

Friends of  
Capital  
Springs



This educational guide was written by the Friends of Capital Springs Recreation Area and made possible by grants from the Natural Resources Foundation and the Friends of Wisconsin State Parks. It is intended for educational purposes only and as a benefit for visitors to the Capital Springs Recreation Area.

Friends of Capital Springs Recreation Area, Inc. (FOCSRA) is a 501(c)(3) non-profit organization that supports the Capital Springs Recreation Area by developing, promoting, and maintaining educational and recreational opportunities, as well as by working to protect of the area's natural resources and habitats.

Governed by a board of directors, we partner with Dane County Parks and Wisconsin Department of Natural Resources—in addition to several other surrounding governmental agencies—to achieve FOCSRA's goals.

We host naturalist and educational programming, environmental restoration work, bike and ski events, and our annual autumn fundraiser, Harvest Moon Festival. This popular evening festival features a torch-lit trail with educational stations, music, a silent auction, food and bonfire, drawing more than 750 attendees each year.

We express our sincere thanks for the work of many volunteers, public officials and business leaders who advocate for the well-being and preservation of the Capital Springs Recreation Area.

To become a member or to join our mailing list, visit us at [www.friendsofcapitalsprings.org](http://www.friendsofcapitalsprings.org) or contact us at 608-224-3606/[capssprings@gmail.com](mailto:capssprings@gmail.com).



# Educational Trail Guide

*The half-mile loop trail with eight posts starts  
and ends directly behind the  
Lussier Family Heritage Center.*



## Land Communities: The Story of Prairie and Marsh in the Capital Springs Recreation Area

*When we see land as a community to which we belong,  
we may begin to use it with love and respect.*

—Aldo Leopold

*Please return this trail guide to the Lussier Family Heritage Center.*

*Thank you.*

*Friends of Capital Springs Recreation Area*

# Capital Springs Recreation Area

*relax, learn and enjoy*

The Capital Springs Recreation Area (CSRA), a 2,500-acre string of parkway units, stretches along the southern edge of Madison from Fish Hatchery Road east to Lake Waubesa. It provides visitors with easy access to a wide variety of outdoor activities and a chance to relax, learn, and enjoy the outdoors within a network of trails, marshes, prairies, woods, and waterways.

Units and Features	
• MMSD Wildlife Observation Area, Boardwalk and Deck	• Lake Farm County Park and Campground
• Lussier Family Heritage Center	• Capital City State Trail
• Capital Springs Centennial Park	• Nevin Springs
• Lewis Nine Springs E-Way	• Jenni and Kyle Preserve
• Monona Wetland Conservancy	• Upper Mud Lake
• Disc Golf Course at Lake Farm	• Dog Park at Lake Farm Park
• Hiking/skiing/snowshoe trails	• Lake Farm Archeological District

Activities	
• Bicycling	• Bird and Wildlife Watching
• Camping	• Canoeing/Boating/Fishing
• Community and Group events	• Disc Golf
• Environmental & Cultural	• Hiking/Walking/Running
• Nordic Skiing/Snowshoeing	• Pet Exercise
• Picnicking/Shelters	• Special Needs Accessibility

*Please visit the Friends at [www.friendsofcapitalsprings.org](http://www.friendsofcapitalsprings.org) and contact us at [capitalsprings@gmail.com](mailto:capitalsprings@gmail.com), 608/224-3606 to get on our mailing list or to become a member.*

*For park information, visit Dane County Parks at [parks-lwr.dane.gov](http://parks-lwr.dane.gov).*

## MMSD LAGOONS OBSERVATION BOARDWALK & DECK

On your way to the lagoons, check out the **MMSD Lagoons Observation Boardwalk and Deck** (see page 8 for a photo). About a quarter-mile long, the boardwalk provides an **up-close look at the marsh** without getting your feet wet! The deck overlooks a beautiful stretch of Nine Springs Creek.

In partnership with Dane County Parks Department, **the MMSD Wildlife Observation Area and Lagoons Boardwalk represent a significant commitment by Madison Metropolitan Sewerage District** to ensure quality natural resources for wildlife and for the enjoyment of the greater Madison community.



Enjoy a beautiful view of Nine Springs Creek and surrounding marsh from the MMSD Boardwalk and Deck.

Close to 60% of the Capital Springs Recreation Area is wetland.

## DANE COUNTY PRESERVES WETLAND GEMS

Dane County Parks Department is instrumental in wetland preservation efforts. Since the 1970s, the County began **purchasing properties to create Lake Farm County Park**, including the marsh wetland here.

