Opportunities for Wildlife Habitat Connectivity between the Adirondacks and Algonquin Park

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Project Objective

- **Identify the best region(s) in northern New York and southeastern Ontario to serve as a wildlife connectivity zone between the Adirondack Park in NY and Algonquin Park in Ontario.**

WHERE DO AREAS OF HIGH FOREST INTEGRITY STILL EXIST AND HOW WOULD THEY BE BEST CONNECTED?

Focal Species

- **Species warranting special biodiversity management attention**
  - Indicator
  - Keystone
  - Umbrella
  - Flagship
- **Can be used for regional conservation planning**

Reasons for Selecting the Eastern Timber Wolf

- Wolves are wide-ranging habitat generalists
- Wolves are susceptible to over-exploitation
- Wolves are naturally present in Algonquin Park
- There is interest in the movement of wolves beyond Algonquin
- Wolves are native to the Adirondacks (extirpated during last century)
- There is interest in the return of wolves to Adirondacks

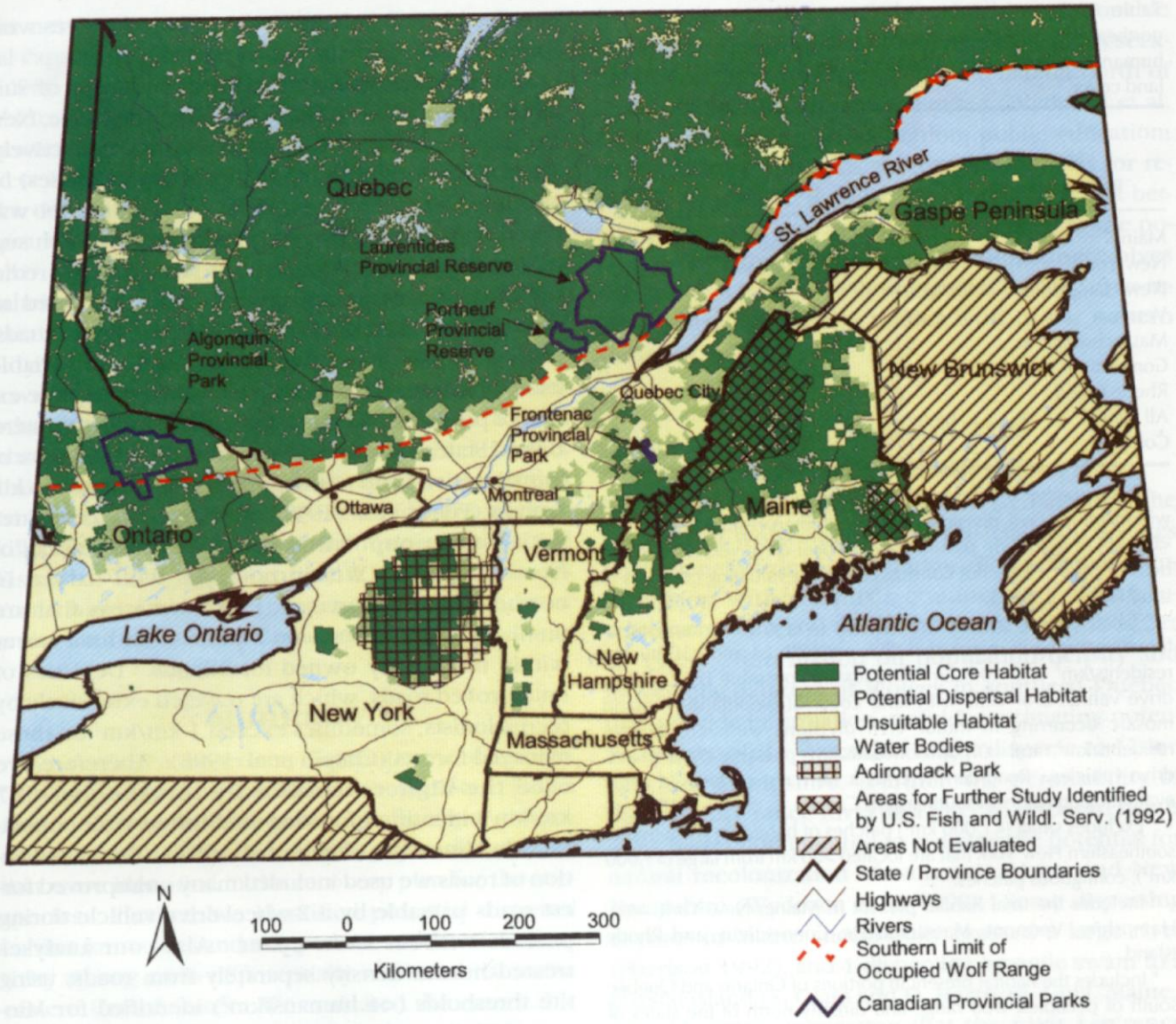
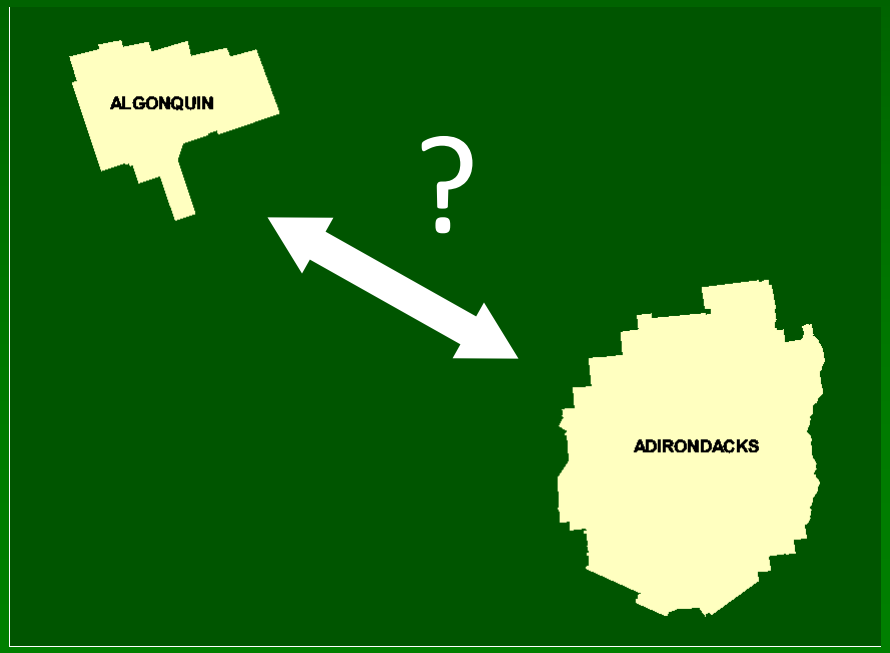


Fig. 1. Distribution of occupied and potential habitat for eastern timber wolves in northeastern North America.

