THE DEBITAGE

Say it in French…and it's more scientific!

The Official Newsletter of the Modoc National Forest Heritage Program

Volume 3, Issue 1 October 2013

Special points of interest:

- Student Volunteer program since 1978. Hosted one student in 2013.
- Passport in Time since 1991. Three *PIT* projects completed in Summer 2013.
- International Volunteer Program inaugurated in 1992.
- During the FY-13 field season 1,336 volunteer hours were contributed to the Heritage Program.
- During the FY-13 field season MDF crews recorded, re-recorded, updated , monitored or re-flagged 204 archaeological and historic sites.
- During FY-13 over 200 site records were sent to CSU-Chico for trinomial assignments (including backlog site records).

INSIDE THIS ISSUE:

Boles Creek IV PIT Session

This summer, we began the fourth year of archaeological inventories along Boles Creek in the Devil's Garden area. Twenty-three *Passport in Time (PIT)* volunteers braved the cool weather, hot weather and very rocky conditions to locate and record prehistoric archaeological sites. The volunteers ranged in age from 13 to 70*ish* and they donated a total of 976 volunteer hours valued at more than $21,000. The *PIT* volunteers worked with our Section 110 crew and the Forest Archaeologist.

Our Forest Supervisor, Kimberly Anderson, joined the *PIT* volunteers for a day out in the field. She enjoyed interacting with the volunteers and was able to see how archaeologists survey for, locate and record prehistoric sites. The Section 110 crew for the 2012 field season consisted of Crew Leader Michelle Fuller and crew Jim White assisted by Student volunteer Nathan Beckett from Cabrillo College in Santa Cruz, California.

Over the course of the field season a total of 27 archaeological sites were recorded and added to the future Boles Creek Archaeological District. These ranged from very small, discrete lithic scatters – possibly single use "time capsule" sites to large seasonal encampments with rock rings and possible pit house depressions, rock stacks, hunting blinds, and rock art. One site contained "cleared areas" on top of the lava scabrock that we suspect may have been some type of activity areas – possibly for sun-drying "wokas" harvested from the pool areas in Boles Creek.

"Cleared Area #2" – note the circular pattern of rock around this scab-rock outcrop covered in lichen.

You can be a part of "Boles Creek V" in 2014 – just go to www.passportintime.com and sign up this Spring!

It's about time!

Move to New Supervisor's Office!

During the week of July 22-28 movers carefully transported the contents of the old Supervisor's Office (August 1994 to July 2013) to our new building located at 225 W. 8th Street in Alturas. Coastwide Contractors, a local Alturas company, successfully deconstructed, moved and reconstructed our curation facilities' *Spacesaver®* compact storage system. The contents of the Curation Facility were moved by our temporary archaeological technicians – to temporary storage at our South Fork Archaeology and Botany Work Station – and then back into the new, 30% larger facility. Some of the large ground stone items and the historic materials will remain curated at our South Fork Curation Facility. These curation facilities should satisfy the Modoc National Forest Heritage Program needs for the life of the new office.

New Address: 225 W. 8th Street, Alturas, CA 96101

In the new building the Heritage Resource Management staff work area is located within the Ecosystems Management group area. The Heritage Program Manager (Gerry Gates) has a private office that contains the Heritage Reference Library and is the entrance to the expanded Curation Facility. Housed within the locked and temperature controlled facility are the binders containing nearly 8,000 site records and the file cabinets holding over 1,600 archaeological survey reports, the Forest History Archive (books, records, maps, and photographs) and prehistoric and historic archaeological materials.

The work area for Vicki Adkison (Section 106 Compliance Archaeologist) and Deborah Peck (Heritage Database Manager) is more spacious and functional than in the old SO. We are all getting use to the new habitat!

Compact Storage System

As part of this move most of the "historic" artifacts housed in the Curation Facility and large "ground stone" items, such as metates, stone mortar and bowl fragments, etc. were left at ou South Fork Curation Facility Annex. This is located in the "South Fork Archaeology and Botany Work Station" in the Forest Service compound at the south end of Alturas. This allows for more curation space in our primary facility in the SO for prehistoric materials and our History Archive. The Modoc National Forest will have adequate curation space for the next quarter century.

Training Completed for NEW Region 5 Programmatic Agreement (PA) and USDA Sacred Sites Policy

On February 6, 2013, the Advisory Council on Historic Preservation signed the new *Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region.*

Training for understanding and implementing the PA was required for Forest Line Officers and Staff Officers within the next three months following implementation of the new PA. This is to insure that all relevant parties are aware of their roles and responsibilities under the new Programmatic Agreement. The training was presented by the Forest Heritage Program Manager and included a section highlighting the new USDA Sacred Sites policy.

Tribal Gathering at Medicine Campground

The Pit River Tribe held its annual gathering at Medicine Campground in the Medicine Lake Recreational Area on July 18-21, 2013. Attendees camped in the campground and the adjacent dispersed recreation area. This is up in the Medicine Lake Highland Traditional Cultural Property – and area of special religious, cultural and traditional values to the Pit River Tribe, the Klamath Tribes, and the Shasta Tribe. During the tribal gathering the Medicine Campground was closed to regular public use as provide by 36 CFR 261.53(g) – *The privacy of tribal activities for traditional and cultural purposes.*

A Colleague Lost!