Today, Capital Springs Recreation Area has some **wetlands in all eight of its units**, with significant, contiguous wetlands between many of these areas. To visit these places, see our web site for maps and location information.

- Capital Springs Centennial Park Unit
- Jenni and Kyle Preserve Unit
- Lake Farm County Park Unit
- Lewis Nine Springs E-way Unit
- MMSD Wildlife Observation Unit
- Monona Wetland Conservancy Unit
- Nevin Springs Unit
- Upper Mud Lake Unit

The preservation of wetlands so close to large population areas is an **environmental achievement that benefits the entire land community.**

## POST 8: RESTORATION & MARSH PRESERVATION

### MMSD WILDLIFE OBSERVATION AREA: WASTEWATER TO

With highly-modernized treatment methods in place, Madison Metropolitan Sewerage District (MMSD) in 2001 **restored former biosolid storage lagoons to a wetland environment**. The lagoons are within the 140-acre marsh parcel in the distance to the left.

To restore the area, MMSD removed all biosolid material and **reconstructed the lagoons specifically for the benefit of migrating shorebirds and waterfowl**.

The land was then opened to the public for passive recreational use and designated the **MMSD Wildlife Observation Area, a unit of Capital Springs Recreation Area**.



The Short-billed Dowitcher can be seen at the Observation Area. A large sandpiper, it uses mudflats to forage for insect larvae, snails, beetles, and plant material. Photo by Fyn Kynd

### EXCELLENT BIRD HABITAT

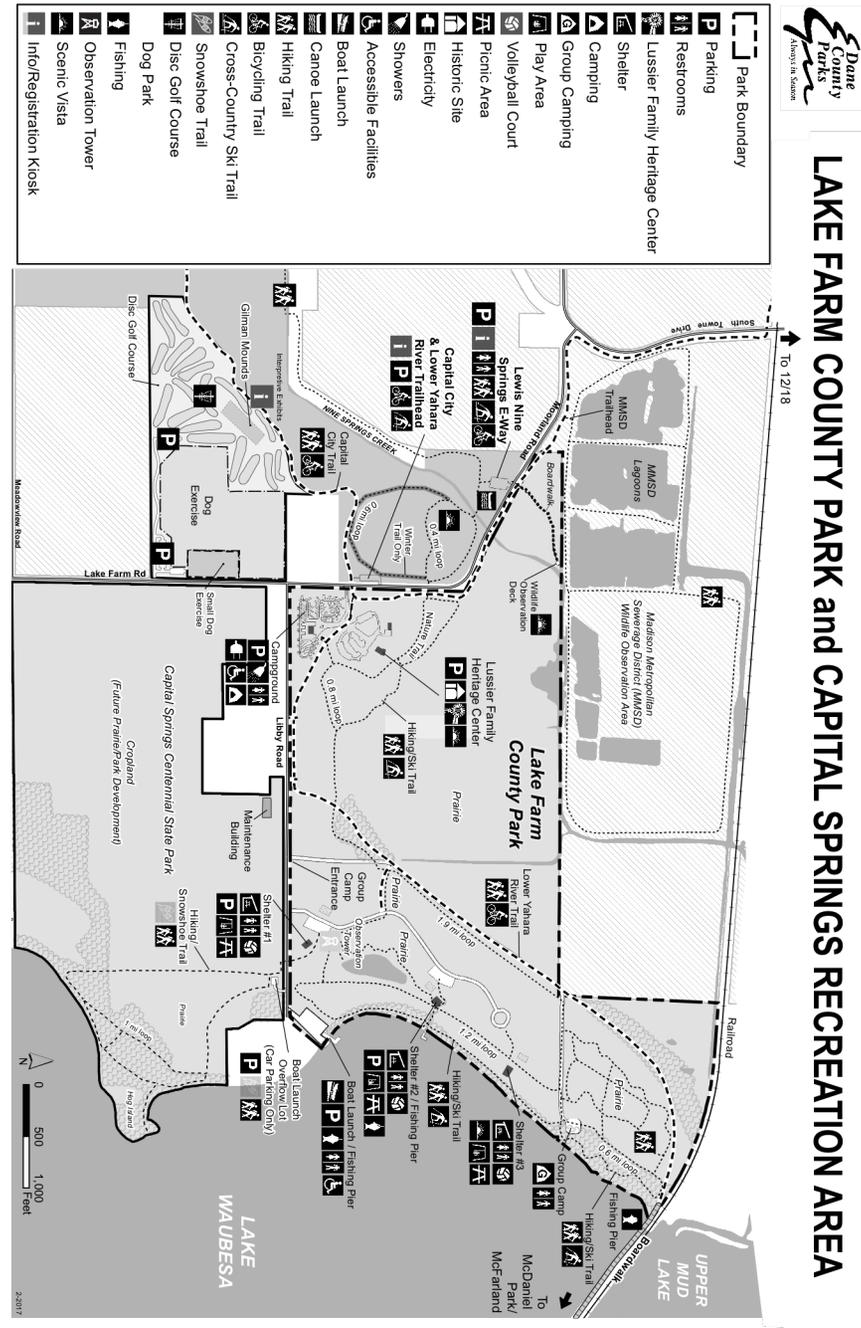
In the western zone of the property, MMSD pumps water out of the lagoons and back to the treatment plant to **expose mudflats, important food resources for birds**. After each migration, water levels are again raised to control weed growth. It is considered one of the most important shorebird areas in Dane County, and **over 200 bird species** have been documented here.

