

- Appendix -

Wildlife Corridor Mapping in the Cootes to Escarpment EcoPark System

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Table A1. List of GIS data used in our analyses.

Title	Acronym	Format	Content date	Published date	Publisher	Source	Date accessed
Southern Ontario Land Resource Information System 3.0	SOLRIS	15 m ²	2000-2015	2019	Ministry of Natural Resources and Forestry	*/southern-ontario-land-resource-information-system-solris-3-0	2020-06-09
Ontario Land Cover Data Base	OLDCB	25 m ²	1986-1997	1998	Ministry of Natural Resources and Forestry	*/provincial-land-cover-1996-28-class-grid	2020-06-25
Ontario Hydro Network - Waterbody	OHN	Shapefile 1:10,000	Continually updated	2020	Ministry of Natural Resources and Forestry	*/mnr::ontario-hydro-network-ohn-waterbody	2020-07-10
Ontario Road Network Segment with Address	ORN	Lines	Continually updated	2020	Ministry of Natural Resources and Forestry	*/mnr::ontario-road-network-orn-segment-with-address	2020-06-05
Ontario Rail Network - Track	ORWN	Lines	Continually updated	2020	Ministry of Natural Resources and Forestry	*/mnr::ontario-railway-network-orwn	2020-10-09
Built-Up Areas	BUA	Shapefile	2012	2015	Ministry of Natural Resources and Forestry	*/built-up-area	2020-07-12
Culverts and Bridge Underpasses	N/A	Points	Continually updated	2020	City of Hamilton	Data request	2020-08-25
Cootes to Escarpment EcoPark System Partner Lands	N/A	Shapefile	Continually updated	2020	Conservation Halton	Data request	2020-09-23

* Data were downloaded from Ontario GeoHub - <https://geohub.lio.gov.on.ca/datasets>

Table A2. Cross-walk between land use and land cover classes from various data sources. Data source codes: BUA – Built-Up Areas; OHN - Ontario Hydro Network; OLCDB - Ontario Land Cover Data Base; ORN - Ontario Road Network; ORWN - Ontario Rail Network; SOLRIS - Southern Ontario Land Resource Information System.

Data source	Reclassified class	Original class
BUA	Built-Up Area – Impervious	Built-up Area Impervious
BUA	Built-Up Area – Pervious	Built-up Area Pervious
OHN	Open Water	Lake
OHN	Open Water	Pond
OHN	Open Water	River
OLCDB	Alvar	Alvar
OLCDB	Built-Up Area – Impervious	Settlement and Developed Land
OLCDB	Coniferous Forest	Dense Coniferous Forest
OLCDB	Deciduous Forest	Dense Deciduous Forest
OLCDB	Deciduous Forest	Sparse Deciduous Forest
OLCDB	Fen	Open Fen
OLCDB	Marsh	Freshwater Coastal Marsh / Inland Marsh
OLCDB	Mine Tailings, Quarries, and Bedrock Outcrops	Mine Tailings, Quarries, and Bedrock Outcrops
OLCDB	Mixed Forest	Mixed Forest, Mainly Coniferous
OLCDB	Mixed Forest	Mixed Forest, Mainly Deciduous
OLCDB	Open Water	Water
OLCDB	Pasture and Abandoned Fields	Pasture and Abandoned Fields
OLCDB	Swamp	Conifer Swamp
OLCDB	Swamp	Deciduous Swamp
OLCDB	Tilled	Cropland
ORN	Transportation - Major Road	Arterial
ORN	Transportation - Major Road	Expressway / Highway
ORN	Transportation - Major Road	Freeway
ORN	Transportation - Major Road	Ramp
ORN	Transportation - Major Road	Rapid Transit
ORN	Transportation - Major Road	Service
ORN	Transportation - Minor Road	Alleyway / Laneway
ORN	Transportation - Minor Road	Collector
ORN	Transportation - Minor Road	Local / Strata
ORN	Transportation - Minor Road	Local / Street
ORN	Transportation - Minor Road	Local / Unknown
ORN	Transportation - Minor Road	Resource / Recreation
ORN	Transportation - Minor Road	Winter

Data source	Reclassified class	Original class
ORWN	Railway	Track
SOLRIS	Alvar	Shrub Alvar
SOLRIS	Bog	Bog
SOLRIS	Built-Up Area – Impervious	Built-Up Area – Impervious
SOLRIS	Built-Up Area – Pervious	Built-Up Area – Pervious
SOLRIS	Coniferous Forest	Coniferous Forest
SOLRIS	Deciduous Forest	Deciduous Forest
SOLRIS	Extraction – Aggregate	Extraction – Aggregate
SOLRIS	Extraction – Peat/Topsoil	Extraction – Peat/Topsoil
SOLRIS	Fen	Fen
SOLRIS	Forest	Forest
SOLRIS	Hedge Rows	Hedge Rows
SOLRIS	Marsh	Marsh
SOLRIS	Mixed Forest	Mixed Forest
SOLRIS	Open Beach/Bar	Open Beach/Bar
SOLRIS	Open Tallgrass Prairie	Open Tallgrass Prairie
SOLRIS	Open Water	Open Water
SOLRIS	Plantations – Tree Cultivated	Plantations – Tree Cultivated
SOLRIS	Swamp	Thicket Swamp
SOLRIS	Swamp	Treed Swamp
SOLRIS	Tallgrass Woodland	Tallgrass Woodland
SOLRIS	Tilled	Tilled
SOLRIS	Transportation	Transportation

Table A3. Habitat suitability values for the focal species. Values range between 0 and 100; 0 = no use at all, < 30 avoided, 30 - 60 = occasional use for non-breeding, 60 - 80 = consistent use for breeding, 80 - 100 = best habitat for survival and breeding. Species codes: BLBR - Northern short-tailed shrew (*Blarina brevicauda*); EMBL - Blanding's turtle (*Emydoidea blandingii*), ODVI - White-tailed deer (*Odocoileus virginianus*).