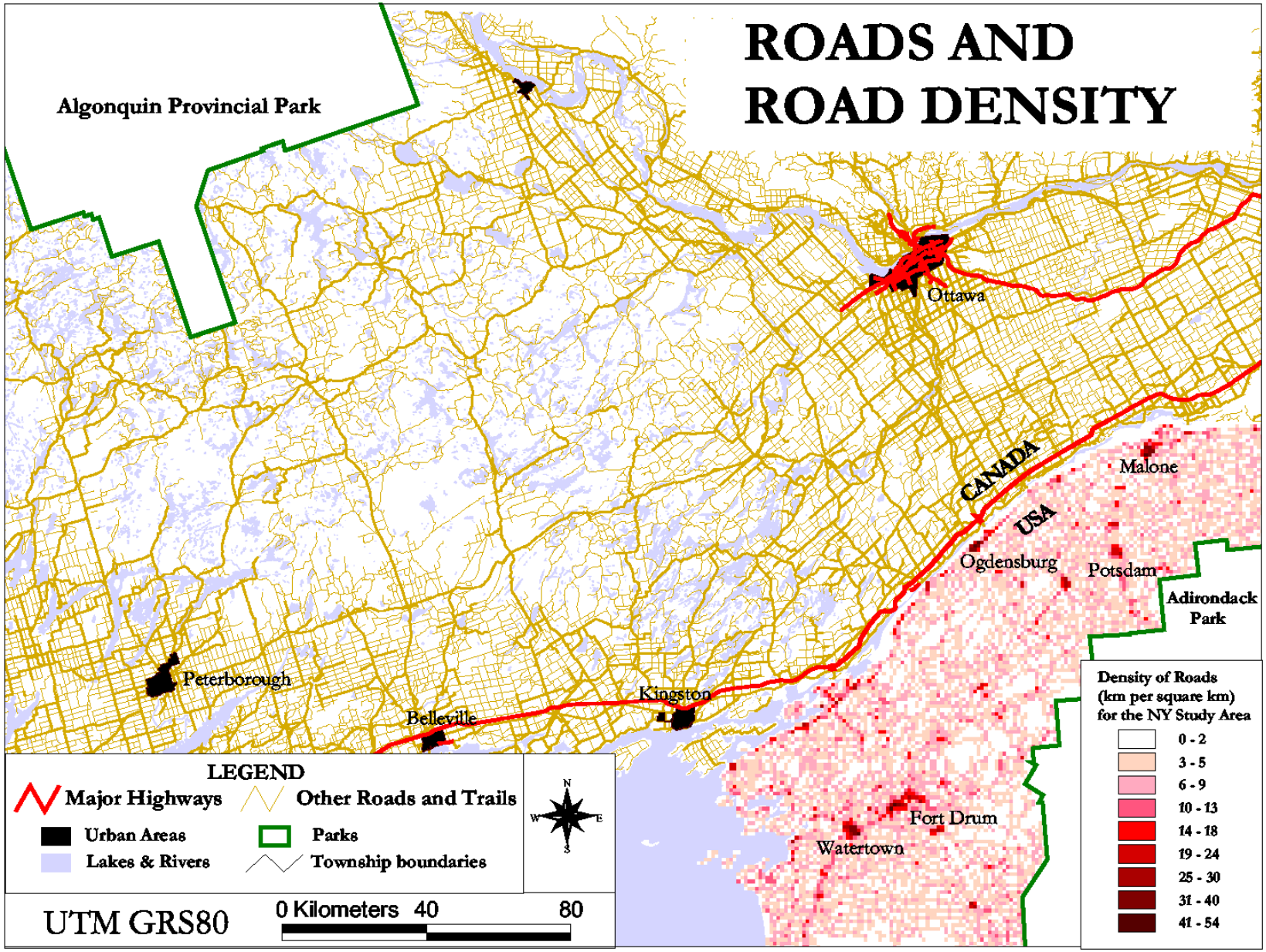
Question

- **If a wolf attempted to disperse from one park to the other, what path would provide the best chance of success?**



Methods

1. Used data sets based on parameters that describe social, biological, and geographical features of region likely to influence movement of wolves


ROADS AND
ROAD DENSITY
Algonquin Provincial Park
Ottawa
CANADA
USA
Malone
Ogdensburg
Potsdam
Adirondack
Park
Peterborough
Belleville
Kingston
Fort Drum
Watertown
Density of Roads
(km per square km)
for the NY Study Area
0 - 2
3 - 5
6 - 9
10 - 13
14 - 18
19 - 24
25 - 30
31 - 40
41 - 54
LEGEND
Major Highways
Other Roads and Trails
Urban Areas
Parks
Lakes & Rivers
Township boundaries
N
W
E
S
UTM GRS80
0 Kilometers 40
80