The eastern zone of the property consists of the Nine Springs Creek, open water, and marsh that attracts waterfowl and many other birds.

➔ **To get there:** take the Capital City Trail north along Mooreland Road, and look for signs to the Observation Area. Or, park at the Lewis Nine Springs E-way Trailhead lot on Mooreland Road. Binoculars are highly recommended!



The Northern Shoveler is a common visitor to the MMSD Wildlife Observation Area. A **bird checklist** by Madison Audubon Society and property maps are available from the Friends at the Lussier Family Heritage Center. Photo by Herbert Lange



Maps are available at the Lussier Family Heritage Center.

# POST 1: WISCONSIN'S PRAIRIE PAST

## WHAT IS A PRAIRIE?

The area before you is restored prairie, which means that native prairie plants have been reintroduced to the soil to return it to its former land community. This restoration project began in 1994.

Prairie is a full-sun area dominated by a **wide array of native grasses, sedges, and wildflowers** (called forbs) with very few to no trees. Savanna – a frequent neighbor to prairie - has overlapping plant species, but it is home to more hardy trees, such as Bur Oak and White Oak.

Together, **these communities host over 400 species of native Wisconsin plants.**

Prairie and savanna emerged after the retreat of the last glacier about 10,000 years ago, and until European and American settlement, were the dominant plant communities in southern Wisconsin.

**Prairie is resilient, requiring few amenities** beyond direct sunlight and the interconnected relationships with other living things that help it thrive. Prairie can be found in almost all soil compositions and moisture conditions, including very dry and poorly-drained (wet) areas.

**Prairie is beautiful** – it's a picturesque place with wide-open vistas, swaying grasses, interesting insects (including *many butterflies*), and colorful blooms in every shade of purple, yellow, pink, and white.



Early European and American settlers in Dane County recounted an awe-inspiring sight:

“...a vast rolling prairie, broken here and there with groves and openings... At every step, at every turn, new and startling beauties came into view. The bur oaks stood out upon the hillsides like old orchards...” (Simeon Mills in 1837).



### **White Indigo** (*Baptisia leucantha*)

Look for a bush-like forb that grows 3-6 feet tall with white spires of delicate pea-like flowers blooming from May to August. It produces long, brown seed pods. Indigo is unique in that it is a nitrogen processor for the entire prairie.



### **Indiangrass** (*Sorghastrum nutans*)

An important member of the tallgrass prairie, Indiangrass has soft, dense bronze plumes that turn rich brown in autumn. It grows in tufts with erect stem blades, reaching 3 – 7 feet tall.



### **Purple Coneflower** (*Echinacea purpurea*)

Purple Coneflower grows 2-4 feet tall and has lance-shaped leaves. Solitary flower heads sit on long stems, petals (rays) are magenta around a sharp purple to brown central disk.



### **Rosinweed** (*Silphium integrifolium*)

Blooms are bright yellow in late June to September. It grows 2 – 6 feet tall and is identified by rough, oval leaves that clasp in opposite pairs to the stem. Its pollen, nectar, and seeds are visited by many pollinators and birds.



### **Yellow Coneflower** (*Ratibida pinnata*)

Yellow Coneflower has yellow drooping petals (rays) about 2 inches long that surround a central cone of brown disk flowers. Look for blooms in July to October. Growing 2-5 feet tall, its leaves are deeply fingered and sit low on the stem.



### **Rattlesnake Master** (*Eryngium yuccifolium*)

This unique forb is reminiscent of a desert plant with thick yucca-like leaves and spiked, white globe flower heads. It blooms from July to August and grows 1 – 3 feet tall.



