



NATURAL SYSTEMS

Mississippi River Watershed Plan Discussion Paper Series

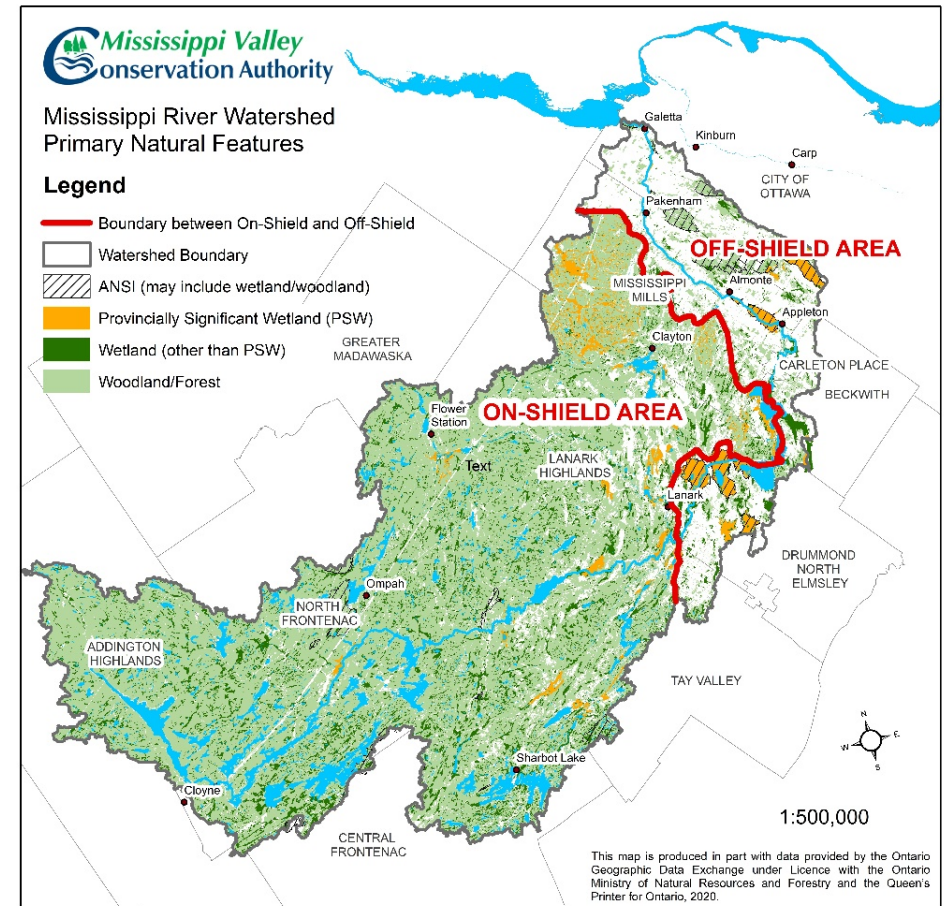
NATURAL SYSTEMS IN THE MISSISSIPPI WATERSHED:

The watershed has large contiguous expanses of natural area in the west and smaller fragmented pockets of natural area in the east. Lakes, rivers, riparian areas, wetlands, woodlands and wildlife habitat, are interdependent. To maintain biological and geological diversity, ecosystem services, and species populations, these features must function as a system.

KEY FACTS:

- The aquatic system has over 7000 km of rivers and streams, and over 200 lakes. Specialized aquatic features (cold water lakes and streams, and walleye and trout spawning areas) are located mostly in the west.
- The Canadian Shield area in the west has over 70% **woodland cover**, whereas the east has 30% woodland cover, which just meets the Environment Canada (EC, 2013)¹ recommended minimum threshold.
- There are a number of large **Provincially Significant Wetlands (PSWs)** in the east Off-Shield area, and numerous smaller wetlands are relatively evenly distributed throughout the On-Shield area.
- There are 22 identified **Areas of Natural and Scientific Interest (ANSIs)**, 13 of which are classified as provincially significant.
- There are 30 known **Species at Risk** in the watershed, but the number may be higher.

¹ Environment Canada. 2013. *How Much Habitat is Enough, 3rd Edition*. Env Canada. Toronto, Ontario.