Land use and land cover class	BLBR	EMBL	ODVI
Alvar	30	60	50
Bog	30	100	50
Built-Up Area: Impervious	0	0	0
Built-Up Area: Pervious	40	30	50
Coniferous Forest	40	60	80
Deciduous Forest	100	60	100
Extraction: Aggregate	30	30	30
Extraction: Peat/Topsoil	30	30	30
Fen	30	70	50
Forest (Unclassified)	100	60	100
Hedge Rows	50	30	50
Marsh	30	100	50
Mine Tailings*	30	30	30
Mixed Forest	90	60	100
Open Beach/Bar	30	70	50
Open Tallgrass Prairie	30	60	50
Open Water	0	0	0
Pasture and Abandoned Fields	30	50	70
Plantations, Cultivated Trees	80	30	60
Railway	0	0	0
Swamp	30	100	50
Tallgrass Woodland	30	60	50
Tilled	30	30	60
Transportation (Unclassified)	0	0	0
Transportation - Major Road	0	0	0
Transportation - Minor Road	0	0	0

*Includes Quarries and Bedrock Outcrops

Table A4. Dispersal resistance values used in the generic and focal species connectivity analyses. Focal species resistance values reflect the effort required to move through different land use and land cover types (values 2 to 32) relative to habitat patches (value of 1). The generic species resistance values are interpreted in the same way but there are no reference habitat patches and the resistance values range between 10-1000. Species codes: BLBR - Northern short-tailed shrew (*Blarina brevicauda*); EMBL - Blanding's turtle (*Emydoidea blandingii*), ODVI - White-tailed deer (*Odocoileus virginianus*).

Land use and land cover class	Generic	BLBR	EMBL	ODVI
Alvar	10	8	4	8
Bog	10	8	2	8
Built-Up Area: Impervious	1000	32	32	32
Built-Up Area: Pervious	100	8	32	2
Coniferous Forest	10	2	8	2
Deciduous Forest	10	2	6	2
Extraction: Aggregate	1000	8	32	16
Extraction: Peat/Topsoil	1000	8	32	16
Fen	10	8	4	8
Forest (Unclassified)	10	2	6	2
Hedge Rows	10	4	16	4
Marsh	10	8	2	8
Mine Tailings*	10	8	16	16
Mixed Forest	10	2	6	2
Open Beach/Bar	10	8	2	8
Open Tallgrass Prairie	10	4	4	4
Open Water	1000	16	2	8
Pasture and Abandoned Fields	100	2	4	2
Plantations, Cultivated Trees	10	2	16	2
Railway	1000	32	32	32
Swamp	10	8	2	8
Tallgrass Woodland	10	4	6	4
Tilled	100	8	32	8
Transportation (Unclassified)	1000	32	32	32
Transportation - Major Road	1000	32	32	32
Transportation - Minor Road	100	16	32	16

