

A Landowner's Guide to Conservation of
Furbish's Lousewort and
the St. John River



Sponsored by
Maine Natural Areas Program and the U.S. Fish and Wildlife Service

Introduction

The St. John River is one of the most spectacular rivers in the northeast. It has long been enjoyed by anglers and is becoming an increasingly popular destination for paddlers. The St. John River has consistently been rated as one of Maine's highest quality canoeing rivers, and commercial guides and outfitters value the river's economic importance. But the St. John River can be appreciated for more than its scenic beauty and its economic importance.

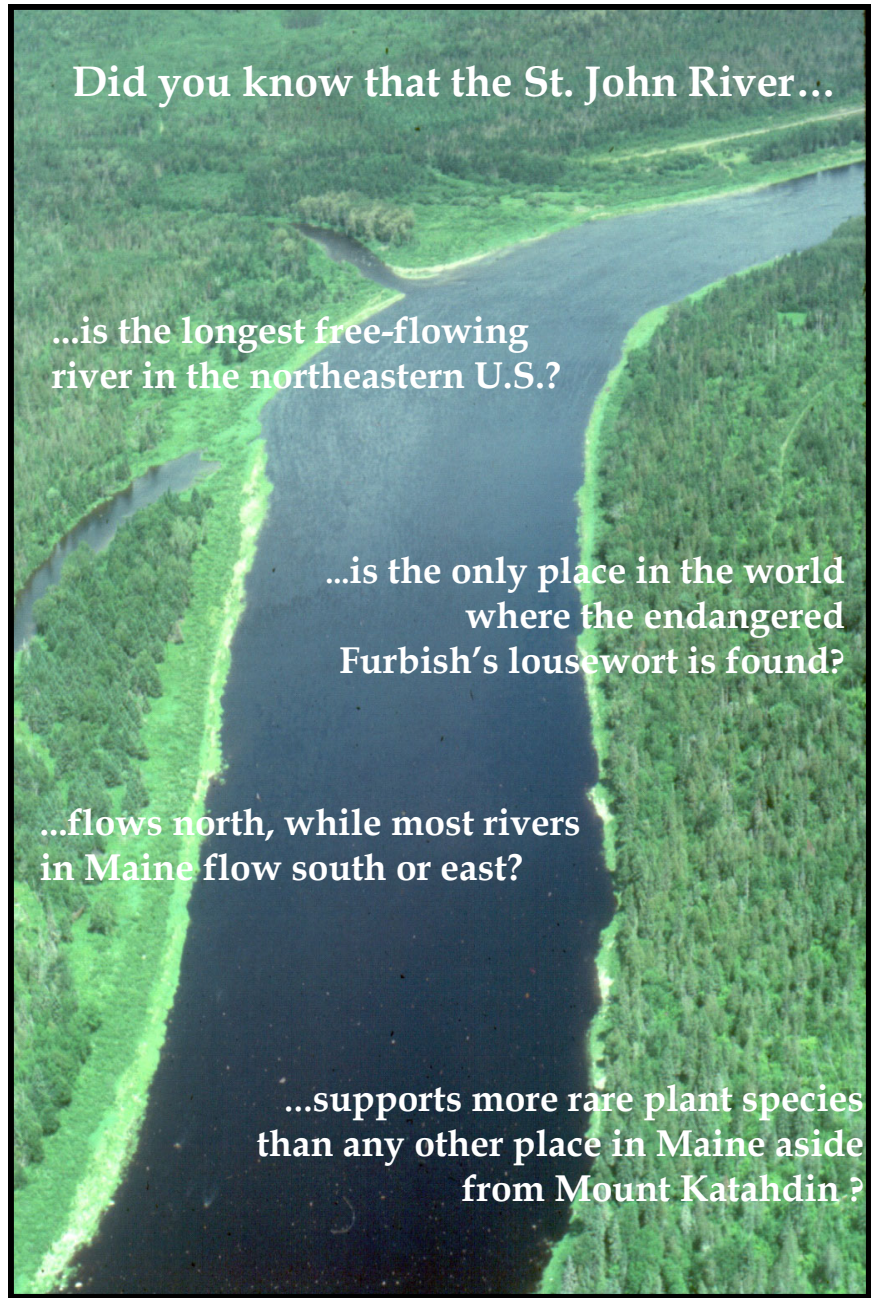


Did you know, for instance, that the St. John River is the longest free-flowing river in the northeastern U.S.? Or that, while most rivers in Maine flow south or east, the St. John flows north? Perhaps, you knew that the St. John River is the only place in the world where the endangered Furbish's lousewort plant is found, but did you know that with the exception of Mount Katahdin, the banks of the St. John River support more rare plant species (>30) than any other place in Maine? Amazing as it may seem, these seemingly unrelated facts are all intricately connected and make the St. John River ecosystem one of the most ecologically unique river systems in North America!

TIMELINE

→ 1784-First Acadian settlements established in upper St. John River valley

→ 1834-1835 Kate Furbish is born in Exeter, NH and moves with her family to Brunswick, Maine



Did you know that the St. John River...

...is the longest free-flowing river in the northeastern U.S.?

...is the only place in the world where the endangered Furbish's lousewort is found?

...flows north, while most rivers in Maine flow south or east?

...supports more rare plant species than any other place in Maine aside from Mount Katahdin ?

