

# ST. LAWRENCE LOWLANDS (#132)

The St. Lawrence Lowlands ecoregion stretches along the fertile lands of the Ottawa and St. Lawrence rivers. It is characterized by farmlands, cities, mixed woods and wetlands. The St. Lawrence River is larger (by discharge) than any other river in North America.

This ecoregion provides habitat for over 55 species at risk, and includes over 35 species of global conservation concern, four of which occur only in Canada. This ecoregion includes several large cities and areas that are intensively farmed. Almost 42% of this ecoregion remains in natural cover and only 3.7% is within conserved/protected areas.

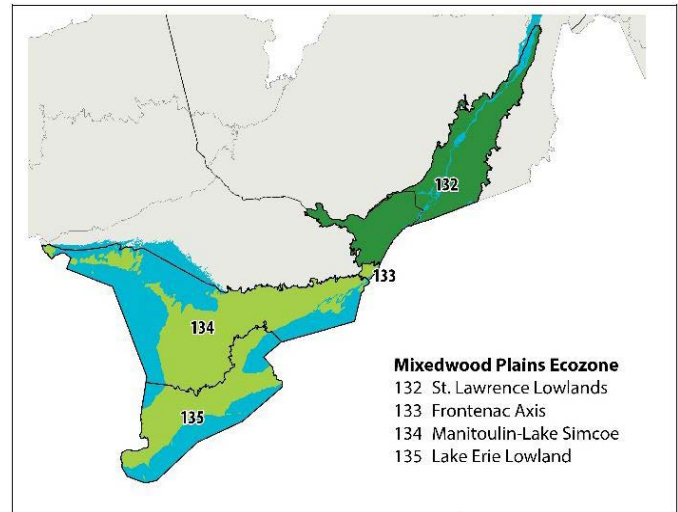
## LOCATION

The St. Lawrence Lowlands ecoregion is centred on the Ottawa and St. Lawrence rivers and stretches from Quebec City to the Frontenac Axis in Ontario. It is bounded on the north by the hilly Laurentian Highlands, and the Appalachians to the south. In the U.S., this ecoregion is part of the Eastern Great Lakes and extends into northern New York. It is included in the Nature Conservancy of Canada's (NCC's) St. Lawrence and Lake Champlain Valley ecoregion. There are slight discrepancies between the boundaries of the St. Lawrence Lowlands ecoregion and the boundaries of Quebec's St. Lawrence Lowlands Natural Province, namely in the southern Outaouais, southeastern Mauricie and eastern Montréal areas.

## CLIMATE/GEOLOGY

The ecoregion is marked by warm summers and cold, snowy winters. The mean annual temperature is approximately 5°C. The mean summer temperatures is 16.5°C and the mean winter temperature is -7°C. The mean annual precipitation ranges from 800 to 1,000 millimetres.

The St. Lawrence Lowlands is generally flat or gently rolling with deep, rich soils. The Monteregian Hills, in the south, are formed of intrusive igneous rocks.



Terrestrial & Inland Water Area	45,157 km <sup>2</sup> (0.5% of Canada)*
Provinces	ON, QC
Biodiversity Ranking <sup>1</sup>	HIGHEST (5/5)
Threat Ranking	HIGHER (4/5)
Conserved/Protected Area Ranking	LOWER (1/5)

Photo by Clair Smith



## VEGETATION

The vegetation is characterized by mixedwood forests dominated by maple (*Acer saccharum*), yellow birch (*Betula alleghaniensis*), eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*) and American beech (*Fagus grandifolia*). Drier sites are dominated by red pine (*Pinus resinosa*), northern (eastern) white cedar (*Thuja occidentalis*) and (northern) red oak (*Quercus rubra*). Wetter sites include red maple (*Acer rubrum*), black ash (*Fraxinus nigra*), white spruce (*Picea glauca*), American larch, also referred to as tamarack (*Larix laricina*), and eastern white cedar (*Thuja occidentalis*). Other vegetation communities include bogs and fens, inland dunes and sand barrens, alvars, and marshes along the St. Lawrence River.

Historically, fire and flooding played an important role in maintaining the some of the habitats in this ecoregion including alvars and wet meadows.

<sup>1</sup> Ranking categories for biodiversity threat and conserved/protected area are relative to other ecoregions in the southern Canada study area (5=highest, 4=higher, 3=high, 2=low, 1=lower, 0=lowest). The lowest score for conserved/protected area is 1. For biodiversity and threat, the highest category based on measures and criteria approach is used.

## FRESH WATER AND COASTS

This ecoregion is dominated by the St. Lawrence River and Ottawa River (Atlantic Ocean drainage). Other major rivers include the Yamaska, Richelieu and South Nation (Figure 1).

Wetlands and inland waters (not including the St. Lawrence River) cover just less than 7% of the ecoregion. This includes several large bog and fens, such as the Grande Plée Bleu bog, Lac-à-la-Tortue bog and the Venise-Ouest bog in Quebec as well as the Mer Bleu bog and Alfred bog in Ontario. It also includes major lakes, such as the Muskrat and Otter, and a small portion of Lake Champlain.

