



Twin Cities Chapter Quarterly Newsletter

May 2016 Volume 14, Issue 2

ANNUAL NATIVE PLANT SALE A reminder that the deadline for ordering plants is 17 May 2016 with pickup on 22 May. This year we are partnering with the Big Woods Chapter. Go to www.wildnestwincities.org/p/plant-sale-2016.html for information on flats and individual plants and shrubs that are being offered and the order form to be used. New this year are the following:

- **Blended Garden** Collection brings natives well-suited to integrating into existing sunny perennial garden
- **Deer Resistant** and **Clay Soil** collections for difficult sites.
- **Hummingbirds** are also losing feeding habitat. We offer 6 hummingbird favorites.



There are two pick-up sites: one in **Minneapolis** and one in **Roseville**. You must choose when ordering.

Twin Cities Chapter

South Minneapolis
Noon to 3:00 pm
4009 Minnehaha Ave. S
(Parking lot next to Visual Expressions)

Big River Big Woods Chapter

Roseville
(proceeds go to Big River Big Woods Chapter)
Prince of Peace Lutheran Church
2561 Victoria St. N. (Parking Lot)

If you cannot make the scheduled pickup or if you are mailing your completed Order Form on May 17, please call our message center at 612-293-3833 or send an email to our sales coordinators:

Twin Cities Chapter: Marilyn Jones marilyndjones@gmail.com

Big River Big Wood Chapter: Eva Ekola bigriverbigwoods@gmail.com

Upcoming Events/Monthly Meetings

MONTHLY MEETINGS (Meetings are held the third Tuesday of the month at Wood Lake Nature Center: social at 6:30, meeting to start promptly at 7:00.) Free and open to the public

Tuesday, May 17, 2016: Growing and Gathering Native Edible Plants, Wesley Nugteren, Seeking the Wild Naturalist. Come learn all about edible native plants you can grow, gather, and enjoy!

SUMMER TOURS There will be a number of summer tours starting in June. These are in the process of being finalized. Please check our website for location, dates, and times. For those without internet access please call the chapter message center (612-293-3883) for information on upcoming tours.

Design with Nature Conference Notes

(Editor's note) Write-ups of the 2016 monthly presentations to date will be in the next quarterly newsletter)

February 20, 2016 CONFERENCE: Good Design Matters

Native Bees, Their Roll as Pollinators of Native Plants and Cultivated Blueberries, Heather Holm, author and photographer. The interaction of bees and blueberries was the focus of this presentation. All intertwined with the conference theme: "Good Design". Heather and colleagues began a study of commercial blueberry growing and native pollinators in 2015 through a SARE Grant (Sustainable Agricultural Research and Education). With an overall objective of developing a sustainable design for native pollinators of blueberries, the study process involves:

1. Ascertaining the best native bee candidates.
2. Finding their existing nesting habitats.
3. Determining how to provide these habitats.
4. Developing a plant list which would provide forage outside of the flowering window of the crop of interest – blueberries.

In this past year they have sampled for overall bee diversity on three selected blueberry farms. From this they separated out those species that were actually visiting the blueberry flowers. Additionally they looked at (a) the existing foliage before and after blueberry flowering; and (b) where there might be opportunities to incorporate additional forage areas or to introduce native plants into existing areas.

Some may ask: Why native bees? And what is the difference anyway between these and non-native honey bees, anyway? With regard to the latter question, generally the two differ in the following manner:

NATIVE BEE

Solitary
Ground nesters or nests in cavities
Annual short life span (2-6 weeks)
Don't produce honey
10 mm tongue

HONEY BEE

Social
Nests in hives
Perennial colonies
Produce honey
6 mm tongue



Bumble bee on blueberry blooms
Photo by Heather Holmes

As to the former question, historically native bees were the pollinators. However, the emphasis on conserving the native bee population flagged due (a) to increased commercialization of the crop; (b) the intensification of pest management which had a negative impact on the native bee population; and (c) the introduction of honey bees. In actuality because the current commercial blueberry fields are substantially larger, the honey bees which can fly further are better able to cover the entire acreage. It is believed that

honey bees offer a short-term solution, whereas native bees with the appropriate habitat present would provide a more long-term means of pollination.

