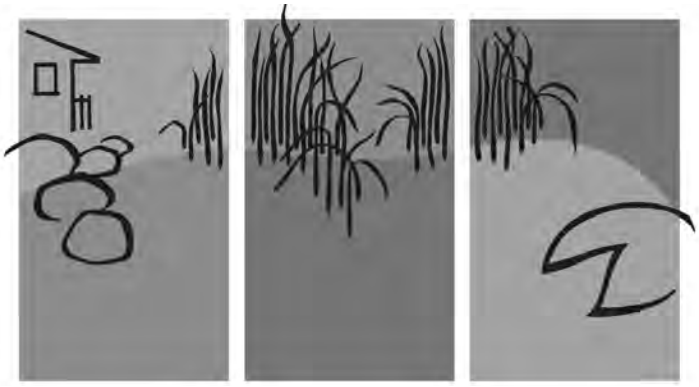


From Shore to Shore

For Minnesota citizens promoting the health of our rivers & lakes

March-April 2007

#78

Calendar of Events

→ Rain Gardens Workshop
March 22, 2007 – Elk River, MN
Contact: Mary Blickenderfer, 888-241-0885, blick002@umn.edu

→ How Rivers Work Seminar
March 22, 2007 – Spring Valley, MN
Contact: Donna Rasmussen, 507-765-3878 Ext. 122, Donna.Rasmussen2@mn.nacdnet.net

→ Controlling Water: Rainwater Gardens Seminar
March 24, 2007 – Chaska, MN
Contact: Carver County Extension Office, 952-466-5300

→ Introduction to Shoreland Landscaping Workshop
March 27, 2007 – Grand Rapids, MN
Contact: Itasca SWCD, 218-326-0017

→ Shoreland Erosion Control Workshop
April 3, 2007 – Grand Rapids, MN
Contact: Itasca SWCD, 218-326-0017

→ Introduction to Shoreland Landscaping Workshop
April 28, 2007 – Eagan, MN
Contact: Eric MacBeth, 651-675-5300, emacbeth @cityofeagan.com

→ Lake Home and Cabin Show
April 27-29, 2007 – Minneapolis Convention Center
For more info, visit: www.lakehomeandcabinshow.com/minn

→ In-Depth Shoreland Landscaping Workshop
May 5 (part 1) & May 19 (part 2) – Fifty Lakes, MN
Contact: John Johnson, 651-426-5760, jjohnson17@comcast.net

Asking Your Opinions . . . Again

Karen L. Terry, University of Minnesota Extension, 888-241-0843, kterry@umn.edu

In the last issue, we asked you to take a few moments and respond to the reader survey about *From Shore to Shore*. THANK YOU to all of you who have responded! If you have not yet taken the survey, it's not too late. We value your feedback so please participate. All responses will be kept anonymous.

If you receive this newsletter as a mailed hard copy, the survey was inserted as an extra page that we asked you to fill it out, fold and mail. The survey can also be completed online by visiting www.shorelandmanagement.org, clicking on "shore to shore news," and navigating to the January/February 2007 issue in the archive. If you receive this newsletter online, just click HERE, and you'll be directed to an easy-to-complete online version of the survey.

Thank you. ■

Where Does Phosphorus Come From?

Ann Lewandowski, University of Minnesota, 612-624-6765, alewand@umn.edu

You know you have elevated phosphorus levels in your lake, but how do you know where it is coming from? And more importantly, how do you determine the most effective way to spend your time and money to reduce phosphorus inputs to the lake? The Watershed Treatment Model (WTM) can help answer these questions. The WTM is a free tool to help you compare all the many sources of phosphorus to determine which are the most significant in your unique watershed. It can be used to analyze proposals for reducing phosphorus to see which will have a substantial impact.

If you are interested in learning to use the WTM, plan to attend one of the four training sessions in central Minnesota in June. Exact locations and dates will be announced soon. Contact Ann Lewandowski (612-624-6765, alewand@umn.edu) for schedule information. ■

Knowledge is Power . . . Learn More to Help Protect Your Lake or River

Karen L. Terry, University of Minnesota Extension, 888-241-0843, kterry@umn.edu

Have you ever been curious about the water quality in your lake or river and wondered what makes it better or worse? Do you have an erosion problem on your shoreline that you just don't know how to fix? Curious about the rain gardens everyone is talking about these days? Or would you like to learn to identify those plants that grow in the water?

To learn answers to these and other questions, check out the lineup of workshops offered by the University of Minnesota Extension's Shoreland Education Team. These workshops are designed to help you learn how to protect and improve water quality while creating and maintaining a healthy and attractive shoreline. Don't see what you're looking for? The Shoreland Education Team will develop workshops that fit your needs!

Shoreland Best Practices: Focuses on the hows' and 'whys' of lakes, rivers, and watersheds. Teaches the basics of ecology, and can be tailored to suit your group's interests.

Erosion Control for Property Owners: Teaches how to evaluate the condition of a shoreline, select the appropriate erosion control measure, and develop a lake-friendly stabilization plan for your shoreline.