### **New England Aster** (*Aster novae-angliae*)

A true fall beauty, this aster produces clusters of deep purple and rose petals (rays) with gold disks from August to October. Lance-shaped leaves clasp to the stem in an alternate pattern. Plants are 1 – 5 feet tall.



### **Big Bluestem** (*Andropogon gerardii*)

Known as turkey-foot, look for three-finger spikes and blue to green stems. A key prairie grass, it grows 3-8 feet tall, and turns red to bronze by winter. Root system extends 6-7 feet.

## POST 7: SPENDING TIME IN A PRAIRIE

### UNIQUE COMPOSITION

Each prairie **develops its own composition**. To see for yourself, visit the hilltop prairie at the Lewis Nine Springs E-way on Mooreland Road, and compare it to the prairie in front of you. There is variation in plant dominance and plant species due to each site's unique conditions.

### RESTORATION AT WORK

To see prairies at **different stages of development**, visit the newly-planted prairie at the Centennial Park Unit on Libby Road. Above-ground growth is coming! **Mature prairies – such as those by the lake at Lake Farm County Park on Libby Road – date back to the 1970s.** Observe significant plant diversity and the number of insects in these “old” prairies.

### PRAIRIE DISCOVERY – THINGS TO OBSERVE

- Note the variety of **plant textures**, such as very rough leaves and stems, soft-to-the-touch grasses, delicate ray flowers (the showy petals), and very sharp central disk flowers on some blooms.
- Look for interesting **prairie shapes**, such as the circles of sunflowers, saucer-shaped and hand-shaped leaves, spikey blooms, and narrow grass blades.
- A visitor will notice the **varying height of plants**. By late summer, tall species are at full stature – some can reach *12 feet!*
- One can see **many critters in a prairie, too**: look for insects on blooms and birds perched on plants. You might catch a glimpse of a snake resting in the sun, or possibly a mouse or vole scurrying across the trail.

### PROMINENT PRAIRIE PLANTS

Look for these beauties on your way back to the Lussier Family Heritage Center. *Note: not all plants are blooming when you are here*, so try leaf and plant shape for identification, too. There are many additional plant species not included here.



#### **Pale Indian Plantain** (*Cacalia atriplicifolia*)

A narrow, tall forb growing 3-8 feet tall, Plantain has flat-topped flower heads. Look for triangular-shaped purplish stems and coarsely-toothed leaves. It blooms from June to September. Deep roots extend 10 feet into the soil.

### PRAIRIE FIRE

**Fire is an important ingredient to healthy prairie.** It's the way plants retain access to high levels of light by setting back invading trees, shrubs, and plants. In addition, fire burns the vast amount of natural plant thatch created in prairie (note this prairie's density!), which helps **draw nutrients underground to root systems**. Fire also warms soils, stimulating growth.

Until the mid-1800s, fire was initiated either by natural causes or Native Americans, who used fire to make travel easier and to move game. Over thousands of years, **prairie plants adapted to survive these fires** by developing two-thirds or 80% of their growth structure underground. These structures include areas for food storage, growth buds, and very extensive root systems.



Trained Dane County staff and volunteers conduct prairie burns at Capital Springs, like this one at the Lewis Nine Springs E-way. Please contact the Parks Department to volunteer your time.

### THE DESTRUCTION OF WISCONSIN'S PRAIRIES

The past 160 years have altered prairie communities dramatically. As European and American farmers settled in Wisconsin, it was soon discovered that **prairie soils are very fertile**. Thereafter, **most prairies were plowed** to make room for crops, and later, for development.



In addition, by the 1880's, as Native Americans were pushed off the land, **prairie fires ceased** in this region. This gave invading plants an opportunity to move into prairie and savanna lands. **Less than one-tenth of one percent of original prairie remains today.**

### TOWARD PRAIRIE RESTORATION

Views toward prairie have **moved slowly from destruction toward restoration** – it is now a well-known landscape model for all types of projects whether it be a large habitat area or a small backyard garden. Why? What is the value of prairie to us and to the larger biotic community?

## POST 2: PRAIRIE BENEFITS

### PRAIRIE ECO-SERVICES: BIODIVERSITY

Considered one of the most complex and diverse ecosystems in the world, prairie hosts **an enormous quantity of plant and animal life**, including many species of reptiles, birds, insects, mammals, amphibians, and microorganisms.