Why natives are better? Because many can

- Forage in marginal weather (cooler temperatures)
- Buzz pollinate (efficient and better pollinator)
- Use blueberry flowers as a pollen source

Honey bee

- Can't fly in cool weather
- Can't buzz pollinate
- Not actively collecting pollen > just a source of nectar

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• **Buzz pollination.** Blueberry flowers are pendulous, with nectaries located at the base of the style. There are terminal pores in the anthers which face inward toward the style. Given this, these plants don't freely shed their pollen. Therefore a "buzz pollinator" is better able to release the pollen. This is accomplished by grabbing onto the flower and rapidly moving their flight muscles. The subsequent vibrations cause the pollen to be released
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The goal is to adequately pollinate all the blueberry flowers within their fruiting time. If the fruit isn't sufficiently pollinated, the berries are deformed. It takes four honey bees to deposit the same amount of pollen as one native mining or bumble bee. The native bees are about 6.5 times faster at pollinating. On the other hand presently there are about 10,000 to 40,000 honey bees, so they have strength in numbers. It is believed that with a diversity of native bees present and an improved habitat, long term sustainability of this natural process would result.

So now, back to the ongoing SARE research. Three commercial blueberry farms were selected. One is located in Maiden Rock, Wisconsin. The other two are in Minnesota at Champlain and Stillwater. Following the research study process:

1. Ascertaining Best Native Bee Candidates. World-wide there are 20,000 native bee candidates with 4,000 species in North America, and 425 species surveyed to date in MN. (It is thought that this number is likely low.) Five Bee Families could possibly be pollinators of choice: Halictidae; Megachilidae; Apidae (contains the species Bombus = Bumble Bee); Colletidae; and Andrenidae (Mining Bee family). From existing research it is assumed that the bumble bee and mining bee are likely the best species. To verify this, samples were taken from the three sites. The sampling was done using

- Soap and water filled pan traps
- Sweep nets
- Nest emergent traps

From the samples taken honey bees were removed from the count. Remaining bees of interest include sweat bees, small sweat bees, mining bees and bumble bees - all of which are ground nesters.

2. Finding Their Existing Nesting Habitats. All three sites were surveyed with the following results.

- Maiden Rock, WI: This site is surrounded by an organic dairy farm (so there is no insecticide or pesticide problem) and deciduous woods (where the bees can forage during the pre-blueberry bloom period).

- Champlin, MN: Suburban development surrounds this site. The soil is sandy loam. There is a wetland present where there may be an opportunity for pre-blueberry bloom foraging. Currently pre- and post- crop bloom forage is limited due to extensive tilling for a strawberry crop which is rotated every 2 years. This action impacts the nesting sites. During the site visit

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• **Mining bee:** Small to medium in size. Pollen is collected on tibia, femur and side of thorax. They are generally solitary but are occasionally found in aggregates. These are the first nests found in the spring. The bees are active in early spring, with peak activity in the beginning of May, visiting apples, strawberries and raspberries in addition to blueberries
• **Sweat bee:** Small to medium in size. They land on our arms and feed on the sweat. This ground nester is found in lighter soil (silt/loam). It is a more social bee
• **Bumble bee:** Medium to large in size. Initially only the queens are alive and foraging. A little later (mid-May to 1st to 2nd week in June other bumble bees are active. They feed on apples, currants, raspberries, tomatoes, cantaloupes and blueberries.
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hundreds of bee nests were found between the blueberry crop rows and along the margins of the fields. Unfortunately these were cellophane bees, a species where there is no overlap in their activity and the blueberry bloom period.

- Stillwater, MN: A low number/presence of native bees was found here. The owners have done two prairie plantings, but these flower too late to help support a native bee population. There is a wetland and woods nearby which may provide an opportunity for habitat enhancement. Two current problems were identified (a) corn/soy bean fields found in the vicinity are rotated - the dust from these areas may be impacting the bee population and (b) at nearby Twin Lakes there are Metropolitan Mosquito Control efforts. An attempt should be made to have them discontinue this spraying activity.