*Includes Quarries and Bedrock Outcrops

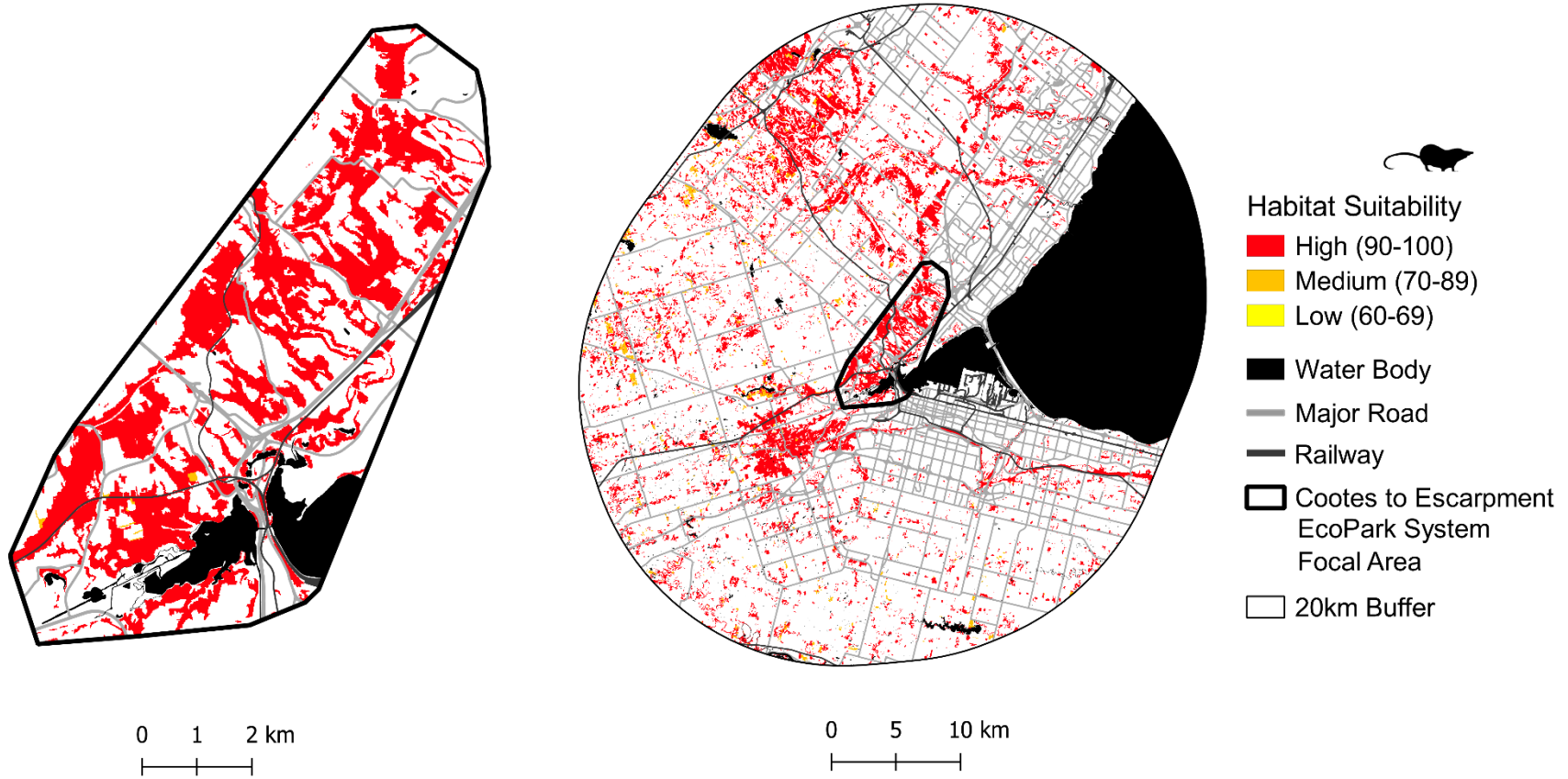


Figure A1. Habitat suitability for Northern short-tailed shrew in the Cootes to Escarpment EcoPark System focal area (left hand panel) and in a 20km buffer around the focal area (right hand panel). Pixels with a value greater than or equal to 60 are considered potential habitat. Areas with habitat suitability lower than 60 are white.

