

## Purple Loosestrife: A Perilous Beauty

By: Michael Noone

Purple loosestrife (*Lythrum salicaria L.*) is a growing problem in North Dakota. This beautiful plant, with its vibrant purple flowers, was accidentally introduced into the United States in the early 1800s. In North Dakota prior to 1996, purple loosestrife was sold as an ornamental for flower gardens for nearly 50 years. The plant was popular due to its tolerance for cold weather, easy growth, lack of problems due to insects or disease, long flowering season, and its captivating beauty.

Purple loosestrife is an introduced broadleaf plant, native to Africa and Eurasia. The most notable characteristic of the plant, is its up to three foot long clusters of vibrant rose to purple colored flowers, which in North Dakota are usually displayed from early July to mid-September. The plant can range in height from 1.5 to 8 feet tall.

Purple loosestrife reproduces primarily through seed production, although it can also reproduce from stem cuttings. Research has shown that all varieties of lythrum, including cultivated or garden varieties, produce seed. Seed viability can range anywhere between 50 to 100 percent, with approximately 2.7 million seeds produced per plant. For this reason, North Dakota state law requires that all plantings be removed.

In 1996, purple loosestrife was added to the North Dakota noxious weed list, which includes those



Purple Loosestrife (*Lythrum salicaria L.*)

weeds considered by North Dakota officials to pose the greatest economic or health threat. Purple loosestrife is the only weed on the list that does not pose a threat to the state's crops or rangeland. This listing was done in response to the threat that this species represents in becoming a major weed problem similar to that of leafy spurge.

North Dakota has several known infestations of purple loosestrife,

primarily around the cities of Grand Forks, Fargo, Valley City, and Minot. Purple loosestrife infestations in North Dakota are generally small, and found downstream from urban areas, traceable back to public or private horticultural plantings. Purple loosestrife represents a threat far in excess of its current range, as the plant has the potential to take over ponds, beaches, wetlands, stream banks, farm dugouts, lakeshores, ditches, and effluent purification ponds. Any waterbody that is shallow enough has the potential for infestation and domination by purple loosestrife. This weed may eventually overrun any waterbody that receives even one small seed.

Purple loosestrife is a problem in more places than North Dakota. Since its introduction in the 1800s, purple loosestrife has inexorably spread across the continent. A good indicator of the potential for infestation can be seen in other states and provinces.

In nearby Minnesota, there are approximately 2,000 purple loosestrife infestations recorded in 68 of Minnesota's 87 counties. Of those sites, the great majority of them (70 percent) are lakes, rivers, or wetlands. Inventory totals indicate that Minnesota presently has over 58,000 acres infested with purple loosestrife.

Certain areas of Canada, particularly the prairies, have been infested by purple loosestrife. Due to the lack of a natural predator, purple loosestrife is spreading at an alarming rate, and can now be found from coast to coast.

All varieties of purple loosestrife are on the noxious weed list in Manitoba, Alberta, and numerous municipalities in Canada. The spread of purple loosestrife in Canada might have been slowed or halted with herbicides, however there are no herbicides currently registered in Canada for purple loosestrife grow-

ing in or close to water. Biological controls have recently been approved, but it may take years before the insects are produced in great enough numbers to be available for widespread use.

The major concern regarding purple loosestrife, is the threat that it presents to aquatic plants. Low, wet, or boggy spots are preferred by purple loosestrife, although it will grow in garden sites as well. When conditions are right, purple loosestrife can form dense stands, which quickly spread and overwhelm wetland and riverside vegetation. Purple loosestrife is also a problem for wildlife, as it is not a favored forage or habitat type for waterfowl, songbirds, and aquatic mammals.

There are several general control options available for purple loosestrife, including mechanical control, chemical control, and biological control. Size and location of the infestation are the determining factors in which method should be chosen.

For small or young infestations, mechanical control is a likely option. Mechanical control involves simple physical removal, whereby root removal takes care of the infestation. Fire, or composting an enclosed area is another option. However, care should be taken to ensure that all of the plant is removed, and that no further seed is dispersed on clothing or equipment.

When the infestation is larger than can be realistically handled through digging or burning, chemical control is the best option. There are several chemicals that are suitable as a control agent, including Rodeo, Roundup, Glypro, or Garlon. Care should be taken however, as different chemicals are suitable for different situations. Also, periodic re-treatment may be required to completely eliminate infestations. Always consult the

manufacturer's label before applying any herbicide.

Biological control is the last option available, with three purple loosestrife eating species of insect approved for release: two leaf-feeding beetles (*Galerucella pusilla* and *Galerucella californiensis*), and a root-mining weevil (*Hylobius transversovittatus*). Results from this control method have been very successful, although timing is very important. Purple loosestrife infestations in North Dakota are generally small and isolated. As a result, the use of insects as a control agent is not promoted, because small patches of purple loosestrife are unable to

sustain an insect population for a long enough period of time to eradicate the plants.

There are several native plants that are more suitable for horticultural plantings that will brighten your yard, but not at the cost of our native plants and animals. For more information about suitable replacement plants, or purple loosestrife control options, please visit the NDSU Extension Service website at <http://www.ag.ndsu.nodak.edu>. ■

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## Water management organizations to merge

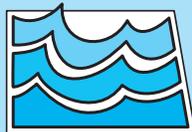
At a joint retreat in Grand Forks last March, the Red River Basin Board (RRBB), the International Coalition (TIC), and the Red River Water Resources Council (RRWRC) formally agreed to merge into one organization – the Red River Basin Commission (RRBC).