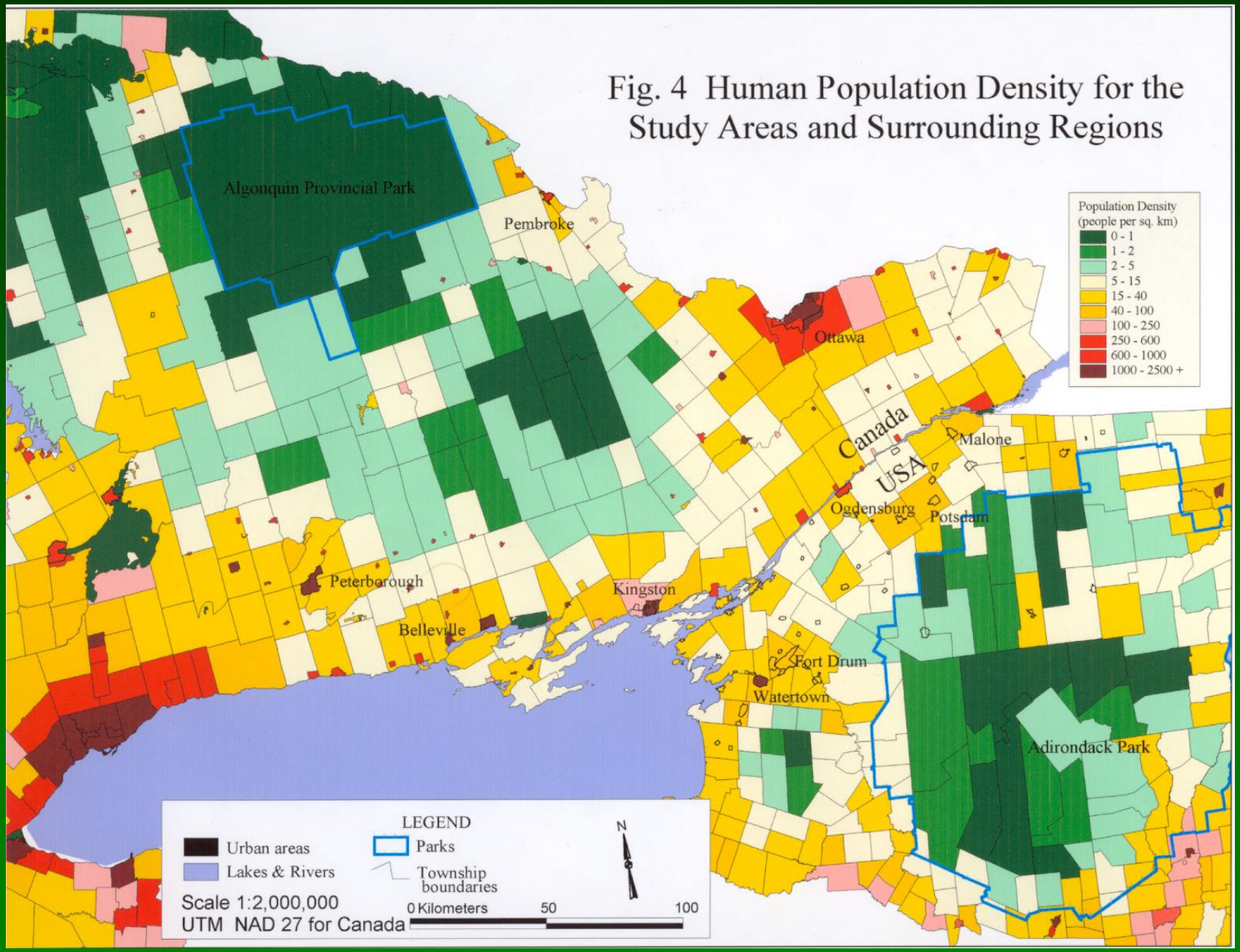


Fig. 4 Human Population Density for the Study Areas and Surrounding Regions
Algonquin Provincial Park
Pembroke
Ottawa
Canada
USA
Malone
Oggensburg
Potsdam
Peterborough
Kingston
Belleville
Fort Drum
Watertown
Adirondack Park
Population Density (people per sq. km)
0 - 1
1 - 2
2 - 5
5 - 15
15 - 40
40 - 100
100 - 250
250 - 600
600 - 1000
1000 - 2500 +
LEGEND
Urban areas
Lakes & Rivers
Parks
Township boundaries
N
Scale 1:2,000,000
UTM NAD 27 for Canada
0 Kilometers
50
100