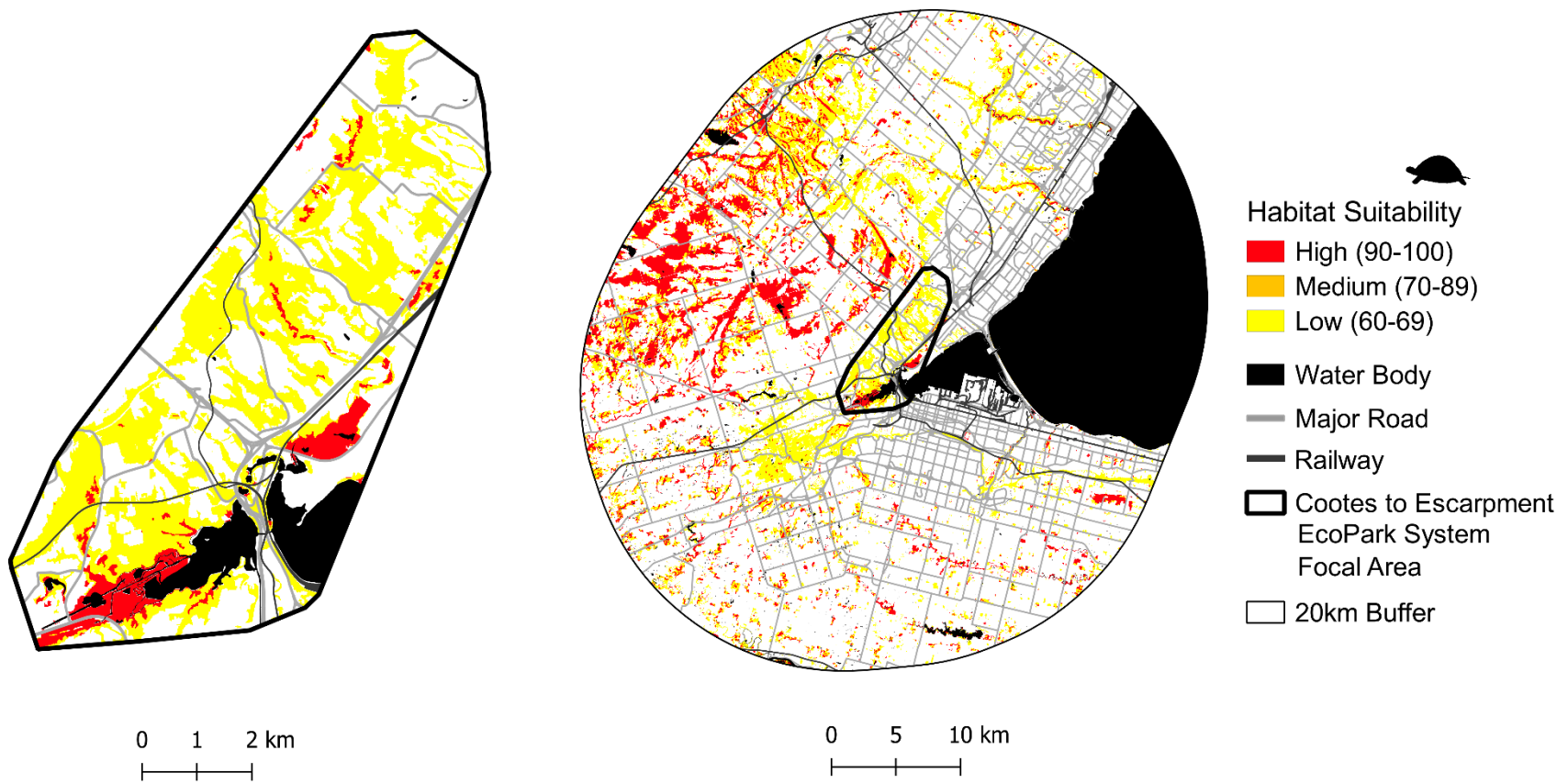


Figure A2. Habitat suitability for Blanding's turtle in the Cootes to Escarpment EcoPark System focal area (left hand panel) and in a 20km buffer around the focal area (right hand panel). Pixels with a value greater than or equal to 60 are considered potential habitat. Areas with habitat suitability lower than 60 are white.

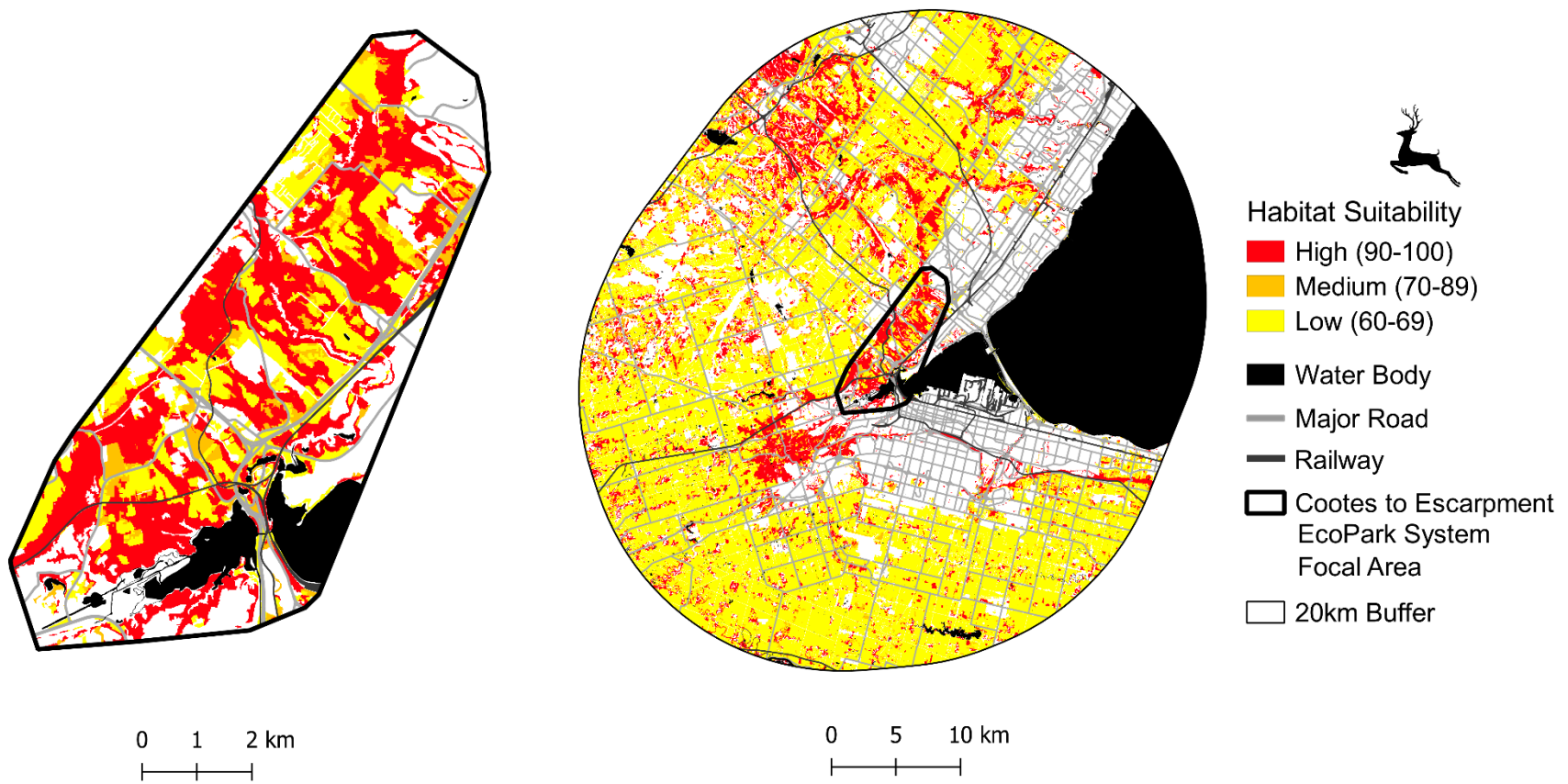


Figure A3. Habitat suitability for White-tailed deer in the Cootes to Escarpment EcoPark System focal area (left hand panel) and in a 20km buffer around the focal area (right hand panel). Pixels with a value greater than or equal to 60 are considered potential habitat. Areas with habitat suitability lower than 60 are white.