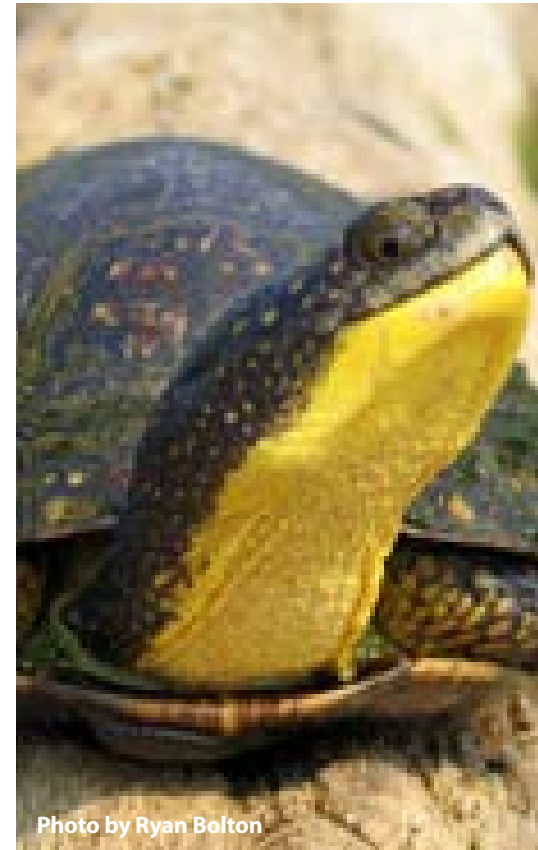
Downstream of Quebec City, the waters of the St. Lawrence River begin to intermix with marine waters, becoming brackish and influenced by tides.

## AT-RISK VEGETATION COMMUNITIES

There are several exceptional forest ecosystems that have been identified in the ecoregion, including old-growth stands of sugar maple and eastern hemlock (Villeneuve & Brisson, 2003). Globally significant vegetation communities include alvar and coastal wetland associations.

## WILDLIFE

Common wildlife include white-tailed deer (*Odocoileus virginianus*), American black bear (*Ursus americanus*), moose (*Alces americanus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), bobcat (*Lynx rufus*), snowshoe hare (*Lepus americanus*), North American porcupine (*Erethizon dorsatum*), American beaver (*Castor canadensis*), American marten (*Martes americana*), raccoon (*Procyon lotor*), least chipmunk (*Neotamias minimus*), waterfowl and other birds, including pileated woodpecker (*Dryocopus pileatus*) and yellow warbler (*Setophaga petechia*).



## AT-RISK PLANTS AND ANIMALS

There are over 55 national species at risk in the St. Lawrence Lowlands ecoregion. Areas with higher numbers of national species at risk include the Ottawa Valley and the area around Montreal. In addition, there are over 35 species of global conservation concern, with the highest number in the eastern part of the ecoregion, and are associated with the Gulf of St. Lawrence and its estuary (Figure 2).

Species at risk include:

- spiny softshell (*Apalone spinifera*)
- spotted turtle (*Clemmys guttata*)
- Blanding's turtle (*Emydoidea blandingii*)
- Allegheny Mountain dusky salamander - Appalachian population (*Desmognathus ochrophaeus* pop. 2)
- least bittern (*Ixobrychus exilis*)
- lake sturgeon - Great Lakes - Upper St. Lawrence populations (*Acipenser fulvescens* pop. 3)

The ecoregion has four species endemic to Canada: copper redhorse (*Moxostoma hubbsi*), St. Lawrence water-horehound (*Lycopus laurentianus*), Victorin's gentian (*Gentianopsis victorinii*) and Victorin's water-hemlock (*Cicuta maculata* var. *victorinii*).





Photo by NCC

## LAND USE

Cultivated farmland, dairy and other mixed farming systems prevail across the St. Lawrence Lowlands and cover approximately 46% of the ecoregion. Some of Canada's largest cities occur in this ecoregion, and 12.4% of the ecoregion is urban.

This ecoregion experienced a moderate rate of land conversion (2000-2010) (Table 1). The largest driver is expanding urban areas, but also the loss of forest cover and wetlands to agriculture. Marginal farmlands are returning to forest cover in some parts of this ecoregion.

Major urban centres include Montreal, Ottawa, Quebec City, Trois Rivières and Brockville. The total population is 7,210,863 (2016), with growth of just over 17% in the last 20 years.

## CONSERVATION CONCERNS

The St. Lawrence Lowlands ecoregion previously experienced high historic rates of conversion of natural habitats to agriculture and urban areas. Rates of habitat conversion are now greatly reduced. Some marginal farmlands have now reverting back to natural habitats in some areas but there are still significant land use pressures, particularly around major urban areas and where soils are productive for agriculture.