In the upcoming years work will continue, with emphasis on determining how to provide bee habitats and developing a native plant list which would be adequate forage outside of the flowering window of the crop of interest – blueberries. The initial investigation of potential plants indicates that there may be few to no native plants available during the pre-bloom period. It may be that non-natives will be incorporated into any design for this period. As for the post-bloom period possible trees and shrubs include Ninebark, Sumac, and bush honeysuckle. Native plants blooming during this time include Virginia waterleaf, golden Alexander, spiderwort, and common milkweed. In addition to finding plants that don't blossom at this time, there is concern over the presence of a small fly – the non-native Spotted Wing Drosophila. This fly lays its eggs on ripening fruit with its larva developing on blueberries (and other fruits) as they ripen on the vine. Because some native shrubs are used by this fly as an alternative host, these must be eliminated as possible bee forage in the final plant list.

We can all be habitat heroes by doing our bit. The importance of urban/suburban gardens was highlighted through a recent study in a New York suburb. Here, when comparing a 3700 acre research preserve with the suburban garden, the bee population they were found to be comparable. Every landscape needs an extensive variety of native forbs, trees and shrubs with different colors, forms, etc. Native plants generally are four times more attractive to pollinators than non native ones. Individual efforts continue to play a critical role given the fact that:

- Four bumble bees species declined 96% in the last 20 years.
- One bumble bee species is believed extinct.
- 50% of MN native bee species have disappeared from their historic range in the last 100 years.

Good design matters: help provide nesting habitat and plant a wide enough variety such that there will be blooms throughout the growing season.

Gardening for Winter, Benjamin Vogt, landscape designer and author. Through photographs and philosophical statements the audience's task was to take a fresh look at their gardens and the beauty that can be found there in winter. Convinced of this opinion, the future designs of these gardens should be approached from a new perspective. Traditionally for many gardeners once the glories of fall waned, serious yard clean-up commenced with nearly all trace of any "mess" removed in an effort to erase the echoes of another spent growth year. We were reminded, however, that:

- Brown is a color.
- Seed heads can remain throughout much of the winter and provide Interest.
- Grasses can also remain as masses and later be used as mulch.
- Many native plants hold their leaves and fruit late into the fall and



early winter.

- Trees and shrubs minus their leaves still can possess attractive ornamental bark and patterns with their bare branches.
- Plants in this state provide habitat for wildlife, if allowed to remain.

With that, evidence of this winter beauty was revealed through a number of seasonal photos of natives found in his own garden. Here one could see the beauty in the details from spent blooms to wrinkled leaves, and snow flake covered plants, trees and shrubs. Some of these perennials are listed below with fall colors and other comments included:

- Prairie Blazing Star: Yellow, red, and orange in the fall. Its seeds are gone by mid- autumn.
- Meadow Blazing Star: Same fall colors. Monarchs are attracted to this native.
- Wild Senna: Turns yellow and orange. It is a host for the larvae of some sulphur butterfly species. After blooming, black seed pods remain on the stem.
- Joe Pye Weed: Yellow and orange. The 5 to 10 feet tall stems can be cut into 6 inch lengths and used to make bee bundles for nesting.
- Wild bergamot: Fall colors are magenta, purple, and rust. Its seed heads persist all winter.
- Smooth aster: This 3 to 4 foot tall native's fall colors range from yellow and orange, to salmon.
- Iron weed: The remaining bracts and seed heads are of winter interest.
- Swamp milkweed: Is yellow, red and orange in the fall.
- Tall boneset: Its fall colors are yellow, orange, and tan. The 3-5 feet tall native's bracts remain.
- Indian grass: Through the fall yellow, orange, and rust may be seen.
- Little bluestem: Skippers visit this grass. Its seeds can persist most winters.
- Prairie Dropseed: Fall colors include yellow, orange, and copper.
- Switch grass: Is yellow, red and orange in the fall.

Additionally the seed heads of the following native plants provide winter interest: Culver's root, coneflowers, common yarrow, black-eyed Susan, anise hyssop, Virginia mountain mint, beard tongue, and wild quinine. With regard to shrubs consider winterberry, black chokeberry, red twigged dogwood, and highbush American cranberry. Trees mentioned included river birch, paper birch, shagbark hickory, American beech, and American sycamore.