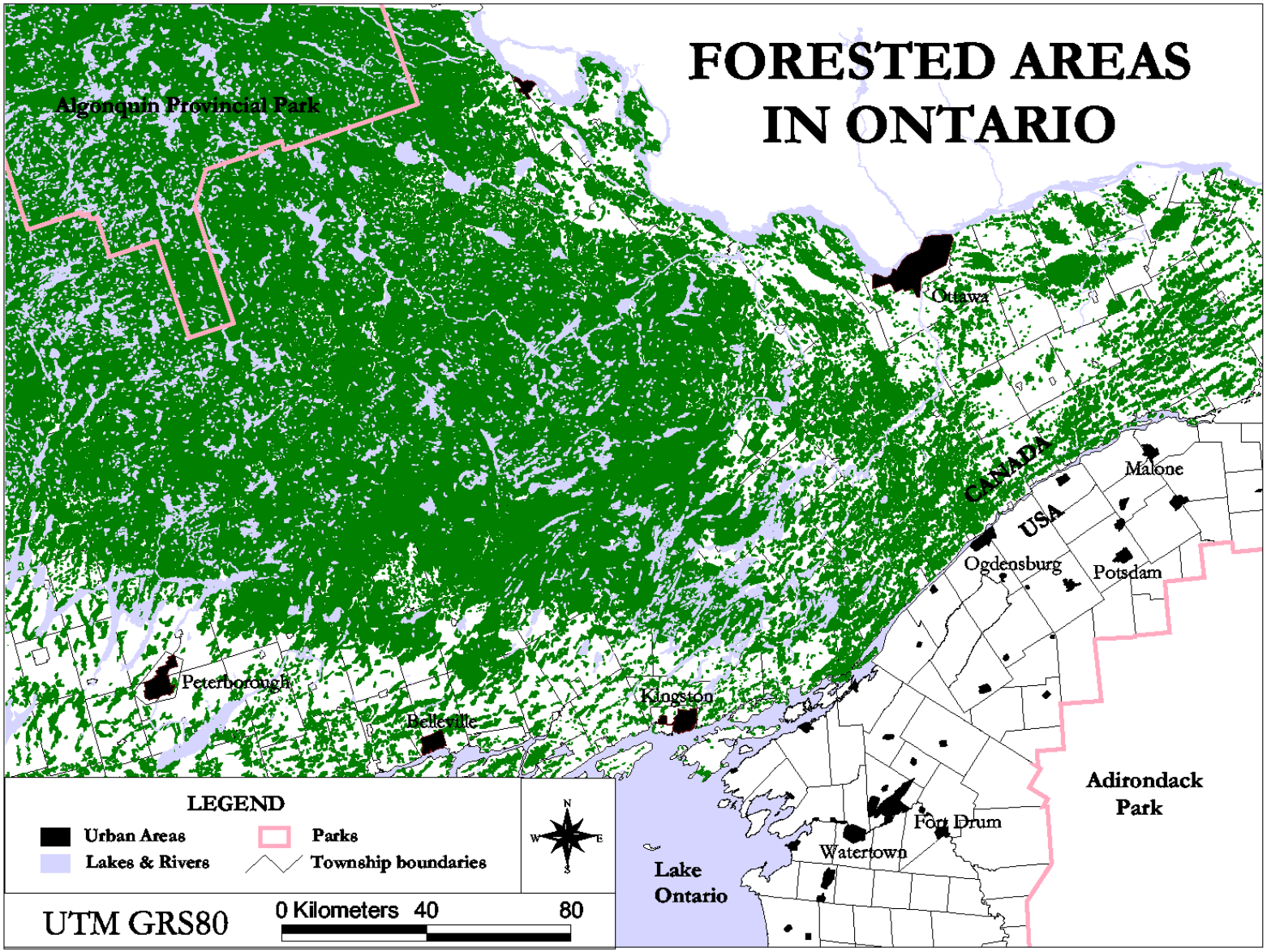
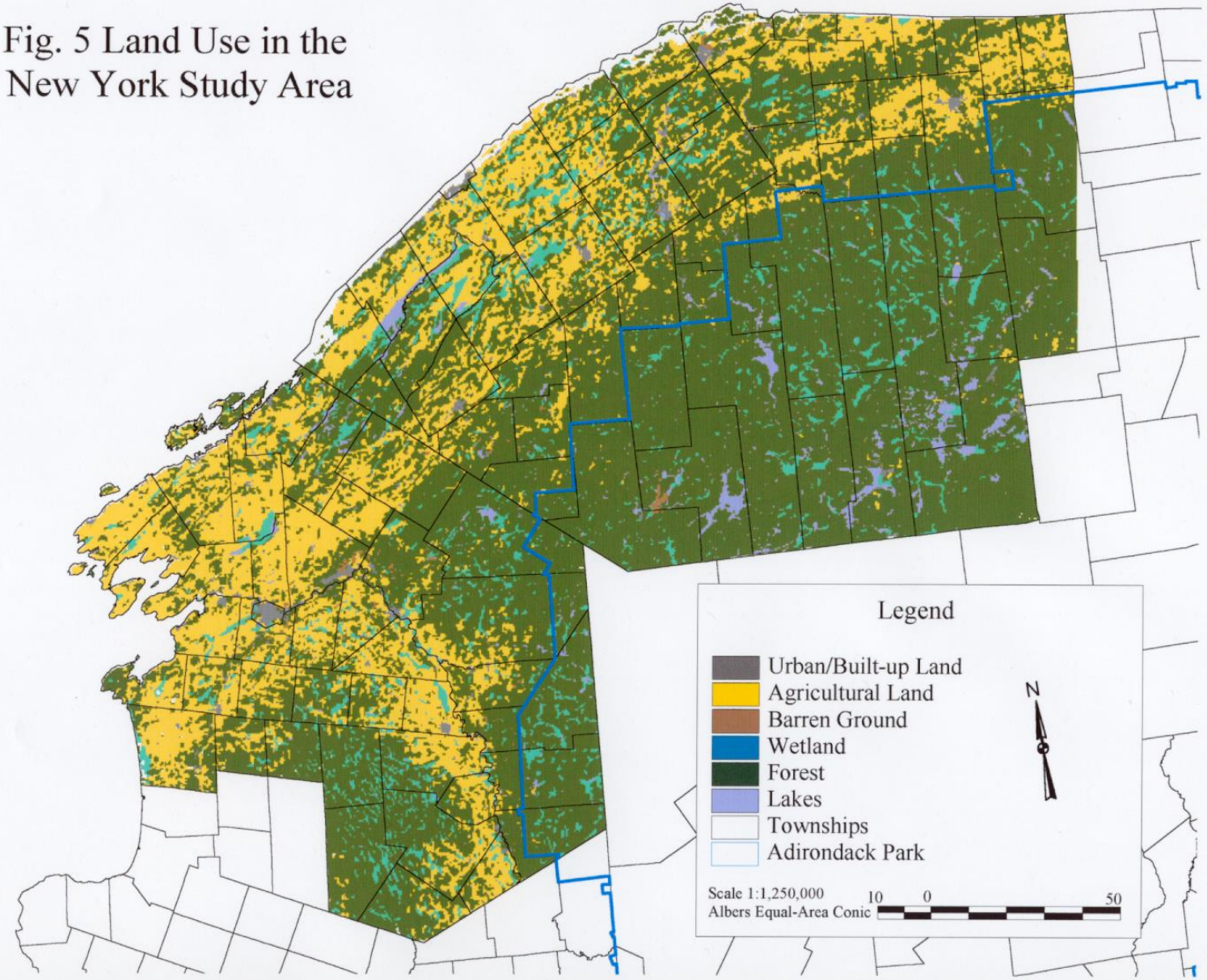

FORESTED AREAS
IN ONTARIO
Algonquin Provincial Park
Ottawa
CANADA
USA
Malone
Ogdensburg
Potsdam
Peterborough
Kingston
Belleville
Adirondack
Park
Fort Drum
Watertown
Lake
Ontario
LEGEND
Urban Areas
Lakes & Rivers
Parks
Township boundaries
N
W
E
S
UTM GRS80
0 Kilometers 40
80