High-ranking threats identified from NCC's Natural Area Conservation Plans (NACPs) in this ecoregion include invasive species, habitat conversion and non-point source pollution. Open country habitats are threatened by the encroachment of woody vegetation and fire suppression, and some species (particularly reptiles) are threatened by roads. Maritime transportation corridors and dams and water management are also threats to some species. Changes to flow and barriers on the St. Lawrence Seaway and Ottawa River impact coastal habitats and the migration of fishes, including American eel (*Anguilla rostrata*).

Populations of grassland birds and aerial insectivores that breed in this ecoregion have been rapidly declining as a result of habitat loss and agricultural intensification.

## CURRENT CONSERVATION STATUS

The St. Lawrence Lowlands ecoregion includes some of the most developed areas in southern Canada but still retains some large blocks of vegetation and several areas that are of national and global conservation significance. Almost 42% of this ecoregion remains in natural cover, but this is generally concentrated in the Ontario portion of the ecoregion and in the area between Trois-Rivières and Québec City (Figure 4).

Only 3.7% of this ecoregion is in conserved/protected areas (Figure 5). The largest protected areas include two that NCC helped to secure: Mer Bleue bog and Lac-à-la-Tortue bog. The diversity of habitats in this ecoregion are not well-represented in the current system of protected areas.

Conservation designations in this ecoregion include four Ramsar Wetlands of International Importance (Cap Tourmente, Lac Saint-François, Lac Saint-Pierre and Mer Bleue Conservation Area) and three Biosphere Reserves (Mont Saint-Hilaire, Lac-Saint-Pierre and part of the Frontenac Arch).

The ecoregion also has 29 Key Biodiversity Areas (KBAs) that protect important shorebird, waterbird and waterfowl habitats (Figure 5). The larger KBAs include Kamouraska, Lac Deschenes, Lac Saint-Louis, Iles-de-la-Paix and Centre du Lac Saint-Pierre.

NCC has eight NACPs<sup>2</sup> that cover 60.7% of the ecoregion: Ceinture verte de Montréal, Estuaire d'eau douce et salée, Frontenac Arch, Haut-Saint-Laurent, Îles du Fleuve Saint-Laurent, Mauricie-Capitale-Nationale, Ottawa Valley and Richelieu-Yamaska. NCC has completed over 140 land securement projects in the ecoregion, protecting more than 11,100 hectares (27,182 acres). Key projects include the Lac-à-la-Tortue bog, Alfred bog, Lac Saint-Pierre archipelago and Venise-Ouest bog.

Ducks Unlimited Canada is very active in this ecoregion.

<sup>2</sup> NACPs that cover >5% of the ecoregion as of December 31, 2017.

## POTENTIAL CONSERVATION STRATEGIES

There are opportunities in the St. Lawrence Lowlands ecoregion for conservation that maintains habitat connectivity for wide-ranging species that extends into adjacent ecoregions. At the same time, there are important and irreplaceable sites in the southern portion where competing land uses are greatest. For the Quebec portion of the ecoregion, Environment and Climate Change Canada and Quebec's Ministère de l'Environnement et de la Lutte contre les changements climatiques have jointly produced the *Atlas of Priority Sites for Conservation in the St. Lawrence Lowlands* (Jobin et al. 2019), with support from many other organizations, including NCC. The atlas identifies and ranks specific sites where conservation needs are the highest.

Potential conservation strategies for this ecoregion include:

1. Maintain natural cover at approximately 42% over the next 10 years, with a focus on large, intact landscapes, major ecological corridors, areas with high concentrations of species at risk and coastal areas.
2. Increase the amount of conserved lands to 5% (national Target 1 goal) in the next 10 years. This goal should include the accounting of partner NGO's lands and other public lands. In the Quebec portion of the ecoregion, organizations are encouraged to use the *Atlas of Priority Sites for Conservation in the St. Lawrence Lowlands* to direct their efforts.
3. Work with municipal, provincial and federal governments to develop land conservation tools and policies that facilitate conservation.
4. Develop and implement a connectivity plan. Focus on maintaining connectivity within the ecoregion and connectivity to adjacent ecoregions. This connectivity plan could incorporate expected shifting ranges of species as a result of climate change. This has been completed for the Quebec portion of the ecoregion by ministries and academics as part of the *Atlas of Priority Sites for Conservation in the St. Lawrence Lowlands*.
5. Identify key areas for species-at-risk recovery and the protection and restoration of habitats of global conservation concern.
6. Significantly expand the conservation of open country habitats, including the protection of alvars and supporting landowners to implement practices that support grassland birds and aerial insectivores.
7. Develop and implement strategies to link conservation to water security and climate change adaptation. Natural areas in the southern portion of the ecoregion are linked to major urban areas. There may be opportunities to leverage the growing interest in "green infrastructure" and to partner with municipalities and protect key areas subject to recurrent flooding.