- Crown land makes up 21% of the watershed, and another 4.7% is protected for conservation or recreational purpose, under the ownership and/or management of the Counties

and municipalities, Mississippi Madawaska Land Trust, and Mississippi Valley Conservation Authority (MVCA). ([See our Tourism Discussion Paper for a map and details](#)).

NATURAL SYSTEMS - CHALLENGES

For natural systems, the most obvious challenge is the ongoing removal of wetlands, riparian buffers and remnant forests, to make way for agriculture; aggregate extraction; the building of houses, subdivisions and roadways; and other human activities. It is broadly recognized that these activities provide measurable economic benefits. The challenge is to also recognize and value the many benefits provided by natural features and systems, and to strike the balance between valuing 'economic growth' against 'natural capital'².

A key priority and challenge for protecting **aquatic environments** is in protecting and/or restoring naturalized/vegetated riparian buffers along the rivers and lakes. Shoreline areas are cleared to create a waterfront view, and to make way for docks, boathouses, decks and patios, beaches and other amenities. Tools for regulating vegetation removal can generally only be applied where the property owner has formally submitted an application for development. These tools are also difficult to implement, monitor and enforce.

Wetlands provide significant benefits in: reducing flooding and easing drought impacts; filtering water; and providing habitat. An estimated 65% of **wetlands** in the eastern watershed have been lost to development, agricultural and other land use activities³. Current wetland cover across the watershed meets the Environment Canada

(EC,2013) minimum targets, though if wetland losses continue they could dip below the threshold levels (10% for watersheds and 6% for subwatersheds). A vulnerability assessment also predicts that most wetlands in the watershed will be at risk of shrinking or drying as a result of climate change⁴.

Forest and riparian cover in the off-shield area is also nearing the EC (2013) minimum. At the subwatershed level, the off-shield area falls below minimum targets of 30% forest cover (at 29%) and 10% forest interior (at 6%). In addition to significantly low forest interior, the part of the watershed is also lacking natural corridors and linkages between the woodlands and other natural areas.

The thirteen **ANSIs** classified as provincially significant are protected under the *Provincial Policy Statement (PPS, 2020)*. However, there is

² **Natural capital** is the stock of natural "assets" in a region (i.e. water, forests, wetlands, grasslands, air, soil, and the assemblage of flora and fauna that make up these ecosystems). These assets provide a valuable flow of goods and services, typically referred to as **ecosystem**

services, and broadly defined as the benefits people obtain from nature. (Lake Simcoe Region Conservation Authority. 2017. *Valuing Natural Capital in the Lake Simcoe Watershed*.).

³ Ducks Unlimited, estimate of wetland losses since European colonization

⁴ Chu, 2014).

inconsistent protection for the remaining Regionally Significant, Locally Significant and Candidate ANSIs across the watershed.

The protection of **Species at Risk** and their habitat is primarily captured only for activities that are subject to the Planning Act application process. Otherwise, impacts to species at risk resulting from activities on the land and in water are not adequately monitored and addressed.

NATURAL SYSTEMS - OPPORTUNITIES

The concept of the Natural Heritage System, moves away from a piecemeal approach in treating natural features as isolated units, to an integrated systems approach. The systems approach provides for a more solid foundation in maintaining, restoring and enhancing ecologically sustainable and resilient landscapes to help in maintaining biodiversity and buffering against the impacts of climate change.

Regulatory tools for protecting **aquatic systems** include: the Ministry of Natural Resources and Forestry (MNRF) *Public Lands Act* and *Lakes and Rivers Improvement Act*; MVCA's *Development, Interference with Wetland and Alterations to Shorelines and Watercourses Regulation*; and Municipal implementation of *Provincial Policy Statement, 2020* (s.2.1 and 2.1) planning policies. Through these, a variety of measures are available including: development setbacks from water, requirements for the maintenance and/or enhancement of a vegetated riparian buffer, sediment controls, in-water timing restrictions, and equipment restrictions for works in/near water.

While such tools are available, the maintenance of naturalized shoreline buffer continues to present a challenge. **Education and outreach** have proven helpful in furthering the protection of aquatic environments through the promotion of shoreline and waterfront best management practices. There have been numerous local **stewardship initiatives** to enhance riparian buffers and fish habitat. MVCA has collaborated with a

The *PPS 2020* also requires that municipalities **identify natural heritage systems** (NHS) in EcoRegions 6E and 7E (the off-shield areas in this watershed) in their Official Plans. While several different NHS mapping projects have been produced for various parts of the watershed, there is no comprehensive and consistent NHS mapping product for the full EcoRegions 6E part of the watershed.

number of partners in carrying out such projects, and many of other groups carry out such initiatives on their own and through other partnerships.