Fig. 5 Land Use in the New York Study Area



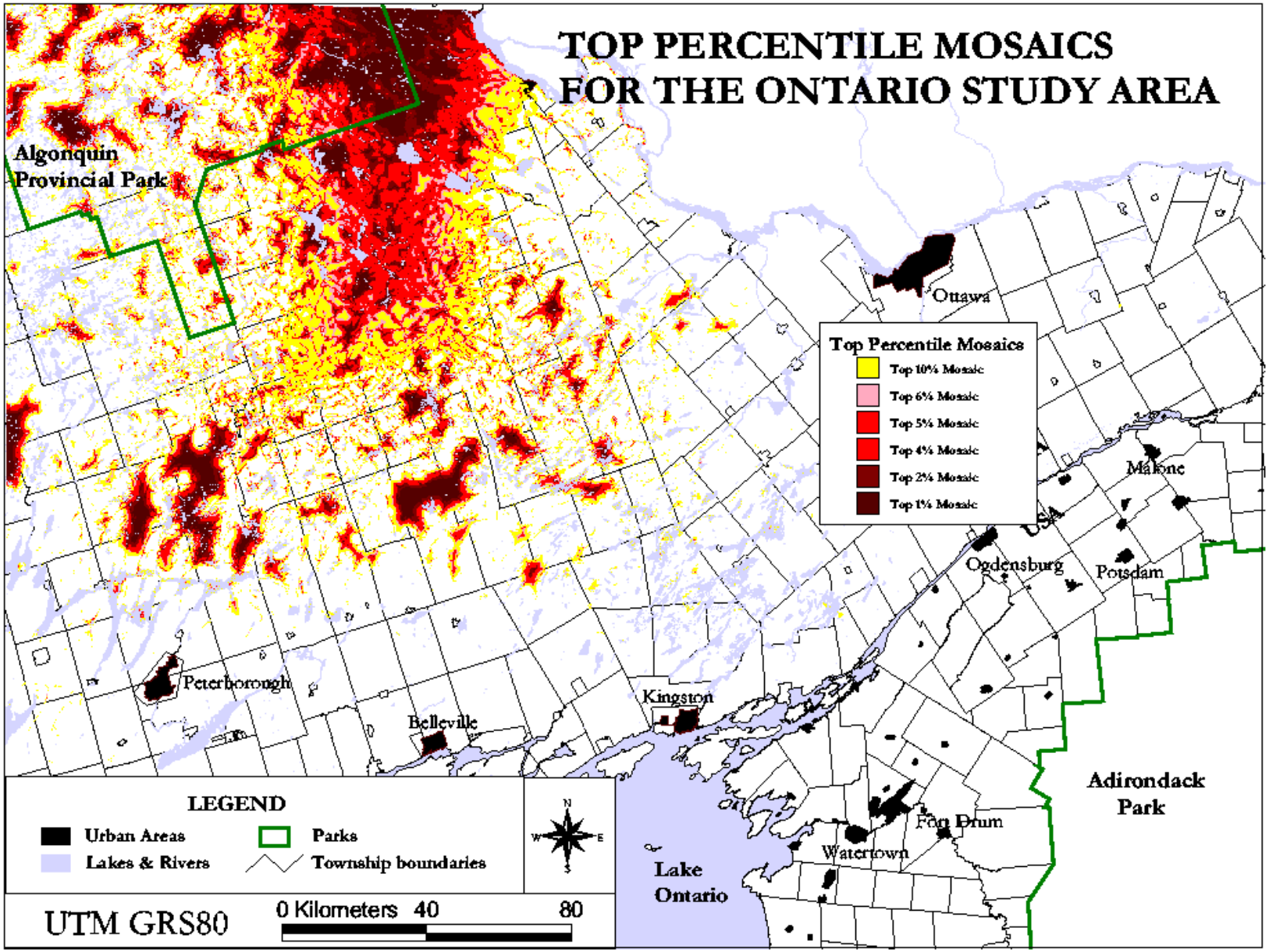
Methods (cont.)

2. Created 15 weighting schemes

PARAMETER	1	6	…	7	11	…	13	…	15
Dist. To Road & Trail	50	10		30	10		0		5
Dist. To Major Hwy.	10	10		30	30		15		5
Dist. To 2nd Hwy.	10	10		10	10		15		5
Population Density	10	10		10	10		15		5
Land Use/ Dist. To Vegetation	10	10		10	10		40		40
Dist. To Water	10	50		10	30		15		40
TOTAL	100	100		100	100		100		100

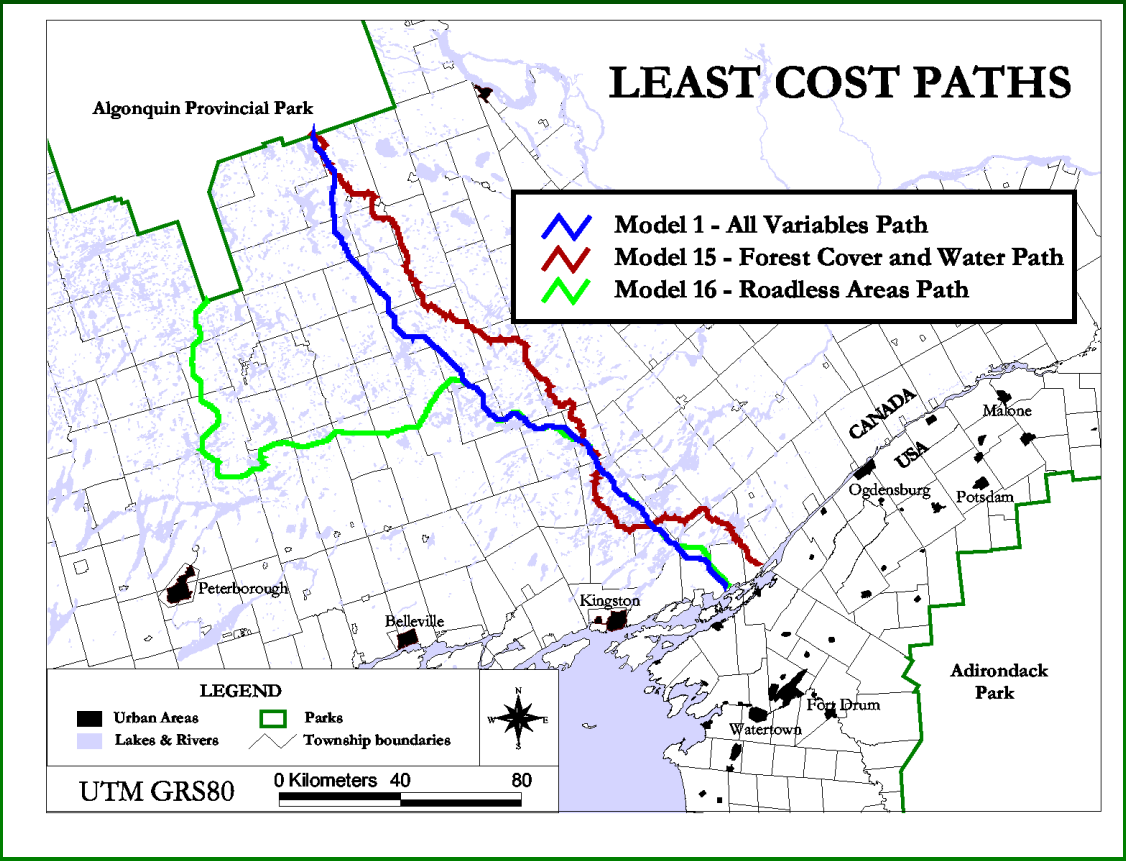
3. Divided region into 90m x 90m cells

4. Using each weighting scheme, ranked cells according to their “favorability”


TOP PERCENTILE MOSAICS
FOR THE ONTARIO STUDY AREA
Algonquin
Provincial Park
Ottawa
Top Percentile Mosaics
Top 10% Mosaic
Top 6% Mosaic
Top 5% Mosaic
Top 4% Mosaic
Top 2% Mosaic
Top 1% Mosaic
Malone
Ogdensburg
Potsdam
Peterborough
Kingston
Belleville
Adirondack
Park
Fort Drum
Watertown
Lake
Ontario
LEGEND
Urban Areas
Lakes & Rivers
Parks
Township boundaries
N
W
E
S
UTM GRS80
0 Kilometers 40
80

Methods (cont.)

