,424,556	1,085,955	747,860
Stocking Levels (Animal Units: AU), where 1 AU = 900 lb/month for 4 mo.		604	500	396	302	208

Thus, assuming the weather conditions remain warmer and dryer than normal for the remainder of the spring (April, May, June), there is little reason for optimism that the Preserve’s grasslands can support more livestock than defined in the “MID-LOW MODEL”.

We continue to monitor the range conditions on the Preserve (e.g., soil moisture, water levels in stock tanks), and will conduct the spring forage biomass survey during May 23-27.