1861-1862 George Goodale conducts a botanical survey of Maine that results in the "Catalogue of the Flowering Plants of Maine." He discovers several species from northern Aroostook County not found in other parts of Maine

1868 Portland Museum of History burns and all of Goodale's specimens are lost

Natural History of the St. John River

The St. John River is one of a very few places in the U.S. where the natural cycle of spring flooding occurs as it has for centuries. There are no impediments to river flow from the headwaters of the St. John all the way to the dam at Grand Falls, New Brunswick, 200 miles away. The headwaters tend to thaw before more northern sections of the river, creating ice flows and spring floods that scour the river banks and keep them free of trees and tall shrubs.



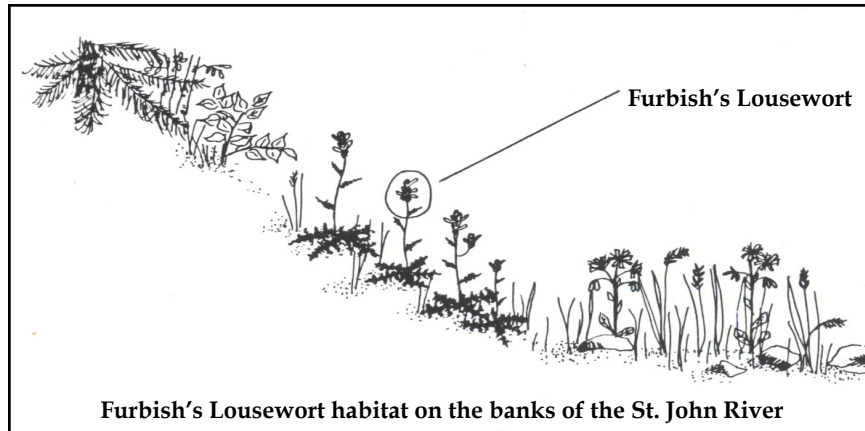
Ice flows play a significant role in the dynamics of the St. John River

It is here, in a narrow band along the river bank, free from competition by woody plants, that Furbish's lousewort and a host of other rare plant species make their tenuous homes. These plant species thrive in the absence of woody vegetation. But in the same way that an ice flow can curtail growth by woody species, it can also occasionally decimate local populations of lousewort and other rare species. Lousewort and some other species, therefore, may gradually shift their locations to newly scoured habitat in a

1880 Kate Furbish visits Aroostook County and discovers an unusual lousewort along the banks of the St. John River in Van Buren

1881-1882 Sereno Watson at Harvard University confirms that the unusual lousewort of the St. John River is a new species and officially names it, Furbish's lousewort (*Pedicularis furbishiae*), in honor of Kate Furbish

dynamic mosaic of changing populations. Seeds carried by wind and water can colonize new, suitable habitat as it becomes available. The success of this survival strategy depends on adequate amounts of actively occupied habitat as well as the continued availability of suitable habitat.