We are sad to report the passing of Maria Butcher, an archaeologist from New Zealand, who was an International Trainee on the Modoc NF on our Section 110 Crew during the 2012 field season. A fellow archaeologist, and former International Trainee from New Zealand, e-mailed us the following:

MARIA OLIVIA BUTCHER
09 September 1983 – 11 October 2013

I am writing to let you know that Maria Butcher passed away unexpectedly on Friday, October 11th. She had been suffering from seizures for the last year or so and had been home sick after a seizure on Thursday. Colleagues and her boyfriend had talked to her during the day on Friday when she was complaining of a bad headache, and found her dead later that day. Could you please pass on this terribly sad news to those she worked with in the Forest Service?

I know she really enjoyed her time in the Forest Service on the heritage management trainee programme and had really grown as a person and an archaeologist during her time away and subsequent work back in New Zealand. In recognition of her strong relationships with local Maori, she was offered (and her family, from the other end of NZ accepted) a *tangi* or traditional three-day Maori 'wake' at *Akerama Marae* near the *Ruapekapeka Pa* (fort) and New Zealand wars battlefield of 1845-46 – she is the first non-Maori not married into or otherwise related to the tribe to be given this honour . It is a testament to her work on the battlefield and her relationship with the Maori elders descended from the participants in that conflict, that the offer was extended.

Regards

Jonathan Carpenter
Geometria Ltd.
Whangari, New Zealand

SUPPORT OF ARCHAEOLOGICAL RESEARCH

As reported previously, Far Western Anthropological Research Group (FWARG in Davis, California, is conducting a large scale study of Native American rock stack features. The focus of their work is in southern Oregon, where members of the Klamath Tribes constructed these features for a variety of spiritual uses for a very long time and still use some of them today. Many of the largest rock cairns and circular structures are quite conspicuous and have been widely recognized since the early 1900s, and government agencies like the Bureau of Land Management and US Forest Service have made efforts to protect them from being damaged by road building, logging, and other related projects. Bill Hildebrandt, Ph.D., visited the Boles Creek area this past summer to test out his field criteria for distinguishing man-made rock stacks/features from natural. A report is expected to be released in 2014 on the overall project research.

SPACE ARCHAEOLOGY!

ABSTRACT OF RESEARCH PLAN. NASA award # NNX13AP66G. Most previous applications of direct detection of archaeological sites using remote sensing required that the target site be 1) spectrally distinct from the surrounding landscape, and 2) physically larger than the spatial resolution of the imaging system being used. We propose, for perhaps the first time, to examine whether sub-pixel artifacts (i.e. site midden and concentrations of obsidian artifacts and pottery shards) can be directly detected/identified using airborne and spaceborne image data.

The objectives of the proposed research are to: 1) use NASA image data in conjunction with actual field/laboratory measured spectra of archaeological materials to test the detection limits of selected artifact classes (obsidian, ceramics and midden) at the sub-pixel scale by applying previously demonstrated theoretical detection limit modeling (Sabol 1992, Buck et al 2003), 2) examine the influence that background, seasonal vegetation change and other on-site changes have for the detectability of these objects in image data, 3) establish the instrumentation, spatial scale, and spectral bands needed to improve the detectability of these objects, and 4) to test predictions of new locations for artifacts at specific (spatial) densities in other image scenes and ground truth these predictions.

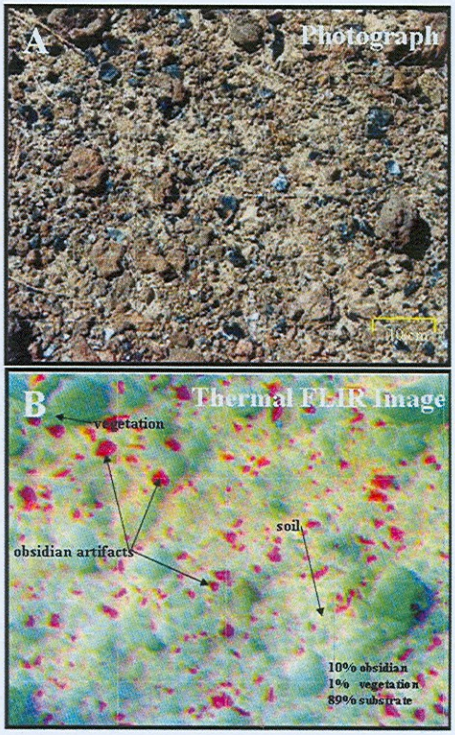

Fig. 2. Example of thermal detectability of obsidian. Figure A is a photograph of an obsidian scatter near Sugarloaf Mountain, CA. Figure B is the same area as viewed using a 3-band thermal camera.

