

# Natural Resource NOTES

SPRING 2009



ECOSYSTEM

## ec-o-sys-tem [ee-koh-sis-tuhm]

—noun.

a natural unit consisting of all plants, animals and micro-organisms in an area functioning together with all of the non-living physical factors of the environment.

(Source: [www.wikipedia.com](http://www.wikipedia.com))

The city of Minnetonka has many remnant ecosystems, specifically woodland environments, and for a developed community of just over 50,000 people, that is something about which residents can be proud.

The city of Minnetonka is trying to promote and protect these ecosystems by controlling buckthorn and garlic mustard; educating area residents and businesses about woodland environments; and offering native trees as part of the tree sale in order to reforest and promote native species.

In the following articles, learn about the city's historical woodland cover; the different types of remaining woodland ecosystems; where to view those ecosystems; and how trees can support quality of life.

## THE VALUE OF PROTECTING NATURAL RESOURCES

Minnetonka residents value the natural resources in this community, but is it possible to assess the true value that trees and clean water have on our lives? Trees help reduce energy costs by protecting homes from winter winds and summer sun; increase privacy between homes and buildings; and clean the air we breathe. Wetlands capture and clean storm water runoff, while wetland plants help prevent soil erosion and absorb water into the ground.

Beyond those benefits, natural resources provide a sense of permanence and history. Look at a 200-year-old oak tree, and you are seeing a tree that for 200 years stood in one place while the world around it changed. Similarly, every wetland, lake, or creek represents an ecosystem that has developed over hundreds or thousands of years.

We are very fortunate in Minnetonka to still enjoy some of the natural resources of our past along with the

recreational and aesthetic benefits that they provide—and it is up to all of us to help protect them into the future.

Follow these tips to ensure our natural resources will be around well into the future:

- **Install and maintain proper sediment and erosion controls** when conducting construction, grading, or other soil-disturbing activity in your yard.
- **Keep paved surfaces clean.** Material tracked or washed into the street will empty into the nearest storm drain and water resource.
- **Protect your trees** from equipment, construction materials, or other activity that can cause soil compaction by fencing off the critical root zone, the area 1.5 feet from the trunk for each inch of trunk diameter. For example, the CRZ of a 10" diameter tree is the area 15 feet from the trunk.

Need more information? Contact the city's natural resources division at (952) 988-8400. Read on to learn more about protecting Minnetonka's natural resources!

VALUE

MINNETONKA'S

# ECO-SERIES:

## Academy of Walks and Talks



Are you ready to plant a tree? Do you have a mystery woodland plant that you think may be garlic mustard? Want to walk in wetlands, and learn more about these spongy environments? If so, join us for one of the following workshops or volunteer opportunities and expand your knowledge of the natural environment.

### Tree Planting Clinic

April 14, 6–8 p.m.

Attend a free city-sponsored tree planting clinic Tuesday, April 14, from 6 to 8 p.m. at Big Willow Park. Meet in the Minnetonka Public Works parking lot, 11522 Minnetonka Boulevard, then walk to the planting site in the park. You'll learn planting and pruning tips to ensure the health of your tree throughout its life span. Registration is required for this event and limited to 30 people. For more information or to register call Emily Barbeau, city forester, at (952) 988-8400.

### Celebrate Arbor Month

May 14, 5:30 – 7:30 p.m.

Celebrate Arbor Month at a mulching and tree care event Thursday, May 14 from 5:30 – 7:30 p.m. in Glen Moor Park. This event focuses on the importance of long-term maintenance of trees, rather than on planting alone. Learn tree care and pruning tips to apply in your own yard. Have fun digging in the soil while enhancing the environment in this community park. Snacks and planting supplies will be provided. Participants will receive a Tree City USA t-shirt, tree seedlings, and tree care information packets. Dress for the weather, and bring your gardening gloves, your questions and your fresh spring air enthusiasm! This event is free and all ages are welcome. Questions? Call Emily Barbeau, city forester, at (952) 988-8400.



A young family helped at last year's Arbor Month event.

### Got garlic mustard?

May 6 and June 4, 6:30 p.m.

Learn about this very invasive woodland herb that is widespread throughout Minnetonka. This year, the city's garlic mustard workshop is scheduled twice during the plant's peak season. A slide show and talk will be presented from 6:30 to 7:30 p.m., followed by a walk in the Minnetonka Civic Center woods to look at the real thing from 7:30 to 8 p.m., weather permitting. Learn this plant's life cycle and how it looks in its many stages of growth, as well as control methods and the most critical period for removal. Handouts provided. Registration is required. Call (952) 988-8400.

