



LEAFLET

Fontenelle Forest News | Summer 2023

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Top, left: Land Stewardship Volunteer Work Day at Neale Woods Nature Reserve (March 2023); Top, right: Prescribed burn near the Riverview Boardwalk (March 2023); Bottom, left: Union Omaha player meet and greet in the Raptor Woodland Refuge (April 2023); Bottom, right: Bloodroot, *Sanguinaria canadensis*, near the Nature Center (May 2023).

Cover image: Purple coneflowers, *Echinacea purpurea*.

A LETTER FROM THE BOARD PRESIDENT

Matt Hardebeck, Board President

I feel a humble notion as I write this letter to each of you to express my view of Fontenelle Forest, what it means to me and to share my thanks for your impact on the Forest. First, let me introduce myself. I'm Matt Hardebeck, Board President. As a long-time resident of Bellevue, the Forest has always had a special place in my life. I remember visiting as a kid on school field trips or frequently driving by the properties as I traversed the Bellevue community. The Forest has always stunned me with its simple, yet complex, beauty. In fact, my wife and I were married in the Forest Room some 16 years ago...wow, how time flies. Love you honey!

When the opportunity to join the Board surfaced four years ago I jumped in with both feet. After a few years of supporting the Board with committee leadership roles, it was my honor to become the Board President.

To give you a sense of the Board, we operate with roughly 20 dedicated, talented and thoughtful leaders from the Omaha and Bellevue area. Each of us have a deep appreciation for and connection to the land. It is our privilege to help set direction for the nonprofit and support the staff as they bring to life our mission of providing a place where people can experience and enjoy the quiet wild of nature. We know that collectively, we are inspiring current and future generations to care for the natural world.

I'm beyond excited about the work that is currently happening at the Forest. It is unbelievable to watch this small nonprofit in Bellevue, Nebraska, having such a profound impact not only on our local community and our regional partners,



Matt Hardebeck, Fontenelle Forest's Board President



Matt and his wife, Karli, married at Fontenelle Forest in 2007.

but also setting a high standard of what a nature center can do, nationally. From the oak savanna restoration work, to statewide raptor education and the renovation of Acorn Acres, the Forest continues to amaze and inspire me.

Lastly, I want to thank to each of you for your support of the Forest, its mission, its staff and its land. It certainly takes a village and we are grateful to have you as a member and supporter. Until the next time...see you on the trails!

FIELD NOTES *From the Forest*

*Deborah Woracek,
Naturalist Educator*

These field notes are based on past observations. Due to climate change and past droughts, you may notice some of these sightings on earlier dates or maybe not even see them this year!



July

Be on the lookout for turkey hatchlings as they follow the hen. She will lead them to the best food sources. Meanwhile, the painted turtles can be seen laying eggs in the wetlands and Goldfinches finally get around to making a nest and raising a family.



August

The Forest fills with avid birders as the beginning of the fall migration season brings us exciting and unusual sights along the trails. What a wonderful time of year to be a part of the Central Flyway! Also, look for the migrating monarch butterflies as they pass through on the way to central Mexico.



September

A few trees and vines will start turning into their autumn colors near the end of the month. Our skies become even more spectacular as kettles of migrating hawks and Turkey Vultures circle overhead. They will be joined by hummingbirds who are also leaving us for warmer climates for winter.

Let us know what you see along our trails by emailing info@fontenelleforest.org or tagging [@FontenelleForest](https://www.instagram.com/FontenelleForest) on social media.

NEALE TRAIL

A Project of Transformation

Michaela Johnson, Biologist

Over the past five years, hikers of Neale Trail at Neale Woods Nature Reserve have witnessed a dramatic transformation. What once was a trek through a stagnant tunnel of shrubs is now a breezy walk through an open, sunny ridgetop. This is habitat restoration in action — a lifeline for the oak savanna ecosystem, one of the most endangered habitats in the world.

Historically in the American landscape, oak savannas once served as a massive transitional ecosystem that connected the great eastern forests to the vast western prairies. In a more localized perspective, oak savannas connected the lowland cottonwood forests and wet prairies of the Missouri River floodplain, to the dry, upland tallgrass prairies beyond the bluffs. By fulfilling this role as the mesh between distinct ecological areas, species from both abounded, resulting in an area of extremely high diversity.

These areas were captivating in their beauty, as large sprawling oak trees grew in sunny, open, rolling prairies filled with wildflowers, grasses and sedges. Hundreds of varieties of birds, mammals, snakes and butterflies thrived by the multitudes. These landscapes were shaped by the disturbance of frequent fires, as well as patch grazing and browsing from bison and elk.