It is a place with **overlapping food webs and unique inter-species relationships**. When burrowing animals tunnel into the ground, for example, they function as prairie gardeners by pushing valuable organic matter into underground root systems. The Thirteen-lined Ground Squirrel (*Spermophilus tridecemlineatus*), left, common burrowing prairie critter. Photo: Alex Galt, USFWS, www.flickr.com.

Even small prairie tracts outside schools, office buildings, and homes can have significant value to wildlife as a place for food, for raising offspring, and for shelter.

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*No tract of land is too small for the wilderness idea.*  
-- Aldo Leopold, "Wilderness Values"

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### PRAIRIE ECO-SERVICES: AN INSECT PLACE

**Key prairie residents are insects.** In fact, more insect species use prairie than any other ecosystem. An estimated 2,000 insect species in our region are thought to be almost exclusively prairie-dependent.

**We rely on animal pollinators for our food.** *Did you know that one out of three bites we eat is provided by pollinators?* The vast majority of these pollinators are invertebrates such as beetles, butterflies, moths, and bees which need prairie.

**Prairie forbs rely on insects for pollination** (note the use of color and height to attract pollinators!), and many vertebrates such as birds and bats rely on insects for their food.



The **Rusty Patched Bumble Bee** (*Bombus affinis*) at left has been lost in 87% of its original range. A generalist forager, it uses a variety of pollen and nectar plants. Bumble bees are key pollinators and species loss could significantly impact ecological systems, gardens, and some agricultural crops. Photo: Susan Carpenter

This bee has been found in nearby UW-Arboretum, so look for it at Capital Springs. Submit your photos to [www.bumblebeewatch.org](http://www.bumblebeewatch.org)!

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### SEWAGE THREAT

A serious marsh threat stemmed from the decades-long practice of **dumping raw sewage** into the Madison lakes system.

Sadly, by 1935, Lake Waubesa was so highly degraded that beaches closed, fish kills were the highest on record, and massive algae blooms choked water.



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*When we try to pick out anything by itself, we find it hitched to everything else in the universe.*

—John Muir

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An abnormal algae bloom in Wisconsin waters.  
Photo by DNR

From all of these threats and others, **Wisconsin lost almost half or over three million acres of wetlands.**

### TOWARD WETLAND RESTORATION AND PRESERVATION

In time, views concerning wetlands and water resources **shifted toward restoration and preservation**. Citizens organized wetland associations and critical protection laws were passed at the federal, state, and local level.

Here, efforts such as *The Yahara-Monona Priority Watershed Plan* developed **non-point pollution control guidelines**, and the 1970 *Parks and Open Space Plan* helped to preserve larger tracts of public land as **resource protection areas**, including what was then called the "Nine Springs Creek Greenbelt" – another name for the marsh area in front of you.

In addition, advances in waste water treatment led to the development of a Madison treatment plant, which became an asset of the present-day **Madison Metropolitan Sewerage District (MMSD)**, located on Mooreland Road.



Sensitive wetland areas surround the Upper Mud Lake Unit in the Capital Springs Recreation Area.

## POST 6: WISCONSIN'S MARSH PAST

The 1833 U.S. land survey of this area described large marshes “well-supplied with a variety of fish, stretching a long distance from the lakeshore” *as well as an Indian village with three lodges located on the land in front of you.*

### EUROPEAN/AMERICAN AGRICULTURE IN DANE COUNTY

Not long after this survey, European and American settlers purchased property here, and the land was altered for agriculture use, changing the **natural hydrology** of the marsh.

Nevertheless, **wildlife remained in the marsh**, and like the Native Americans before them, early settlers benefitted from the marsh resources.

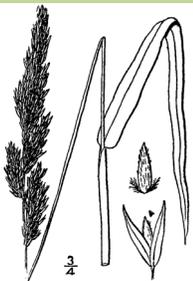
Skip Lemanski's family owned land that is now the Lussier Family Heritage Center. **He recalled the abundant wildlife:**

*“We'd go duck hunting on the drainage ditch over by the crick that ran into the lake. We'd walk around the back and there would always be ducks and pheasants. ...We trapped down there in that drainage ditch. We got a lot of muskrats and mink”* (John “Skip” Lemanski Interview, July 10, 2001).



The barn from the Lemanski farm, right, is now part of the Lussier Family Heritage Center.

### MARSH THREATS



➔ In the 1920s, farmers planted **Reed Canary Grass**, (*Phalaris arundinacea* L.), at left, a non-native plant that rapidly spread into the marsh.

➔ A shift to **row crops** such as corn and the increased use of commercial fertilizers resulted in sediment and nutrient runoff into area wetlands and lakes.

