

Inventory Program: Earth Coring Project in Alamo Bog

Valles Caldera National Preserve

*Inventory Program: Earth Coring Project in Alamo Bog*

*Stewardship Register*

Stewardship Action: Earth Coring Project in Alamo Bog.	File Number: PLAN –
Target Start Date: 22 October, 2004	Responsible Official: Preserve Scientist
Target Completion Date: 24 October, 2004	Signature Date: 23 September, 2004
Actual Start Date: 23 October, 2004	Actual Date of Completion 25 October, 2004

*This Stewardship Register is for a sub-project within the VCT “Inventory of VCNP Natural Resources Program” Stewardship Register approved by the Board of Trustees in the 2004 Annual Operating Plan.*

**Introduction**

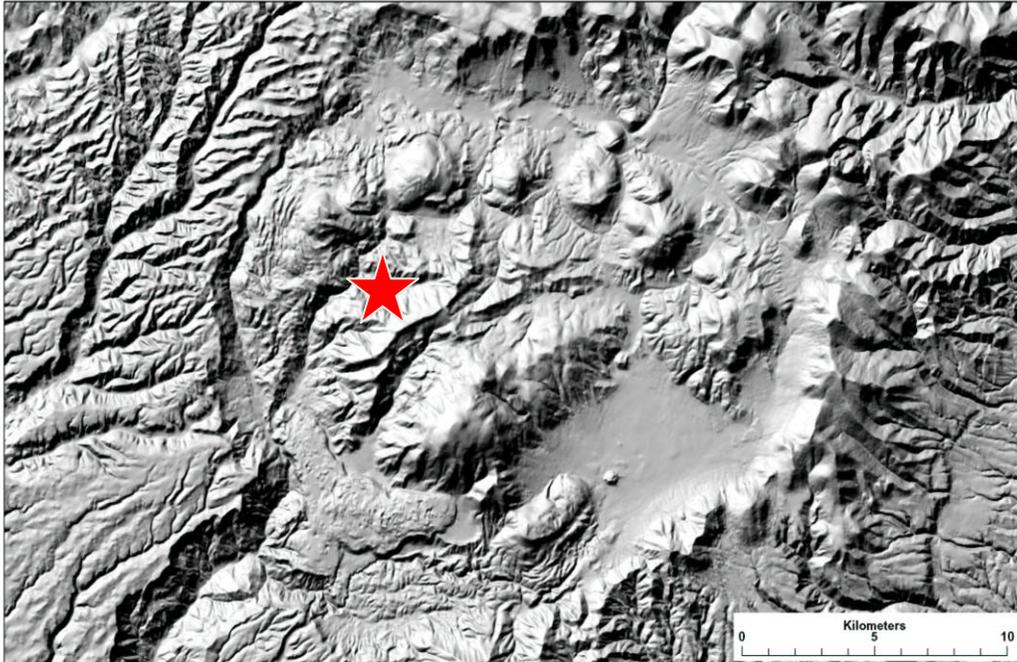
The Valles Caldera Trust is proposing to conduct the second part of a collaborative scientific inventory project that will involve the collection of a soil core from the Alamo Bog for the purpose of assessing long term climate changes and forest fire histories in the Jemez Mountains. The first part of the project was a soil coring project in the Valle Grande in May, 2004; this second core is a much smaller (shallower) and shorter in duration (2 days), but will add considerably to our basic knowledge of climate dynamics and forest fire regimes over the past 15,000 years. The Alamo Bog area of the VCNP has functioned as a sediment collection “bowl” for thousands of years, and the sediments in the bog have recorded layers of charcoal and pollen that indicate the history of forest fires and the species composition of trees and other plants that occurred in the area. The Valles Caldera National Preserve has teamed up with the United States Geological Survey, Los Alamos National Laboratory, the University of New Mexico, the National Science Foundation, and other organizations to examine the record of past climate in the VCNP. If successful, this project will reconstruct past local and regional climate over time scales of thousands of years. By understanding past climate, we can better understand how future climate change might affect this region.

**Proposed Action:**

The scientific team will use a small, hand-carried vibrator drill to take a continuous sediment core to ~ 50 ft depth (15 meters). The core diameter will be approximately 2 inches (5 cm). The core will be dated to determine the age of sediments at various depths. Information from the core will be used to determine when forest fires occurred in the caldera and what past temperature and rainfall conditions were like. The team will be on site for 3 days (22-24 October, 2004).

