

# people & plants:

## PALEOETHNOBOTANY IN WYOMING

by

Richard Adams • January 2024

*“It is a strange thing, and a wondrous one, that no one can tell you what a plant is. And when you meet with that which is indefinable, then indeed are you in the presence of something great.”*

—Donald Culross Peattie

For more than two million years all humans survived by hunting and gathering; intentional crop production began roughly 11,000 years ago. Most Native peoples living in Wyoming never practiced agriculture and remained hunter-gatherers until contact with European culture.

Details about the lives of precontact hunters in Wyoming are well known thanks to the work of George Frison (1978, 1991, 2004). Precontact hunters produced durable artifacts such as weapons, chipped stone tools, butchered animal bones, and hunting features like drive lines, bison jumps and sheep traps that resist decay for hundreds to several thousand years. By contrast, the archaeological record in Wyoming contains less in regards to precontact gatherers.

Details about the lives of prehistoric gatherers are less well known for three reasons. First, there is a preservation bias against the digging sticks, baskets, and bags used by gatherers. Unlike stone tools, these artifacts disintegrate rapidly under normal stratigraphic conditions. The second bias results from the tendency of archaeologists to study cultures that hunted large charismatic megafauna such as mammoth and bison. And finally, there is (was) an historic gender bias in anthropology that privileges the activities of prehistoric men over women.

The intellectual framework for interpreting archaeological data has changed with the times. Many archaeologists in the mid-20th century focused on a stereotype of “Man, The Hunter,” assuming



Figure 1. Biscuitroot, also known as *Lomatium*, possesses a tuberous or bulbous taproot and can be boiled, eaten raw, or processed into a flour-like substance to be mixed with water. The biscuitroots shown here are photographed on a metate, or grinding slab.

that the majority of calories in a yearly diet came from meat hunted by men. A few decades later, when subsequent research showed foods gathered by women often supplied the majority of calories per year, the stereotype morphed into “Men hunt, women gather.” Now, this stereotype is in need of replacement, as well. Recent research by University of Wyoming archaeologist Randy Haas (Haas et al. 2020) suggests that hunters-gatherers, thousands of years ago, had relatively undifferentiated subsistence roles, that is, both men and women were considered hunters based on associated burial goods. Regardless of what stereotype we apply to hunter-gatherers, studying gathering allows archaeologists to glimpse the lives of women living in the past because “the role of women will remain ambiguous, until adequate attention is paid to establishing the presence and extent of plant gathering activities” (Waguespack 2005:667).

Frison emphasized that survival would not have been possible if gathered food products had been subtracted (Frison 1978:344) from

the diet of prehistoric hunter-gatherers in Wyoming. He offers the drollest, shortest, most apt definition of gathering ever. He states that gathering is the harvest of organisms “that are ineffective at evading humans” (1998:149).

Processed plant materials in archaeological sites rarely survive the passage of millennia. Charred seeds and plant parts can sometimes be recovered from firepits by ethnobotanists. An ethnobotanist is a botanist that studies indigenous plant use. One ethnobotanist (Moerman 1998) recorded over 11,000 different plants eaten by Native Americans and First Nations people prior to European contact. Wyoming’s gatherers targeted roots, bulbs, pine nuts, grasses, flowers, berries, and hundreds of plants.

A few plant species are suspected of being dietary staples for Native American gatherers in Wyoming based on firsthand accounts by Euro-American eyewitnesses: pine nuts (*Pinus spp.*), biscuitroots (*Lomatium spp.*), spring parsleys (*Cymopterus spp.*), spring beauties (*Claytonia spp.*), sego lily (*Calochortus nuttallii*), and bistort (*Polygonum bistortoides*). The harvest season in Wyoming begins with the first biscuitroot blooming in mid-March and lasts until mid-October when the pine nut season ends. Researchers determined that if one gatherer focused only on the most caloric and easily harvested foods, they could accumulate a surplus over the course of a harvest season to feed a family of four for half the year (Adams and Schantz 2010). This portion of the diet consistently supplied prehistoric families with enough calories, carbohydrates, vitamins, and protein required to survive and reproduce. The researchers assumed hunters supplied the other half of the calories by supplying meat. The conclusion that precontact Native American women could work for the seven month growing season and then feed their family for the next several months with stored nuts and roots may seem startling to modern Americans working long hours just to make ends meet every month.