Figure A4. Habitat patches for Northern short-tailed shrew in the Cootes to Escarpment EcoPark System focal area (left hand panel) and in a 20km buffer around the focal area (right hand panel) showing patches of suitable habitat, i.e. those with habitat suitability ≥ 60 that are larger than 1 hectare (Table 2).

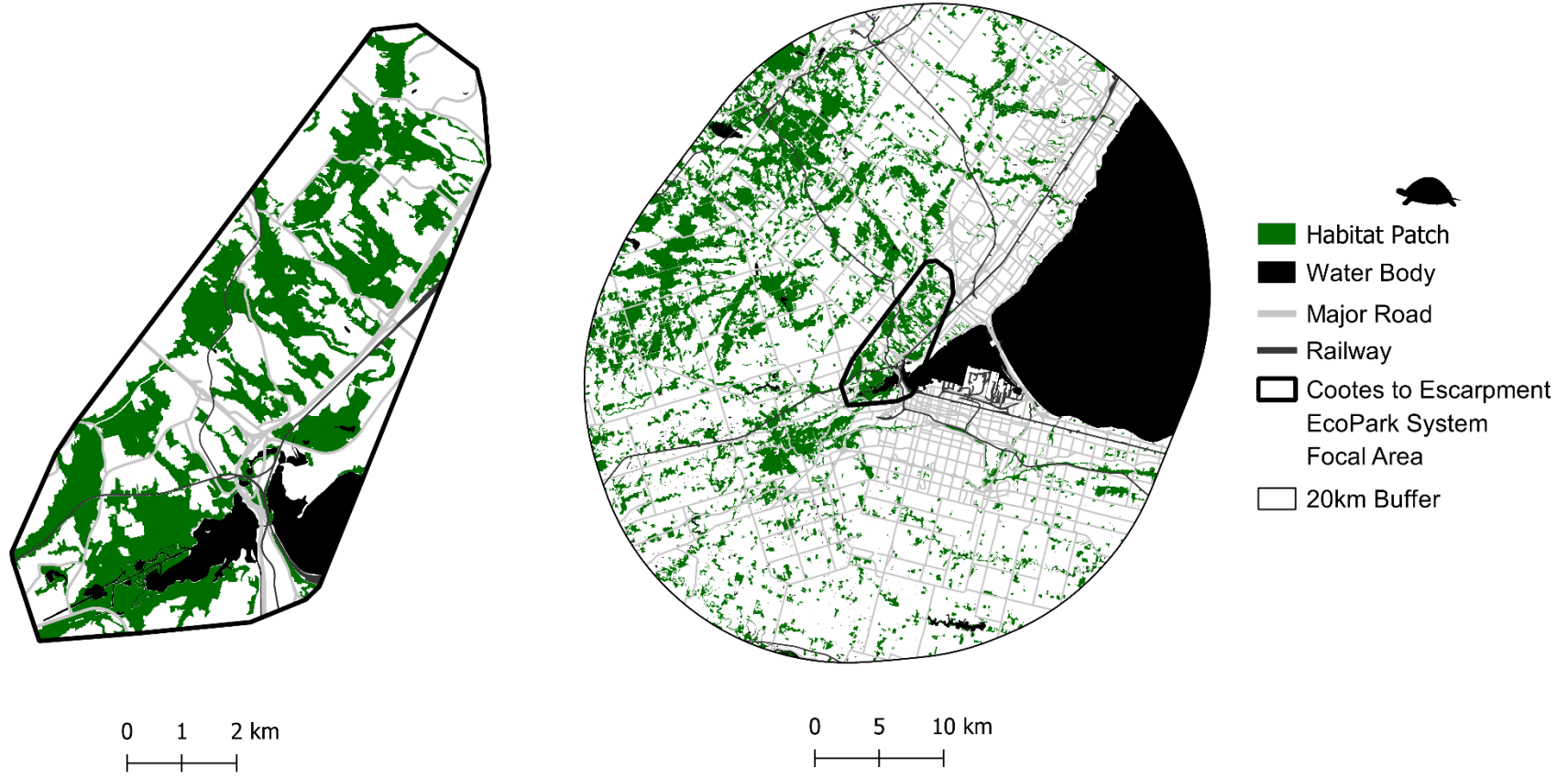


Figure A5. Habitat patches for Blanding's turtle in the Cootes to Escarpment EcoPark System focal area (left hand panel) and in a 20km buffer around the focal area (right hand panel) showing patches of suitable habitat, i.e. those with habitat suitability ≥ 60 that are larger than 2 hectares (Table 2).