## LARGEST CONSERVED AREAS

(TOP 10, BY SIZE)

1. Lac Papineau  
(NCC, 6,326 hectares/15,632 acres)\* \*\*
2. Îles de la Girodeau - Grande Île  
Waterfowl Gathering Area  
(4,676 hectares/11,555 acres)
3. Lac-à-la-Tortue bog  
(NCC, 4,302 hectares/10,630 acres)\*
4. Mer Bleue bog  
(3,541 hectares/8,750 acres)\*
5. Lac St-Louis (Centre du Lac)  
Waterfowl Gathering Area  
(3,183 hectares/7,865 acres)
6. Nicolet Migratory Bird Sanctuary  
(2,937 hectares/7,257 acres)
7. Refuge de Nicolet  
Waterfowl Gathering Area  
(2,821 hectares/6,971 acres)
8. Plaisance National Park  
(Quebec; 2,810 hectares/6,944 acres)
9. Upper Canada Bird Sanctuary  
(2,601 hectares/6,427 acres)
10. Oka National Park  
(Quebec; 2,370 hectares/5,856 acres)

\*Owned by NCC or includes properties secured by NCC and transferred to partners.

\*\*Only a small portion of this protected area occurs in the ecoregion.

To learn more about this ecoregion and NCC's conservation assessment for southern Canada, visit

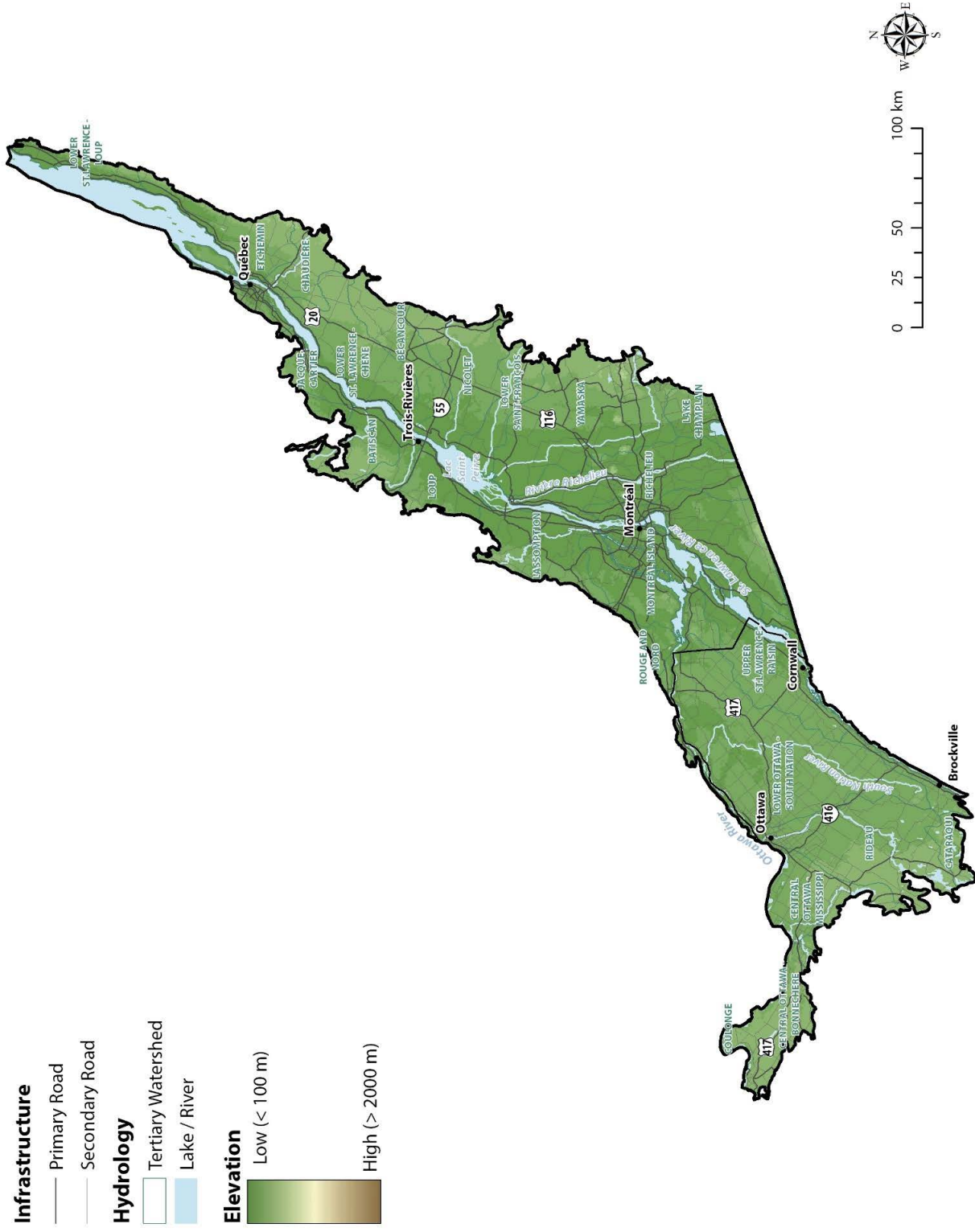
[natureconservancy.ca/casc](http://natureconservancy.ca/casc).