**Location:** May 6 — Boards and Commissions room, Minnetonka City Hall and June 4 — community room, Minnetonka Community Center.

### More to come...

Watch future editions of the *Minnetonka Memo* for more walks and talks.

### Did you order a tree? Pick up is April 24 and 25!

If you ordered trees through the city tree sale, be sure to pick them up April 24 or 25! This year, trees must be picked up on the designated pick-up dates or they will be planted in Minnetonka parks. You may choose either date to collect your pre-ordered trees. If you will be out of town or do not have an appropriate vehicle, your neighbors or family members may pick up the trees on your



Garlic mustard

# ECO-SERIES

## Join a spring plant walk

Take a guided plant walk in a Minnetonka park where native habitat restoration is underway. Walk with the city's restoration specialist and look for wildflowers. See new native woody plantings and remnant native shrubs that are being restored. Learn about restoration practices the city is using and how to identify the invasive bad guys. Wildlife and ornamental benefits of some native trees and shrubs will be included. RSVP is required and limited to 15 for each walk. Call Minnetonka Public Works at (952) 988-8400.

- **Rain or shine.** Wear appropriate outdoor clothing and sturdy footwear.
- **Recommended:** water bottle, binoculars, and notebook.
- **Children are welcome**, but must be accompanied by an adult.
- **Meet on-site** at location specified in table



Park	Date	Time	Meeting Place
Purgatory	Thursday, April 30	5:30 – 7:30 p.m.	Picnic parking lot, 17315 Excelsior Boulevard
Big Willow	Thursday, May 7	5:30 – 7:30 p.m.	Big Willow parking lot at Minnetonka Public Works, 11522 Minnetonka Boulevard
Jidana	Thursday, May 14	5:30 – 7:30 p.m.	Parking lot, 3333 Jidana Lane
Lone Lake	Thursday, May 21	5:30 – 7:30 p.m.	Lower parking lot by swings, 5624 Shady Oak Road

## Rain garden workshops April 16 and 29, 6:30 – 9:30 p.m.

The cities of Minnetonka and Eden Prairie and the Nine Mile Creek Watershed District and Metro Blooms are partnering to host two rain garden workshops on April 16 and 29. Learn the benefits and design characteristics of rain gardens, and meet with a consultant to start designing a rain garden for your own property.

### Workshop I: April 16, 6:30 – 9:30 p.m.

Eden Prairie City Center, 8080 Mitchell Road, Eden Prairie  
Heritage Rooms I/11

Presented by Rusty Schmidt, Waterdrop Innovations

### Workshop II: April 29, 6:30 – 9:30 p.m.

Minnetonka Community Center, 14600 Minnetonka Boulevard, Minnetonka  
Council Chambers

Presented by Gregg Thompson, Association of Metropolitan Soil and Water Conservation Districts

Pre-planning will be required to meet with the consultant. You will receive your homework after you register for the workshop. Workshops are free but to reserve a seat and receive your homework please RSVP to Minnetonka Public Works at (952) 988-8400. Please indicate which workshop you hope to attend.

behalf, but be sure to give them your confirmation postcard to present to city staff. Confirmation postcards will be sent to participants two weeks prior to the event as an additional reminder.

If it is a warm spring, and you notice that trees in your yard are already leafing out, City Forester Emily Barbeau recommends you bring a tarp or sheet to cover the canopy of your new trees. This helps prevent water loss through the leaves as they travel down the road in an open truck bed or trailer.

## Help monitor Minnetonka's wetlands

If you have ever wanted to wade in a wetland or discover the plants and animals that live in the murky shallows, we want you! The city of Minnetonka has partnered with Hennepin County for the eighth year to implement the Wetland Health Evaluation Program within the city. This project uses biological criteria to identify the health of different wetlands within the community.

Adult volunteers work in the field on a team with other city residents to study the biological health of Minnetonka's wetlands. You do not need a science background or any previous monitoring experience to participate. Volunteers work under the direction of a team leader and receive training on the wetland monitoring protocols as well as plant and insect identification. The time commitment is approximately a total of 40 – 50 hours from May through August. This includes training, fieldwork, and lab work. All equipment is provided (some waders may be available). Just show up and learn!