➔ As our population increased, wetlands were frequently drained and filled for **building or road structures**.

➔ **Pollution** from development sites and industrial plants as well as more **impermeable surfaces** (roads, parking lots, roofs) greatly escalated runoff.

➔ The **introduction of the Common Carp** (*Cyprinus carpio*) was detrimental to shallow water as carp disturb water clarity and phosphorus in sediment, leading to high algae growth.

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*The ecology of a prairie depends on many factors other than just its plants, including the existence of very specific insects and microorganisms.*  
– Wayne Pauly, former Dane County Parks Naturalist and Botanist

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### PRAIRIE ECO-SERVICES: ENVIRONMENTAL PROTECTION

With deep, spreading roots reaching down many feet into the ground, **prairie plants greatly reduce the effects of water erosion** by holding soil in place and absorbing excess water. These hardy, long-lived plants are reliable environmental protectors – they can survive through extreme cold and hot conditions.

Unlike lawn or ornamental gardens, **prairie replenishes its own soil** by breaking down nutrient-rich plant thatch (stems, leaves, and flowers). As such, **no fertilizers** are used in restoration, and therefore no fertilizers enter into our water system.

### PRAIRIE ECO-SERVICES: NATURE INTERACTION

Prairie is a simple way for us to closely interact with an important Wisconsin land community. Little is required beyond **your own curiosity and observation skills** to enjoy wildlife and unmatched beauty close to home.

Children especially connect to prairie – **if a young one is here today, begin your prairie discovery by noticing the many unusual leaf shapes, and look interesting insects on blooms.**



### PRAIRIE ECO-SERVICES: PRAIRIE ESTHETIC

A healthy, mature prairie can produce **17 different species of blooming plants per week** – purple, pink, yellow and white – truly an artist's palette! In fall and winter, look for prairie grasses' display of gold and russet. Big sky panoramas, as well as colorful birds and insects complete this prairie painting.



The prairie at Lewis Nine Springs E-way on Mooreland Road, left, is part of the Capital Springs Recreation Area.

You can be a Dane County volunteer to collect, clean, and weigh seeds as well as remove invasive species.

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## POST 3: MARSH BENEFITS

You are looking across marsh, an important type of Wisconsin wetland. **This marsh is a neighbor to Lake Waubesa** (located beyond the distant tree line) and Upper Mud Lake. The marsh feeds Nine Springs Creek which flows west-east and empties into Upper Mud Lake. The entire area is called the **Nine Springs Creek Watershed**.

You can see Nine Springs Creek and the marsh from Post 8. For a closer look, take the Capital City Trail north to the MMSD Boardwalk and Wildlife Observation Deck.

### WHAT IS A MARSH?

Marsh is a landscape **almost always inundated with water**, usually located near a larger body of water. As marsh contains a high level of nutrients, it supports an enormous amount of life, **a very productive ecosystem**.

Native plants in this community include sedges, cattails, bulrushes, and arrowheads.

#### Arrowhead



#### Cattail



#### Tussock Sedge



The Upper Midwest is considered **one of the most significant and important wetland areas in the world**.

### MARSH ECO-SERVICES: WATER REGULATION

Marsh is a **great water regulator**. In drought, marsh recharges depleted groundwater and supplies water to connected streams. In flood, marsh stores excess water and can filter out sediment and pollution in the marsh floor.

Can you see why **marsh is vital** to the well-being of Upper Mud Lake and Lake Waubesa?

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After these studies, the Park was included in the National Register of Historic Places and designated the **Lake Farms Archaeological District**. To learn more about the Native Americans of this land, walk the **Heritage Trail at shelter #1 near Lake Waubesa** on Libby Road.

### SNAKE-SHAPED MOUNDS REFLECT THE MARSH

In the Late Woodland period, (about 1,000 – 1,600 AD) Native Americans created earthen mounds in many forms. Although none were found at Lake Farm, at least 183 mounds had existed around Lake Waubesa. Records show that **snake-shaped mounds dominated this lake**, which is considered a **lower-world image and a reflection of the surrounding marsh habitat**.