This year’s poster features predominantly perishable items used for plant processing and some of the plants processed for food and medicine, as well as a small arrowhead hafted to a broken arrowshaft and a twisted fiber snare used for trapping rabbits. Many of the principal components of a gatherer’s tool kit (digging sticks, baskets, and bags) were made from perishable wood or fiber and therefore are

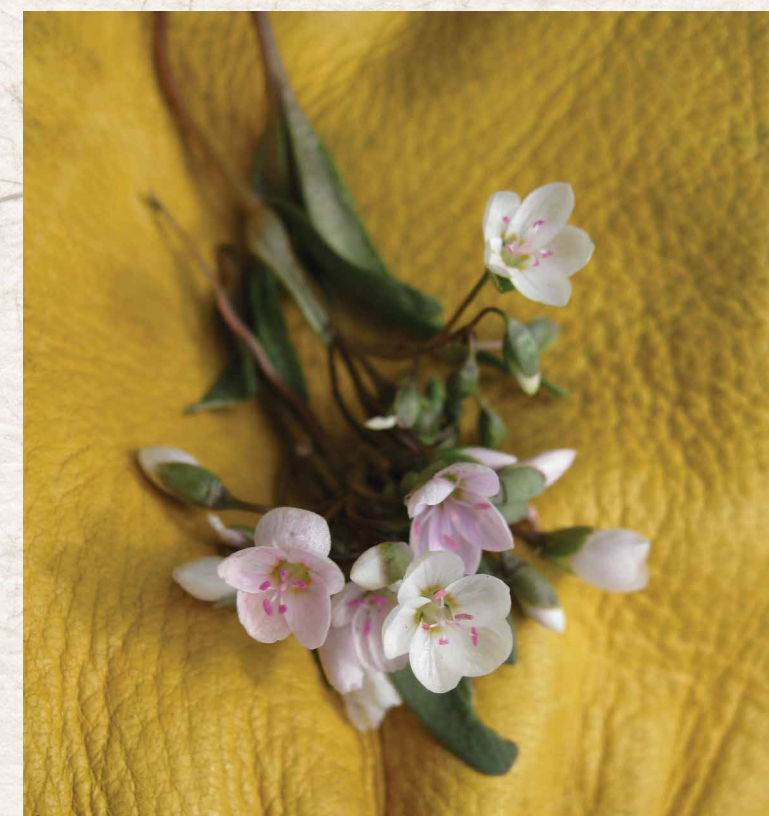


Figure 2. *Claytonia*, more commonly known as *Western Spring Beauty* or *Indian Potato*, has a long history of gathering and is a Vitamin C-rich plant that can be eaten raw or boiled.

infrequently preserved in the archaeological record. It was only when gathered foods were processed by cracking and grinding that the tools involved became durable enough to be preserved in the archaeological record. Complete baskets, bags, and digging sticks are rare finds in Wyoming.

After nuts, seeds, and roots had been gathered, a mano and metate were used to grind and pulverize them to improve their digestibility. A mano is a baked potato-shaped rock frequently paired with a metate—a flat slab of hard sandstone. Whole seeds and nuts were ground up by rotating the mano as it rocked back and forth against the metate. Groundstone manos and metates show little stylistic or technological variation through time in

Wyoming (Shepherd 1992), unlike projectile point styles which changed often enough to be used as temporal markers.

A mortar has an advantage over a metate because the material being pounded is contained within the mortar. Not all mortars and pestles are made from wood, but wooden mortars lower the amount of grit ingested in comparison to a mano and metate. A gentle Wyoming breeze is sufficient to scour a metate of much hard labor.

While hundreds of soapstone bowls have been found in Wyoming, only a few have been securely dated. Those that have been dated are no more than about 500 years old. Soapstone

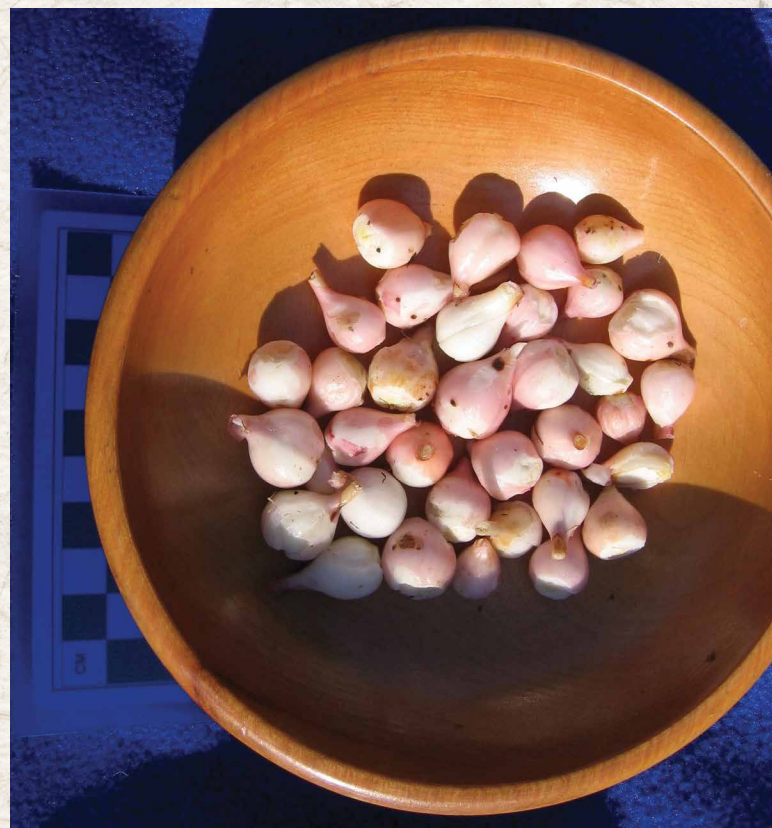


Figure 3. These bulbs are from a plant known as paper onions (*Allium textile*). There is evidence of paper onion at sites in Wyoming such as Daugherty Cave and Spring Creek, both near the Bighorn Mountains.

bowls tend to occur in western Wyoming. Soapstone has several advantages over clay pottery: it is resistant to thermal shock, it is less brittle than clay pottery, and far more durable than clay.

