

## **Carnivores Captured in Park: Remote Cameras Take Compelling Photos**

By Neal Darby

The most difficult mammals to inventory and determine population sizes are the carnivores. Carnivores include the mountain lion, bobcats, coyotes, foxes, ringtail cats, weasels and skunks. These animals are highly secretive and are most active at night, therefore seeing them is a rare event. However, we still need to know their distribution and population sizes to understand things such as predation rates on other animal species, particularly sensitive species, or their responses to park management. Due to the difficulty of direct observation, the park began a pilot study using remote cameras this past winter. Remote cameras are on 24 hours a day. These cameras have an infrared motion sensor that is activated by heat and movement within 100 feet, which then triggers the camera to take a picture. To entice carnivores to come near the camera we set out bait such as road killed deer or elk and lures. Six cameras were set up during the winter, when more carnivores are down at lower elevations. Tracks in the snow helped us determine if the cameras were working properly. During the summer, the cameras will be moved to mountain passes and remote springs.



## Returning the Landscape to a Natural Community

By Tod Williams

For over 100 years, the elimination of fire as a natural ecosystem process has shifted the landscape away from a diversity of age classes and community types and towards a predominance of late-successional woody plant communities with heavy fuel loading. Over 10,000 acres of shrub steppe habitats have been replaced with dense closed-canopied pinyon-juniper woodlands. The most profound effect is the loss of wildlife habitat, loss of aquatic habitat, loss of habitat diversity and a decrease in wildlife and fish populations on a landscape scale within the park. To arrest this trend, the staff at Great Basin is currently conducting planning and completing projects that will return native plant communities to conditions similar to those found under a natural fire regime. This will involve projects that appear atypical for a National Park. As an initial step forests will be thinned to remove the heavy concentrations of fuels and allow understory vegetation to return. Once this step is complete, prescribed fire will be used to maintain healthy plant communities.



### First Amphibian Found in Park

By Bryan Hamilton

In April, herpetologist Bryan Hamilton located the first amphibian in the park, a Great Basin Spadefoot (*Spea intermontanus*), at the administrative site in Baker. This site is near where the new visitor center will be located, just north of town on Highway 487. The Great

Basin Spadefoot (often known as "toad") is exquisitely adapted to life as a desert amphibian. Spadefoots are distinguished from "true toads" (Family Bufonidae) by their vertical pupils and wedge-like, black spade on their hind feet. Spadefoots remain underground for most of the year, emerging after spring and summer rains to gather at ponds, pools, and puddles to breed. Spadefoots possess the shortest larval (tadpole) period of all amphibians, metamorphosing from egg to tadpole to adult in as little as 14 days! They are most easily seen on rainy nights on roads in Snake and Spring Valleys.

## **Electrofishing Reveals Surprising Brown Trout**

By Gretchen Baker

Last August, Upper Snake Creek was chemically treated to remove the non-native brook trout to make way for the reintroduction of native Bonneville cutthroat trout. Immediately after the treatment, the stream was electroshocked to ensure that no brook trout remained. No fish were found. This May the stream was electroshocked again, and one brown trout was found near Shoshone campground. Since brown trout have never been found in Upper Snake Creek, and we find it unlikely they swam from lower Snake Creek through a three mile pipeline and then an additional two miles, we think it's most likely that the brown trout arrived in its location via a bucket. We need your help to keep fish where they belong. Do not move fish from one watershed to another or between different parts of the watershed. Not only could it spread disease, but it's also illegal. We will shock Upper Snake Creek in early August to check again for fish. If no fish are found, Upper Snake Creek will be ready for reintroduction of Bonneville cutthroat trout, which will be provided by the Nevada Division of Wildlife.

## **Searching for Springs**

By Stephanie Leslie

We are not wandering aimlessly around the park! It is true, however, that we are wandering around the park, but we have a noble quest. The Aquatics Crew is searching for and documenting all the perennial water sources within the park. This summer we plan to thoroughly investigate 12 of the park's 25 watersheds. The goals of this project include finding a systematic way of conducting water surveys and monitoring, as well as compiling species list for amphibians, mollusks, fish and macroinvertebrates. Since water is a precious resource here in the Great Basin Desert, it is important to document water sources and understand their importance. This baseline data will allow the park to recognize changes and make informed management decisions.

## **Watch Your Step! Cave Restoration**

By Daryl Hanks

The end of an era has arrived. The old trail that looped around through the Talus Room has been made "cave friendly" by the removal of the old wooden stairs and handrails. As the wooden stairs and metal components of the lighting system and handrails decay, they release organic compounds and oxides into the cave that disrupt the natural cave ecosystem. In April of 1961 the wooden stairs and approximately 900

feet of trail surface were completed through cave passage and were included in the tour route. This addition made a large loop in the furthest reaches of the cave and included the West Room and the Talus Room, a large room over 300 feet long. The guided tours continued to use this portion of trail until 1981 when the Talus Room was closed due to movement of rocks above the trail. The process of removing the old equipment began with inspecting the structures for microorganisms that might have been living on or in the wood and metal. Photos were taken from different angles to show the overall layout of the system and close up photos to show structural deterioration and decay. Finally, the materials were cut into manageable pieces and carried out of the cave. Current plans include removing wires, unusable light fixtures and other wood structures in the cave. Future structural additions to the cave will be constructed from inert substances that will not decompose as easily, such as stainless steel and fiberglass.

