

From Shore to Shore

For Minnesota citizens promoting the health of our rivers & lakes

September-October 2007

#81

Things Have Changed! Tracking Urban Growth From 1990-2000

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Things have changed and, until recently, it has been difficult to quantify those subtle and not-so-subtle changes to our landscapes. Minnesota, like many areas of the United States, has witnessed a prolonged period of rapid growth of permanent and seasonal populations, especially in high demand lake and stream recreation areas and many towns. Adding future growth projections of as much as 50% to 100% in some of our prime lake districts and municipal areas over the next 30 years, these landscape changes will likely continue.

The amount of impervious surfaces in a landscape is an important indicator of environmental and habitat quality. Impervious surfaces are defined as any surface through which water cannot infiltrate. They are primarily associated with transportation (streets, highways, parking lots, and sidewalks) and building rooftops. The majority (66%) of

our impervious surfaces are related to "car habitat." Imperviousness increases water runoff and can degrade stream habitat. That's why impervious cover information is important information for watershed planning and management.

The University of Minnesota's Remote Sensing and Geospatial Lab, in conjunction with the Minnesota Pollution Control Agency, have used NASA satellites to successfully define statewide land uses, including changes in impervious surfaces for 1990 to 2000. Satellite remote sensing of changes in land uses has been tabulated and is available in simple color maps and summary tables for the entire state (most cities and townships) including specific tabulations for about 4,500 watersheds (www.land.umn.edu). Downloadable files are also available for Geographic Information System (GIS) applications.

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Calendar of Events

For the most current listing of Shoreland Education workshops, visit www.extension.umn.edu/shoreland.

→ Shoreland Buffer and Maintenance
Oct. 13, 2007 – Osakis School – Osakis, MN
Contact: Adam Hjelm, Sauk River Watershed District, 320-352-2231, adam@srwdmn.org, www.srwdmn.org

→ Making a Great Lake Superior 2007 Conf.
October 29-31, 2007 – Duluth Entertainment and Convention Center – Duluth, MN
Contact: Jesse Schomberg, Minnesota Sea Grant, 218-726-6182, jschombe@umn.edu, www.seagrant.umn.edu/superior2007



Northland Arboretum – Paul Bunyan Conservation Center Rain Garden

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A demonstration rain garden was installed in conjunction with a Rain Garden Workshop in June of 2007. Students from a local work readiness program, Master

Minnesota Extension (Regional Center and Crow Wing County), in planning, design, and implementation of the rain garden.



Excavation of the rain garden is complete and mulch is ready to be spread.

Gardeners and citizens worked together with staff and volunteers from the Northland Arboretum and University of

The predominant soil type at this site is sand/gravel. Plant survival during drought periods was a concern due to the poor moisture holding capacity of the soil. The rain garden was over dug and 2 inches of topsoil and 2 inches of compost was tilled into the top 12 inches of parent soil. Berms were added to three sides of the rain garden; the fourth side rests on an uphill slope. After the rain garden was dug and the berms constructed, coco fiber erosion control blankets were fitted over the berms and on the hillside slope. The base of the rain garden was covered with 2 inches of mulch to aid in moisture retention. Several Crow Wing County Master Gardeners are monitoring, watering, and weeding the plants in this beautiful addition to the Northland Arboretum. Future plans include a water garden just north of the rain garden. The north berm of the rain garden will be modified to act as the southern edge of the pond. ■

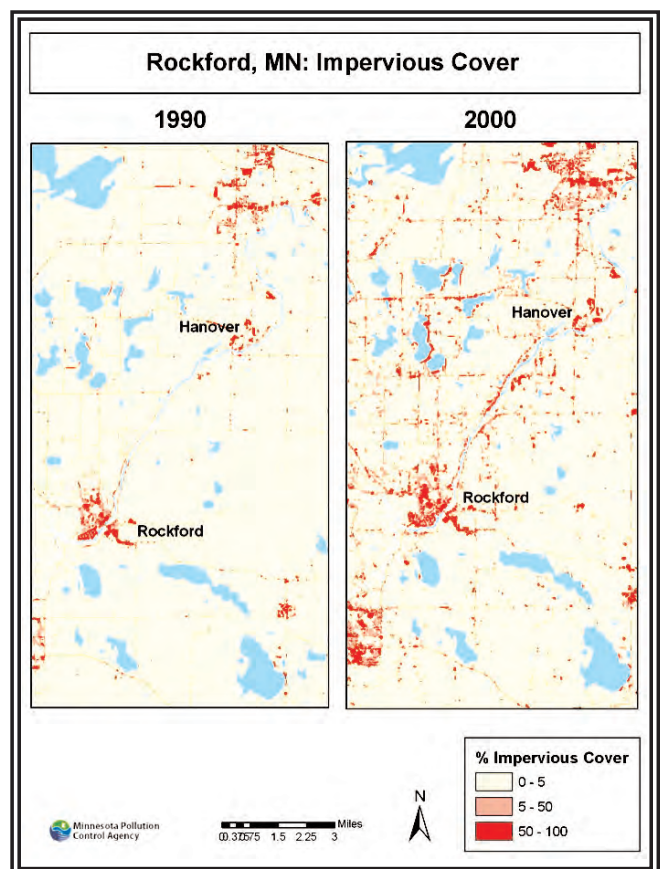
See other picture on page 4

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Yes, things have changed from 1990 to 2000. Statewide, while the population increased by about 12.4%, impervious cover increased at a rate of 44.4%. In general, increases in community and lake districts' impervious cover have ranged from 50% to 76% or about two to four times the growth suggested by population increases.