Monitoring for Bacteria or Macroinvertebrates: Helps you characterize the health of your lake or stream based on the bacteria and macroinvertebrates living there.

Rain Gardens: Instructs you how to design and install a rain garden to minimize stormwater runoff on your property. The workshop also offers a hands-on component on installing a rain garden.

Aquatic or Wetland Plant Identification: Identify those mystery plants in your lake and learn how to use plant keys to determine which plants are growing in your lake, river, or wetland.

Algae Management: Explains why algae are a problem on some lakes, and shows you how to identify the algae. You will also learn about methods for managing and controlling algae.

Shoreland Landscaping: Offered as a series of introductory, advanced, hands-on planting and maintenance workshops. Taking them all is not required but many people do; these are popular classes. You will learn about landscaping projects that anyone can undertake to improve lakeshore or riverbank property.

Photo credit: Eleanor Burkett

Curlyleaf Pondweed Management: Even if curlyleaf pondweed has not invaded your lake, this workshop will teach you how to identify it, understand its unique life history, and help prevent new introductions.

Stop Aquatic Hitchhikers!: Teaches about the exotic plants and animals that live in your lake or river that you could do without, including how to identify them, what threats they pose, and what you can do to prevent their spread.

If you are interested in any of these workshops, check out the most up-to-date calendar online at http://blog.lib.umn.edu/shore/calendar/ or contact any of the educators listed at the end of this article to set up a workshop. Workshops are typically sponsored by a group such as a lake association, local unit of government, conservation organization, or watershed district, and can be held anywhere in Minnesota. You can download a brochure with more information about these workshops at www.extension.umn.edu/Shoreland/Shoreland-Education-Brochure-2006.pdf. ■

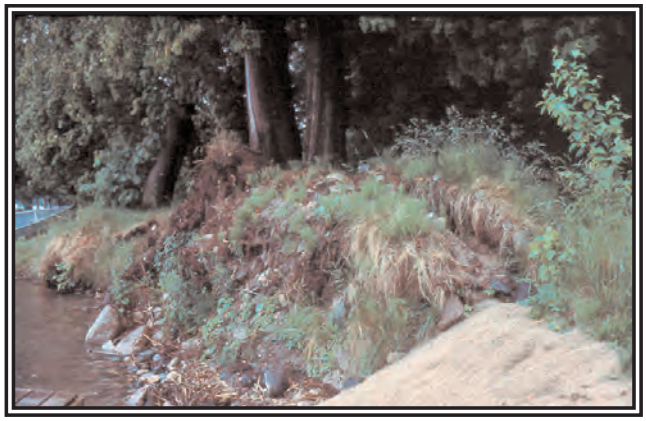
Shoreland Education Contacts:
Karen Terry, Fergus Falls, MN, 888-241-0843, kterry@umn.edu
Eleanor Burkett, Brainerd, 888-241-0720, burke044@umn.edu
Mary Blickenderfer, Grand Rapids, MN, 888-241-0885, blick002@umn.edu

What do Ice Ridges and Curlyleaf Pondweed Have in Common?

Mary Blickenderfer, University of Minnesota Extension, 888-241-0885, blick002@umn.edu

Answer: Due to lack of snow cover, we anticipate a "bumper crop" of both this year!

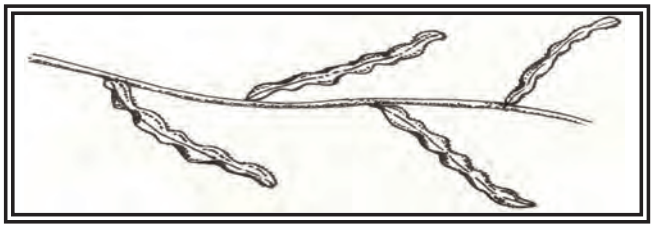
It's still winter 2007, but shoreland professionals are already anticipating a flood of phone calls this spring from shoreland property owners wanting to know what to do about the mountainous soil ridges ("ice ridges") along their shoreline and the dense mat of "weeds" floating on their lake. Let's take a closer look at both….



Ice ridges form when a moving ice sheet pushes up soil along a shoreline – much like a bulldozer. This can happen during a single, spring "ice-out" event or less noticeably as an ice sheet freezes and gradually expands throughout the winter. Anyone who has experienced frozen water pipes understands that water expands as it changes from a liquid to a solid. Similar forces may arise as our lakes freeze. In addition, a rise in air temperature during a typical winter day (or an approaching warm air mass) will cause the ice sheet to expand slightly, exerting a force outward. Then, as the air temperature cools at night (or with an approaching cold air mass) ice will contract, but it lacks the internal (tensile) strength to shrink back to its original size. Instead it cracks under tension, often producing a gap along the length of the crack into which lake water will seep. As this water freezes it expands, exerting an additional force outward. Under these forces, ice will sometimes buckle in the middle of the lake, but most often the force of the expanding ice is transmitted to the surrounding shores.