## **Archeology 101**

By JoAnn Blalack

Archeology is the study of cultural material remains of past cultures. When archeologists talk about cultural material remains, we are talking about artifacts such as projectile points, lithic flakes, ceramic sherds, ground stone, and in some cases adobe remains of a structure. All of these past cultural remains can tell us a lot about a culture and how it utilized a site area. For example, when an archeologist is out surveying and comes upon a surface site s/he looks for association between the artifacts. In one area of the site there may be only ceramic sherds with ground stone, in a second area there may be only lithic flakes, while in a third area of the site there are complete and broken tools such as scrapers and projectile points. To an archeologist, these observations are indications that several things were possibly occurring at this site. In the area with ceramic sherds and ground stone it looks like plant processing may have been occurring with the ground stone being used to process the plants and the ceramic material being used to carry the plant material prior to and after the processing took place. The lithic flakes location is an indication that tool making was taking place at that location and the broken tool area may indicate that of a butchering or hide processing location.

The above general description has a very important theme and that is: Association, Association, Association. This is the key for archeologists to understand the function of an archeological site (this also pertains not only to prehistoric sites but also to historic sites). Archeologists need to know where artifacts are located on the ground to understand the function of the site. So when you are out in the field and you find prehistoric or historic artifacts PLEASE DO NOT pick up the artifact(s) and bring them to the archeologist. The best thing that you can do is describe the site and access to the site, plot the site on a map, take several photos of the site area and some of the artifacts, and take a GPS reading. By doing this you will have left the site intact for not only future visitors to the site but also so the archeologist will

understand the Association between the artifacts and the archeologist won't have to give you a stern, but polite, reminder of the importance of the artifact association within an archeological site.

Thank you for your cooperation.

## **More Projects**

**The Fuels and Vegetation Mapping Project** is a combined USGS and NPS project. Great Basin National Park has been selected as one of five pilot parks to use specialized aerial photography to determine fuels that can contribute to wildfire. A key component of the project is ground truthing the photographs so that analysts can correctly interpret them. While gathering the fuels data, the field crew is also collecting data on the live vegetation to make a more accurate vegetation map for the park. Field crew members are Mark Anderson, Rob Klotz, Robert Pleszewski, Chris Tyrell, and botanist David Charlet.

**Bighorn sheep** continue to be studied in the park by Neal Darby. Extirpated in 1940, NDOW transplanted some bighorn sheep to the Snake Range in the 1980's. Only nine remain now in the park. This summer a panel of bighorn sheep experts will convene to discuss options, in addition to ongoing population surveys, groundtruthing GIS habitat model, and developing a habitat restoration plan

**The Wild Cave Survey and Inventory** continues for the second of three years. Four new caves were found last year. More acres will be searched this year, along with surveying and conducting physical inventories in 12 caves this summer. Cave biologists surveyed eight caves in May and found several new species of millipedes, arachnids, and beetles. Krupa Patel is heading the project, assisted by Don Seale, Shylo Johnson, and Amy Hamilton.

Planning for the **Lincoln Cirque Road Reclamation** is underway to convert an old logging road in a fragile alpine area to a trail. Ben Roberts is leading this project, along with continued Barbed Wire Fence Removal.

Neal is also continuing **Elk Population Monitoring** using radio telemetry gear to search for radio-collared elk. Three radio-collared elk have been found to use the park, particularly Strawberry Creek and the northwest side of the park.

Resource Management is assisting the USGS with the **Stream Susceptibility to Groundwater Withdrawal Study**. Water is becoming more and more important as the demand for it increases. Las Vegas Water District and Vidler Water Company have applied for water rights in Snake Valley to withdraw 25,000+ acre-feet of water. This USGS study is collecting baseline data on streamflows so that if water is pumped from the valley, we will be able compare streamflow before and during pumping.

**Effects of the Granite Fire** on the South Fork of Big Wash Watershed continue this year with intensive water quality surveys, including the use of stormwater samplers which take water samples immediately after high flow events. The Bonneville cutthroat trout population is also being monitored to see how they adapt to the increased sediment in the stream due to storm events.

**The Cave Lighting Study** is comparing algal growth using different types of lights, including light emitting diodes (LEDs) with specific wavelengths and long-lasting compact fluorescent lights. Additional information on this study is available in the park newspaper.