5. Conducted path analyses between each park and a point on the St. Lawrence River



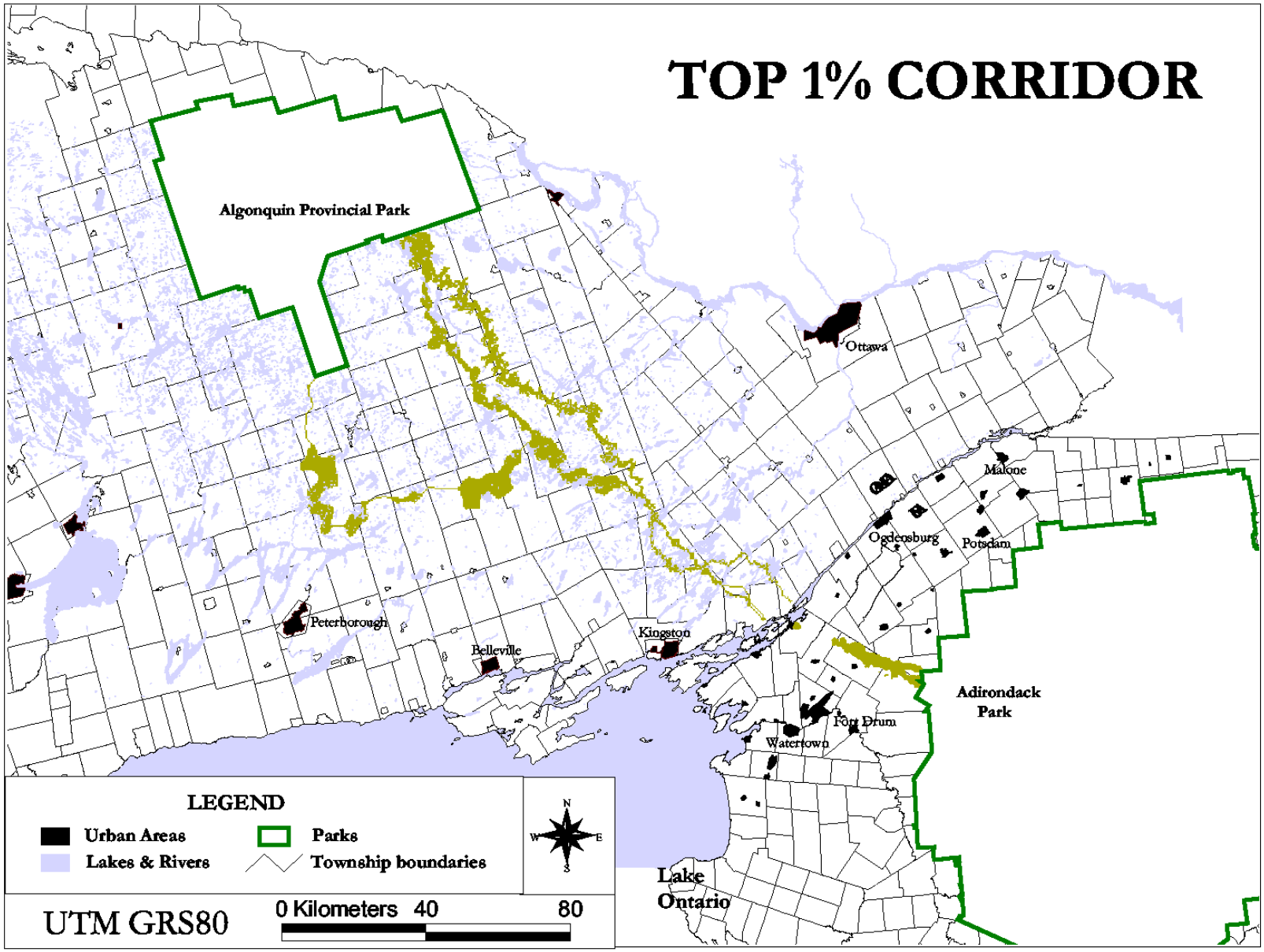
Methods (cont.)

