

Discover ~ Autumn 2023

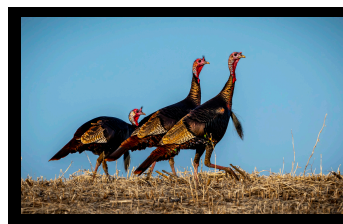
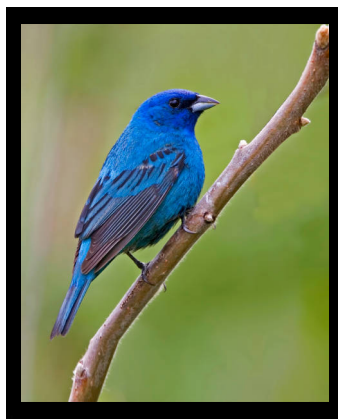
# BUR OAK SAVANNA RESTORATION

Often when we visualize a savanna, we picture the open grasslands of Africa, dotted by tall trees, but did you know that savannas can be found right here in Iowa?

One of the most ecologically unique features at Whiterock is our bur oak savannas. Less than .02% of quality oak savanna remains across the Midwest and it is considered one of the most threatened plant communities in the world.

An oak savanna is an ecosystem that is a transition zone where timber meets prairie. This blend of different plant communities and conditions (sun and shade, trees alongside grasses and flowers, both tall and short vegetation) creates a marvel of nature referred to as 'edge effect.' As edge effects are increased or restored, a greater biodiversity in native plants and animals is achieved, since there is a greater diversity in plants, structure, and micro-climates.

Bur Oaks are a highly tolerant tree that can live for more than 200-300 years. They are strong and hardy, and a valuable resource for wildlife. Their acorns feed over 100 varied species including wood ducks, rabbits, mice, squirrels, white tailed deer, fox squirrels, and wild turkeys. Bur Oaks are also an important larval host for rare Iowa pollinators including the Edwards Hairstreak butterfly. Over 66 varieties of Iowa's breeding bird population are dependent on the threatened savanna habitat. As per data gathered in 2014, over 29 species on Iowa's GCN (greatest conservation need) list have been documented here at Whiterock.



Whiterock Conservancy is a 5,500 acre non-profit land trust that balances sustainable agriculture, natural resource protection, and public recreation on the landscape. Stretching along a seven-mile section of the Middle Raccoon River valley, the Conservancy offers 40+ miles of hiking, mountain biking, and equestrian trails, paddling opportunities beneath sandstone cliffs, and epic star parties. Spend the night at one of the campsites or Airbnb's and experience Iowa's darkest skies. Whiterock Conservancy's mission is to improve the condition of our conservation land through appropriate land management, demonstrate sustainable farming methods, and provide educational and recreational opportunities for our visitors.



# Archaeological Field School Gives Glimpses into Pre-contact Native American Lifeways at the Whiterock Conservancy

Joe Artz and Chérie Haury-Artz

In many places beneath the savannahs, forests, and prairies of Whiterock the soil preserves the stories of hundreds of generations of Native Americans who knew this unique landscape as their home. In May 2022 the Iowa Archeological Society (IAS) held an archaeological field school at the Whiterock Conservancy (WRC). The goals of the field school were to introduce participants to basic archaeological testing methods, to develop their understanding of sedimentation and site burial processes along this portion of the Middle Raccoon and contribute to expanding our knowledge of the land use and cultural activities of the Native Americans who lived in this region for thousands of years.

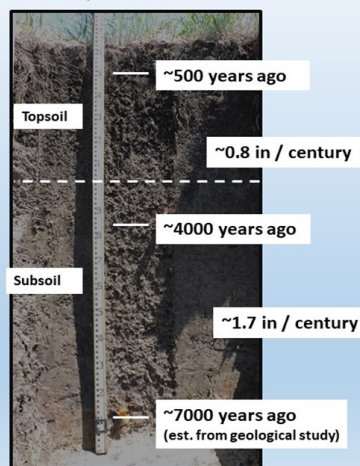
The nine-day field school enrolled 21 IAS members who devoted 51 person days of work at two precontact period archaeological sites, 13GT170 and 13GT172. Students received instruction in field techniques including survey and mapping of artifact distribution in the eroding riverbanks, auger testing to determine the depth and distribution of the artifacts; and excavating 1 x 1 m square test units. Tests were dug in uniform 10 cm levels. All excavated soil was screened through ¼ inch mesh. Recovered artifacts were bagged by level to keep track of their depth of below surface. Notes were taken on the soil contexts encountered in each level. Both sites yielded time-diagnostic artifacts, including projectile points and pottery sherds. Charcoal samples were collected for radiocarbon dating and soil samples from features were taken to the lab for water floatation.