Not all stretches of river bank along the St. John River are equally suitable for Furbish's lousewort. Lousewort plants seem to favor moist, well-shaded banks that are somewhat steeply sloped and are often found on the south side of the river where they receive less direct sunlight and where vegetation is less dense. In some sections of the river, the banks are too flat or the soils too dry to support lousewort. For a number of years, biologists have visited the river to monitor population sizes and have mapped locations where lousewort currently occurs and where suitable lousewort habitat exists.

Shade provided by a forested buffer on the upper riverbank appears to be critical.



1931 Kate Furbish dies at the age of 97 years

1946 Furbish's lousewort collected in Fort Kent—the last documented collection of the species until its rediscovery in 1976

Threats to Furbish's Lousewort and the St. John River

Ice scour can cause natural fluctuations in lousewort populations, but it does not pose a threat to the species because it keeps the riverbank free of woody vegetation and therefore keeps lousewort habitat available. Human activities that result in irreversible changes to riverbank habitat constitute the greatest threat to Furbish's lousewort. It seems that no matter where we live these days, we are seeing changes in land ownership and land use patterns. If we are not careful these changes will lead to a gradual deterioration of habitat conditions along the St. John River. The



good news is that studies suggest that lousewort conservation can be compatible with some human activities like modest residential development, forestry, or farming, as long as these activities are conducted in a manner that does not intensify riverbank erosion or eliminate forested buffers that provide shade.

Whether our passion for the St. John River comes while fishing, canoeing, or just taking in its spectacular beauty, we all want to be able to enjoy it well into the future. We want our children and their children to be able to enjoy the river in much the same way as we do today! For this to happen, we need to preserve the unique ecological features that are an integral part of the river system and of our natural heritage.

1965 Army Corps of Engineers receives Congressional authorization to study Dickey-Lincoln Dam

1974 Proposal to construct Dickey-Lincoln Dam, which would inundate 88,000 acres of riverbank and forest

What Landowners Can Do

Landowners with Furbish's lousewort habitat play an important role in guaranteeing the plant's survival. Stewardship of the land with an eye toward maintaining the aesthetic and ecological values of the St. John River system can be easily accomplished and personally rewarding. Good stewardship means recognizing the differences between appropriate and inappropriate uses of the river bank and adjacent lands. Successful stewardship is a win-win situation. It means success for Furbish's lousewort, success for the St. John River system, success for individuals who have a personal connection with the river, and success for communities that rely on the river's natural and economic values.



Four ways that YOU can help

- 1. Maintain or restore a forested buffer**
- 2. Eliminate vehicular traffic along the riverbank**
- 3. Limit alteration of riverbank habitat**
- 4. Permanently protect habitat**

1975 The Smithsonian Institution lists Furbish's lousewort as "probably extinct" in its Report of Rare, Threatened, and Endangered Species of the United States

1976 Dr. C.D. Richards rediscovers Furbish's lousewort during survey work on the St. John River as part of the Environmental Impact Statement for the Dickey-Lincoln Dam

Maintain or Restore a Forested Buffer

Forested buffers provide essential shade to lousewort plants and help prevent erosion of the river bank. A forested buffer is a band of trees and shrubs at the upper edge of the riverbank. The root systems of trees and shrubs hold soil in place and absorb water and nutrients. A canopy of trees and shrubs intercepts raindrops and reduces their impact on soil erosion. Low herbaceous plants and a layer of forest duff help filter sediment and pollutants from runoff. Forested buffer plays a critical role in stabilizing the riverbank and decreasing erosion while also limiting nutrient runoff. Unchecked erosion can cause formerly stable banks to slump and wash away under heavy runoff conditions.



Riverbank erosion along the St. John River after heavy rains in 2004

Planting or maintaining a forested buffer at least 75 feet deep and consisting of native trees is perhaps *the single most important action* that a landowner can take to help protect the integrity of the St. John River. Stabilizing banks by planting bare-root tree seedlings in



Intact forest buffer along the St. John River

late fall or spring, while they are dormant, about 20 feet apart can help control excessive erosion. Understory shrubs may be planted 5 to 8 feet apart between the trees. For more information on tree species native to Maine that make good buffers, see the contact information for NRCS in this publication.