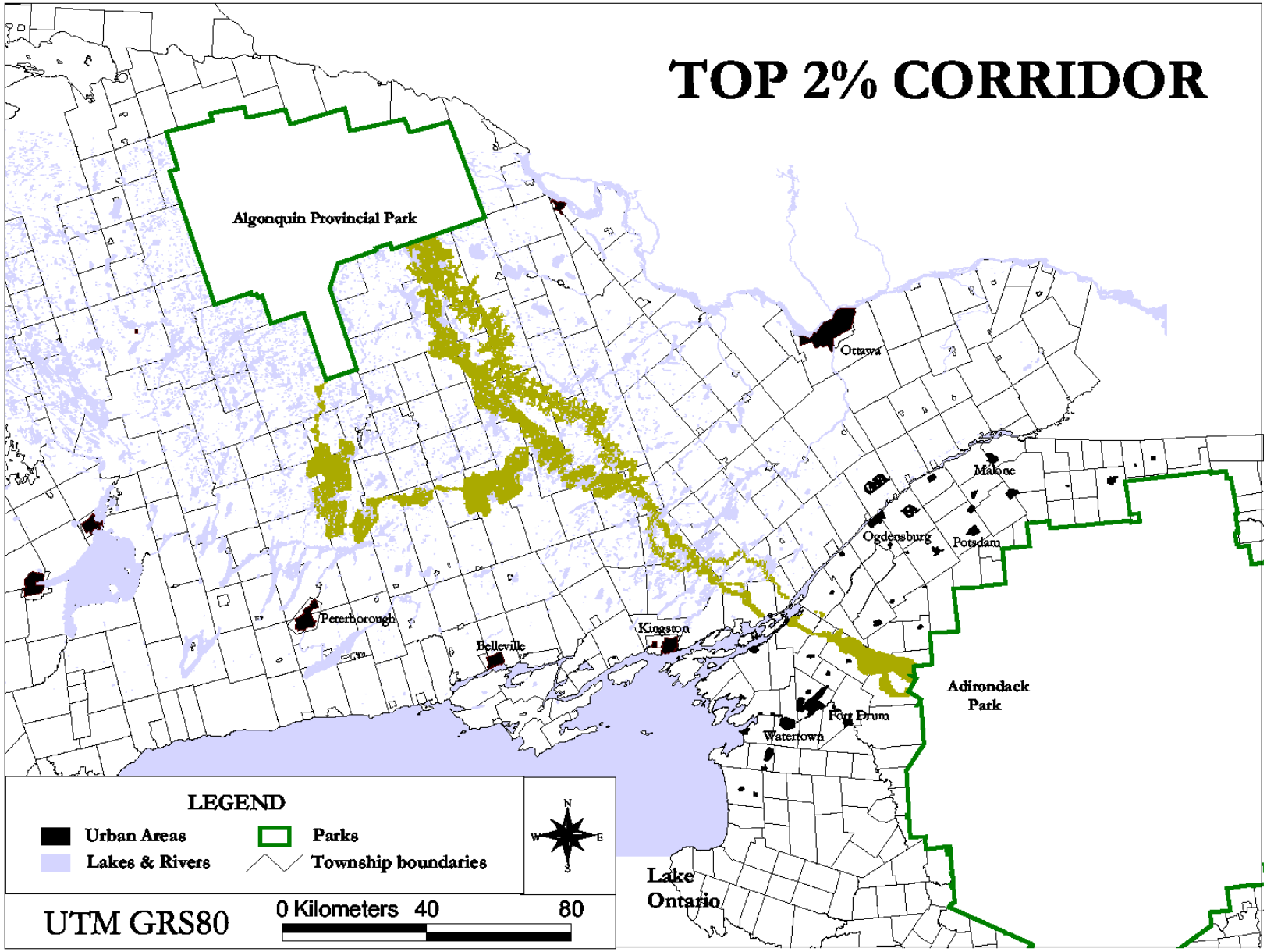
6. Width was added to paths by calculating "costs" of moving from path to all other cells

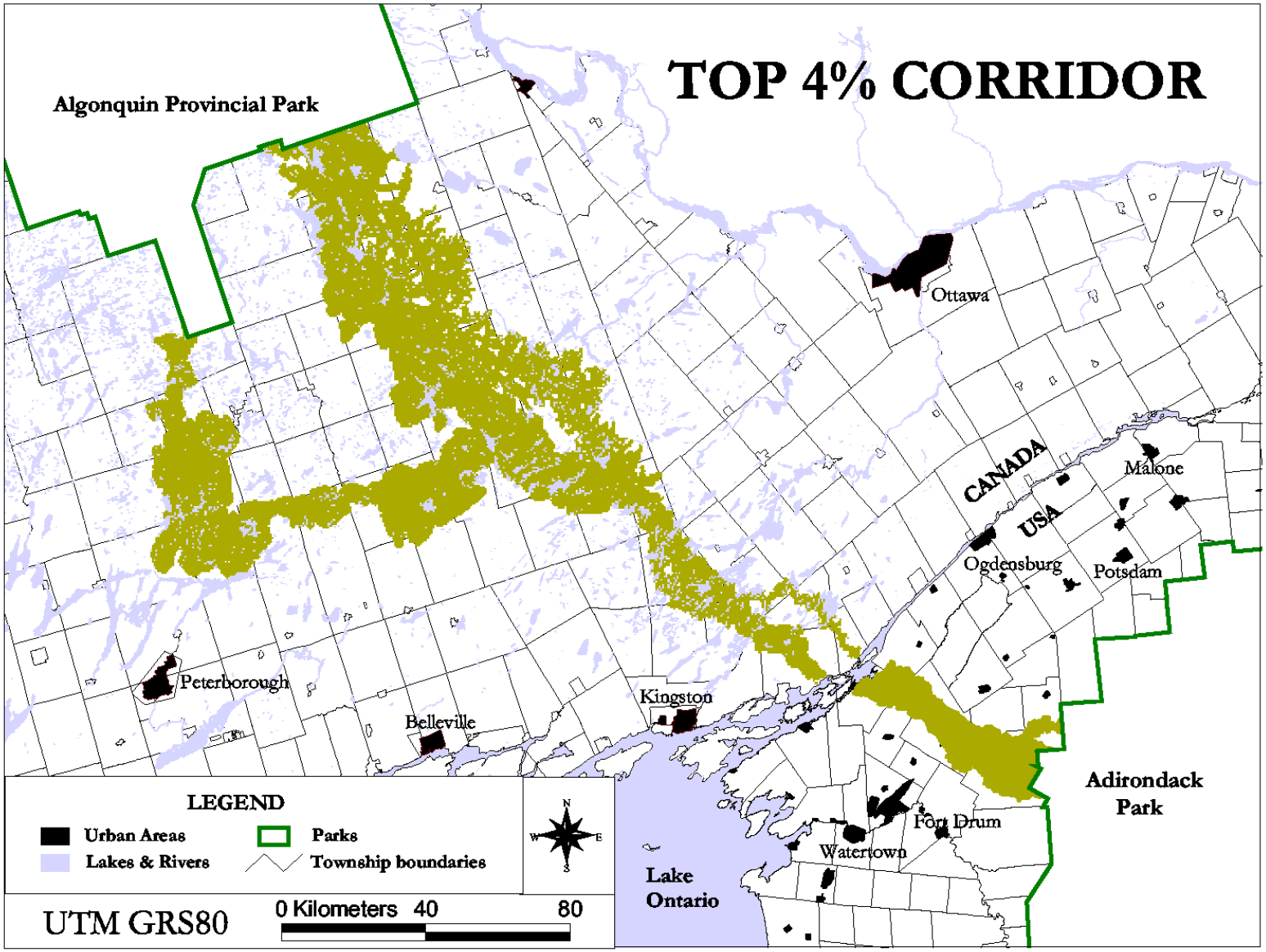
7. Queried for top 1%-10% of cells.