If you are interested in volunteering for the Minnetonka Wetland Health Evaluation Program, contact Aaron Schwartz, natural resource specialist, at (952) 988-8422 or by email at [aschwartz@eminnetonka.com](mailto:aschwartz@eminnetonka.com) for more information.



### Pick up details

#### Minnetonka Public Works

11522 Minnetonka Boulevard

Follow the signs to the east driveway  
(recycling drop-off center)

Friday, **April 24**, from 9 a.m. to 2 p.m.

Saturday, **April 25**, from 8 a.m. to 12 p.m..

**Questions?** (952) 988-8400

Seeing the forest for the

# TREES

## Minnetonka's Changing Landscape



Minnetonka is located within a small subsection of the eastern broadleaf forest — an area that extends from Minnesota to Arkansas — called the “big woods.” Originally, the big woods was a dense, moist woodland area dominated by oaks, basswood, sugar maple, and elm; however, very little of the original big woods remains today.

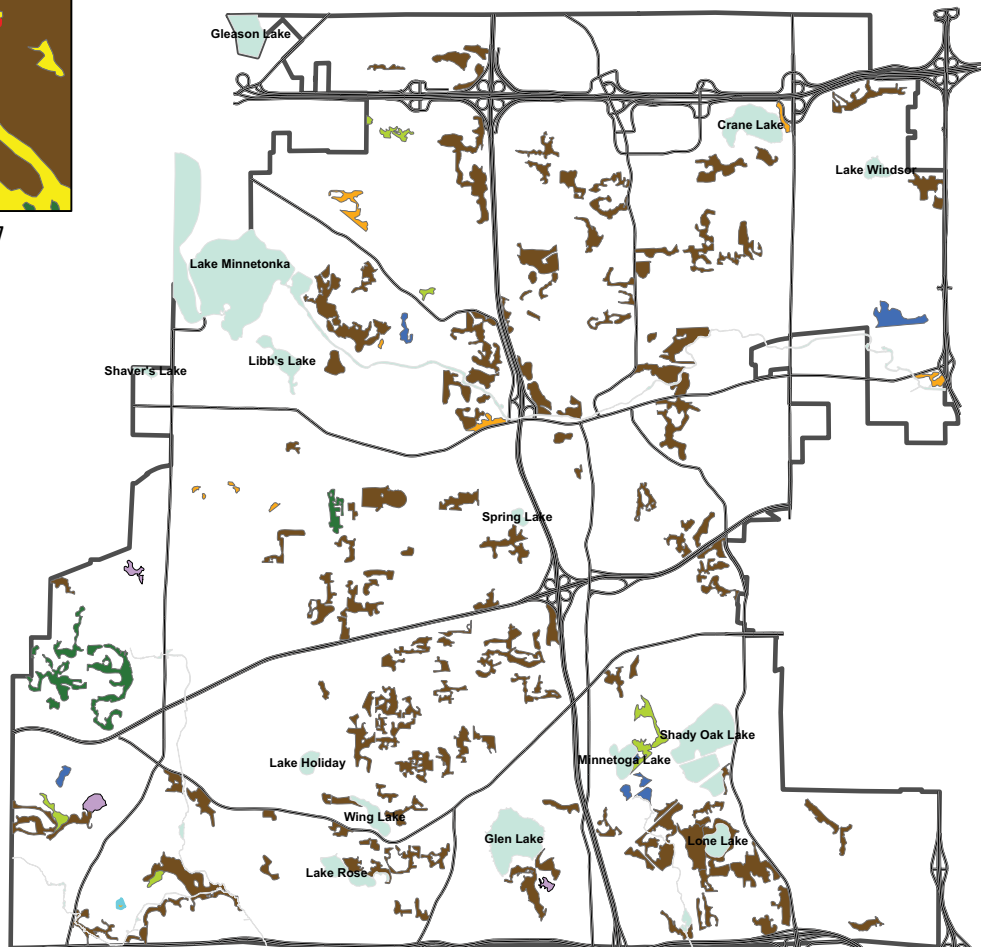
Much of the big woods were removed to allow for agricultural use, but in Minnetonka, tree removal has been the result of development such as the construction of roadways, homes, business, and other urban services. Minnetonka's woodlands also have been affected by the introduction of invasive species, non-native pests and diseases (such as Dutch elm disease), as well as by gradual tree removal by individual property owners seeking to modify their yard or expand their homes or businesses.