Fargo Mayor and RRBB Chair Bruce Furnace feels the merger is a step in the right direction. "This decision means we can build an organization that is adaptable in nature and flexible in operation to enhance, strengthen, and improve relationships in the basin," Furnace said. "This new organization is highly significant to water management progress along the Red River."

The proposal to unite the three organizations was first presented publicly at the 19<sup>th</sup> Annual Red River

Basin Land and Water International Summit Conference held last January. The need for cooperative solutions and the importance of speaking with a unified voice was repeatedly underscored by conference participants, making the proposal well received by conference attendees. By joining together, the three organizations feel they have taken a productive step toward creating a more unified water management voice in the Red River basin.

To date, an interim board has been established, consisting of board members from all three organizations. They have agreed to meet quarterly for the remainder of the year with the intent of officially establishing a new board at the next Red River Basin Land and Water Conference to be held in Winnipeg, Manitoba next January. ■



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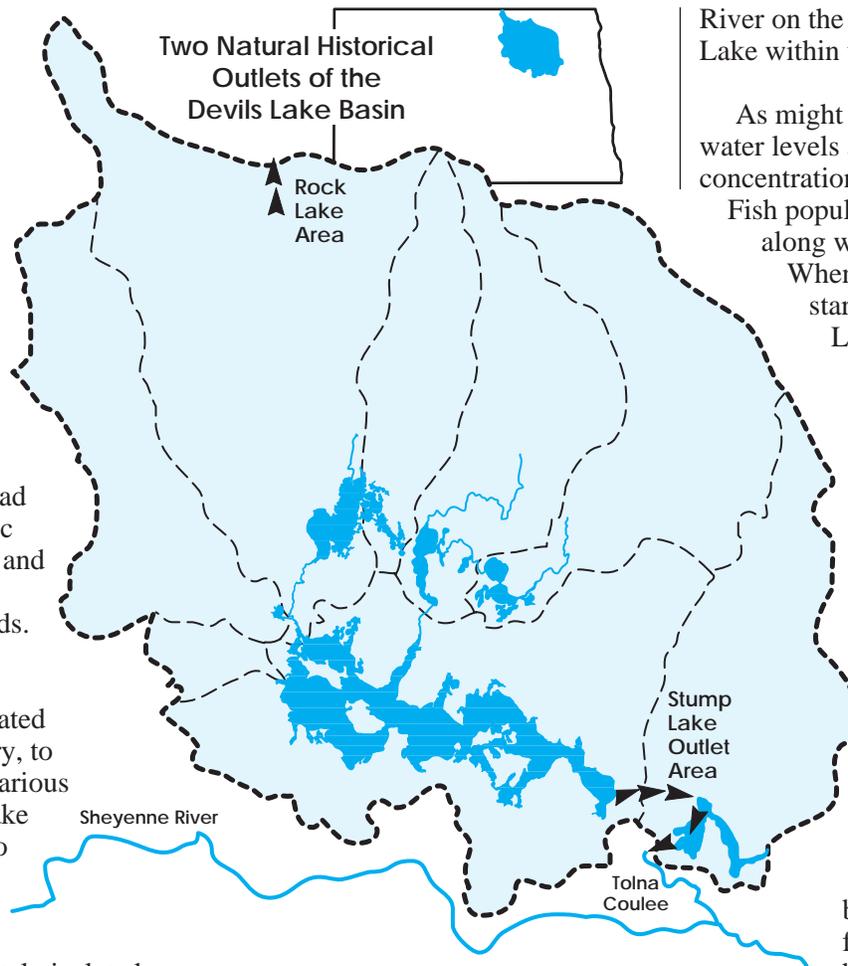
# THE WATER PRIMER

## Devils Lake: A Lake Forever Changing

Devils Lake has undergone a number of changes throughout its long history. At the end of the last ice age, approximately 10,000 years ago, Devils Lake was formed as massive glaciers scooped the Pierre shale out to form the sub-basin that is home to the lake today. Devils Lake has not always been filled with water; instead it has undergone drastic changes in water level and quality in response to long-term climate trends.

Since its formation, Devils Lake has alternated between completely dry, to overflowing through various points in the Devils Lake transient sub-basin into the Red River basin. Devils Lake has long been characterized as a closed basin, completely isolated from the Red River basin. However, Devils Lake is in fact a sub-basin of the Red River basin under extremely high water levels, such as those occurring today.

Geologists have concluded that water has naturally spilled over into the Red River basin at least twice in the last 4,000 years. The most publicized natural drainage outlets are located at the south end of the basin, through Stump Lake into the Sheyenne River and then finally into the Red River. However, water has



also been documented to have passed through northern Devils Lake drainage outlets in Rock Lake into Badger Creek and eventually into the Red River basin according to recent field observations and local accounts.

The current wet cycle has raised the level of the lake by an astounding 25 feet from its 1992 levels. Hydrological models indicate there is a 5 percent chance that lake levels will continue to rise until water pours through a natural outlet into Stump Lake and then into the Sheyenne

River on the east end of Devils Lake within the next 15 years.

As might be expected, varying water levels affect more than the concentration of dissolved solids. Fish populations have varied along with the water levels.

When Europeans first started settling Devils Lake, accounts give record to large populations of numerous species of fish, this despite the fact that Devils Lake had been completely dry several times in the past 4000 years according to geologists. Fish have repeatedly recolonized the lake after a dry phase, assumedly from the same high water outlets at the north and south ends of the basin. This colonization from the Red River basin explains the high degree of similarity between the types of fish and plants found in both basins, with the Red River basin having far more diversity.

Devils Lake is a complex waterbody, and much remains to be learned about how to best manage it for the benefit of all North Dakotans. As we gain a better understanding of how this unique sub-basin works we will be better adapted to harness the many benefits that this valuable resource provides. ■