

# A Volunteer's Perspective, and Archeology 101

by John Reynolds and Ann Johnson

Yellowstone's archeology program often uses a combination of professional archeologists and volunteers. As one of those volunteers, I worked at Osprey Beach during the 2000 and 2002 field seasons. The first season was abbreviated, but the results were very promising, and the program gained a Yellowstone Park Foundation grant for more extensive work in

encountered a great deal of downed timber, the result of the 1988 fires. Clambering over this provided a good way to wake up the tired body for the rigors of the day. Once at the site, the archeologists began preparations for the day's excavation and I set up my own "work station." As the

unskilled member of the group, my job was to carefully screen the soil excavated by the professionals. First, though, let's describe that excavation:

## Getting Started

To ensure that no artifacts are missed during an excavation, and that the locations of each are precisely recorded, archeologists divide sites into excavation units, carefully measured to one meter square. They utilize a technique involving three tape measures, establishing two sides at a 90 degree angle, and then using the diagonal of the

unit to produce a perfect square. Next, they set metal spikes at the four corners of the unit and, using a line level (a small level in a tube mounted on a string), establish the spot from which they will measure the depth uniformly throughout the unit as



Mack Shortt and Kevin Thorsen establish a corner of the grid.



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The following photographs illustrate important steps in archeological site investigation including SITE SELECTION, PREPARATION, EXCAVATION, DOCUMENTATION, and CLOSING THE SITE. The analysis and writing that follow the fieldwork are equally or more important than the digging, and create a record of what was found in the site, its meaning, and why the site and artifacts are important. The examples shown were taken during work conducted at Osprey Beach in 2002.

*Above,* Preparations for detailed excavation at the site required the efforts of the entire crew to clear the area of downed timber. Note the transit. It is used to precisely lay out a grid within which excavation of individual units will take place.

2002; the work I will describe here. For 15 days in 2002, our days began with a short drive and then a hike of a mile or so, both along a low terrace above the shore and on the lakeshore itself. In both cases, we

they excavate. The unit is then divided into four quadrants, or "quads" (NE, NW, SE, and SW). The archeologists excavate one quad at a time and, using the line level, take periodic measurements to ensure that each quad is excavated to a depth of 10 centimeters (four inches). Where the surface of the ground is uneven, the amount of soil taken from the first level for each quad can vary greatly. After the first level is established, however, the volume of soil for all subsequent levels is the same, because all are started at equal depths.

Excavation of each quad begins with a square-end shovel; the soil that is removed is placed into a bucket. Periodically, the archeologist stops to measure the depth of the hole being dug to be sure that s/he has taken 10 centimeters and no more. As that depth is approached, the shovel is used to "shave" the soil to achieve the correct depth. At times, a whisk broom and dust pan are used to remove the last bit of soil from a given quad.

During this process, rocks are often encountered. The archeologist must determine if they are of interest; for instance,



Excavation of a number of contiguous units, showing the work at different levels in separate units. Visti Kjar is at the screen, while Kevin Thorsen carefully removes soil from one of the units. In the sandy soil, it is difficult to keep the walls straight; they tend to collapse as they dry.

they may be the remnants of a hearth used for food preparation. If that is the case, the soil is meticulously removed from around the rocks (whisk broom and dust pan are brought into play again). The rocks are left in place, and then they are mapped and photographed to record their position, both laterally and in depth below the surface. This slows the excavation, but enriches the collection of information. If excavation continues in such a unit, these rocks have to be removed, and may or may not be collected for further analysis.

### Screening

After the archaeologist has finished sifting through the soil, s/he places it in a bucket to be literally “screened” for more material that merits collection. To accomplish this, the bucket is emptied into a wooden box of

roughly two feet by two-and-a-half feet, and six inches deep, its bottom covered with heavy-duty screen. The standard size screen for most archeological work is one-quarter inch, which is what we used in our work during 2000. For the more lengthy excavation in 2002, we used a much finer

grade, one-eighth inch screen. This ensured that even the smallest flakes would be collected, significantly enhancing the take from the site. It also made the work much more labor-intensive.

At Osprey Beach, we used rope to suspend the box and screen from a tripod made from downed timber, which was plentiful at the site. With the box hanging in this “swing,” my job was to shake it vigorously to allow the soil to flow through the screen and onto a large tarp positioned under the tripod. When the soil is clean and sandy, it flows through the screen quickly, and the work is easy. More often, though, the soil is either full of clay or hard and cloddy. This makes for slow going, as the soil must be broken up to determine if it contains anything of value. I am sometimes able to crumble the soil by hand, but when it proves too hard for that (as it often does), smashing it against the side of the screen is a better solution. Soil containing lots of gravel or rocks poses a different problem, as stones that will not fall through the screen have to be removed by hand. I scratched through, examined by hand, and threw out tons of gravel at Osprey Beach. My fingers were scarred pretty badly by the end of the project, and I believe that my fingerprints were at least temporarily modified.

The tarp beneath the tripod collects the soil, and also protects the vegetation beneath it from damage. The tripod is easily moved by one person, so that the soil being processed can be spread over different parts of the tarp. By bringing the tripod’s legs closer together, it was also possible to raise the height of the box above the growing pile of screened soil.