## Findings

Our investigations revealed that the two sites were occupied repeatedly for short periods of time. The earliest occupation occurred in the Late Archaic period; the latest in the Late Precontact period. Over this time interval, the land surface at these sites was built up gradually by periodic floods each of which left behind a thin layer of fresh silt. Flood sediments separate the individual occupation layers, creating a layer cake of Native American campsites. We can estimate the age of each layer from projectile points, pottery, and radiocarbon dates on wood charcoal. The chronology also tells us the rate at which the flood deposits build up a soil. At 13GT170 and 13GT172, this occurred slowly, at rates of less than an inch per century.

Data from site testing indicates that 13GT170 served as a habitation site used by relatively small groups of hunter-gatherers for short-term occupations. Radiocarbon dates and diagnostic artifacts indicate that the site was occupied during the Late Archaic (1531-1431 BC), Middle Woodland (389-208 BC) and Late Precontact periods (AD 1250-1673). Older, more deeply buried components are present, but were not investigated. Fire-cracked rock, the most abundant artifact type recovered, indicates that cooking features were built using hard, durable quartzite and granite cobbles, easily obtained from gravel bars on the river.

### Archaeological Evidence of Deposition Rates



Slump was cut back at several locations along the riverbanks to expose undisturbed stratigraphy and identify potential features.

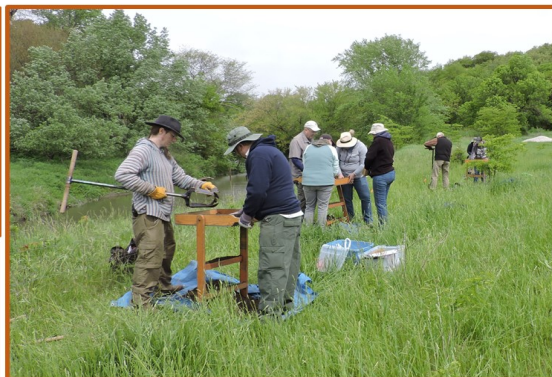


Flaking debris is represented by relatively small flakes indicative of late stages of reduction, suggesting that chipped stone tools such as scrapers, points, and bifaces were brought to the site in finished or near-finished form although some initial manufacturing also took place. At 13GT172 occupations occurred during the Early Woodland (200-800 BC), Middle Woodland (150 BC – AD 400), Late Woodland (AD 400-700) and Late Precontact (AD 1250-1673) periods. Deeply buried fire-cracked rocks suggest the presence of earlier occupations. Stone tools indicate activities focused on processing and consumption of food resources. Three stone hearths/roasting pits provide conclusive evidence for this, supported by the relative abundance of pottery and the presence of a variety of groundstone and chipped stone tools. The stratigraphically separated occupations at this site indicate that it contains a record of repeated use of a particular location at WRC over three millennia.

In the United States, criteria for the National Register of Historic Places are the benchmark for evaluating the significance of cultural resources. Because of the presence of intact, stratigraphically separated archaeological components, both sites possess sufficient significance and integrity to be recommended as eligible for the National Register of Historic Places.

Archaeological sites are non-renewable resources that deserve protection for the records of ancient life-ways they preserve.

The WRC has a long-term commitment to protecting, preserving, restoring, and studying the native landscape and biota of its 5,500 acres.



Auger Test transects were excavated at 5-meter intervals.

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A myriad of migratory bird species also utilize the oak savanna for foraging, breeding, and stopover sites during long migrations.

Several of Iowa's endangered and threatened animals also rely heavily on oak savanna habitat including the spotted skunk, barn owl, the least tern, Indiana and Northern long eared bats. Beyond providing rich resources for the local flora and fauna, savannas also offer improvements to healthy air quality, flood control, and maintenance of ground water.

A healthy savanna has around 10-30 percent canopy cover and oaks with significant lateral branch expansion, since they've had room to grow without competition. Just like prairie, oak savanna is a fire-dependent ecosystem, meaning it evolved with fire and needs it to maintain its structure (scattered trees with an open canopy) and native plant communities.

To steward and restore healthy oak savannas, our team at Whiterock works hard to keep the canopy open, remove invasive brush and undesirable trees, and use safe and effective prescribed burning techniques to encourage biodiversity and the open space the savanna species need to thrive.



# Savanna Craft

## YOU WILL NEED

- 1) 1 small stick or piece of log
- 2) 1 bur oak acorn cap
- 3) 1 whole black walnut shell
- 4) 1 half black walnut shell
- 5) 2 small pieces of bark (for wings)
- 6) 1 yellow or orange fall leaf (to cut into a small triangle for beak)
- 7) Glue



Did you know that the oak savanna is the perfect habitat for a barn owl and other cavity nesting owls?

If you and your family would like to make your own eco-friendly crafted owl, here are the steps to follow.