As colonialism stretched its influence to the region, the landscape shifted. Many of the original oak trees, which helped carry ground fires through their oily leaves, were logged. The large, native ruminants which promoted prairie vegetation were eliminated and replaced with cattle. Eventually species like brome or sweet clover were brought across the ocean to compete with prairie plants because they were favored by cattle and horses.

In the early 1900s, individuals saw the tatters of the oak savanna system declining rapidly and sought to protect what was left of these unique areas. They acquired and set aside Fontenelle Forest and eventually Neale Woods, saving it from the destruction of development. Unfortunately, in the 1900s our society didn't yet recognize the major role that frequent disturbance played on the landscape. As a result, the dominant land management strategy was to leave an area completely alone, with the belief that it would set itself

to rights. We didn't yet see that our system was missing many of its foundational pieces. We did not recognize that the regulatory mechanisms provided by the cleansing of fires, the browsing of elk, the tunneling of prairie dogs and the compaction of bison were all a pivotal part of its maintenance. Therefore, though set aside, the landscape continued to decline, unable to fulfill its functional role in the livelihood of native flora and fauna.

From an ecologist's point of view, Neale Trail was the most degraded habitat area on the Neale Woods property. Small-scale logging, grazing and farming of the land, followed by an abrupt departure of human activity, resulted in an even-aged forest. This new, unbalanced forest was filled with an abundance of invasive Siberian elm trees as well as native, but overpopulated, young ironwood and hackberry trees. Meanwhile, the invasive shrubs of autumn olive and honeysuckle dominated the midstory canopy and ground vegetation, effectively blocking all sunlight from reaching the ground and resulting in an inhospitable environment for native vegetation. For a few decades, the prairie plants of the past would occasionally germinate, expend all their reserves and eventually die because the conditions were unfit. Some of the most shade tolerant species, seen commonly in woodlands, lasted longer and luckily can still be found. Thus, the seedbank of this woodland species was



Long-time Fontenelle Forest volunteer, Roger Hildebrandt, helping to pile excess brush at Neale Woods.

more resilient and has been resurfacing as we restore the area.

Restoration of an oak savanna involves several major components that are repeated for years: invasive species removal, thinning the canopy structure and implementation of historical disturbance cycles like fire and grazing, and reintroduction of lost plant species. All of these components are being enacted around Neale Trail.

First, we set about to remove invasive species, like autumn olive and honeysuckle from approximately 30 acres of the Neale area. Due to the scale of the project, we opted to use a forestry mulcher to grind down the shrubs and smaller diameter trees. Following invasive species removal, one must reshape the tree density of the system to resemble the canopy of an oak woodland or oak savanna. Therefore, we used chainsaws to thin the canopy. A common strategy for thinning is to utilize a shelterwood cutting method, which is devised to gradually introduce light over a few years. Through this method, sawyers first remove all the understory and midcanopy trees, leaving the upperstory trees in place. Then, after some time has passed, the larger canopy trees are removed. One benefit of the slow introduction of sunlight is that it allows land managers time to reduce

Continued on page 5



Long-time Fontenelle Forest volunteer, Helen Fouraker, planting native plugs in Neale Prairie.



Looking east on Neale Trail towards the prairie.



Prescribed burns help combat the regrowth on invasive species at Neale Woods.



Tree removal opens areas of Neale Woods that were once prairie.

Neale Trail continued

the seedbank of invasive species, before they are promoted by full sun. When woody trees and shrubs are manually removed, cut stumps are treated with herbicide to keep them from resprouting. Despite including the application of herbicide, the aggressive seedbank of invasives ensures that we must keep on removing and treating invasives for years after a canopy is opened.

To combat the regrowth of invasives and simulate the positive effects of grazing and browsing for native plants, we mow or brushcut the whole restoration area in the growing season for the first couple of years. We also conduct annual prescribed fire, which helps to promote grass and combat woody species. Following these disturbances, we evaluate the native plants that pop up in the presence of ample sunlight. Often when you open up an area, one or two native plants will dominate the area. Over time and with proper disturbance cycles, these few will succeed into a greater variety of plant vegetation. To help this process along, we seed the open area with a local-ecotype high-diversity seed mixture full of native flowers, grasses, sedges and rushes. We generally will seed an area many times, as the proper

conditions for these prairie seeds take years to develop and some seeds will wait to germinate for many years. For this reason, some important and endangered plants exist only in healthy prairies that have been established for decades. Unfortunately, due to the profound complexity of remnant prairies, reconstructions can only ever achieve about 75% of their biodiversity. Despite this difference, the species and structure developed by investing in reconstructions like the Neale Trail project, play a vital and irreplaceable role in preserving the oak savanna ecosystem.