As the city strives to maintain its identity as a wooded community, the remnant patches of original forest as well as those individual remaining trees become ever more valuable. Although it took many hundreds of years for these woodlands to form, it only takes a few days or hours to remove them. A look into the past may teach us much about how we can direct our future.



Public Land Survey, 1847-1907

*These maps show the changes in landscape from the late 19th century (at left) to today (below). The colors on the map show the type of landscape: color blocks appearing next to the descriptions of each of these landscapes, on the page at right, serve as a key. You can see the dramatic shift in the amount of forest in Minnetonka from the 19th century to today.*



Public Land Survey, 2008

Past &  
Present

# FOREST

## Disturbed forest

**Description:** Created when bare soil was exposed during farming, construction, grading, mining or digging, disturbed forest sites usually have fast-growing tree species whose seeds found their way to the site.

**Tree species:** American and Siberian elm, cottonwood, green ash, boxelder

**Understory:** Invasive species and weeds are common, such as buckthorn, non-native honeysuckle, prickly ash, willow, sumac and dogwood, as well as garlic mustard, motherwort, burdock, creeping Charlie, wild grape and woodbine

**Animals:** Wild grape may attract songs birds and raccoons, squirrels and deer also visit or live in disturbed forest.



## Oak woodland brushland & mesic oak forest

**Description:** These two types of oak forests once dominated Minnetonka's landscape but now exist only in remnant patches. Many oak forests in Minnetonka have been altered and degraded from oak wilt disease, invasive non-native species like buckthorn that have replaced native shrubs, lack of fire which can reduce oak regeneration, and overgrazing from deer. Oak woodland brushland areas have a canopy more open than a forest but less open than a savanna, with trees and shrubs adapted to the well-drained, dry and gravelly soils. Mesic oak forests have a more closed canopy and are characterized by tall deciduous trees 60 feet or higher that lack lower branches. Trees and shrubs are adapted to a moderately moist habitat.

**Trees:** Oak woodland brushland includes red, white, bur and northern pin oaks and aspen. Mesic oak forests include red, white and bur oaks.

**Understory:** Oak woodland brushland includes American hazelnut, juneberry and chokecherry, with saplings from the canopy as well as black cherry and red cedar. Mesic oak forests include saplings from the canopy and fire-sensitive species such as basswood, green ash, bitternut hickory, big-toothed aspen, butternut, northern pin oak, black cherry, paper birch, American elm, boxelder and red maple. Shrubs might include ironwood, chokecherry, prickly ash, American hazelnut, prickly gooseberry, red-berried elder, nannyberry, juneberry/serviceberry and pagoda dogwood.

**Look for:** Eastern grey tree frogs and black-capped chickadee

**Find it:** Visit Big Willow Park to see examples of oak forest — see page 4 of this *Memo* for more information. A good example of a mesic oak forest can be found west of the lake at Lone Lake Park.



## Maple basswood forest

**Description:** Maple basswood forests are characterized by a variety of shade-tolerant, fire-sensitive, deciduous tree species. Mature trees are straight with narrow crowns greater than 60 feet tall.

**Trees:** Dominant trees are basswood and sugar maple but mesic species such as slippery elm, red oak, bur oak, green ash, white ash and black ash may be found as well.

**Understory:** Includes saplings from the canopy species, as well as bitternut, black cherry, and ironwood. The shrub layer of the understory includes primarily tree seedlings and herbaceous plants.

**Look for:** Scarlet tanagers, a bird whose breeding male appears bright orange-red with black wings, need at least two to six acres of maple basswood forest for nesting, and so are very sensitive to forest fragmentation

**Find it:** A portion of Reich Park has characteristics of maple basswood forest, but most of the remaining remnants in Minnetonka are located on private property around Sparrow Road, Woolman Drive and Priory Lane.



## Tamarack and willow swamps

**Description:** Tamarack and willow swamps are Minnetonka's two types of forested wetland communities.

**Trees:** A tamarack swamp is dominated by tamaracks, a deciduous coniferous tree. Black spruce, paper birch, and red maple might also be found. The dominant species in a willow swamp include black willow and speckled alder.

