Caution! Not every shrub is buckthorn

by Karen Schik
Restoration Ecologist, Friends of the Mississippi River

Concerned citizens have done an excellent job in recent years of getting the word out about buckthorn. It seems that awareness is very high, and there has been a virtual tidal wave of eager volunteers attending dozens of buckthorn removal events throughout the Twin Cities area. So what could be wrong with that? Nothing! It’s all great, except for one very important thing. In our eagerness to rid our woodlands of this invasive shrub, we are often removing some of the very native shrubs we are trying to protect and nurture.

Janet Larson, a professional native plant landscaper and self-proclaimed buckthorn buster, has observed several buckthorn removal projects that resulted in a virtual clearcut of the shrub layer. Gone were the species that most closely resemble buckthorn, like black cherry, American plum and pagoda dogwood. But also gone were hawthorn and bitternut hickory, which bear little resemblance to buckthorn. It became clear to her that we need to get the word out to be careful. If you are overseeing a removal project, make sure that your crew can positively identify buckthorn in all stages. If there is any doubt, a knowledgeable person should flag the site prior to cutting. Flag the native shrubs in a dense buckthorn stand so they are not cut.

The following description may be helpful in distinguishing buckthorn from other species.

Common buckthorn has ovate-elliptic leaves that are smooth on both surfaces and have minute teeth on the margins. They vary from rounded to pointed on the tip, and the leaf surface appears slightly wavy. The veins curve so they are almost parallel to the leaf margin. Leaves are alternate or sub-opposite. Compare the leaves to similar species to identify distinctive characters. Plum, for instance, has straighter veins and double-toothed margins. Pagoda dogwood has entire (smooth) leaf margins. The veins also curve like buckthorn, but follow the leaf margin all the way to the tip. Buckthorn leaves remain on the plant well into the fall, when most other trees and shrubs have dropped their leaves.

Buckthorn bark is gray to brown with prominent, horizontal, lighter-colored lenticels. I recognize the bark also by a very slightly bronzy

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From the president

In recent months our society has been wonderfully energized by the efforts of new and old enthusiastic members and by a really fired-up board of directors. The whole board has been inspired to work harder, longer, better at our missions of education and preservation, and at finding and keeping new members.

Doug Mensing, Janet Larson, and Jason Husveth have contributed untold numbers of hours, leading field trips and keeping MNPS visible at a variety of gatherings. Dianne Plunkett Latham, newly elected to the board, and Janet Larson, are among those who have been absolutely unstoppable forces in the fight against invasive buckthorn and other aliens. David Johnson, our treasurer, is doing many time-consuming and difficult jobs for the society, such as getting the monthly postcard out, researching insurance issues, etc., to the point that he is indispensable! Linda Huhn is a virtual powerhouse as program chair, community watchdog, and idea-generator.

I could list many other names — numerous folks on and off the board not mentioned here have put in long hours on many other tasks and have contributed ideas, as well as time, to help MNPS.

My point is that we have lots of energy and expertise — all helping achieve the goals of MNPS. Let’s hope this energy continues and multiplies. Don’t forget to recruit new members!

by Esther McLaughlin

Get this by e-mail

Members can now receive the Minnesota Plant Press by e-mail. Everybody who supplied an e-mail address on their membership application received a copy of the Winter 2003 issue by e-mail. If you would like to receive the newsletter electronically, instead of by regular mail, write to mnps@HotPop.com and say you want to subscribe. Indicate whether or not you want your e-mail address included in our membership directory. Each issue will be attached to an e-mail message as a PDF file. A link will be provided to get a free PDF reader. E-mailing newsletters should shorten the delivery time by about two weeks and will reduce printing and postage costs. We encourage you to try this. You may change and get the newsletter mailed to you at any time.

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Minnesota Native Plant Society’s purpose

(abbreviated from the bylaws)

This organization is exclusively organized and operated for educational and scientific purposes, including the following:

1. Conservation of all native plants.
2. Continuing education of all members in the plant sciences.
3. Education of the public regarding environmental protection of plant life.
4. Encouragement of research and publications on plants native to Minnesota.
5. Study of legislation on Minnesota flora, vegetation and ecosystems.
6. Preservation of special plants, plant communities and scientific and natural areas.
7. Cooperation in programs concerned with the ecology of natural resources and scenic features.
8. Fellowship with all persons interested in native plants through meetings, lectures, workshops and field trips.
Two wildflower field trips planned for May

Spring Wildflower Weekend
Jason Husveth has organized a weekend wildflower trip to the Whitewater State Park and Whitewater Wildlife Management Area in southeast Minnesota Friday evening, May 9, through 1 p.m. Sunday, May 11. For about four hours on Saturday morning he will lead a hike up a ravine in the Whitewater Wildlife Management Area. Morel and wildflower hikes will be held from 1 to 3 p.m. Dave Palmquist, park interpreter, will give a talk at the visitor center on the history of the Whitewater River Valley at 4 p.m. At 8 p.m. Saturday there will be a slide presentation at the interpretive center on morel mushrooms. There may be an evening walk to some goat prairies or limestone bluffs or a spring amphibian walk. Sunday morning there will be another wildflower/morel walk.