**Location:**

- The core will be taken from the Alamo Bog (see Figure 1), where previous geological studies have suggested that the sediment layers contain charcoal and pollen layers that could be used for reconstructing pre-historical and historical fire regimes.



*Figure 1. Location of proposed coring site in Alamo Bog, VCNP.*

**Purpose and Need:**

- Provide the scientific basis for understanding past climate changes, species composition of plants (and possibly some species of animals, e.g., insects), and the timing of forest fires.
- Provide education and interpretation to the public on geological, ecological, and climatological values of the Preserve's prehistoric changes.

**Performance Requirements:**

**Cultural Resources**

1. The site is located in a bog, and as such has no surficial cultural resources; access to the site will be on existing road. All equipment will be hand-carried from the road

to the drilling site.

2. Access for public vehicles will be prohibited; only workers associated with the project will be allowed access to the site.
3. All vehicles will be restricted to existing roads.
4. No permanent facilities will be constructed in support of these activities.
5. This project will have no effect on historic properties in the area of potential effect (APE).

### **Soil/Water Quality**

1. Soil and surface vegetation will be protected by covering the work area (~15 ft x 15 ft) with an inflatable pontoon platform. The pontoon will be removed during clean-up of site.
2. No waste mud (cuttings) or water will be created during the drilling process, and the hole will be allowed to naturally collapse on itself after the casing is withdrawn.
3. Vehicle access to the work site will be restricted to authorized personnel, and will remain on the existing road. No road construction or off-road travel is required for this project.

### **Vegetation**

1. Measures to protect soil and water quality will serve to protect vegetation. Marsh vegetation will be senescent during mid-October, and following removal of the pontoon, regrowth of the vegetation the following spring is expected to occur normally.

### **Wildlife**

1. Activities will be restricted to daylight hours, allowing wildlife undisturbed access to the work site from 7:00 PM to 7:00 AM. In addition, the short 3-day sampling time period should not cause substantial disruption of wildlife activity patterns.
2. No protected species are known to reside or frequent the work area during October.

### **Invasive Plants**

1. Non-native weed occurrence as a result of the program will be monitored, recorded and eradicated if present.

### **Site Monitoring, Cleanup and Inspection**

1. The study site will be inspected and photographed by VCT personnel prior to the activity to document environmental conditions. During and after site cleanup, inspection by VCT personnel will be conducted to ensure all requisite cleanup activities are completed. The study site will be monitored and photographed to document any project impacts and recovery.

### **Conflicts between Activities**

1. Any visitors to the area will be informed that the VCT encourages the advancement of science and education, and that this project is consistent with those goals.
2. Sampling will be conducted during a time period when no elk hunts are planned.
3. Other recreation activities (hiking, van tours, etc.) do not occur in the Alamo Bog area, and thus will not generate conflicts.

### **Public Health and Safety**

1. Contractors, scientists and employees will attend employee safety and orientation.
2. Any visitors will be provided with safety information.
3. The VCT's policy regarding hazard analysis and mitigation for all activities will be reviewed and adhered to.
4. A portable toilet will be available at the work site.
5. Leave No Trace ethics are encouraged; littering is prohibited.
6. No pets are allowed on the Preserve with the exception of assistance animals.
7. For this activity, a radio will be provided to site workers.

### **Laws and Policy**

1. This program has been prepared in compliance with the NEPA (National Environmental Policy Act) procedures adopted by the Valles Caldera Trust (Federal Register/Volume 68, No. 137/July 17<sup>th</sup> 2003).
2. A Biological Evaluation producing a finding of "No Effect" on threatened and endangered species or migratory birds was prepared for this stewardship action.
3. Verbal communication with the New Mexico State Engineer's office indicated that no drilling permit was required as the core hole will not be used for well water production.
4. Verbal communication with the U.S. Army Corps of Engineers office (Jean Manger, Santa Fe) also indicated that no drilling permit was required because (1) no sediments or waste will be created or added to the environment during the coring, and (2) the core hole will be allowed to naturally collapse when finished (requiring no artificial infilling).

Prepared by: Dr. Robert R. Parmenter, Preserve Scientist  
September 14, 2004

If you would like to comment on this proposed stewardship action you may do so by: (1) selecting the feedback option from our web site (<http://www.vallescaldera.gov>); (2) by telephoning the VCT staff (505-661-3333); or (3) submitting written comments by mail. Written correspondence should be addressed to the Valles Caldera Trust, 2201 Trinity Drive, Suite C, Los Alamos, NM 87544. Your thoughts regarding any of our stewardship actions are welcome at any time.