**Understory:** The tamarack understory includes saplings from the canopy and the large shrub or small tree layer can include speckled alder and red osier dogwood. A willow swamp is seasonally flooded and has scattered-to-dense shrub cover. The willow swamp understory includes dogwood and several smaller willow species.

**Look for:** Wood frogs, woodpeckers, yellow-bellied sapsuckers and porcupines.

**Find it:** While walking the trail south of Minnetonka High School, look for the tamarack swamp located directly south of the trail near Tamarack Circle. From this same trail you can view a willow swamp located to the west of the Minnetonka High School softball fields, in the middle of the cattail marsh.



## Lowland and floodplain forests

**Description:** Lowland and floodplain forests are characterized by tree species that tolerate occasional flooding or periodically wet soils.

**Trees:** Both forest types are typified by silver maple, elm, and cottonwood, but lowland forests also may include some trees found in dryer areas such as oak and basswood.

**Understory:** May be sparse in areas with frequent or severe flooding and may often include climbing plants such as wild grape, moonseed, Virginia creeper, and hog peanut as well as a few tree seedlings and saplings

**Look for:** Dead and decaying trees found in floodplain forests are an important source of food and shelter for songbirds. These forest types often serve as corridors for wildlife and historically were used by early settlers for travel along waterways. Lowland and floodplain forests may harbor kingfishers, blue-gray gnatcatchers, yellow-throated vireos, red-shouldered hawks, woodchucks, red fox and salamanders, or even an occasional crawfish burrow.

**Find it:** View remnants of lowland and floodplain forests along Minnehaha Creek — look along the north side of Minnetonka Boulevard, just east of city hall; or east of Lake Minnetoga, along the north side of the public trail that runs southeast of the lake.



# Know your

# WOODLAND

## Wildflowers & Ground Covers

The six native species featured here fare well in shady woods with average soil moisture; spread by seed or underground rhizomes (roots) to form patches or ground covers; are good perennial replacement plants for garlic mustard; and are very low maintenance.

Each of these species can tolerate some sun as long as they have adequate moisture. These easy-to-grow plants will spread over time, and can be considered aggressive in a formal garden area. For that reason, most are recommended for woods or low-maintenance shady areas, and all are easy to grow from seed, division, or cuttings.

### Wild Ginger (*Asarum canadense*)



A native wildflower of moist, deciduous woods that can form a soft ground cover up to a foot tall. Fuzzy, round, heart-shaped leaves grow from a ground-trailing stem that spreads to form patches. Red flowers bloom at the soil line under the leaves in April and May. The flowers are pollinated and the seeds spread by ground insects. This plant can easily be propagated by dividing the rooted stems into sections (each with their own roots) in spring as the leaves are beginning to unfurl.

### Violets



More than 20 species of **violet** are native to woods and prairies of Minnesota. Common blue violet, Canada violet and downy yellow violet are easy to grow and will spread by seed on their own. When seed capsules begin to dry, seed is ripe and can be hand sown directly into new areas.

**Canada Violet (*Viola Canadensis*)** has a white flower and spreads by seed and underground rhizomes to form patches or a ground cover about a foot tall. It is very easy to propagate by division in the spring when the leaves are beginning to unfurl.



**Common Blue Violet (*Viola sororia*)** is a blue violet that grows in woods, meadows, and lawns. It grows into a three- to eight-inch mound of leaves topped with blue flowers from April to June.



**Downy Yellow Violet (*Viola pubescens*)** blooms April to May and can tolerate dry woodland soil.

If you have natural woods or shady spots on your property, you know that many such areas have been invaded with non-native invasive species. If you've been pulling garlic mustard or buckthorn and wondering what should be growing in its place, read on.

### Virginia Waterleaf (*Hydrophyllum virginianum*)

A native wildflower that grows up to two feet tall when in flower. Its pinnately-divided leaves grow to be about six inches long and bear white spots that resemble water drops, hence its name. Flowers bloom in May and June in a balled cluster of lavender to grayish-white bells with stamens that extend beyond the petals. Plants spread by self-seeding.



### Wild Columbine (*Aquilegia Canadensis*)

An erect woodland wildflower, up to two feet tall, bearing nodding red and yellow flowers in May. Flower spurs contain nectar that attracts hummingbirds and long-tongued insects. Wild columbine has attractive compound leaves that are divided into many three-part rounded lobes. The plant is drought tolerant and grows best in soils that aren't too rich. Plants are most easily spread by seed which can be collected from erect brown capsules in summer. Seeds that are immediately sewn can germinate quickly, but do best in fall or spring.