Since 2006, Conservation Authorities have had the responsibility and regulations to **regulate wetlands**. This extends to the wetlands that are not evaluated as provincially significant (PSWs) and are not protected under the *PPS (2020)*. Similarly, a number of the ANSIs, that are not fully protected through *PPS (2020)* or Official Plan policy, include wetland areas that can also be protected through the MVCA regulation. Municipalities also have the ability to protect non-provincially significant wetlands through Official Plan policy.

Under Section 2.1 of the *PPS (2020)*, municipalities are required to identify and protect **significant woodlands** in Eco Regions 6E and 7E. Here, that coincides with the off-shield area where we see the lowest

amounts of forest cover and interior forest. Municipalities are required to identify and protect these areas in the policies of their Official Plans.

Natural Heritage Systems (NHS) planning provides for a more holistic approach to mapping, valuing and protecting nature. Under the PPS 2020, municipalities are required to identify Natural Heritage Systems for the off-shield areas. While a number of different NHS mapping products have been produced including ones for Mississippi Mills and the City of Ottawa, there may be opportunity to develop a more comprehensive natural heritage systems mapping product across the entire off-shield area. There are other systems based models, such as the A2A (Algonquin to Adirondacks Collaborative), that promote initiatives to enhance natural system connectivity at a broad regional scale.

The Mississippi River watershed benefits from having large tracts of natural area under **public ownership and/or long term agreements** (i.e. conservation easements) for the purpose of natural area and feature protection. This provides a degree of protection from development and other land uses that may negatively impact the natural features and functions. [See our Tourism Discussion Paper for a map and details about these areas.](#)

Crown lands are managed under a number of designations such as Conservation Reserve, Enhanced Management Area and General Use Area. Crown land use planning applies these designations and develops area specific land use direction that incorporates key economic, social, cultural and ecological values. There may be opportunity to work with the Province in identifying crown lands that

are rich in ecosystem services, and that should be conserved as crown land over the long term.

Land Trusts are another means of protecting natural areas. The Mississippi Madawaska Land Trust actively seeks large natural land holdings for long term protection. They currently have six properties within the watershed, some managed as Nature Reserves and Sanctuaries with varying levels of preservation.

A number of **conservation incentives** are also available to encourage the protection and restoration of natural lands that are in private ownership. The MNRF *Conservation Land Tax Incentive Program* (CLTIP) provides tax relief for the conservation lands (i.e. provincially important natural features) and the Managed Forest Tax Incentive Program (MFTIP) assists property owners in sustainable harvest and management of their woodlots. CLTIP recognizes, encourages and supports the long-term private stewardship of provincially important natural areas and features.

Environmental/ecosystem valuation is a growing field of research. The Environment Canada (EC) **Environmental Valuation Reference Inventory** (EVRI) provides a searchable storehouse of empirical studies on the economic value of environmental assets and human health effects. Environmental valuations can be used to: promote findings to foster awareness; encourage municipal governments to incorporate values into land use and policy decisions; incorporate values into subwatershed studies and other reports, plans and strategies; and establish ongoing natural capital accounting for the watershed. There would be benefit in conducting environmental valuations for features within the Mississippi watershed.

PARTNERS IN NATURAL SYSTEMS

Many organizations have an interest in protecting the natural environment. In addition to engaging area municipalities, provincial agencies, lake associations and lake networks, the MVCA has been working with a Watershed Public Advisory Committee (PAC) made up of representatives from key communities in the watershed including: agriculture, development, forestry, hydro producers, lake associations, tourism and the general public. Other potential partners include the following:

- A2A - Algonquin to Adirondacks Collaborative
- Canadian Wildlife Service (Environment & Climate Change Canada)
- Counties of Addington Highlands, Frontenac, and Lanark
- Ducks Unlimited Canada
- Environment and Climate Change Canada
- Lanark County Stewardship Council
- Mississippi Madawaska Land Trust (MMLT)
- Mississippi Valley Field Naturalists (MVFN)
- Nature Conservancy of Canada (NCC)
- Ontario Heritage Trust
- Watersheds Canada
- See also our [Forestry and Waterfront Properties Discussion Papers](#) for other partners in natural systems protection.