1982 St. John River Resource Protection Plan adopted

1983 Research on Furbish's lousewort initiated

1986 Dickey-Lincoln Dam concept deauthorized by Congress

Eliminate vehicular traffic along riverbank

Travel along the riverbank by ATVs and other vehicles can destroy plants and cause erosion of the riverbank. No vehicular traffic should be permitted along the riverbank. Enjoying the river by foot or

canoe can help prevent erosion and protect plant communities.



All terrain vehicles can destroy sensitive habitat and increase riverbank erosion. There are some places where motorized vehicles are not meant to go.

Limit Alteration of Riverbank Habitat

Alteration of riverbank habitat through removal of sand and gravel or by dumping of refuse or fill can permanently devastate plants and their habitats. Moreover, refuse and fill can contain seeds of exotic plant species which can further displace native plants. Please do not dump or excavate along the riverbank.

1991 Major ice scour event cuts lousewort population in half

1992 St. John River Resource Protection Plan amended

Landowner Resources

There are a variety of options available to landowners who might voluntarily wish to set aside some or all of their land for conservation. The Maine Coast Heritage Trust has put together a resource titled “**Conservation Options: A Guide for Maine Landowners**”, that details the different types of conservation options available to landowners as well as some of the financial benefits of conservation. The publication is available on the internet at: <http://www.mcht.org/options/>, or you can contact The Maine Coast Heritage Trust at 207-729-7366.

A variety of federal, state, and private programs exist to help landowners interested in stewardship and conservation. A few of these programs are described below with contact information.

Maine Landowner Incentive Program

The Landowner Incentive Program (LIP) is a competitive grant program funded by the U.S. Fish and Wildlife Service. The program provides financial incentives to private landowners in return for long-term protection of rare and endangered species. LIP funds are being used in Maine to offer a variety of tools, including conservation easements and cooperative management agreements, to landowners for the conservation of rare and endangered plants and wildlife habitat. One of the objectives of Maine’s Landowner Incentive Program is the protection of Furbish’s lousewort habitat. For more information on the Maine LIP program visit the website: http://www.mainenaturalareas.org/docs/program_activities/lip/ or contact:

Sarah Demers at 207-287-8670
or by e-mail at sarah.demers@maine.gov

1998 The Nature Conservancy protects 185,000 acres of the upper St. John River watershed

1999 Conservation easement placed on 760,000 acres of Pingree lands in the upper St. John River watershed

Private Stewardship Grant Program

The Private Stewardship Program provides grants and other assistance on a competitive basis to individuals and groups engaged in local, private, and voluntary conservation efforts that benefit federally listed, proposed, or candidate species, or other at-risk species. Diverse panels of representatives from State and Federal government, conservation organizations, agriculture and development interests, and the science community assess applications and make recommendations to the Secretary of the Interior, who awards the grants. The program is available to private landowners. For more information on the Private Stewardship Grant Program visit the website: http://endangered.fws.gov/grants/private_stewardship/ or contact:

Mark McCollough
U.S. Fish and Wildlife Service
1168 Main Street
Old Town, ME 04468
207-827-5938

USDA Service Center Programs

The USDA Service Center, including the Natural Resources Conservation Service (NRCS) Farm Service Agency (FSA) and St. John Valley Soil and Water Conservation District, offer a variety of conservation programs that may be used to address resource protection issues. For more information on some of these programs contact the USDA Service Center at:

Fort Kent Field Office
139 Market Street, Suite 106
Fort Kent, ME 04743-1425
207-834-3311

2002 St. John River Resource Protection Plan amended for the second time

2005 Despite protection efforts in upper St. John River watershed, *nearly all downstream habitat is dependent on stewardship of private landowners!*



Kate Furbish

Front and back cover images of Kate Furbish's original painting of Furbish's Lousewort and of Kate Furbish's portrait were provided courtesy of Kate Furbish's 'Flora of Maine,' Bowdoin College Library, Brunswick, Maine.