Group Camp Site 1 has been reserved MNPS. For additional information and to register, go the society’s Web site, www.stolaf.edu/depts./biology/mnps.

Spring wildflower walk
Saturday, May 31, from 9 a.m. to 12:30 p.m., botanists and MNPS board members Jason Husveth and Douglas Mensing will lead a spring wildflower walk in the Louisville Swamp portion of the Minnesota Valley National Wildlife Refuge. They will explore a floodplain forest, maple-basswood forest, wet meadows and dry prairies.

Attendees should bring their own wildflower guides, hand lenses, magnifying glasses, a sack lunch and water. The walk is co-sponsored by the society and the refuge. There is no charge.

The tour will start promptly at 9 a.m. at the main Louisville Swamp trailhead, about 4.5 miles south of Shakopee. To register or for more information, contact Jason Husveth at Jason.Husveth@ttemi.com or Douglas Mensing at dougm@appliedeco.com

‘Art in Bloom’ is wild
Wildflowers/Wild Flowers is the theme of the 20th annual “Art in Bloom” exhibit at the Minneapolis Institute of Arts April 30 - May 4. C. Colston Burrell, a landscape designer and former active MNPS member who moved to the Southeast, will speak at 9:30 a.m. May 2 on “Nature Meets Zonal Denial: a Tale of Two Gardens.”
Traffic, season of year affect impacts of harvesting in aspen forests

Abstract of a talk by Alaina L. Berger at the Feb. 6, 2003 meeting. She is community forest ecologist, Minnesota Department of Natural Resources Metro Region.

We investigated the impacts of disturbance, as a primary factor influencing tree regeneration, diversity and floristic composition of understory vegetation, in clearcut sites within aspen-dominated cover types in northern Minnesota.

We explored disturbance effects for areas with high, intermediate, and low disturbance levels (i.e., harvesting traffic), as represented by soil compaction and overstory removal. We also explored the effects of disturbance timing (summer or winter harvest) on the vegetation. We characterized understory vegetation within sites using five 60-square-meter plots along the disturbance gradient: landings (high disturbance), skid trails (intermediate disturbance), and areas off the skid trails (low disturbance).

Within-site impacts mixed

Results indicated that within-site disturbance patterns created by clearcut harvesting were quite heterogeneous. Soil properties and regeneration densities varied with level and timing of disturbance. Understory species composition and richness also varied with level of disturbance. High disturbance levels had high richness values, in part because of a high proportion of ruderal species.

In general, species composition within the high and intermediate levels of disturbance (landings and skid trails) was similar. The composition of these two levels differed from that of the low disturbance level plots (off skid trails), indicating that simple traffic did not impact vegetation composition as much as an established skid trail. The impacts of different disturbance levels resulted in the same general pattern, regardless of harvest timing.

However, the sites with greater species richness on low disturbance plots (winter-harvested sites) were less altered (maintained greater variability in composition) than the sites with lower diversity (summer-harvested sites), which is relevant when we consider that the initial and remnant understory vegetation of harvested sites has a large role in the rate of recovery of the plant community.

Spatial layout important

We hypothesize that the areas with least disturbance might act to enhance the rate of recovery by providing a source of interior forest species to re-colonize the site. The results suggest that it is important to limit not only the amount and level of disturbance, but also to consider the spatial layout, thus maintaining a spatially connected network of remnant forest patches large enough to contain interior forest species.

In summary — harvesting, even clearcutting, is a complex disturbance, and generalizations about the response of understory vegetation to clearcutting have to be made very carefully. Clearcutting leads to a complex matrix of disturbance levels.

Landings, skid trails vulnerable

Landings and skid trails are highly disturbed, thus understory vegetation on these areas shifts toward invasive, pioneer species, typically grasses and sedges. Thus, landings and skid trails might facilitate establishment of invasive species that have the potential to invade undisturbed portions of the sites later.