## KEY REFERENCES

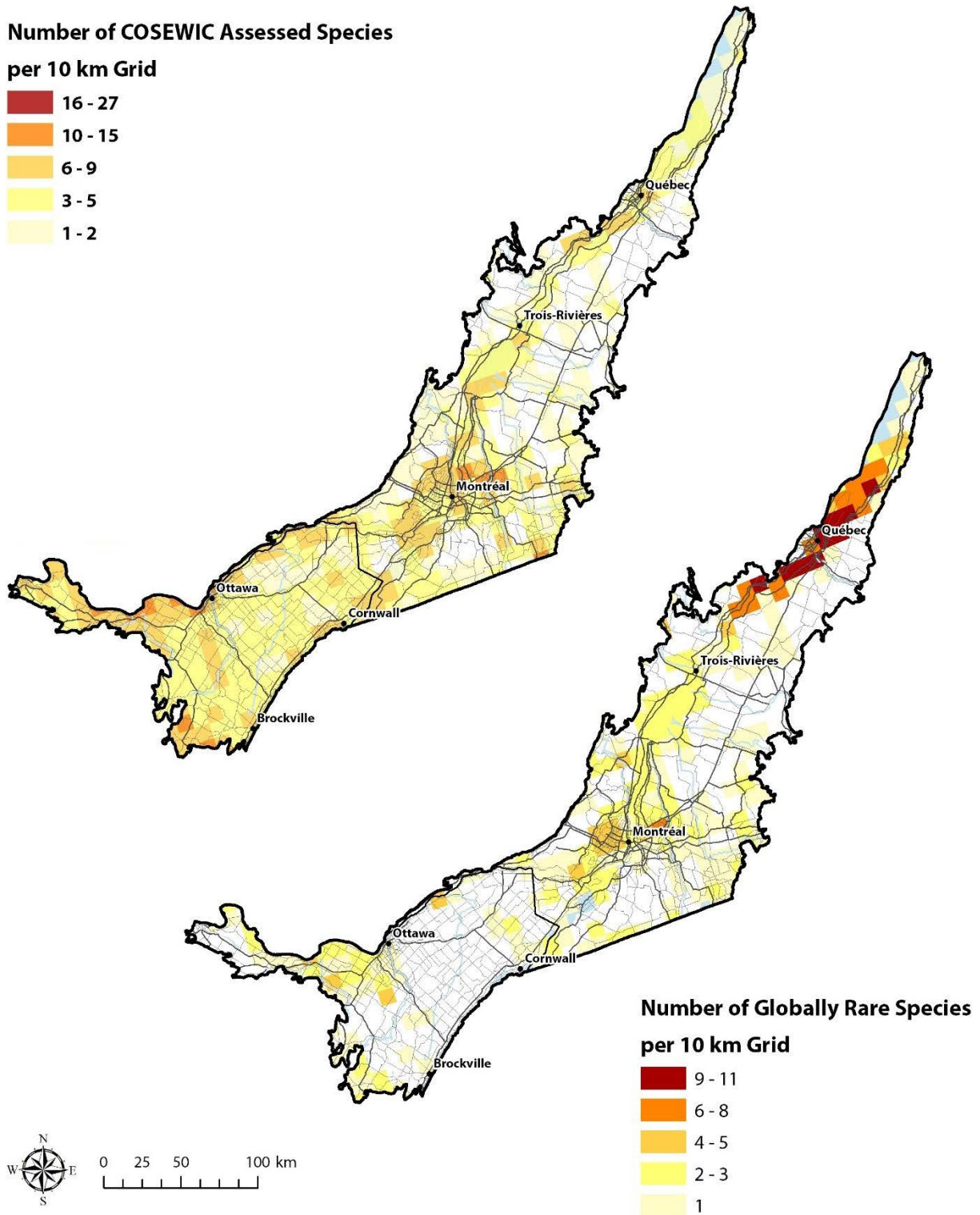
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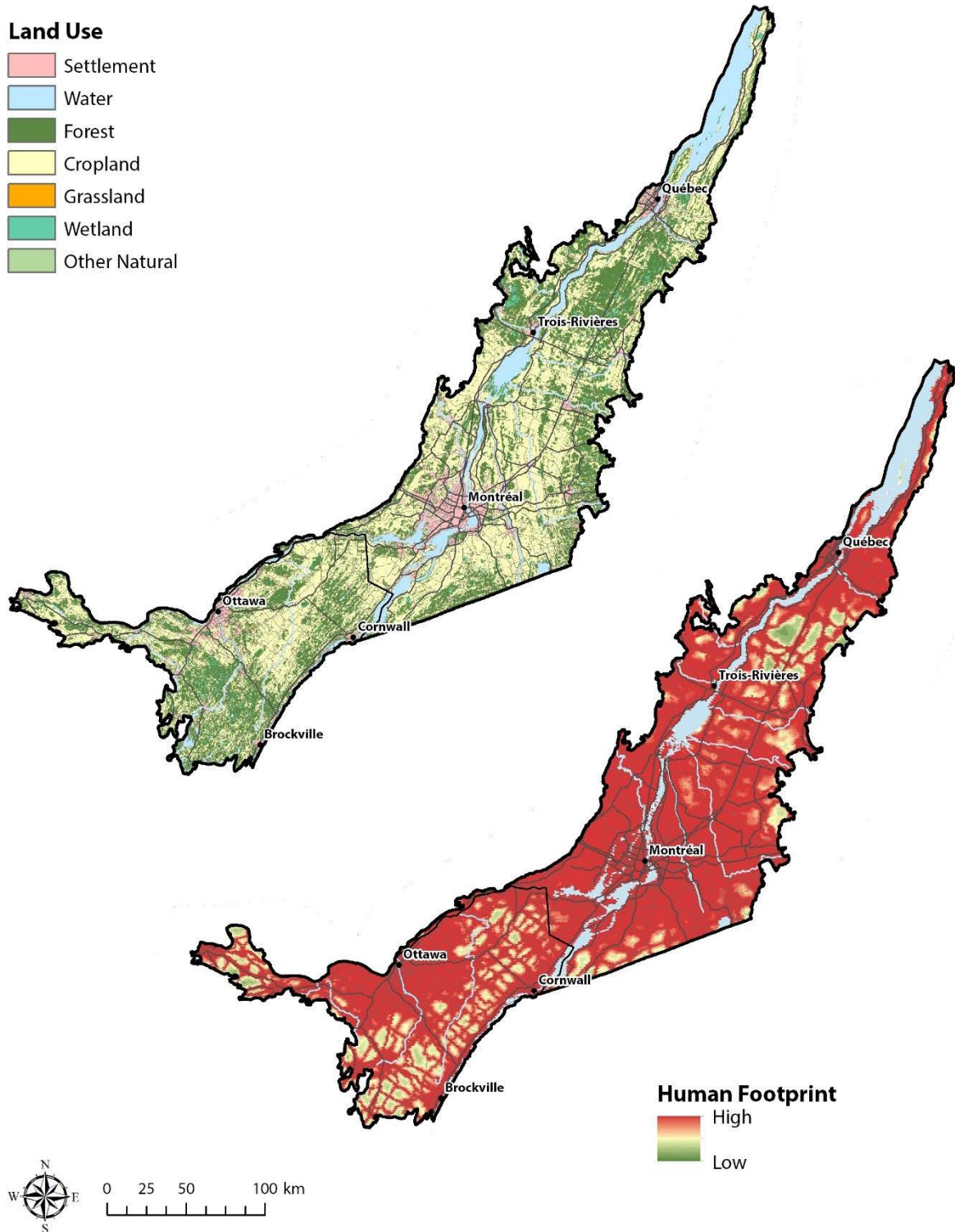
**Figure 1: Context of the Ecoregion.** This map shows towns, roads, elevation, rivers, lakes and watersheds.