Advances in analytic techniques have allowed for the identification of fats, proteins, and starches adhering to manos, metates, clay and stone pots. Stirn et al. (2019) analyzed the fats adhering to the inside of soapstone bowls, precontact pottery, and grinding tools like manos and metates and found fats naturally found in pine nuts, leafy plants, large grazing mammals, and fish. Pine nuts, unlike most other gathered vegetable foods in Wyoming, contain a large amount of fat (about 25%). Fat is one of the most efficient forms of food energy. Unlike modern Americans who eat a high fat diet, precontact hunter-gatherers were periodically fat-deprived and pine nuts were an important food during the lean winter months.

The 2024 poster features botanical resources (yarrow, paper onions, berries) and the tools used to harvest and process them (digging stick, mano, metate, grinding vessels), as well as tools created from botanical resources such as the yucca cordage on a rabbit snare. The digging stick on the poster is a replica of a digging stick found in a cave in Idaho. While kneeling on the ground, the gatherer pushed her/his belly against the cross piece to push the stick into the ground while leaving both hands free to remove dirt and loosen the root or bulb. With a digging stick, loose ground, and patience, it is possible to exhume a good sized handful of paper onions (*Allium textile*, lower left on the poster) in an hour. Digging sticks are still in use today in some parts of the world.

### Concluding Remarks

This year's Wyoming Archaeology Month highlights the gathering side of the hunter-gather equation. Gathering (and hunting) is humanity's oldest and most long-lasting way of feeding ourselves. Men can do it if they fail to make a kill, women can do it while caring for an infant, children can begin to feed themselves as they learn tasty plants from their grandparents who can gather while sitting. New techniques and new ideas are providing new insight into the 13,000 year-long tradition of people who hunted and gathered in Wyoming.

### References Cited

- Adams, Richard and Rhoda Schantz, 2010. Nuts and Roots: The staples of prehistoric cuisine in the Greater Yellowstone Ecosystem. *Reflections*:12–16. University of Wyoming College of Agriculture and Natural Resources.
- Frison, George C., 2004. *Survival by Hunting: Prehistoric Human Predators and Animal Prey*. University of California Press, Berkeley.
- Frison, George C., 1998. The Northwestern and Northern Plains Archaic. In *Archaeology on the Great Plains*, edited by W. Raymond Wood, pp. 140–172. University of Kansas Press, Lawrence.
- Frison, George C., 1991. *Prehistoric Hunters of the High Plains, Second Edition*. Academic Press, San Diego.
- Frison, George C., 1978. *Prehistoric Hunters of the High Plains*. Academic Press, New York.
- Haas, Randall, James Watson, Tammy Buonasera, John Southon, Jennifer C. Chen, Sarah Noe, Kevin Smith, Carlos Viviano Llave, Jelmer Eerkens, and Glendon Parker, 2020. Female hunters of the early Americas. *Science Advances*, 6(45)
- Moerman, Daniel E., 1998. *Native American Ethnobotany*. Timber Press, Portland, OR.
- Shepherd, Ruth A., 1992. A cultural model for groundstone use in the middle Rocky Mountains: The Helen Lookingbill site. Unpublished Masters Thesis, Department of Anthropology, University of Wyoming, Laramie.
- Stirn, Matthew, Rebecca Sgouros, and Mary Malainey, 2019. Using lipid residues to interpret past alpine diet and subsistence in northwestern Wyoming. *Hunter Gatherer Research*, 5(3–4): 207–232.
- Waguespack, Nicole M., 2005. The organization of male and female labor in foraging societies: Implications for Early Paleoindian archaeology. *American Anthropologist* 107(4): 66–676.

**Sponsors:** Wyoming State Historic Preservation Office; USDA Forest Service; Barron Cultural Resource Consultants; TerraPower, LLC; Wyoming Association of Professional Archaeologists; TRC Environmental Services; Cultural Resource Analyst, Inc.; George C. Frison Institute of Archaeology & Anthropology; Wyoming Army National Guard; Western Archaeological Services; Wyoming Department of Transportation; SWCA Environmental Consultants; Hope Archaeology, Inc.; Wyoming Archaeology Society; Metcalf Archaeological Consultants, Inc.; Cannon Heritage Consultants, Inc.; HDR, Inc. • Photography: Ted Brummond, UW Photo Services • Graphic design: Mariko Design LLC/Elizabeth Ono Rahel

For information about Wyoming Archaeology Awareness Month activities, visit our Web page:

<http://wyoshpo.state.wy.us/index.php/events-training/archaeology-awareness-month>



people & plants:

PALEOETHN BOTANY IN WYOMING