Areas not in skid trails and landings (most of the site) are less affected and maintain a more stable vegetation community. In the long term, as stands develop, this stability might allow for reintroduction of species on skid trails and landings that were displaced during harvesting.

Winter harvest sites more stable

The sites selected for winter harvest have intrinsically higher understory vegetation diversity than sites harvested in summer, likely because of soil moisture conditions. In addition, the disturbance related to harvesting, as measured by soil compaction, is less on sites harvested in winter. Together, these factors result in a more stable vegetation community on sites harvested in winter.

There are many questions we cannot address through such a retrospective study. We have initiated a second phase of the project set up as a case study in which the pre-harvest conditions, harvesting operations, and post-harvest development are closely monitored using GPS to produce a map of harvesting impacts across the site. The goal of this phase is to be able to develop monitoring criteria based on how pre-harvest site conditions change over time and specifically characterize the extent of the impact based on these changes.

In summary, the results of this project can be used to compare silvicultural systems as the area...
impacted by harvesting and the amount of residual overstory varies by harvesting intensity.

Co-authors of this abstract are Klaus J. Puettmann, Forest Science Department, Oregon State University, Corvallis, Ore.; Melissa Arikian, Emmons and Oliver Resources, Inc., Lake Elmo, Minn.; George Host, Natural Resources Research Institute, University of Minnesota, Duluth; and John Zasada, USDA Forest Service, North Central Forest Research Station, Grand Rapids, Minn.

**ID system for Minnesota sedges is available**

A Flora ID system for Minnesota Cyperaceae and Juncaceae (sedges) is now available. This is the first portion of a comprehensive plant identification key for all plants known to be in the state. Bruce Barnes of Flora ID Northwest is working in conjunction with XID Expert Systems on the project. He has completed keys for northwestern United States and British Columbia.

The keys identify native and introduced species, including all trees, flowering plants, grasses, grass-like plants and spore-bearing plants known to exist within the area. Information about the project is at: www.xidservices.com/FID

For Minnesota information, contact Janet Elaine Ebaugh, associate director, Katharine Ordway Natural History Study Area, Macalester College. Send an e-mail to her at ebaugh@macalester.edu or leave a message on 651-455-6204.

**Dolly is needed**

The MNPS has an excellent display board, but it is not used as much as it could be because it is heavy and bulky. If you have a surplus dolly, or know where MNPS could pick up a secondhand one for little or nothing, please contact Doug Mensing, 952-925-3359, or Dianne Plunkett Latham, 952-941-3542.

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**Anti-native seed bills considered by Legislature**

Two bills that would forbid use of state funds for purchasing and planting native seeds along highway rights of way have been introduced in the Minnesota Legislature. Rep. Chris DeLaForest, chief author of the first bill, H.F. 902, characterized it as a cost-saving measure. Sen. Julianne Ortman is chief author of the companion bill, S.F. 1250, which was introduced later.

Rep. DeLaForest tabled the House bill after a March 26 hearing by the Transportation Finance Committee and then revised it. At the hearing, former MNPS Board Member Deb Anderson testified about water and ecological impacts it would have on her county. Other members also attended the hearing.

The original bill stated: “A road authority may not spend money from the trunk highway fund, county state-aid highway fund, or municipal state-aid street fund to purchase native grass seeds.” Opponents testified that the prices quoted by proponents were inaccurate, that federal permits specify the (expensive) seeds that must be planted in wetland mitigation areas, and that costs of wildflower seeds are the problem, not grass seeds.

The revised bill reads: “No state agency or soil and water conservation district may require the planting of native grass seeds or native wildflowers as a condition for the issuance of a permit to any local government unit. Paragraph A does not apply to grass or wildflowers planted in replacement wetland acres.”

Although the bill now exempts the planting of native seeds, it would not require Yellow-Tag certified (native) seeds in prairie restoration projects along highways. Seeds of cultivars, non-native and invasive plants could be planted on Prairie Passage routes and adjacent to Scientific and Natural Areas.

Roy Robison and Dianne Plunkett Latham have been monitoring progress of these bills. When this issue of the *Minnesota Plant Press* was printed, no further hearings had been scheduled. Rep. DeLaForest could let the bill die, withdraw it, or have it included in the large transportation finance bill.

**Buckthorn look-alikes**

*Continued from page 1*

tone. The bark becomes flaky as the plant gets older — compare it to black cherry, which also flakes. The slender gray twigs end in short (1/4-inch) sharp spines, but the plant has no true thorns. The spines are most evident in the fall, but may be nearly absent in the spring. Hawthorn, in contrast, has very distinct, long (1- to 4-inch) thorns along the sides of the branches.