Because much of the time I screen for more than one archaeologist, I must keep close tabs on whose



Because of its remote location, visitors to the Osprey Beach site were infrequent. Here, Mack Shortt describes the work to an interested group from the Yellowstone Park Foundation who made the trek. The YPF sponsored the 2002 excavation.



*Top left,* Meticulous notes are kept for each step of the excavation process. Here, Kevin Thorsen and Doug Mitchell record information in their log books while Mack Shortt prepares to photograph this stage of the work.

*Middle left,* When stones thought to be cultural in origin are uncovered, their precise location is recorded to assist subsequent analysis of the individual unit and of the overall site.

*Bottom left,* Kevin Thorsen carefully uses a whisk broom to remove soil from around a collection of stones believed to have been part of a hearth used by early peoples. Each stone's location is recorded before it is removed to allow further excavation.

soil is in the screen and where it came from within the unit to ensure that the material I collect goes to the right one so s/he can connect the collection to the correct unit, level, and quad. This is key, as evaluation of the excavation strategy goes on constantly; decisions about whether to go deeper in a given unit, to expand the unit laterally in one direction or another, or to open another unit that it is not contiguous to existing ones are based on the amount and type of material found at each level and quad during the excavation.

In addition to the tripod and tarp, my “work station” includes my trusted dustpan, in which I store the material of value collected during the screening process. My work is physically difficult, and my direct rewards are few. I usually find only flakes, as the folks excavating have extremely sharp eyes and collect the tools directly. Nonetheless, every day or two I will spot a fragment of projectile point or other tool, and have found a complete point a couple of times. I also have to be alert for fragments of rock that may have been fire-broken, as this can be another indication of food preparation. All of these finds are important, as they help unravel the puzzle of who was here, when they were here, and what they did.

### Finishing Up

When the excavation in a particular area is complete, a detailed profile of one

wall is created by taking measurements of each change in soil color or type. Multiple photographs are also taken, always using a tarp to shade the wall to ensue proper light-



ing. Then the final stage of work begins: backfilling. At this point, all the soil taken from a unit or units is returned to the pit. If the screening has taken place directly adjacent to the pit, everyone may grab a shovel and begin to pitch the soil directly back into it. The more common method, however, is to use buckets, as the pits are often several yards from the screening area. What made things more difficult at Osprey Beach was not just the distance that the soil

had to be carried—it was the climbing over downed timber with a bucket in each hand. When many units are contiguous, such as at the Osprey Beach site, little backfilling can be done until excavation is complete; for us, it took more than a day. This is back-breaking work, even for the younger fellows.

After the backfilling is complete, we try to replace the original surface vegetation, even watering it to assist its recovery. Our goal is to return the site, as closely as we can, to its original state. At Osprey Beach, this meant even hauling downed timber back to the areas we had cleared.

While working on this project, I engaged the crew in an effort to develop a quantitative measure of our work. We calculated that in 2002 alone, we removed from the earth, one bucket at a time, 100



*Top right*, John Albanese, an experienced geoarcheologist (geologist with a long-term interest in archeology), visited the Osprey Beach site and provided an analysis of the origin and distribution of the site's stratigraphy.

*Middle right*, After all phases of the excavation are completed, an effort is made to return the site to its original state. The labor-intensive process of backfilling is illustrated here as John Reynolds returns a bucket of soil to the excavated unit.



tons of soil. All of this was returned to the earth, one bucket at a time—meaning that at this site alone, we moved 200 tons of soil by hand over the course of 15 days.

For the most part, the weather was great during this project, with clear-to-partly cloudy skies, mild temperatures, and always a breeze off the lake. On several days it was more than a breeze, and gale warnings were posted at least once. On that day, a large tree fell in the middle of our excavations, a few yards from where we were eating lunch. Fortunately, the wind had driven us to take our lunch down into the pits so nei-



ther our lunches nor we would be blown away, so we were all safe. When I began volunteering with the archeology program, I never thought I might qualify for the

equivalent of hazardous duty pay.

Because of the discoveries noted in this article, as well as the fantastic people on the project (especially park archeologist

Ann Johnson), this was another wonderful experience in Yellowstone, the nation's gift to itself and the people of the world. I consider myself very lucky to have participated in this effort and to have been associated with such fine people. It was exhilarating, fascinating, and rewarding, but at the end of every day my body reminded me that it was never easy. ☺

John Reynolds ("A Volunteer's Perspective") has volunteered with archeologist Ann Johnson for the last five years. He holds a B.S. from the University of Kentucky and an M.A. in economics from the University of Maryland. Retired from the Central Intelligence Agency, he continues to work for that organization as a consultant while spending his summers in Yellowstone. In addition to the work noted in this report, John has worked on extended backcountry archeology projects on the Yellowstone River, Hellroaring Creek, and recently on the Southeast Arm of Yellowstone Lake. When not volunteering in the park, he lives in northern Virginia near his two daughters and son-in-law.



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Ann Johnson, a Montana native, earned a Ph.D. in anthropology from the University of Missouri at Columbia. Her areas of interest are the northern plains and adjacent montane areas, the past 3,000 years, and pre-historic, ceramic-using cultures. Ann has worked for the National Park Service for 26 years, but working with Yellowstone archeology and staff has been her best job.



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