Growth of impervious surfaces typically occurs via a ripple effect from transportation corridors and urban centers, as well as in areas with a water orientation. Projected demographic changes for 2030, coupled with measured rates of impervious cover change (for the 1990-2000 time period), suggest continued significant landscape changes. This is of particular note for the northern areas of the state, which can have very sensitive water bodies along with some of the larger rates of impervious surface increase. It will be important for municipal, township, and county decision makers to consider new alternatives such as low impact designs to minimize impervious surfaces.

For more information about low impact designs please contact the MPCA's Anne Gelbmann at 651-215-0292. ■



Shoreland Shrubs for All Seasons and Reasons

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Trees, shrubs and other native plants once lined nearly every shoreline in Minnesota. Unfortunately, they are frequently removed – often illegally – during shoreline development due to owner concerns that the plants block their view and harbor mosquitoes. What owners don't realize is that the lake can be viewed from most shoreline homes over shrubs along the shore, and rather than harboring mosquitoes, shrubs provide perches for insects and birds that eat insects.

Other virtues of shoreland shrubs include:

- stout roots that protect the shoreline from erosion and absorb nutrients from runoff,
- low-growing privacy screen from neighbors and boaters, and
- wildlife habitat and food source.

Their berries and flowers attract birds, butterflies, and other critters throughout the growing season and their brightly colored berries, leaves, and stems are a source of beauty in autumn and winter.

Shoreline shrub favorites to consider:

Highbush-cranberry and Nannyberry (*Viburnum trilobum* and *V. lentago*) produce large, flat clusters (umbels) of white flowers in spring that become bunches of bright red



Highbush-cranberry (*Viburnum trilobum*)

and deep purple-black berries, respectively, in autumn and last through the winter - favorites of many bird species. Their leaves turn red-maroon and purple in autumn, respectively. They grow in areas of sun and partial shade to heights of over 15 ft. – rarely reached in the wild due to deer browse and plant competition.

Meadowsweet (*Spiraea alba*) grows to 5 feet with cone-shaped clusters of delicate white flowers forming at the ends of branches by mid-summer. Its leaves turn red-orange in autumn. The perfect low-maintenance shrub for sunny shorelines!



Meadowsweet (*Spiraea alba*)

Red-osier dogwood (*Cornus sericea*, formerly *C. stolonifera*) is common and easily recognized by its bright red-maroon branches. Large umbels of white flowers in the spring become purplish-white berries by autumn and attract many birds. It grows in both sun and shade to 12 feet high.



Red-osier dogwood (*Cornus sericea*)

Shrub willows (*Salix* spp.) are the erosion control workhorses of many shorelines. Their relatively shallow but numerous underground stems (rhizomes) spread up to 7 feet per year to form dense thickets that protect shores from wave and ice erosion.

These shrubs can be purchased at local nurseries that carry Minnesota native plants. In addition, highbush-cranberry, red-osier dogwood, and shrub willows can readily be established from dormant branch cuttings (called "live stakes") of existing shrubs (see: publication posted at http://www.shorelandmanagement.org/downloads/erosion_control.pdf). Once these shrubs become established, you can trim them to a desired height. If you are planting below the ordinary high water level, first obtain a planting permit from Minnesota Department of Natural Resources. ■

Thanks for Your Feedback!

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Earlier this year, we asked our readers to assess *From Shore to Shore* (FS2S) and tell us what you feel is most useful about the newsletter. About 600 people receive the bimonthly FS2S newsletter and 122 people completed the reader survey, for a response rate of about 20%.

Three quarters of respondents receive and read FS2S in hard copy form; nearly 6% said they receive it both online and in hard copy by mail. As funds get tighter and the cost of printing and postage increase, we may need to increase the number of people accessing it electronically (currently only 18%).

Most (84%) read the entire newsletter when they get it. Many find other uses for their newsletters. A third of readers (33%) pass it along to someone else, 25% use articles in other publications or newsletters, and nearly 50% save it for future reference. There were many comments about how it gets shared - at the office, at lectures and presentations, or as handouts.

Eighty-seven percent of readers indicated they had taken action or changed their behavior as a result of what they've learned through FS2S, including undertaking shoreline revegetation or rain garden projects, attending a workshop or event, or sharing the information with others.

About 35% use articles or information in other publications or newsletters, reaching an indirect audience of over 13,000. People felt the articles about water quality or understanding lakes and rivers were the most valuable, while the natural history articles were the next most useful. Readers indicated that stories about volunteer activities, local happenings, and recent workshops were somewhat less useful. Seventy-two respondents gave us suggestions for what kinds of articles they would like to see more of in the future.

Eighty-nine percent felt that the length of articles was just right. Three quarters felt that the current frequency of bimonthly issues is appropriate; 11% would like to see it come out monthly, and 14% suggested quarterly issues. About 60% felt the articles were good, well written, and timely. Another 25% rated the articles as outstanding, and 16% felt they are adequate.

Only 18% of readers indicated they had accessed past issues online - that's something more of you might want to try (www.shorelandmanagement.org, then click on "shore to shore news"). You can search by topic and download articles and graphics, directly into your newsletters or publications. Everyone who has accessed past issues felt that it worked very well (42%) or well enough that they would try it again (58%).

Overall, the survey helped reinforce the need for the newsletter and our circulation methods, and told us what articles you find most useful for reference and other publications. We got many suggestions about future articles and how we could improve the newsletter, including soliciting articles from readers, targeting other audiences, and increasing the technical level and content.

Thank you for taking the time to respond to the survey and sharing your insights to help us make the newsletter as useful and effective as we can. ■

Northland Arboretum article picture



Crow Wing County Master Gardeners planting the rain garden. Notice that the bottom of the rain garden is mulched while the sides are covered in cocofiber erosion control blanket.

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