

APPENDIX P

Endangered, Threatened and Vulnerable Species in Ontario

In Ontario, species of flora and fauna may be protected by regulation under *Ontario's Endangered Species Act* or by regulation under the new Fish and Wildlife Conservation Act. This appendix is comprised of two parts.

The first part (K-1) lists those species of flora and fauna that are protected by regulation under the *Endangered Species Act*. This Regulation was last revised in 1994. For those with Internet access, *Regulations of Ontario* can be searched by subject heading at the following location – <http://209.195.107.57/en/index.html>

Copies of this or any other piece of Ontario legislation or regulation can be purchased by calling 1-800-668-9938 or by writing: Publications Ontario, 50 Grosvenor Street, Toronto, Ontario M7A 1N8.

The second part of this appendix (K-2) lists those Ontario species of flora and fauna that have been designated as endangered, threatened, vulnerable, indeterminate or extirpated by the Ontario Ministry of Natural Resources (OMNR) and/or the national Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Designations made by OMNR as of January 1995 are based on recommendations of a Ministry technical committee called the Committee of the Status of Species at Risk in Ontario (COSSARO). The work of COSSARO is integrated with the work of COSEWIC. Designations assigned by OMNR/COSSARO apply at the provincial level, while those of COSEWIC apply at the national level. There may be some differences between provincial and national designations.

It should be noted that COSEWIC designation is revised annually. COSEWIC designations in this appendix were last revised September 1999 (see <http://www.cosewic.gc.ca/COSEWIC/>).

OMNR/COSSARO designations are revised on an “as needed” basis. Designations in this appendix were last revised September 1998 (see <http://www.mnr.gov.on.ca/MNR/fwmenu.html> or <http://www.mnr.gov.on.ca/MNR/nhic/nhic.html>).

Up-to-date COSEWIC and OMNR/COSARO lists are also available for review at local OMNR offices and also include species of fish as well as those species of flora and fauna that are designated as extinct.

OMNR/COSSARO Status Definitions

EXTINCT: Any species formally native to Ontario that no longer exists.

EXTIRPATED: Any native species no longer existing in the wild in Ontario, but existing elsewhere in the wild.

ENDANGERED: any native species that, on the basis of the best available scientific evidence, is at risk of extinction or extirpation throughout all or a significant portion of its Ontario range if the limiting factors are not reversed.

THREATENED: Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a significant portion of its Ontario range if limiting factors are not reversed.

VULNERABLE: any native species that, on the basis of the best available scientific evidence, is a species of special concern in Ontario, but is not a threatened or endangered species.

INDETERMINATE: Any species for which there is insufficient scientific information on which to base a status recommendation.

COSEWIC Status Definitions

EXTINCT: A species that no longer exists.

EXTIRPATED: A species no longer existing in the wild in Canada, but occurring elsewhere.

ENDANGERED: A species facing imminent extirpation or extinction.

THREATENED: A species likely to become endangered if limiting factors are not reversed.

VULNERABLE: A species of special concern because characteristics that make it particularly sensitive to human activities or natural events.

INDETERMINATE: A species for which there is insufficient information to support a status designation.

NOT AT RISK: A species that has been evaluated and found to be not at risk.

R-1: Endangered Species Declared in Regulation under the Endangered Species Act, R.S.O. 1990, c.E. 15

Common Name	Scientific Name
<u>Vascular Plants</u>	
Small White Lady's-Slipper Orchid ¹	<i>Cypripedium candidum</i>
Small Whorled Pogonia ²	<i>Isotria medeoloides</i>
Large Whorled Pogonia ³	<i>Iostria verticillata</i>
Cucumber Tree ^{4,5}	<i>Magnolia acuminata</i>
Wood Poppy ⁶	<i>Stylophorum diphyllum</i>
Prickly Pear Cactus ^{7,8}	<i>Opuntia humifusa</i>
Hoary Mountain-mint ⁹	<i>Pycnanthemum incanum</i>
Heart-leaved Plantain ¹⁰	<i>Plantago cordata</i>
<u>Amphibians</u>	
Blanchard's Cricket Frog ¹¹	<i>Acris crepitans blanchardi</i>
<u>Reptiles</u>	
Lake Erie Water Snake ¹²	<i>Nerodia sipedon insularum</i>
Blue Racer ¹⁴	<i>Coluber constrictor flaviventris</i>
Timber Rattlesnake	<i>Crotalus horridus</i>
<u>Birds</u>	
White Pelican ¹⁵	<i>Pelecanus erythrorhynchos</i>
Bald Eagle ¹⁶	<i>Haliaeetus leucocephalus alascanus</i>
Golden Eagle ¹⁷	<i>Aquila chrysaetos</i>
Peregrine Falcon ¹⁸	<i>Falco peregrinus</i>
Piping Plover ¹⁹	<i>Charadrius melodus</i>
Eskimo Curlew	<i>Numenius borealis</i>
Loggerhead Shrike ²⁰	<i>Lanius ludovicianus</i>
Kirtland's Warbler ²¹	<i>Dendroica kirtlandii</i>
Henslow's Sparrow ²²	<i>Ammodramus henslowii</i>
<u>Mammals</u>	
Mountain Lion (Eastern Cougar) ²³	<i>Felis concolor cougar</i>
<u>Insects</u>	
Frosted Elfin ²⁴	<i>Incisalia irus</i>
Karner Blue Butterfly ²⁵	<i>Lycaeides melissa samuelis</i>