Prior research by the proposers has shown that obsidian and pottery are theoretically detectable at realistic concentrations at archaeological sites. Certain archaeological materials such as pottery shards and obsidian have characteristic spectral signatures in visible and thermal infrared wavelengths. Site midden may as well. The ground surface at any given archaeological site is composed of a number of artifacts and/or natural materials, including the target artifacts and backgrounds composed of soil, rock, and vegetation. A spectrum collected by an airborne/spaceborne sensor is a combination of the individual spectra of these materials; as the percent composition of a material on the surface increases, its spectral representation in the mixed spectrum increases. We propose to investigate two locations in western North America with common concentrations of obsidian (Glass Mountain, CA) and pottery/midden (lower San Pedro River Valley, AZ). NASA data in visible and TIR are the primary image data

SPACE (CON'T.)

to be used, and are available from aircraft and satellite at varying scales over these archaeological sites. Spectral characteristics of targets and backgrounds will be measured in the field and laboratory, and a mixture model constructed linking these spectra to image data. The success will be evaluated by mapping predicted concentrations nearby and conducting ground truthing to determine accuracy. Use of this approach has some clear theoretical advantages over inductive predictive modeling approaches common in archaeology. The linkage between attributes of artifacts and images is clearly specified and direct. Objects of interest are directly detected, rather than inferred through statistical association with vegetation types or soil whose spectral signatures themselves may be poorly understood. It may also provide some measure of cost-effectiveness for rapidly inspecting large areas, identifying potential "hot spots" for more concentrated survey. This proposal addresses two elements solicited by the NASA SAP program: 1) identification and exploration of the extent and nature of past human settlement patterns; 2) planning for the sustainable development of cultural resources through the development of a new method to identify cultural resources. The proposal makes intensive use of NASA data especially that collected from MASTER, ASTER and AVARIS instruments. This research will give archaeologists and prehistorians a new way of using NASA data to examine the archaeological record, and may provide land managers in the US with new tools for identifying and protecting cultural resources, a clear societal benefit.

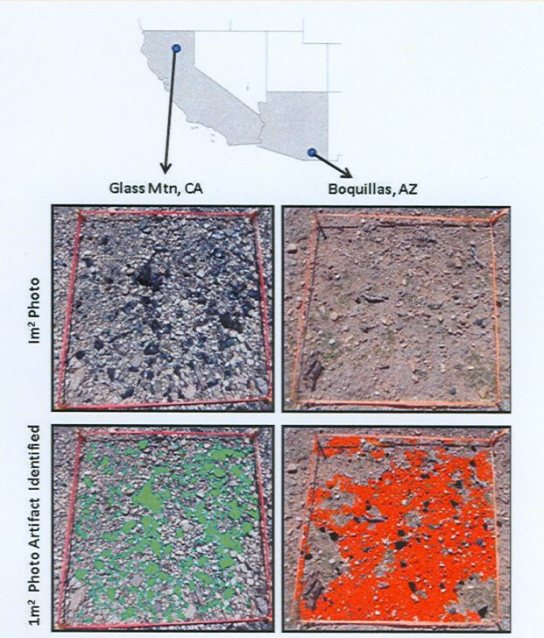

Fig. 3. Field photograph examples of the two study sites; Glass Mountain, CA on the left and Boquillas, AZ on the right. The upper photos are sample plots while the lower images are the same photos as above with the artifact material highlighted (green = obsidian; black = pottery; red = midden soil).

Paul Buck, Ph.D.
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References

Buck, P.E., D.E. Sabol, and A.R. Gilespie (2003). Sub-pixel Artifact Detection Using Remote Sensing. Journal of Archaeological Science 30 (2003) 973-989.

Sabol, D.E., J.B. Adams, and M.O. Smith (1992). Quantitative Sub-Pixel Spectral Detection of Targets in Multispectral Images. Journal of Geophysical Research 97-E2: 2659-2672.

National Historic Trail Report to be Completed!

Funding has been acquired from the Regional Office (CMTL – National Historic Trail) to complete the write up of nearly 20 years worth of field inventory documenting over 90 miles of emigrant trails across the Modoc National Forest – the Applegate Trail (1846), the Lassen Trail (1848) and the connecting Burnet Road (1848). The report will entail a history of the trails, description of the linear features, associated historic artifacts, a determination of eligibility to the National Register of Historic Places, and a comprehensive "Interpretive Plan." This inventory effort was made possible by many volunteers through *Passport in Time* projects and Section 110 inventory crews, and especially the assistance of Robert Silva from the Oregon-California Trails Association and National Park Service-Long Distance Trails Office support, and Bob Black (and others) of Trails West, Inc. In addition to the report, there will be six interpretive signs to be installed along portions of the trails.

A "BIG THANX!" to all of those who have worked on this effort for nearly 20 years!

HERITAGE RESOURCES on the Modoc National Forest: "A Boles Creek" Photo Gallery – the 2013 Field Season

Petroglyph panels along Boles Creek.

Passport in Time **volunteers Dana Werlich (age 14) and her father, Mark Werlich, from Los Altos, California, recording a pre-historic "Lithic Scatter" above Boles Creek.**

Please enjoy, but do not destroy your American heritage!

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