### Ostrich Fern (*Matteuccia struthiopteris*)

Grows to about three feet tall in moist gardens and woods. The plants are shorter in soil with less moisture and taller in soggy soil. Before leaves unfurl in the spring, they grow in a curled "fiddlehead" shape, at which stage they are edible. This fern spreads by underground rhizomes to produce a colony of many symmetric clumps.



### Woodbine/Virginia Creeper (*Parthenocissus inserta*)

A trailing woody vine that can be a ground cover or a climber. Property owners routinely rip woodbine out of their woods, mistaking it for the aggressive wild grape and unaware that it is a great native ground cover. The two native vine species can easily be distinguished by their leaves and tendrils. Woodbine has compound leaves with five leaflets, docile tendrils, and great fall color ranging from pinkish-orange in the shade to scarlet red in the sun.



In contrast, wild grape has large simple leaves and thick woody tendrils that can strangle small stems and cover trees and shrubs like a blanket, with a yellow to brown fall color. If necessary, woodbine can be pulled down easily when it climbs and encouraged to grow on the ground. When on the ground, the vine can root at the nodes with each rooted segment growing into a separate plant. To propagate, divide dormant vines into multi-node sections and plant one inch deep.



## Conserve energy and money: plant trees

Want to conserve energy and cut your home heating and cooling bills? Tree and shrub planting typically pays itself off in energy savings within seven to ten years. Get started with these guidelines.

### Guard against winter winds

To stop winter winds before they enter the house and to capture warm winter sunlight, plant trees or tall shrubs within 20 to 50 feet of west-facing windows. Evergreen species provide a double benefit of blocking winter winds while also providing summer shade.

If space allows, plant a windbreak — a row of evergreen trees spaced 10 to 20 feet apart, planted in rows perpendicular to the primary winter wind direction, usually running along the west and north sides of the property. Properly planted windbreaks help to prevent drafts and can reduce heating costs up to 20 percent.

If trees or windbreaks aren't possible, consider planting vines and shrubs next to your home, creating a blanket of air space that insulates your home in the winter and the summer.

### Keep it cool

If you've planted evergreens on the north and west side of your home to keep you warm in the winter, those same trees will shade your home from solar heat in the summer. One mature tree shading west walls and windows from the afternoon sun can reduce roof and wall temperatures by 20 to 40 degrees Fahrenheit, while air conditioning costs can be cut by up to 25 percent by strategically planting trees and shrubs.

To keep your house naturally cool, plant trees on the east side of your house as well as the west. When planting near windows on the east side of your house, be sure to select deciduous shade trees so you can reap the summer shade but also gain solar heat in the winter. Planting a tree or shrub near your air conditioning unit to block the sun may increase the unit's efficiency by up to 10 percent. Be sure branches and leaves do not restrict the unit's air flow.

Keep in mind that pavement reflects solar energy and will radiate heat to the walls of your home. Planting low shrubs and ground covers will help reduce the reflection of solar heat from roads, driveways and patios.

### Where not to plant

Avoid planting trees in front of windows on the south side of your home, since they will block solar heat in the winter and in the summer won't provide shade due to the angle of the sun. If you absolutely must plant a tree near your south windows, choose a tree with small leaves that will let in light, such as a honey locust or Kentucky coffee tree.

### More tips

- **Choose a tree or shrub** that will fit well in your unique space, light, and soil conditions, making sure it is a species resistant to most diseases and insects.
- **Plan for the mature height and spread of a tree**, and be sure it won't interfere with an overhead power line or the structure of your home.
- **Plant trees no closer** than 10 feet but within 50 feet of your home for energy savings.
- **Plant the tree at the correct depth.** Visit [http://www.forestry.umn.edu/extension/urban\\_com/Planting.html](http://www.forestry.umn.edu/extension/urban_com/Planting.html) for more information.
- **Plant a tree species with strong wood** since it will be close to the structure of your home. Prune the tree while young to promote strong branch structure.
- **Monitor trees near your home** in order to ensure their structure and safety. Ask a professional arborist if you need help with tree care or selection.

For more information about planting for energy conservation, visit [www.eminnetonka.com](http://www.eminnetonka.com).