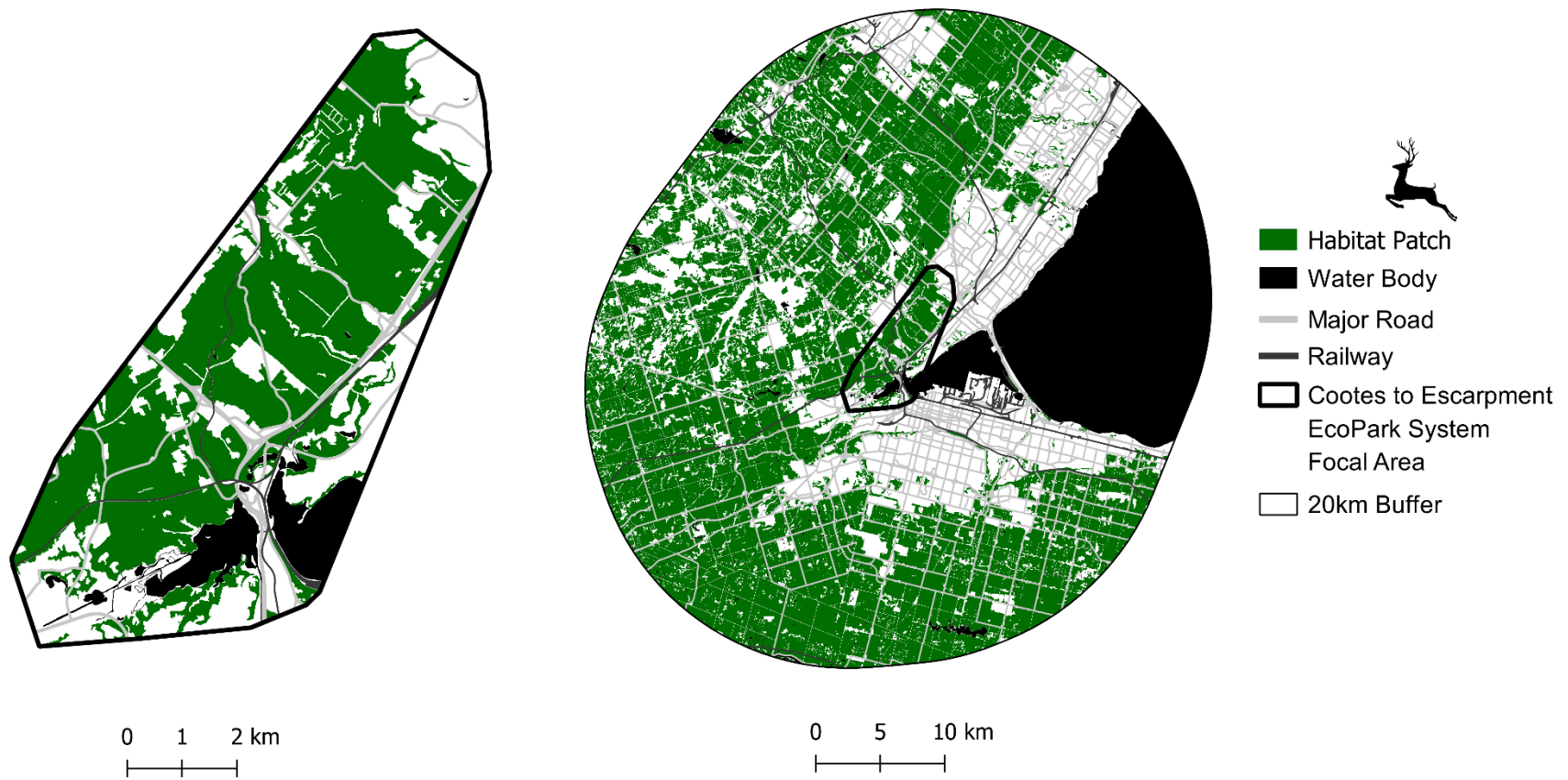


Figure A6. Habitat patches for White-tailed deer in the Cootes to Escarpment EcoPark System focal area (left hand panel) and in a 20km buffer around the focal area (right hand panel) showing patches of suitable habitat, i.e. those with habitat suitability ≥ 60 that are larger than 5 hectares (Table 2).