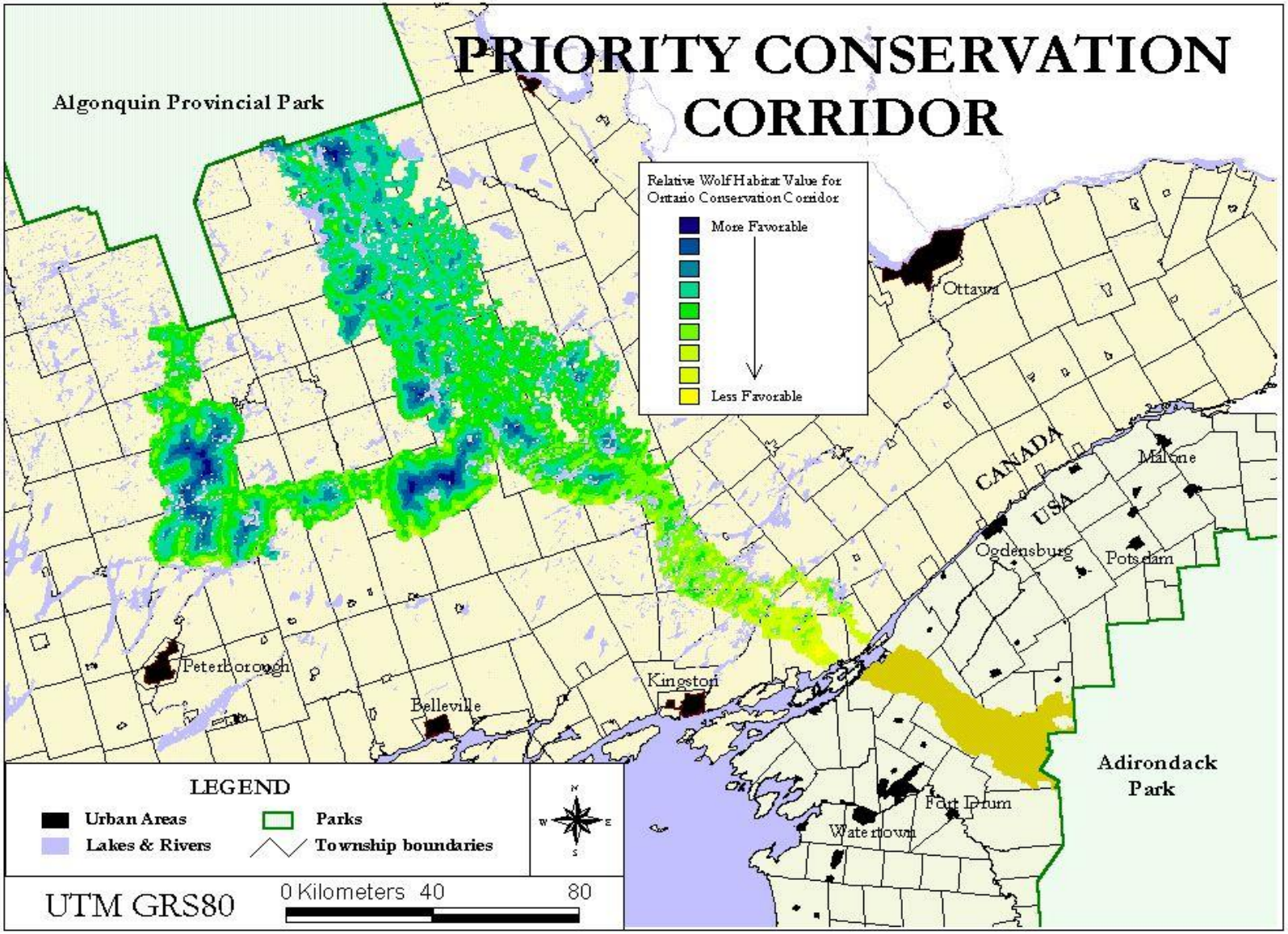
8. Combined all 15 "1% corridors" into a single 1% "composite corridor"

9. Repeated for all percentiles and qualitatively chose Priority Corridor


TOP 1% CORRIDOR
Algonquin Provincial Park
Ottawa
Malone
Ogdensburg
Potsdam
Peterborough
Belleville
Kingston
Adirondack Park
Fort Drum
Watertown
Lake Ontario
LEGEND
Urban Areas
Lakes & Rivers
Parks
Township boundaries
N
W
E
S
UTM GRS80
0 Kilometers 40 80


TOP 2% CORRIDOR
Algonquin Provincial Park
Ottawa
Malone
Ogdensburg
Potsdam
Peterborough
Kingston
Belleville
Adirondack Park
Fort Drum
Watertown
Lake Ontario
LEGEND
Urban Areas
Lakes & Rivers
Parks
Township boundaries
N
W
E
S
UTM GRS80
0 Kilometers 40 80


TOP 4% CORRIDOR
Algonquin Provincial Park
Ottawa
CANADA
USA
Malone
Ogdensburg
Potsdam
Peterborough
Belleville
Kingston
Adirondack Park
Fort Drum
Watertown
Lake Ontario
LEGEND
Urban Areas
Lakes & Rivers
Parks
Township boundaries
N
W
E
S
UTM GRS80
0 Kilometers 40 80


PRIORITY CONSERVATION CORRIDOR
Algonquin Provincial Park
Relative Wolf Habitat Value for Ontario Conservation Corridor
More Favorable
Less Favorable
Ottawa
CANADA
USA
Malone
Ogdensburg
Potsdam
Peterborough
Belleville
Kingston
Adirondack Park
Fort Drum
Watertown
LEGEND
Urban Areas
Lakes & Rivers
Parks
Township boundaries
N
W
E
S
UTM GRS80
0 Kilometers 40
80

Application of Results

- Identification of areas that are most suitable as habitat for species sensitive to human disturbance or exploitation
- Identification of areas that are most likely to have retained their ecological integrity or have maintained the potential for restoration
- Prioritization of outreach efforts, program focus, and land acquisition and protection

Potential Next Steps

- Use other studies of wolves to more accurately weight parameters and land use categories
- Evaluate proposed zone in relation to other features known to influence wolf movement
  - Prey availability
  - Competing species
  - Hunting pressure
- Evaluate zone in relation to:
  - Distribution of RT&E species
  - Public and private land
  - Other species
- How do we encourage land-use practices that are favorable to the movement of sensitive wildlife species AND implement these practices while respecting private property rights and economic concerns?