Management of a reconstructed or restored remnant prairie never ends. The hunt for invasive species and the incorporation of disturbance cycles is an annual process that takes a considerable amount of time and funding. The planning process is always long term, often spanning decades. The capability of what is possible is heavily dependent on available land and sufficient manpower. Our Land Stewardship team is driven by the rallying goal of saving the oak savanna ecosystem. Your membership and donations to Fontenelle Forest help us to fulfill our vision of being national leaders in environmental stewardship.

NEW FACES AT FONTENELLE FOREST

Shawna Gorman, Biologist

Summer is quickly approaching and we are adding five new faces to the Land Stewardship team. Each year around the end of May, Fontenelle Forest welcomes its summer interns. Currently we offer two internship levels in the Land Stewardship department, college interns and high school interns. These interns work with our team until the beginning of August and leave with expanded resumes, new career contacts and hopefully fond memories.

Our college internship program is geared toward upper-level college students or recently graduated students looking to gain field experience in land management. Throughout the summer these college interns develop field skills such as chain sawing, plant identification and machinery operation. We also provide networking opportunities with potential employers like the Iowa Department of Natural Resources, Iowa Natural Heritage Foundation and Nebraska Game and Parks, just to name a few. Fontenelle Forest has been fortunate in the last two years to be able to compensate our college interns for their time at the Forest.



Fontenelle Forest's 2022 summer interns learned about the history of Fontenelle Forest from Volunteer Archivist, Catherine Kuper.

In addition to our college interns we also have three high school interns joining the team. For the last two years the Land Stewardship department has been able to expand our internship program through a partnership with the Latino Center of the Midlands (LCM). Siembra Raíces (Growing Roots), is a program through LCM that provides local high school students the opportunity to intern with organizations that align with their interests in either conservation or agriculture. Teachers and staff help select these students and connect them to the Siembra Raíces program. The interns placed with Fontenelle Forest's Land Stewardship team gain field experience, as well as the opportunity to learn the "why" behind the work. Understanding the local ecosystem and how it relates to them on a personal level is a skill that is beneficial throughout life.

We are very appreciative of the hard work our interns do over the summer. Having the extra help in one of our busiest seasons is vital to our success and we also enjoy teaching. Much of our work at Fontenelle Forest is done with long-term goals in mind and a good portion of the restoration work that we do will only be able to be fully appreciated by the next generation. That is why we are passionate about our internship program and hope to inspire the next generation of land managers. If you happen to see our interns this summer, stop and say hi!



Interning with the Land Stewardship team provides the opportunity to learn about land management while gaining experience in the field.

NEBRASKA'S DEEP ROOTS

THE STORY OF THE FONTENELLE TRADING POST

Fontenelle Forest is celebrating the 200-year anniversary of the Fontenelle Trading Post with a history exhibit located in the Baright Gallery. We are excited to bring you this new experience, which tells the story of how the Fontenelle Trading Post came to be and what a trading post during the 1800s may have looked like.

Learn more at FontenelleForest.org/TradingPost



FONTENELLE TRADING POST SPEAKER SERIES AND EDUCATIONAL PROGRAMS



Learn more about the Fontenelle Trading Post by attending our Speaker Series and family-friendly activities. All events are free for members or with daily admission for non-members.

<p>Sunday, July 2 1:00 PM Weapons of the Fur Trade Speaker: Donald Wade Davis</p>	<p>Sunday, August 6 1:00 PM Fontenelle Trading Post: Stories of People & Events Speaker: Catherine Kuper</p>	<p>Thursday, September 7 6:00 PM Beavers in the Fur Trade Speaker: Sam Wilson</p>
<p>Saturday, September 9 1:00 PM We Dig History Family-friendly Program and Guided Hike</p>	<p>Sunday, October 1 1:00 PM Omaha Tribe Perspective on the Fur Trade Speaker: Taylor Keen 3:30 PM Guided Hike of History Trail</p>	<p>Sunday, November 5 1:00 PM Peter Sarpy and the Fur Trade Speaker: Ben Justman</p>

EDUCATIONAL TRADING POST DOCENTS

On select Saturdays, a volunteer educational docent will be available in the early afternoons (times may vary).
Guests will be able to view natural artifacts, ask questions about the Fontenelle Trading Post and learn interesting facts!