Glossy buckthorn has leaves similar to those of European buckthorn, but it has smooth bark and no spurs. The upper leaf surface is shiny; the lower surface can be hairy or smooth, and their margins are entire, not toothed. The fruits are less numerous than those of European buckthorn, but both produce black berries in the fall.

If you are still unsure of a shrub’s identity, break a twig or nick the bark. Both common and glossy buckthorn have a distinctive yellow inner bark and orange heartwood. Some helpful photos are on the internet. Go to http://tncweeds.ucdavis.edu/esadocs/franalnu.html

Once again, look before you cut! And seek help if you or your buckthorn co-workers are unsure of shrub identification.
What is sustainable spiritual design?

Douglas Owens-Pike, EnergyScapes, Inc., spoke on this topic at the June 6, 2002 MNPS meeting. He wrote the following article, which was printed in the April 2002 issue of the Minnesota Nursery and Landscape Association News.

As spring approaches, here is a fresh perspective on our design practice. First, sustainable, in this context, refers to landscapes that seek to conserve an ecological balance by avoiding depletion of natural resources. Second, spiritual refers to how individuals connect between our inner soul and our outer physical surroundings. For our clients who are seeking greater comfort from their land, combining these two perspectives yields many benefits.

Sustainable designs require less intensive care and minimize use of resources. This allows our gardening clients more time to relax and enjoy the calming, renewing spaces we design for them. We can help clients identify spiritual components that they enjoy. Perhaps, by adding some of their favorite plants or other features that encourage a deeper connection to their land. This approach can balance healing inner emotions with renewing the earth. This philosophy takes a holistic and inclusive approach to both people and nature.

In addition to being sustainable, this approach must meet all the design/site criteria for any successful landscape. While meeting those criteria, sustainable designs also minimize the need for irrigation, fertilizer and pesticides. Sustainable designs also embrace diversity of species, local ecotypes, and allow for reproduction. This approach benefits people as well as our environment. The hectic pace of modern lives, together with events that challenge us emotionally, have increased demand for landscapes that include a spiritual component.

Each of us has a different list of what we consider sacred or spiritual. This is a result of our varied religious backgrounds and traditions. The emphasis in a spiritual design is to help our clients make this emotional connection in their garden — a place they can see or visit daily. Spiritual designs encourage a slower pace. These gardens can be designed to focus more attention on sacred aspects. These features can help garden visitors stay emotionally balanced. Including sustainable spiritual components in our designs will help our clients, our community, and our planet.

The best designs meet as many of our clients’ needs as possible. We seek to create gorgeous displays of flowers throughout the growing season. We must respond to existing architecture while proposing changes that embrace all site constraints. Clients also want us to show them the latest popular trends.

How do we discover what clients want? One way is to ask clients to go within themselves, asking the question, “What landscapes make their heart sing?” Describing this internal image can be simplified if they pull attractive photos from magazines or books. They may not know the names of plants, but photos allow them to show what forms and colors they are drawn to or repelled from. As designers, we can recommend the specific plants and materials that will work best, once we know their idealized landscape. The decision about the best plants combines these client preferences with our knowledge of site factors, including sunlight, soils, available moisture, and history of land management. Respecting these criteria yields landscapes that persist with the least care and delight the client in all seasons.

Sustainable designs usually include native plants. These plants that evolved in your region, the local ecotype, will be best adapted to local climate conditions. These native ecotypes have the best resistance to our increasingly unpredictable weather. Before selecting a species list, take time to analyze soils. Examine if the soil has been modified by construction, farming, road salts or other activities. If you find these problems, tilling composted organic matter into the surface, down at least six inches, will help recreate a living, healthy zone for root growth. All plants require vigorous roots to thrive with the least care.

Unlike named horticultural varieties, native plants have not been bred for sustained blooming, so it is essential to include a diversity of species to offer color in all seasons. We are fortunate that there are now several nurseries that provide us with this native diversity. It is possible to have native plants in bloom from April to November in our region. Because they are not selected for showy flowers, some species require a larger mass to stand out.

Native species are resistant to drought and pests, and don’t require fertilizer. They produce nectar that attracts gorgeous butterflies. Prior to settlement, oak savanna covered the largest portion of our Metro region. Less than 0.1 percent of that plant community exists today. Therefore, every plant we add to gardens from this habitat provides an important refuge for butterflies and the web of life that depend on these plants.