35 DRAFT ACTIONS

MVCA has identified 35 potential actions designed to address the goals and objectives identified through the watershed planning process. A much longer list was reviewed and culled in consultation with the Watershed PAC. The following actions are relevant to natural systems. To see all 35 draft actions visit: <https://mvc.on.ca/watershedplan>

Action 12. Work with municipalities, landowners and other partners to quantify, value and protect wetlands as hydrologic and natural assets.

Action 21. Continue to support the MECP Provincial Water Quality Monitoring Network (PWQMN) in collecting baseline surface water quality data.

Action 22. Support community based citizen science monitoring programs.

Action 23. Review existing environmental monitoring programs and identify opportunities for improvement. *This may include:*

- *Improve forest and wetland cover monitoring and reporting through more frequent updates to mapping and ensure reporting systems include clear environmental targets.*
- *Improve monitoring, analysis and reporting of changes/trends in land use including both natural features (wetland and forest cover)*
- *Improve monitoring of growth and development features (lots/subdivisions, drainage infrastructure, etc.*
- *Work with industry partners to research and document changes on the landscape.*

Action 24. Continue annual analysis and reporting of water quality conditions presented at a subwatershed scale and adjust reporting cycles, parameters, and geographic coverage where needed.

Action 25. Set measurable environmental targets. *This may include:*

- *Work with municipalities to achieve zero loss in wetland area and function.*
- *Through MVCA plan review/advisory services, continue to support municipalities in protecting natural heritage features and systems, and promote municipal policy to include Environment Canada 2013 targets for wetland and forest cover.*
- *Align monitoring and reporting to track progress against environmental targets.*

Action 28. Work with municipalities and the MNRF to improve application and coordination of regulatory tools for the protection of water quality.

Action 29. Value the ecosystem services and climate resiliency provided by natural asset features and functions (wetlands, woodlands, etc.).

Action 30. Work with municipalities and public agencies to improve the application and coordination of regulatory tools for the protection of wetlands, riparian areas, woodlands and natural systems.

Action 31. Support counties and municipalities in fulfilling Provincial Policy Statement (PPS 2020) requirements for Natural Heritage Systems.

Action 32. Develop and implement a 3 Year MVCA Stewardship Program Pilot for protection of where needed for water quality, wetland and forest cover, and other environmental features. *This may include:*

- *Work with Stewardship Council(s) to review current stewardship programming, needs, overlap and gaps.*
- *Promote participation in existing stewardship initiatives by other groups.*
- *Collaborate with municipalities to expand a Rural Clean Water Program to watershed areas outside of Ottawa.*
- *Promote participation in land conservation incentive programs such as the RVCA Tree planting Program, Conservation Land Tax Incentive Program (CLTIP), the Managed Forest Tax Incentive Program (MFTIP) and Alternative Land Use Services (ALUS).*
- *Work with the province, agricultural community, and other owners of large land holdings, to protect and enhance wetlands, woodlands, and natural corridors through land retirement and restoration programs and incentives.*

Action 33. Work with the Ministry of Natural Resources and Forestry (MNRF) to identify crown holdings and develop strategies to ensure the protection of crown natural assets.

Action 34. Develop a Land Conservation Strategy to mitigate flood, erosion and other natural hazards, and to support the ecological services provided by natural systems. *This may include:*

- *Continue partnership with Lanark County in the sustainable management of the Community Forests.*

- *Support the promotion of land trusts as a means of protecting natural features and systems.*
- *Pursue acquisition of natural features and systems, and suitable corridor holdings, either by MVCA, land trusts, municipalities, or other appropriate bodies.*

Action 35. Develop and implement an MVCA Education Strategy. *This may include:*

- *Facilitate information sharing opportunities to advance collective understanding of impacts and opportunities for adaptation.*
- *Consult with specific communities (agriculture, development industry, indigenous community, lake communities, etc.) to determine tailored strategies for effective communication and messaging.*
- *Create an interactive online Atlas of Natural Assets within the Watershed; To help build the Atlas, conduct surveys of the watershed communities and sectors to determine the natural assets and services they value and why.*