July 1 August 5 September 30 November 4

EXPLORING HISTORY TRAIL

Jim Beebe, Chief Ranger at Fontenelle Forest

History Trail not only provides the opportunity to view various geographical features, it contains several historical landmarks and showcases restoration efforts. This trail is approximately 1.35 miles.

To access History Trail, park your car at Camp Wa-Kon-Da, located at 402 Forest Drive. Walk south from the parking lot to the connector trail, around a quarter mile uphill to the History Trail marker.

Going north along the ridge, you will pass several earth lodges constructed by the Nebraska Phase People (1). In more recent years, thinning and prescribed fire have been conducted in this area for the benefit of young oak trees.

Just over a quarter of a mile north of the trail head, you will find an intersection (2). Continuing straight leads to Prairie Trail, bare right and continue to follow History Trail as it descends to a natural terrace just off the floodplain.

This natural terrace sits about twenty feet above the floodplain (3) and is another place conducive to past human activity. This area is above the highest flood zone. It once had great river access because the river used to flow much closer, and the adjacent bluffs are less steep than in other areas.

You will find memorial markers which note that this general area is where some of the Fontenelle family were laid to rest (4). This terrace is also where the Fontenelle Trading Post

overlooked the river. You can learn more about the trading post in our new exhibit, *Nebraska's Deep Roots* (see page 7).

As you continue on History Trail, you'll enter a section of trail that was built more recently (5). This portion of trail was laid out and installed in the summer and fall of 2021. Some portions are rather arduous now, but over time these numerous grade reversals will mellow and become easier to navigate. These grade reversals will also make this trail last a long time by breaking up the trail into many miniature watersheds, mitigating ditching and erosion.

Next you will enter Spring Hollow (6). Fontenelle Forest has five major drainages that occur naturally, called hollows. Spring Hollow is the southernmost hollow. You can see this hollow while crossing the small, wooden footbridge over the perennial flowing spring water. After crossing the bridge, you'll begin a 100-foot ascent in elevation.

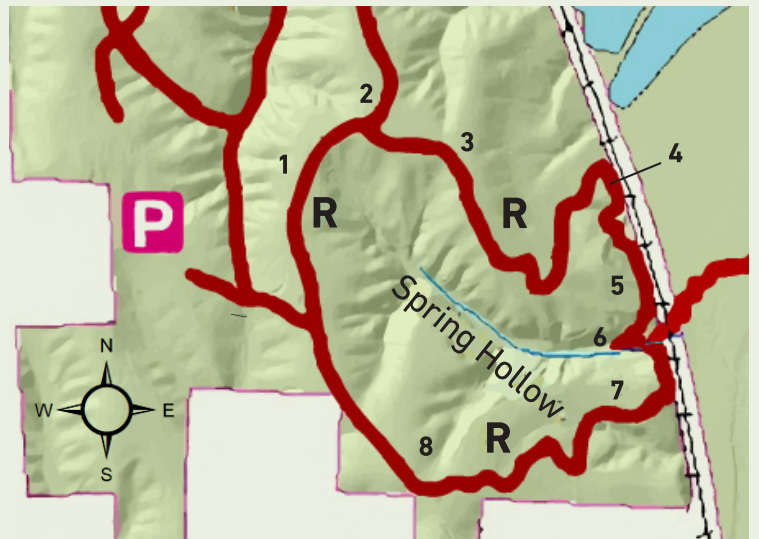
Up at the top of this bluff is where the "Hermit of the Forest," Jim Baldwin, resided from the 1920s through 1961 (7). There are still some traces of Baldwin such as horse drawn implements and hen roosting boxes if you look closely.

Trekking on, you will begin another 75-foot ascent in elevation leading to a bench where you can take a break. From this bench, you can see efforts of a meadow reconstruction project that took place in the last five years (8). Each summer, you can find more species of grasses and flowers, and this is a great location to watch butterflies during the summer. Approximately a ten-minute walk leads back to the parking lot.

We encourage you to get out and experience all of the trail systems when you have the opportunity. Each is different in its own way and provides a unique experience.

Map Key	
1	Earth Lodges
2	Intersection with Prairie Trail
3	Terrace above the floodplain
4	Fontenelle family's memorial markers and trading post (approximate location)
5	New portion of the trail
6	Spring Hollow
7	Jim Baldwin's homestead
8	Reconstructed meadow

- Fontenelle Forest Property Boundary
- Hiking Trail





Neale Woods Nature Center (now Neale Woods Nature Reserve) first opened to the public in the 1970s after Edith Marie Neale donated the land to Fontenelle Forest.