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**Figure 2: Species of Conservation Concern (COSEWIC and global).** These maps show the number of different Committee on the Status of Endangered Wildlife in Canada (COSEWIC)-assessed and globally rare species. The information is current to 2015. Some areas of the ecoregion may be data deficient and higher numbers of species of conservation concern may occur.

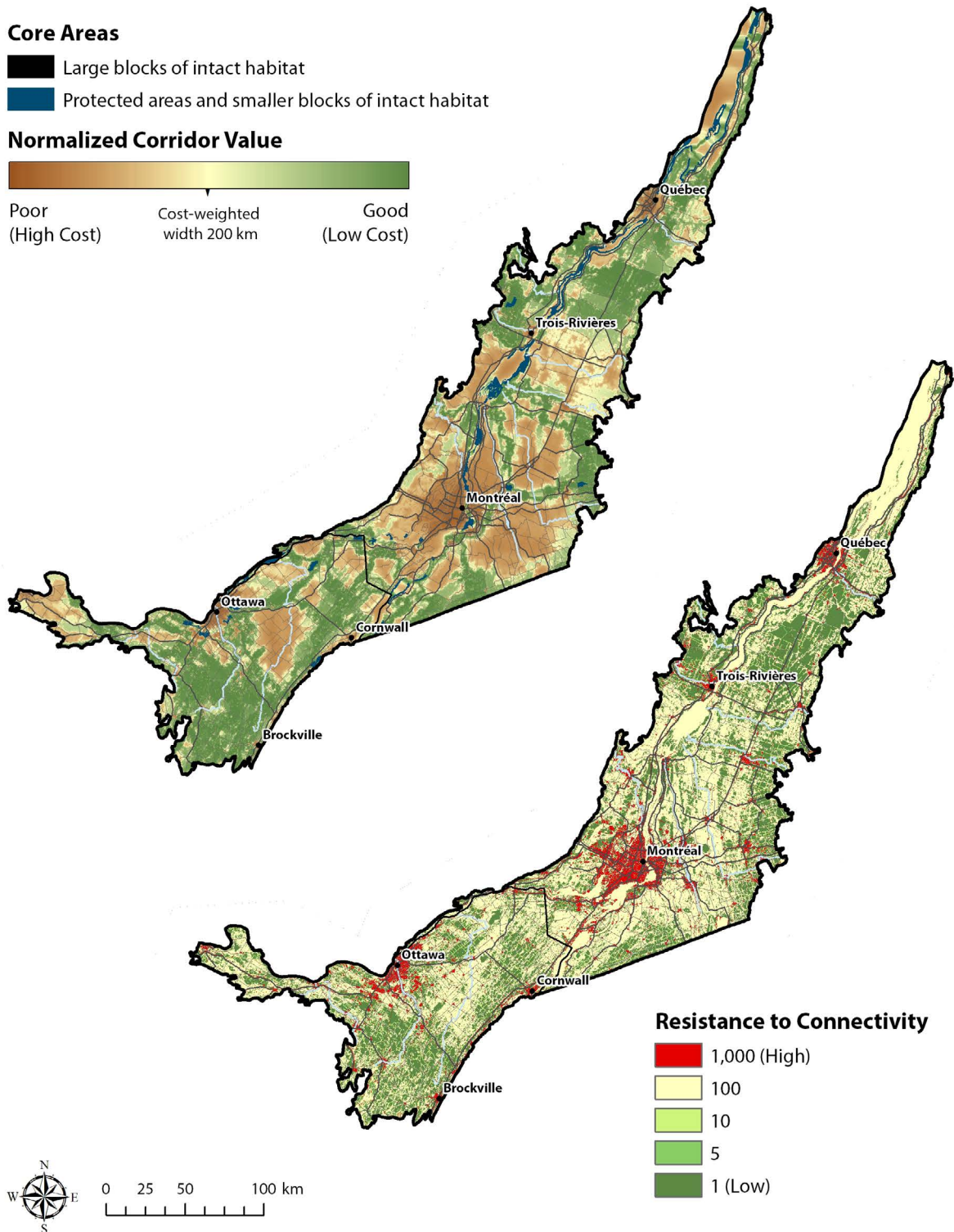