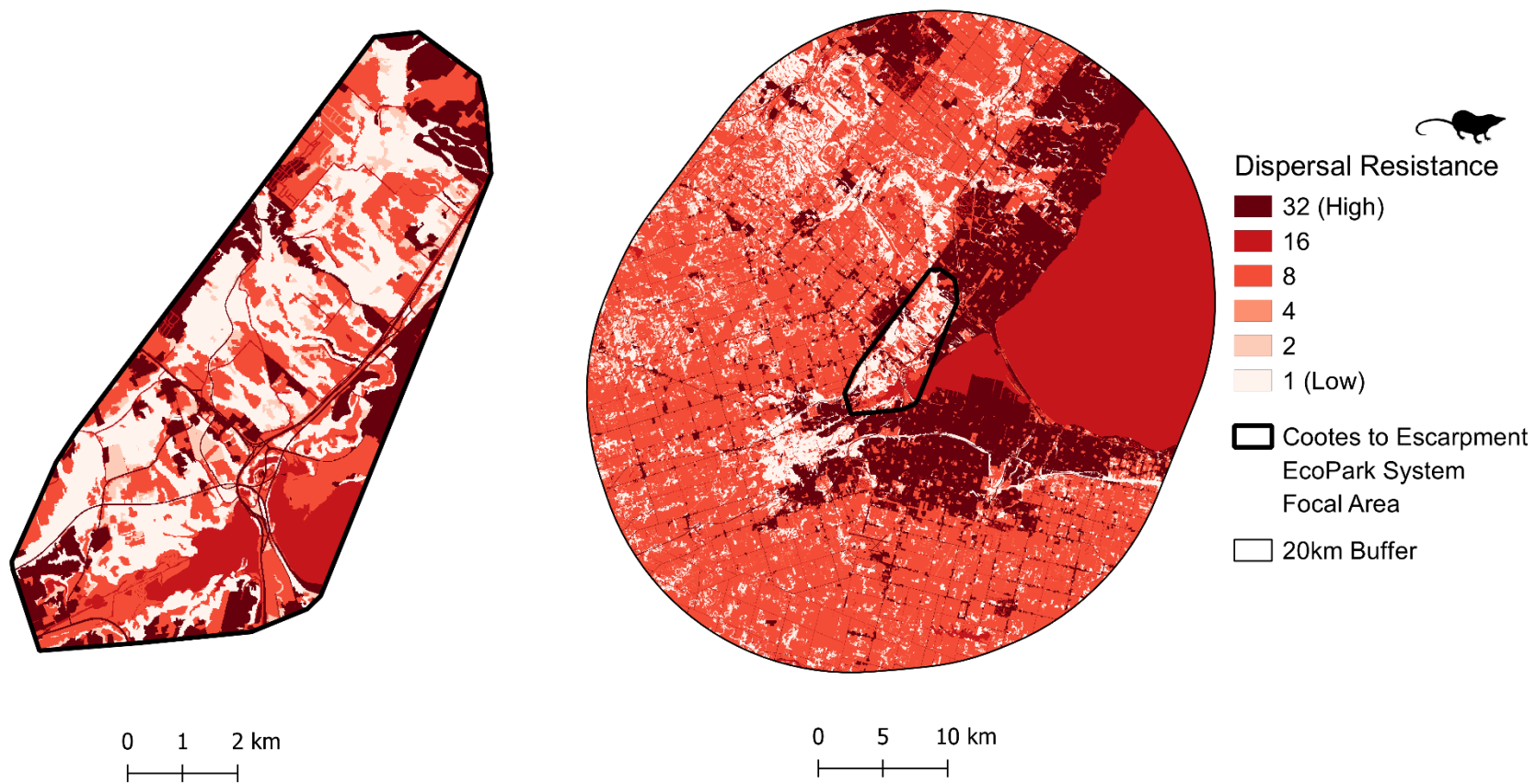


Figure A7. Dispersal resistance for Northern short-tailed shrew in the Cootes to Escarpment EcoPark System focal area (left hand panel) and in a 20km buffer around the focal area (right hand panel). Resistance reflects the effort required to move through different land use and land cover types (values 2 to 32) relative to habitat patches (value of 1; Table A4).