His final thoughts were... Rid your property of a look that makes winter appear to be a dull season with only a few plants marooned in a lawn. Rethink pretty. Plant tiered areas, trees and shrubs with bark texture, native shrubs with interesting shapes and berries, and forbs with glorious fall colors that retain their appeal throughout the winter because of their very remaining presence coupled with spent seed heads and bracts. Look on into winter as you develop designs for your garden giving the full measure of thought to each season, keeping in mind that ultimately the natives we plant benefit the birds, butterflies and other insects. Finally be a litter bug. Wait until mid to late spring before you cut 12 to 24 inches from the plants that remained throughout the winter. These are homes for insects and a much needed food source at this time of year. Use the detritus as a free mulch. *(Editor's note: To learn more about the speaker go to his website <http://bevogt.com/>; A brief summary of his winter can be found at <http://nativeplantwildlifegarden.com/winter-interest-shminterest/>)*

Biohavens – A Tale of Beauty and Biology, Chris Behringer, Principle of Behringer Designs and Arlys Freeman, President, Midwest Floating Islands. There is an increasing movement to use best management practices when designing outdoor spaces. Today, with the improvements and new developments in technology there are a number of ways to better water quality. These include pervious pavement, rain gardens, green roofs, silva cells (per a web-site this is a modular pavement system that supports large tree growth and provides on-site storm water management), wash corridors

(which can handle 25 to 100-year storm events), xeric rain gardens (plant placement which maximizes low water use), delta islands (land forms created from river deposits) and floating islands. This last innovation was the subject of the final conference presentation.

Bruce Karria is considered to be the father of floating islands. He observed floating peat bogs and determined one could create bio-mimicking floating riparian structures. These could essentially be used as floating treatment wetlands to reduce impairment of our water bodies. One of the big culprits is fertilizer which stimulates excess weed growth, this in turn eventually leads to oxygen starvation. Under these conditions deposited fertilizers can be released back into the water which can promote algae growth. Floating islands placed in existing polluted water bodies reduce the effects of pollutants as well as provide real estate and habitat where it didn't previously exist.



Floating island – From Midwest Floating Island Website

Materials forming the basic structure for these islands are made from non toxic recycled plastic materials such as water bottles. This recycled material, which has PET (polyethylene terephthalate) in it, is safe for drinking water. There are sizes and shapes that may be used as is or the size and shape can be varied, by fastening sections together. Holes are drilled into this substance for the planting of forbs. These holes may also be used to anchor the finished structure in one place. At the end of the process plants are added to the substrate and the islands are then launched into the water body.

Each island is specifically designed to meet the requirements of the customer for that particular water body. Some of the considerations are:

	2008	2012
Clarity	1.2 feet	19 foot (depth)
Total Nitrogen	0.55 mg/l	.01 mg/l
Total Phos.	0.041	0.055 mg/l
Dissolved O2	0.1 mg/l	6.0 mg/l

- a. Water quality (i.e. nutrient reduction): Plants play a key role in improving water quality. Plants provide 2 to 5% of the remediation results. Clean-up also comes from the biological activity within the island's biofilm - microbes, phytoplankton, and zooplankton. This reduction of contaminants occurs through:
 - (i) Roots which take up water-soluble contaminants and transport them through the plant's tissues where they are metabolized or volatilized.
 - (ii) Microbes found in among the roots which can break down chemicals. For example ammonia (NH) to nitrates, nitrates to nitrogen gas. Biochemical oxygen demand (BOD) which is present due to decaying material can also be removed by microbes.
 - (iii) Removal of Total Suspended solids (TSS) such as particulate phosphorous as water passes through the root structure of the islands. Typically the bigger the surface area of the floating island, the more water that can be cleaned. Recorded reductions are shown in the boxes.