During a typical Minnesota winter, deep snow insulates the underlying ice sheet from temperature fluctuations and the ice sheet expands very little. However, during winters of little or no snow cover, ice exposed to daily and other periodic air temperature fluctuations will expand, exerting 8 tons per square foot of force on our shorelines. What happens to our shorelines as a result of this force depends upon many factors; several are related to the level of shoreline development. Undeveloped shorelines often have small, natural ice ridges, but incur relatively little ice damage compared to that of developed shorelines where it is common to see overturned rip rap, retaining walls thrust into the air, whole slabs of lake sediment deposited onto lawns, and ice ridges two feet high (see the Ice Damage Photo Contest announcement in this issue). For information and resources on how to deal with ice ridges, see "It's Rough to Have Ridges – Living with Ice Ridges on Your Shoreline" in the From Shore to Shore March-April 2006 issue (http://shorelandmanagement.org/downloads/mar_apr06.pdf).

Curlyleaf pondweed is an aquatic invasive plant species that was introduced to the U.S. in the 1800s and has since spread to many bodies of water. It has a unique life cycle. Sprouting in autumn from dormant buds, called turions, which lie on the lake bottom, the young plants remain alive under the ice during the winter, giving them a jumpstart on the native plants that remain dormant until spring. Their competitive advantage over native aquatic plants tends to be even greater in years of little or no snow cover because their growth is more vigorous due to the additional light they receive through the ice. If you suspect curlyleaf pondweed is growing in your lake, you should consult with your local or regional Minnesota Department of Natural Resources fisheries office. ■



Ice Damage Photo Contest

The *From Shore to Shore* editors are holding a contest to find the best ice ridge photo. Do you have a winning photograph of an ice ridge or the damage left behind by one? Send your best high-resolution shots to kterry@umn.edu (sorry, digital images only) by May 15 to be eligible to win a Lake Home and Cabin Kit. Tip: the photos are most effective if they include a person or something else for scale. The winner will be announced in the July/August issue. By submitting a photo, you grant University of Minnesota Extension permission to use that photo in future publications and presentations. Please include your name and address. Good luck!

Living with Wildlife – Beaver

Eleanor Burkett, University of Minnesota Extension, 888-241-0720, burke044@umn.edu

Beaver are both loved and despised. On one hand, they are great conservationists -- doing their part to create important habitat for fish, waterfowl, birds, frogs, and mammals. On the other hand, when they plug culverts causing road flooding, damage forests and home landscapes, or cause flooding where not wanted, they are considered a nuisance. They can also spread disease-causing organisms such as *giardia*.

Beaver were nearly trapped to extinction around 1900. They made a comeback and are found throughout most of North America. The habitats beaver often create are wetlands, which add to the diversity and abundance of plant and animal species. Wetlands also help to slow spring runoff, reduce downstream flooding and erosion, and filter sediments and pollutants.

Beaver live anywhere they can find a year-round source of water that doesn't fluctuate too dramatically or move too fast. They build dams using trees, fencing materials, rocks, planks, wire, mud, and just about anything they can find. In Minnesota, beaver lodges must be deep enough to allow for entering and exiting under winter's ice. Lodges can house anywhere from four to ten animals in a family group. These large rodents are herbivores, feeding mainly on tree saplings, preferring fast-growing species such as aspen and willow, but will also feed on grasses, agricultural crops and aquatic plants. They like to forage near water and store food supplies underwater for winter feeding. Beaver can have a great impact on an ecosystem because they:

- are the only animals other than humans that can cut down mature trees,
- concentrate their tree felling and foraging in the relatively narrow band of forest surrounding their ponds, and
- remove far more vegetation than they consume because they use it for building dams and lodges, as well as for food. (Haemig, 2006)

In preparing shelter and food for winter, beaver tend to cause the greatest nuisance for property owners in the fall.

If beaver are causing you problems, it is best to find a solution to live with them. Often when trapped and removed, other beaver will quickly move into the area. They can migrate from miles away, and survivors will reproduce to the habitat's capacity.

Photo credit: Steven Wayne Rotsch/Painet Inc.

If beaver are eating your trees, it is best to build fences around the trees using hardware cloth or 2- by 4-inch wire fencing (be sure to allow space around the tree for growth); chicken wire is okay for small trees, but needs to be placed near the tree to prevent beaver from crushing them, then eventually replaced as the tree grows. Low fences can also be used to protect a group of trees and does not necessarily need to surround the entire area because beaver dislike being away from water. Removing small woody vegetation may help make the area less desirable. Removing dams may discourage beaver, but check with the Minnesota Department of Natural Resources for assistance and permission if necessary.

More information about beaver management, visit the Purdue University Web site: www.entm.purdue.edu/Wildlife/Wildlife%20Information.htm#Beaver.

References:
"Beavers: Wetlands and Wildlife." *The Beaver*, 2002. Online: http://www.beaversww.org/beaver.html, accessed February 4, 2007.

Haemig, P.D. *Beaver and Trees*, 2006. Ecology. Info #19. Online: http://www.ecology.info/beaver-trees.htm, accessed February 4, 2007.

Living with Wildlife: Beaver. Online: http://www.aphis.usda.gov/ws/nwrc/is/living/beavers.pdf, accessed February 4, 2007.

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