Opening to the knowledge within us is a key to successful spiritual design. As Julie Messervy says in Inward Garden, each of us has a garden within us, a personal place that is a blend of our imagination, memory, character and dreams. We
should know both our own and our clients’ inner gardens. The goal is to create spaces where harmony flows easily between the landscape and people who visit. This requires getting to know your site, feeling it intimately, perhaps through sitting or walking meditation.

Some designers feel that if we are able to create a space that is set apart from normal life it becomes sacred (Peg Streep, Spiritual Gardening.) This space would encourage moving beyond control we normally exert. It would allow visitors to see and respond to the larger patterns and life cycles. Spiritual gardens enable us to more clearly see all the interconnections, not just the beginning and the end. They engage all the senses as we help visitors welcome the complexity of life with patience and humility. These are not new concepts. They are becoming more popular.

Buddhist philosophy teaches the concept of “Heaven on earth” is possible by releasing control and feeling the beauty in each moment. Feng Shui is an application of this philosophy. It is an ancient design practice that seeks harmony with the divine. According to Minerva Nguyen, a teacher of Feng Shui garden design, this practice encourages us to open our hearts, turn to the natural environment, and connect more deeply with the land beneath us.

In the 19th century, Frederick Law Olmsted expressed it this way, “The enjoyment of scenery employs the mind without fatigue and yet exercises it; tranquilizes it and yet enlivens it; and thus, through the influence of the mind over the body, gives the effect of refreshing rest and reinvigoration of the whole system.”

Olmsted created an enduring legacy of public parks. He designed Central Park in New York City and trained designers like Theodore Wirth. The City of Minneapolis hired Wirth to develop our park system over 100 years ago. During this time of uncertainty and change, it is important that we apply these perspectives to our practice. We have the ability to change the earth, and how people relate to it, one garden at a time, perhaps to create a legacy as enduring as Olmsted or Wirth.

### Buckthorn reduces forest leaf litter

A recent study by DePaul University professor Liam Heneghan and the Lake Forest Open Lands Association reveals that buckthorn leaf litter has high nitrogen content and decomposes more rapidly than the litter of most of Chicagoland’s dominant native species.

Buckthorn chokes out healthy plant communities by blocking sunlight. But that’s only part of the story. Although nitrogen is a critical soil nutrient, the excess nitrogen from decomposing buckthorn leaves causes a significant increase in the rate of decomposition. Heneghan found that, as buckthorn spreads and dominates a preserve, the rate of decomposition of all forest floor material increases dramatically, adding large amounts of nitrogen to the soil very quickly and modifying the soil composition. He concluded that this could have serious negative effects on the survival of many native plants, even after the buckthorn is removed.

Heneghan found that forest leaf litter virtually disappears each year in the high nitrogen conditions found in dense buckthorn thickets. The disappearance of the leaf litter may cause local extinctions of several invertebrate animal species. “This loss may have implications elsewhere in the food chain, affecting the diversity of mammals and birds, for instance,” he said. Heneghan and his research team conducted research in Shaw Woods, a preserve of the Lake Forest Open Lands Association.

### Plant Lore

**by Thor Kommedahl**

**What is wild geranium?**

Wild geranium is *Geranium maculatum*, in the geranium family and a frequently found species in Minnesota. It is also known as cranesbill, because geranium is the Greek work for crane used by Dioscorides; *maculatum*, of course, means spotted, because of light-green blotches seen on older leaves

**Why is it called cranesbill?**

The shape of the fruit was thought to resemble the bill of a crane.

**What is its relation to geranium grown as house plants?**

The florist’s geranium is in the same family but it is a different genus, *Pelargonium*. *Pelargonium* means stork, referring to the fruit shaped like a stork’s head.

**What is the plant like?**

In spring basal leaves emerge as a rosette from somewhat woody rhizomes. Lower leaves are long-petioled, and upper leaves are opposite, but all are generally five-parted. A flower stalk appears with five pink to lavender petals.

**Are the flowers unusual?**

Well, yes, in the way seeds are dispersed. When fruits are ripe, the five parts of the fruit split and the seeds, being under tension, are shot out several feet. A flower stalk appears with five pink to lavender petals.

**Where does it grow?**

It grows in several counties deep on both sides of the Mississippi River. It tolerates shade in open woods and blooms from April through June.

**Did American Indians value it?**

Yes, roots and rhizomes, rich in tannins, were dried and ground to a powder that was used as an astringent and styptic. Scully reports that a tea made from cranesbill was probably the most widely used medium for birth control.
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