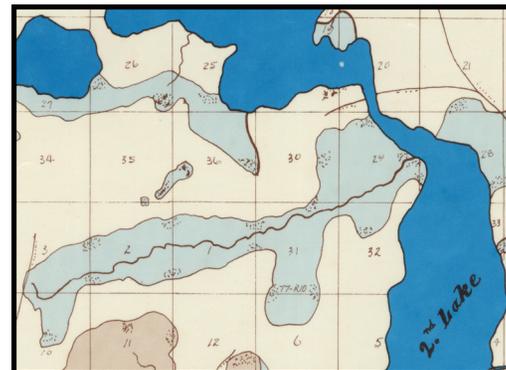
Mounds still exist elsewhere at Capital Springs Recreation Area. Learn about the **Gilman Mounds** at the interpretive exhibit west of the Lussier Family Heritage Center just off the Capital City Trail.

### HO-CHUNK NATION IN THE REGION

Ho-Chunk established **hunting and fishing camps** here. It was again an important place to find food, such as large celery crops and rice beds, plentiful game, fish, and waterfowl. One early observer described the area as “fairly black in places with flocks of ducks and geese” (George Stoner, quoted in *WSJ*, 1895). Ho-Chunk even raised corn in the Madison area through the mid-1800s.



Treaties from 1829 and 1832 **ceded all land in southern Wisconsin to the U.S. government**, although many Ho-Chunk people later returned home. These treaties and the sale of land to European and American settlers marked a major turning point in the natural history of the region - its land and water resources would be molded to accommodate a changing world.



This reproduction of the 1834 land survey map shows Lake Waubesa as 2<sup>nd</sup> Lake. The long, light blue shape on the left is the marsh within Capital Springs and the curving line through it is Nine Springs Creek.

Image: Wisconsin Historical Society, WHS-055661, cropped to marsh.

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## POST 5: A MARSH STORY – NATURE’S BOUNTY

**Sa-hoo cha-te-la** is the Ho-Chunk word for Lake Waubesa. It means the “**lake of reeds**”, depicting the large marshes that surround this lake. How did they form?

### GLACIER SHAPES THE WAUBESA LANDSCAPE

Like many Wisconsin landscape features, the last glacier expansion called the **Wisconsin Glaciation period formed Madison lakes and marshes.**

Glacial ice sheet entered Dane County about 25,000 years ago and **dumped a large amount of soil deposits** into the area. The very deep Yahara River Valley – which was located underneath present-day Madison lakes – received deposits more than 300 feet thick. These deposits nearly filled the entire valley.

As the ice retreated, trapped water flowed down what remained of the valley path, forming the expansive **Glacial Lake Yahara. The area in front of you was a bay of this lake.**

The original Yahara River Valley bed was so deep that as water levels fluctuated over the course of many years, **Madison area lakes formed in former valley depressions**, including Lake Waubesa. Marshes developed along lake perimeters in poorly-drained areas.

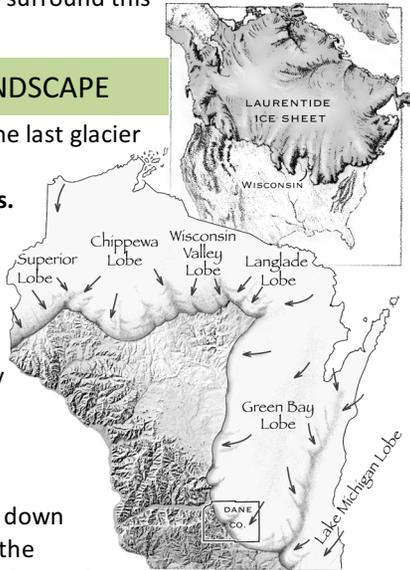


Image: Wisconsin Geological and Natural History Survey

### NATURE’S SUPERMARKET

This marsh and other ecological communities found in the area such as lake, prairie, and woodland were **nature’s supermarket for Native Americans** – a very important place to find food.

**Evidence of this use was discovered in the 1970s.** Archaeological studies at Lake Farm County Park near Lake Waubesa uncovered pots, knives, arrowheads, and remains of carbonized food stuffs from seeds, fish, mammals, birds, and shellfish. Some of these materials date back as early as the late Paleo-Indian period (8500 BC) and **indicate almost continual use of this area until European and American settlement.**



### MARSH ECO-SERVICES: CARBON REGULATION

Marsh is also a **carbon regulator as it can capture atmospheric carbon** – the dangerous greenhouse gas that contributes to climate change. Marsh holds carbon in underwater soils, peats, and living plants for many, many years.

### MARSH ECO-SERVICES: WILDLIFE HABITAT

With abundant plant and microbial life due to high nutrient levels, **marsh is an important food resource and home** for wildlife, supporting a diversity of life that can be disproportionate to its size. Reptiles, amphibians, specialized microorganisms, insects, fish, mammals, and birds all use marsh.