## Water: keep it clean

You may not have a lake, creek or wetland on your property, but those waters are affected by anything that washes from your house or yard. Pollutants such as fertilizers, herbicides, antifreeze, oil, loose soil, pet waste, grass clippings and leaves may all be swept by runoff into the nearest storm drain, then on to lakes, creeks and wetlands, where they encourage weed and algae growth. Follow these simple tips to keep the green in your yard and out of the water:

- **Sweep up spills.** Spilled chemicals can be harmful to plants and animals, while fertilizers can encourage the growth of weeds and algae.
- **Dispose of yard waste properly.** Leaves and grass clippings leach nutrients into the nearest water resource as they decay, encouraging the growth of algae. Dispose of your yard waste through your waste hauler or use the appropriate drop-off sites.
- **Keep nutrients in your yard** by using a mulching mower. The nutrients in one year of grass clippings equal a single fertilizer application. Use compost made from yard waste in garden beds or tilled into the ground to rebuild depleted soils.
- **Capture and use storm water** with rain barrels and rain gardens. You can water your yard with rain barrel water and construct a rain garden that waters itself. Be certain to direct any overflow away from the foundation of your home and avoid redirecting runoff onto adjacent properties.
- **Cover exposed soil** with seed, sod or mulch. Raindrops erode exposed soil and leave sediment in streets, storm drains, and water resources. Covering exposed soil in the spring helps prevent larger problems later.
- **Pick up pet waste and litter.** Pet waste contains nutrients and bacteria, so scoop it up and dispose of it in the garbage, along with any litter you encounter.



# Staying vigilant in the search for GYPSY MOTHS

## MOTHS

### Gypsy moth control efforts resume in May

In May, the city of Minnetonka will continue its cooperative efforts with the Minnesota Department of Agriculture (MDA) to eradicate a gypsy moth infestation within the city, located within a 303-acre area bounded by Highway 7 in the south, I-494 in the west, Kral Road to the north and Woodhill Road to the east. Residents who live in the control area were notified by mail and will receive a postcard prior to the May treatment.

Gypsy moth is a non-native invasive insect whose caterpillars rapidly eat the leaves of a wide variety of tree species, weakening tree health over time. The MDA continually monitors the population of gypsy moths throughout the state and takes action when necessary.

Gypsy moths spread from infested areas as hitchhikers on camping equipment, vehicles and firewood. The pest is established in many states in the northeastern United States, including eastern Wisconsin. The MDA expects the upcoming treatment to completely eradicate the moth in Minnetonka, but continued future monitoring is planned.

As global trade and travel have increased, so have the number of non-native tree pests and insects that threaten Minnetonka's forests. Continued vigilance, awareness and cooperation between federal, state, and local governments and citizens can help to slow the spread of these pests and protect the community forest now and for future generations. Early detection and rapid response to emerging non-native invasive pests can help to decrease the economic consequences of an infestation. To learn more about gypsy moth, visit [www.eminnetonka.com](http://www.eminnetonka.com).



Gypsy moth egg mass

### Trees: Not just another pretty face

Trees are not just an attractive landscaping feature — they play a critical role in protecting the environment from the sometimes negative effect of water. Here's how:

**Extensive root systems** stabilize ground and prevent soil erosion, while also helping absorb rainfall.

The **tree canopy** helps intercept and absorb energy from rain drops, before they can hit the ground and erode the soil.

In wooded natural areas, **decaying leaf litter, bark and branches** on the forest floor help protect soil from erosion.

**Branches and stems** that fall into creeks and rivers help disperse the energy of moving water, while also creating a habitat for wildlife — resting pools for fish, hunting perches for birds, and basking areas for turtles.

**Trees growing along the shoreline** of streams anchor the banks and prevent erosion during increased water flow.

**Trees stabilize slopes** by minimizing the amount of surface runoff generated and by holding the slope in place with a massive root network. Mature trees provide better protection from erosion due to larger canopies and root systems.

**Trees help absorb excess nutrients** from storm water runoff, using them for their own growth and energy reserves. When trees die and decay, nutrients are released back into the surrounding soil, where they are then absorbed by growing trees, continuing the cycle.

#### Where does the water go?

Trees not only capture and absorb rainfall, but also can convert liquid water into water vapor. Some vapor is released through the leaves in a process called transpiration, while some water evaporates directly off the surface of the leaves. Both processes acting together are called evapotranspiration and can provide a cooling effect on a hot day.

## TREES