<u>Drops in contaminant levels</u>		
NH	60%	87%
Phosphorous	42	69
Nitrogen	40	80
BOD	46	92
TSS	54	89

An island's ability to remove pollutants is classified accordingly

Champion = extract and degrade (lower TSS/BOD)

Extremely good = stabilizes (decreases ammonia, nitrogen and phosphorous)

Very good = habitat pollinators & aesthetics

- b. Habitat above the island: provides food and protection for wildlife. The riparian edges are also used by turtles and other wildlife. A specific project was created for loons. It was constructed to

provide an undisturbed habitat away from predators, and included a ramp system for young to leave and enter the island and branches to protect them from eagle strikes. Some of the native plants used on the islands include:

Golden Alexander: source of pollen & nectar

Slough sedge: nutrient retention

Sweet flag: water purifier, part of uptake system

Boneset: hard stem bulrush good for use at water treatment plants

- c. Habitat below the island: fish feed off of zooplankton. Micro-invertebrates hang out in holes. The protection provided by the plants and the food present increases fish spawning.
- d. Beautification. The plants provide aesthetic appeal. Trial systems coupled with the created landscape can draw people in.
- e. Education. These islands can be used to teach others about water pollution and ways to combat it.
- f. Shoreline protection: Carefully placed islands can reduce wave action thereby decreasing erosion. In and of themselves island designs typically are based on 100-year storm events. So they are extremely durable. For example one located in New Orleans survived 90+ mph hurricanes.



Several examples of local construction were discussed:

- a. Prior Lake: Here the islands captured TSS, reducing phosphorous that would have otherwise produced algae. Thus clearing the lake
- b. Tamarack Nature Center: Here the goals (which were met) were to create a habitat for a more diverse bird population and provide an opportunity for education about wetlands.
- c. Spring Lake: The first floating island project in Minnesota. This 1.8 acre area is located near Parade Stadium in Minneapolis. It was built to restore a bird sanctuary and to reduce pollutants found in runoff from the Kenwood neighborhood and local industrial sites. Snow removed from nearby highways/streets was also deposited here. The project was a partnership with the Minneapolis Park Board, the Lowry Hill neighborhood, the American Society of Landscape Architects (who did the design) and Minnesota Native Landscapes (who donated plants).

The presentations concluded with questions from the audience. Such as

- a. What the cost of the system might be? This varies depending on design considerations. On the average it is \$40 to \$50 per square foot.
- b. What about contamination from heavy metals such as mercury? These can be absorbed by the plants.
- c. Any problems due to winter? No. Plants on the islands appear to survive just as they would on land. The islands are less affected by erosion around the perimeter than plants found along a shoreline.
- d. Are there any permitting requirements? These vary depending upon the regulations of the governing body wherein they would be located. One may need to add reflectors, just as you might have to on an extended dock. As part of the design process these entities would be consulted.

MONARCH NEWS

GROW MONARCH HABITAT Workshop

Date: Saturday, May 14, 2016

Time: 10am to 12:00

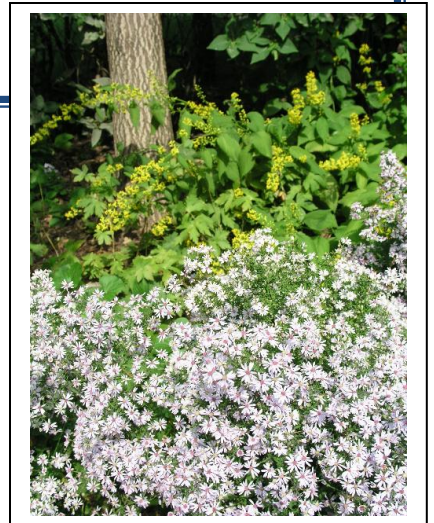
Location: Nokomis Community Center
2401 E. Minnehaha Parkway
Minneapolis, MN 55417



In 2005 the Nokomis Naturescape Gardeners created the *Grow Monarch Habitat* project to connect monarch conservation to the importance of native plant habitat. This is a positive vision to see monarch habitat grow rather than diminish - every yard making a difference! The workshop features the Monarch Garden-to-Go, a native plant kit consisting of monarch host plant - milkweed and a variety of nectar plants. Workshop admission is free, but registration is required for the kits. The Monarch Garden-to-Go kits are \$30 (\$42 value). Two different kits are available, each including 12 plants in 3.5" pots: one for dry to medium soils and one for medium to wet soils. For more kit information and to register, go to <http://nokomiseast.org/gardens-pollinators/>