**More than 50 percent of the continent’s migratory waterfowl call the upper Midwest home** due to the wetlands here. Shore birds, predator birds, and songbirds also use marsh.

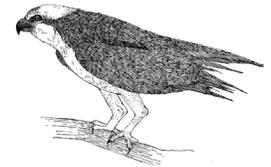
#### Marsh Wren



#### Great Blue Heron



#### Osprey



### MARSH ECO-SERVICES: MARSH ESTHETIC

With vital eco-services, one may overlook the **innate beauty of marsh.**



MMSD Boardwalk and Wildlife Observation Deck

Marsh is a comforting, familiar place for the Midwestern eye: in spring, it can be a **very loud place** with the cacophony of calling frogs and territorial nesting birds. In summer, marsh can be a **quiet, still-water place** where dragonflies buzz and tall birds stalk the shore. Whatever the season, enjoy the splendor of the marsh!

*Regional landscapes provide us our food, they provide us our esthetic enjoyment, they provide habitat for animals, including ourselves.*  
– Phil Lewis, landscape architect of the Lewis Nine Springs E-way

## POST 4: A PRAIRIE STORY - RESTORATION

### RESTORATION ROOTS IN WISCONSIN

Ecological pioneer Aldo Leopold and others conducted **the very first prairie restoration projects at UW Arboretum in the 1930s**. At the time, few prairies remained, so plants and seeds could only be found where plows and cows had not touched – along railroad tracks and in graveyards.

These projects and subsequent studies fostered the idea of prairie as important “wildlife area” and **developed vital restoration guidelines** used by land managers and private landowners.

The **basic steps in a restoration** include development of a project plan, site preparation, planting, and maintenance. Please refer to an in-depth guide for more information.

### PROJECT PLAN: SITE CONDITION, HISTORY, & COMPOSITION

We learn about the **site’s conditions**, looking at **soil type, moisture retention, and land slope**. Here, the land is gently-sloping, drains fairly well, and the soil is silt loam (part clay, sand, and silt). Next, we fit this information into a plant community – wet prairie, mesic prairie, dry prairie, or a combination – that prefers these conditions. This site planted as a mesic prairie with balanced, fertile soil.

A peek into the **site’s natural history** prior to agriculture can be helpful. Land surveys from 1833 report rolling hills with few Bur, Black, and White Oaks here – a savanna/prairie habitat. Early writings from this time also report these land communities (see page 3). It is a suitable place for restoration.

Most prairie plantings **include at least 15 forbs and three grasses** to ensure a healthy ecological community. We **select plants from the major prairie families** – daisy, legume, rose, milkweed, parsley and mint – to incorporate each family’s nutritional elements and to support wildlife diversity.

Finally, we want **blooms throughout the growing season**.

This provides food for many different insects throughout their life cycles, and it helps reduce plant species competition. We also enjoy all the color!



Purple Prairie-Clover (*Dalea purpurea*), above, is a stunning summer forb and host plant for butterfly larvae. It can capture nitrogen from the air to fertilize the prairie. Photo by Joshua Mayer

### SITE PREPARATION

A key step in planting a prairie is to **remove prairie invaders** at the site. Careful herbicide application is an effective removal method used by trained Parks staff. The soil can also be tilled multiple times prior to planting which helps prevent germinated weed seeds and root segments from sprouting.



Invader plants include nonnative plants such as Red Clover, Birds-foot Trefoil, and Canada Thistle.

Invader plants also include native woody species such as willows and dogwoods, like Redosier Dogwood (*Cornus stolonifera* Michx.) at left.

### PLANTING THE PRAIRIE

Many Dane County Parks’ prairies are planted in the fall or spring with seeds collected from other Dane County Parks’ prairies. It is wise to **use seed from areas close to the prairie restoration site** - these plants have already adapted themselves to specific local conditions, which aids in seed germination and long-term plant survival.

Note: **collecting seeds or plants from Dane County properties for personal use is prohibited**. To obtain prairie plants, Dane County sells discounted plants every year, and many local nurseries stock Wisconsin prairie plants.

### MAINTENANCE

In the first few years, **the site is mowed** after unwanted weeds flower but before they produce seeds. This does little damage to plants as they initially spend energy growing underground growth structures. Thereafter, **a controlled burn is conducted** every 1 - 5 years in early spring. A burn is very beneficial: it breaks down plant thatch, warms soils, kills weeds, and activates microbial activity.



Children can volunteer with prairie restoration projects. Here, they help sow prairie seed at a Friends of Capital Springs stewardship day.