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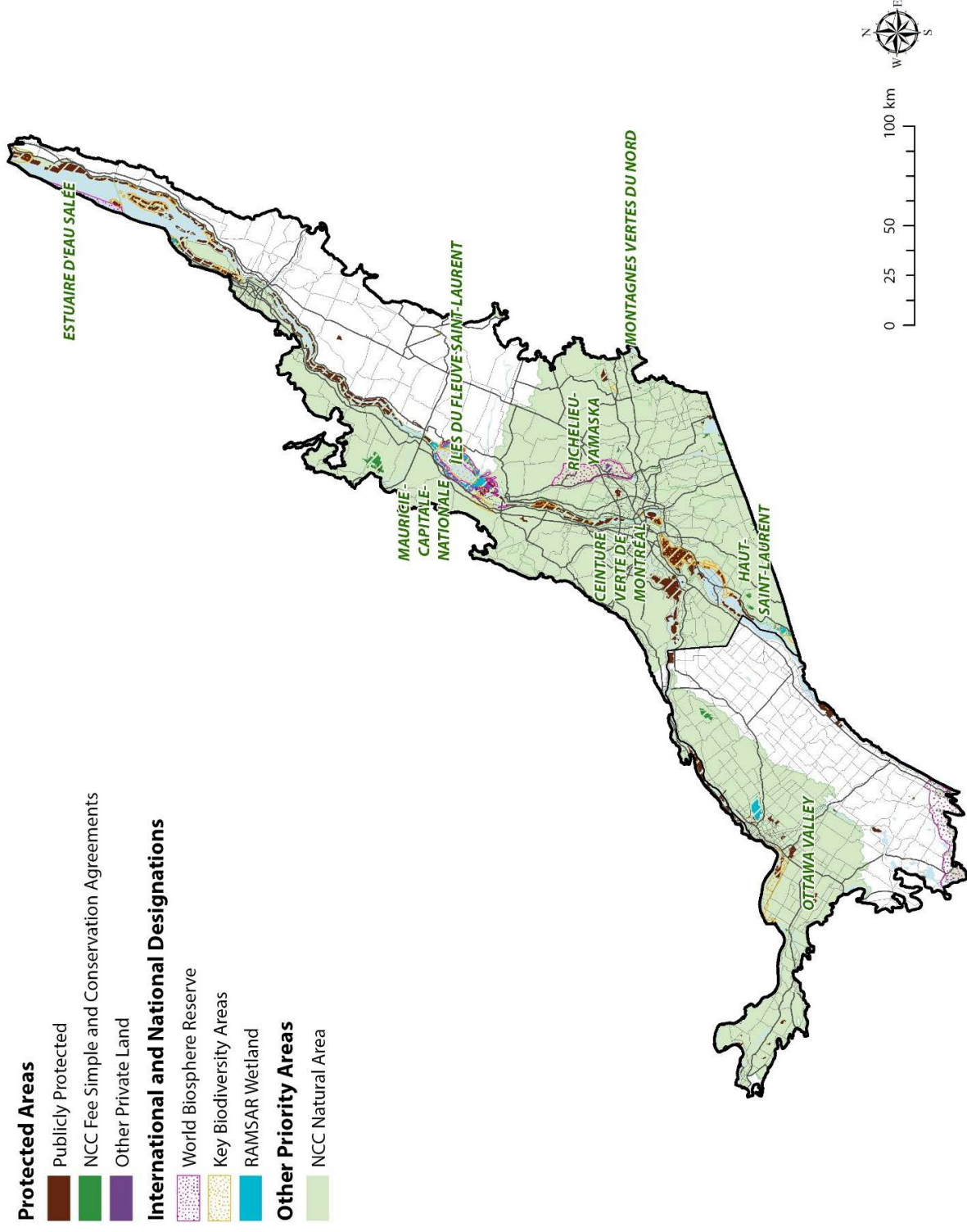
**Figure 3: Land Use & Human Footprint.** These maps show the dominant land uses and the human influence on the landscape. Human footprint is highest in urban areas, around major roads and on lands that have been converted to croplands. The human footprint map does not show some stresses that may occur, such as invasive species.