Walk around Whiterock's trails with your family and search carefully for a walnut tree.

Look around the tree for walnuts that are whole and ones that have been split in half (think about what type of animal may have eaten the inside of the nut!). You may be able to locate some loose tree bark and a stick for your owl to perch on also.

Next, look for Whiterock's bur oak savanna. See if you can find an acorn cap for your owl's feet, and a colorful leaf to cut into a triangle shape for your owls' beak.

After you are done exploring Whiterock, bring your nature treasures home. Can you see the hidden owl face in your walnut shell? Barn owls have a special disk-shaped face that helps funnel sound to their ears so they can hear their prey.

Have an adult help you glue your owl together (hot glue works best for this).

Remember to place him gently on his perch. Think of what kinds of food your owl would eat. In nature a barn owl's favorite food is mice. A barn owl typically eats 3-4 prey items nightly.

Please feel free to come see us at the Bur Oak Visitor to show us your beautiful creations!



## 'Why I Give' to Whiterock Conservancy

Welcome to the "Why I Give" section of our quarterly newsletter. Each newsletter will feature a new donor and why they support and contribute their time, talent and treasure to Whiterock Conservancy.

Nicholas "Nick" Roby, together with his wife, Deb Tharnish, has been a donor to Whiterock Conservancy for the past 14 years, wanting to contribute through his annual giving to honor the incredible donation of land by the Garst family for the public to learn and recreate. Nick and Deb would often bring their kids out to hike, canoe, camp and more! They also made a point of giving out Whiterock gift certificates to their family, choosing to give a gift that would create memories on this unique piece of land.

Along with donations and visiting all that Whiterock has to offer, Nick also directs the small business and nonprofit clinic at the Drake Law School and in that role, has provided legal counsel for our non-profit organization. This has been a crucial benefit to Whiterock. Nick loves getting student attorneys interested in representing Whiterock as a passion because of the unique purpose of the organization, modeling a vision of sustainable agriculture and ecological restoration together as one mission, a rare view in Iowa.

Thank you, Nick, for your ongoing generosity, support and kindness! Whiterock Conservancy continues to grow and thrive because of dedicated and passionate donors and volunteers like you!



Nick Roby

"It's important for people that have a passion for the environment to include a local, non-profit in their annual giving plan. Your contributions go farther and you are able to share in the success of the organization and the economic value that it creates for Iowa".





# Whiterock

CONSERVANCY

## Donate

Your gift is extremely important to our work at Whiterock. Donations provide resources that make an immediate impact – whether you make your commitment annually, as a monthly sustaining gift, or to honor a loved one with a tribute or memorial gift.



Scan to Donate

## Online

[WhiterockConservancy.org/donate](https://WhiterockConservancy.org/donate)

## By Mail

Make your contribution payable to Whiterock Conservancy, and mail to the following address:

**Whiterock Conservancy**  
**1436 Highway 141 Coon**  
**Rapids, IA 50058**

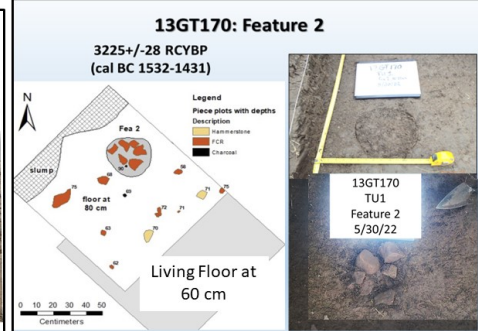
## By Phone

(712)-790-8221 ext. 2

Whiterock Conservancy Staff:  
Executive Director: Kate Zimmerman  
Accountant: LuAnn Carlson  
Administrative Assistant: Cassie Wendt

Guest Experience Manager: Misty Conrad  
Campground Coordinator: James Johnston  
Facilities Assistant: Doug Ramsey  
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Housekeeping: Debbie Davis

Land Stewardship Director: Carissa Shoemaker  
Land Programs Manager: Tyler Bruck  
Land Operations Manager: Matt Reiling  
Land Facilities Staff: Dave Burmeister  
Land Stewardship Technician: Katie Meyer



Cooking features consisting of fire cracked rock and charcoal at both sites mark living floors where food processing took place.

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These measures promise a similar level of protection to the conservancy's archaeological and cultural resources. With the annual loss or disturbance of hundreds of archaeological sites in Iowa, the protection of sites at WRC is a tremendous benefit to Iowa archaeology and Indigenous history. The field school would not have been possible without the support of WRC, IAS, the Office of the State Archaeologist, Garst Farms LLC, and Elizabeth Garst for their extensive support. A special debt is owed to all our field school participants whose careful work and meticulous record-keeping has given us tangible and tantalizing glimpses into the life ways of people who lived at Whiterock 4000 – 200 years ago.