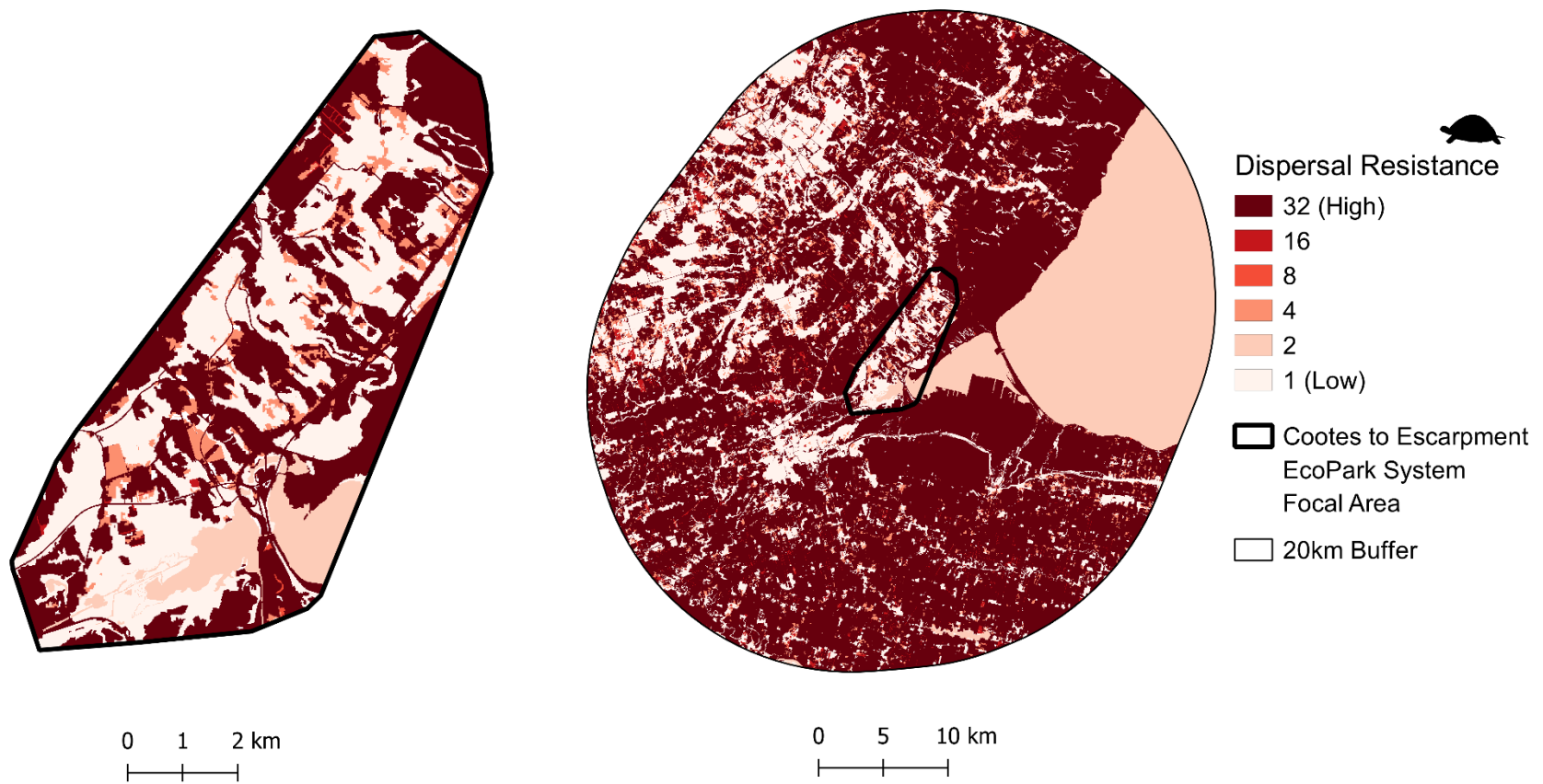


Figure A8. Dispersal resistance for Blanding's turtle in the Cootes to Escarpment EcoPark System focal area (left hand panel) and in a 20km buffer around the focal area (right hand panel). Resistance reflects the effort required to move through different land use and land cover types (values 2 to 32) relative to habitat patches (value of 1; Table A4).

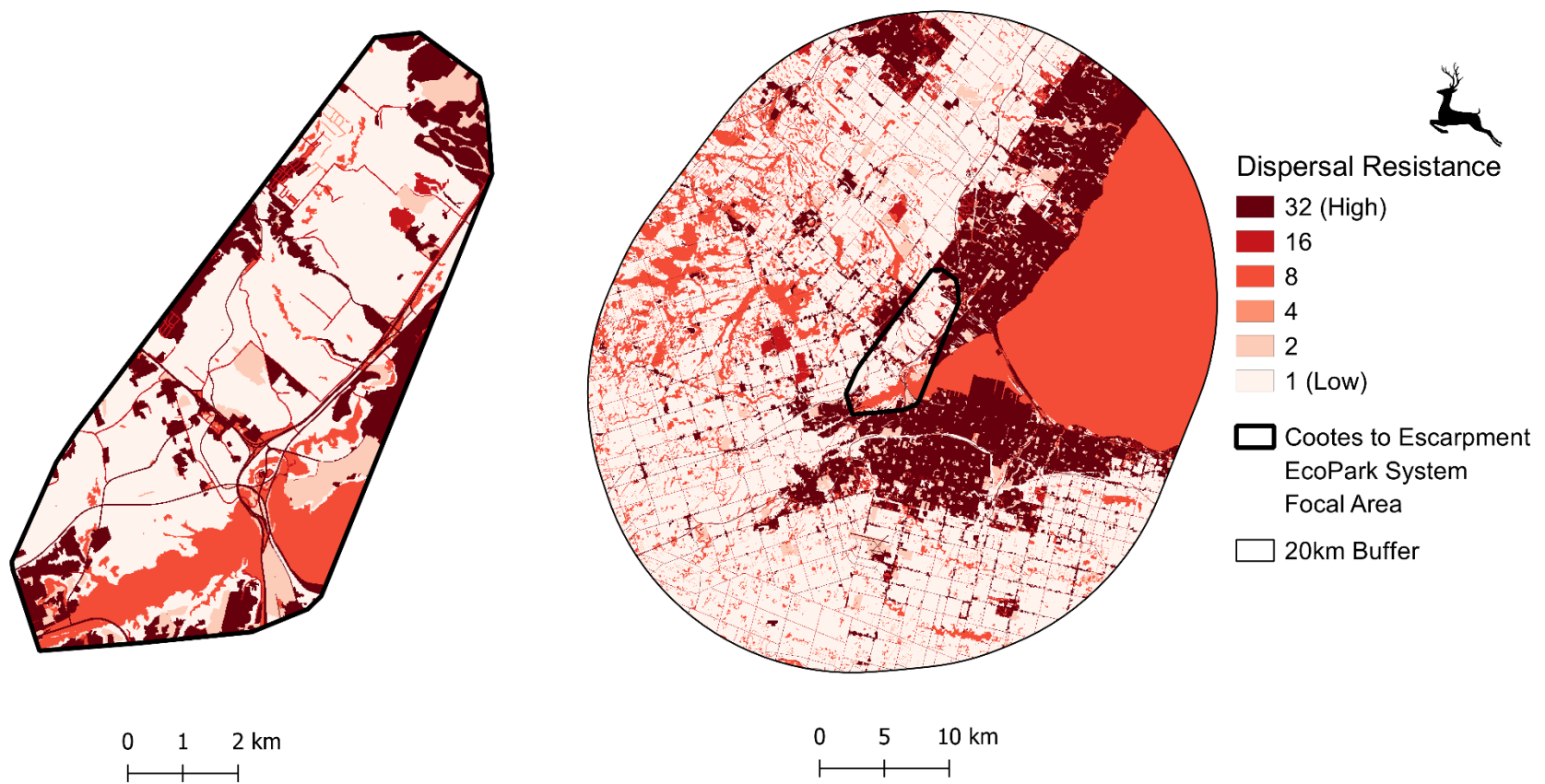


Figure A9. Dispersal resistance for White-tailed deer in the Cootes to Escarpment EcoPark System focal area (left hand panel) and in a 20km buffer around the focal area (right hand panel). Resistance reflects the effort required to move through different land use and land cover types (values 2 to 32) relative to habitat patches (value of 1; Table A4).