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**Figure 4: Connectivity.** These maps show connectivity between protected/conserved areas and large blocks of intact habitat. The bottom map depicts those regions (green) that have a higher probability of being connected within the ecoregion.



**Figure 5: Protected/Conserved Areas.** This map shows protected/conserved areas in the ecoregion, including publicly protected areas (such as national and provincial parks), properties conserved by NCC and other non-governmental organizations (private). The map also shows biodiversity designations, such as Key Biodiversity Areas (primarily Important Bird Areas). These designations only highlight important areas, and are not protected or have legal status unless they are also within a protected/conserved area. The map also shows the boundaries of the NCC Natural Area Conservation Plans.

**Table 1: Change in Land Use, 2000-2010**

Land Use Class	Code	Change To 2010 (km <sup>2</sup> )																			Total (From)	Percent (%) of Total Change	
		11	21	25	31	41	42	45	46	51	61	62	71	73	74	91							
Unclassified	11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Settlement	21	0.0	402.8	17.4	93.0	1.4	8.4	1.3	185.9	0.0	1.2	3.1	2.1	1.0	3.5	721.07	16.7						
Roads	25	0.0	427.8	6.0	87.3	1.6	4.8	1.0	214.2	0.0	0.7	3.0	2.0	0.8	2.6	751.82	17.4						
Water	31	0.0	17.8	6.0	43.7	4.8	6.4	2.2	22.5	0.0	0.1	8.0	2.7	2.2	0.5	116.91	2.7						
Forest	41	0.0	242.4	142.7	44.6	47.9	3.7	11.9	428.8	0.0	7.4	44.8	22.5	6.0	5.4	1,007.98	23.4						
Forest Wetland	42	0.0	2.9	2.3	4.6	47.6	2.0	0.1	3.2	0.0	0.1	8.8	27.3	11.2	0.0	110.12	2.6						
Trees	45	0.0	20.0	6.7	6.1	0	2.0	1.0	44.1	0.0	0.9	3.0	1.3	0.8	0.4	86.14	2.0						
Treed Wetland	46	0.0	2.1	1.1	2.3	11.8	0.0	1.1	7.2	0.0	0.1	2.5	5.1	2.7	0.1	36.11	0.8						
Cropland	51	0.0	365.3	280.6	23.4	413.4	3.4	43.7	7.8	0.0	7.8	13.9	5.8	4.8	8.7	1,178.50	27.3						
Grassland Managed	61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Grassland Unmanaged	62	0.0	2.0	0.9	0.1	7.1	0.1	0.8	8.4	0.0	0.5	0.2	0.1	0.4	20.57	0.5							
Wetland	71	0.0	6.0	4.4	8.1	44.6	8.1	2.9	15.0	0.0	0.7	12.1	3.0	0.4	107.50	2.5							
Wetland Shrub	73	0.0	4.3	2.4	2.8	22.8	27.4	1.3	6.0	0.0	0.2	12.1	15.2	0.2	99.85	2.3							
Wetland Herb	74	0.0	2.2	1.1	2.3	6.0	11.0	0.8	4.8	0.0	0.1	3.0	15.3	0.1	49.29	1.1							
Other	91	0.0	7.2	3.7	0.5	5.4	0.0	0.4	8.9	0.0	0.4	0.4	0.2	0.1	27.29	0.6							
<b>Total (To)</b>		0.0	1,100.0	854.7	118.1	782.7	107.6	76.3	35.7	949.0	0.0	19.5	103.2	96.3	47.7	4,313.15							
<b>Net Change (To-From)</b>		0.0	378.9	102.9	1.2	-225.3	-217.7	-9.8	-0.4	-229.5	0.0	-1.0	-4.3	-3.5	-1.6		-5.0						
<b>Percent (%) of Total Change</b>		0.0	25.5	19.8	2.7	18.1	2.5	1.8	0.8	22.0	0.0	0.5	2.4	2.2	1.1		0.5						
<b>Net Gain/Loss %</b>		0.0	8.8	2.4	0.0	-5.2	-0.1	-0.2	-0.01	-5.3	0.0	-0.02	-0.1	-0.1	-0.04		-0.1						

\* Diagonal represents unchanged land use