NEALE WOODS NATURE RESERVE *Past, present and future*

Michelle Foss, Director of Resource Stewardship

Neale Woods Nature Reserve is a hidden gem in North Omaha, straddling the Douglas/Washington county line along the Missouri River. Boasting several habitat types, it has seen many transitions even in the relatively short time (geologically speaking) since the Loess Hills formed during the last glaciation. The past 10,000 years or so have seen warm and dry prairie turn to a more moderate mix of cooler savanna and woodlands sprinkled through the grasslands, with forested sections closer to the rivers. Over time the mosaic of habitats from floodplain to prairie, and mixed tree cover in between, has been converted to city with agriculture around it. Everything you see is a result of prior land use and other human impacts on the habitats —both negative and positive.

Neale Woods has been cobbled together through various land acquisitions, with the first being 120 acres donated in 1971 by Edith Marie Neale, whose family had

homesteaded in the area starting in the 1850s. Since then, parcels have been purchased or donated to encompass the nearly 560 acres of floodplain and uplands within the current day boundaries of Neale Woods, which is owned and managed by Fontenelle Forest. Some of the older oaks are estimated to be up to 200 years old. The past history of the land use, gathered through historical records, as well as current plant communities (old oak trees can tell quite a story!), inform the restoration work being done today.

Currently, there are several prairie reconstructions of varying ages and sizes interspersed with oak woodland restoration areas and corridors connecting the openings. This work is conducted to increase biodiversity and resilience in a small pocket of a quickly disappearing oak woodland and prairie complex along the Missouri River. Using tools that mimic natural processes, the Land Stewardship team strives to provide a healthier habitat.

As you hike the varied terrain, take note of the differences in plant communities, topography, the subtle differences in how the sunlight hits, and imagine what it may have looked like in times past. Look past the cars, trains and boats on the river, into a past full of minimally disturbed nature, and a future of diversity and resilience.

FEATURED PROGRAMS AND EVENTS

Summer is the perfect time to get outside and enjoy nature! Check out these upcoming events that are perfect for the whole family.



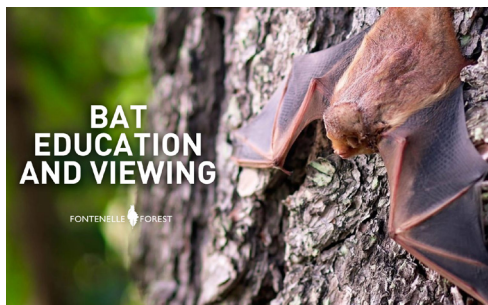
Volunteer 101 | July 8

This informational session will cover Fontenelle Forest's organizational structure and highlight opportunities to volunteer.



Family Butterfly Walk | August 5

This guided walk will explore areas where butterflies are likely to be found. Our volunteers will catch and release insects for observation.



Bat Education & Viewing | August 25

Watch research in action as local biologists attempt to use mist netting to capture bats and allow program participants to see them up close.



Family Fun Friday | September 8

Join us for a fun-filled family-friendly evening learning about Nebraska's native animals. September's program will feature turtles!



Active Military Families Get in Free

In appreciation for your service, Fontenelle Forest is offering all active military and up to five family members FREE daily admission to Fontenelle Forest from May 20 to Sept. 4, in partnership with the 2023 Blue Star Museum Program.

Just check-in at our Visitor Services desk with your active military ID!

ANNOUNCEMENTS & UPDATES



May 29 - Sept. 4 Reminder: Extended summer hours

From Memorial Day to Labor Day we offer extended hours so you can spend more time on the trails!
M-F: 8:00 a.m. to 7:00 p.m.
S-S: 8:00 a.m. to 5:00 p.m.



July 29 Nature Center Closes Early at 3:00 p.m.

Please note the Nature Center will close early on July 29 to set up for Beer on the Boardwalk. Note: This event is sold out.



Mudpies Returns in August

Sign up early! To see the fall schedule and register, visit FontenelleForest.org/Mudpies.

See our full calendar of events and register online at FontenelleForest.org/Calendar



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<<City>>, <<State>> <<Postal code>>



Save the Date:

FEATHER OUR NEST

Friday, October 6 | 6:00 - 9:00 p.m.
Fontenelle Forest Nature Center
1111 Bellevue Blvd. North

Join us at this year's Feather Our Nest fundraiser as we celebrate the mission of Fontenelle Forest and our accomplishments from the past year!

Check our website for details and learn how you can support the Forest by purchasing a ticket or making a donation.

Registration coming soon.

FONTENELLE  FOREST