CHAPTER NEWS

WILD ONE'S NATURESCAPE GARDENING SESSIONS: Help maintain the gardens while having an enjoyable evening lakeside. We meet Tuesday evenings, between 5/6 to 7/8pm from May through the end of the growing season (September/October). Get on our email list for current updates. Show up when you can – all work is appreciated. Since 2002 Wild Ones Twin Cities chapter has helped maintain the three prairie gardens located at the 4-acre Nokomis Naturescape. These demonstration gardens are designed to encourage people to plant native species to liven up their own yard. We often receive kudos for their efforts from passersby and share native plant information. These connections help spread the word of the many benefits native plant communities give to our environment and how they enhance the Lake Nokomis ecosystem. For more information contact Vicki at vbonk@usiwireless.com or call 612-232-8196.



Here is a link to our current calendar of events and goals for the 2016 season. We welcome you to join us! <http://www.wildonestwincities.org/p/volunteer.html>

Check out our facebook site to keep you current with happenings at the Naturescape <https://www.facebook.com/NokomisNaturescape>.

CoChair Message

Donna VanBuecken, recently retired Executive Director of Wild Ones, has a new blog site called AccentNatural.com. On her blog she reported the following notes from an April, 2016 speech on biodiversity in Wisconsin by Dr. Douglas Tallamy (entomologist and author of *Bringing Nature Home*.) Tallamy's points:

- Regardless of the reason we introduce non-native plants to our landscaping, they displace native plants so necessary for the survival of our native wildlife (insects, birds, reptiles, animals).
- 90% of our insects are specialists. That is, they specialize in using only one or more native plants not only to propagate, but also on which to feed.
- Biodiversity equals ecosystem services.
- Through their shared evolutionary history, plants and wildlife have become specialists. Plants have learned to defend themselves with chemicals and certain wildlife has adapted to the toxicity or bitterness.
- Caterpillars are high in carotenoids which contain many anti-oxidants and are important for good eye development.
- Spiders are high in taurine which is important for baby birds' neurological development.
- Pollinators pollinate 50% of our crops, 80% of all plants and 90% of all angiosperms (flowering plants).

You should check out Donna's blog. And don't forget to check out the following **FB** accounts: Wild Ones Twin Cities, Pollinators of Native Plants, Botanical Wanderings, and Native Plant Gardens in the Upper Midwest, each started by a Wild Ones member.



**It's more
than a
plant sale!**

**Free and Open To All
Rain or Shine
Saturday, June 4, 2016
9am-3pm**

Cub Foods Community Pavilion
1201 Larpentour Ave. W., Roseville
tinyurl.com/land-rev2016

Expo: Learn about native plants from local conservation organizations.

Market: Purchase Minnesota native plants and accessories from a variety of local growers. No cultivars. No systemic insecticides.

Cash or Check Only

**Landscape
Revival**

Native Plant Expo & Market

2017 Officers

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Chapter Message Center: 612-293-3833

MEMBERSHIP: Benefits To You

- Monthly meetings featuring excellent presentation on a wide array of native landscaping topics.
- Receive the new member packet.
- Receive the bi-monthly Wild Ones Journal, with articles and information to inspire and educate you about natural landscaping.
- Free admission to most Wild Ones' events, such as our garden tours, native plant walks and sales/swaps.
- Reciprocity with other chapters' meetings.
- Share experiences and expertise with other like-minded native gardeners.
- Access to the Wild Ones library of native landscaping books.
- Support for the Wild One's Mission.
- Membership dues and donations are tax deductible

Join or Renew

1. Sign up at a meetings, or
2. Call Leslie Modrack at 612-293-3833, or
3. Access the national website at www.wildones.org



Twin Cities Chapter
c/o Marty Rice
4730 Park Commons Dr. #321
St. Louis Park, MN 55416
Chapter Website: www.wildonestwincities.org

OUR MISSION

Wild Ones: Native Plants,
Natural Landscapes
promotes environmentally
sound landscaping
practices to preserve
biodiversity through the
preservation, restoration
and establishment of
native plant communities.
Wild Ones is a not-for-
profit environmental
education and advocacy
organization.