¹ Designated as nationally endangered by COSEWIC in 1999; declared in Regulation under the *Endangered Species Act, R.S.O. 1990, c. E. 15* in 1978.

² Designated as nationally endangered by COSEWIC in 1982; designation reconfirmed in 1998.

³ Designated as nationally endangered by COSEWIC in 1986; designation reconfirmed 1998.

⁴ Designated as nationally endangered by COSEWIC in 1984.

⁵ The regulation protects Cucumber Tree in specified locations only.

⁶ Designated as nationally endangered by COSEWIC in 1993.

⁷ Designated as nationally endangered by COSEWIC in 1985; designation reconfirmed in 1998.

⁸ The Regulation protects Prickly Pear Cactus in specified locations only.

⁹ Designated as nationally endangered by COSEWIC in 1986; designation reconfirmed in 1998.

¹⁰ Designated as nationally endangered by COSEWIC in 1985; designation reconfirmed in 1998.

¹¹ Blanchard's Cricket Frog is also protected in Regulation under the *Fish and Wildlife Conservation Act*. Designated as nationally endangered by COSEWIC in 1990.

¹² The three snakes on this list are also protected in Regulation under the *Fish and Wildlife Conservation Act*.

¹³ Designated as nationally endangered by COSEWIC in 1991.

¹⁴ Designated as nationally endangered by COSEWIC in 1991.

¹⁵ Designated as nationally threatened by COSEWIC in 1978; delisted in 1987.

¹⁶ COSEWIC reviewed the national status of the Bald Eagle in 1984 and did not assign a status designation.

¹⁷ Designated as "not at risk" nationally by COSEWIC in 1996.

¹⁸ Subspecies *Falco peregrinus anatum* designated as nationally endangered in 1978; downlisted to nationally threatened by COSEWIC in 1999; COSEWIC downlisted *F. p. tundrius* from nationally threatened to nationally vulnerable in 1992; all subspecies of *F. peregrinus* covered in Regulation under the *Endangered Species Act, R.S.O. 1990, c. E. 15* in 1973.

¹⁹ Designated as nationally endangered by COSEWIC in 1985.

²⁰ Eastern population of Loggerhead Shrike designated as nationally endangered by COSEWIC in 1991, western population designated as nationally threatened in 1991. In Canada, the eastern population is restricted to Ontario, Quebec and Manitoba.

²¹ Designated as nationally endangered by COSEWIC in 1979; status reconfirmed by COSEWIC in 1999.

²² Designated as nationally endangered by COSEWIC in 1993.

²³ Designated as nationally endangered by COSEWIC in 1978; designated as nationally indeterminate by COSEWIC in 1998.

²⁴ Designated as nationally extirpated by COSEWIC in 1999; declared in Regulation under the *Endangered Species Act, R.S.O. 1990, c. E. 15* in 1990.

²⁵ Designated as nationally extirpated by COSEWIC in 1997

R-2: Endangered, Threatened, Vulnerable Species of Flora and Fauna in Ontario**Endangered (but not in Regulation under Endangered Species Act)**

Common and Scientific Names	Designating Authority	Year Designated
Vascular Plants		
Engelmann's Quillwort <i>Isoetes engelmannii</i>	COSEWIC	1992
Juniper Sedge <i>Carex juniperorum</i>	COSEWIC	1999
Drooping Trillium <i>Trillium flexipes</i>	COSEWIC	1996
Small White Lady's-slipper Orchid ¹ <i>Cypripedium candidum</i>	COSEWIC	1999
Purple Twayblade ² <i>Liparis lilifolia</i>	COSEWIC	1999
Nodding Pogonia ³ <i>Triphora trianthophora</i>	COSEWIC	1999
American Ginseng ⁴ <i>Panax quinquefolium</i>	COSEWIC	1999
Pitcher's Thistle ⁵ <i>Cirsium pitcheri</i>	COSEWIC	1999
Showy Goldenrod <i>Solidago speciosa</i>	COSEWIC	1999
White Prairie Gentian <i>Gentiana alba</i>	COSEWIC	1991
Slender Bush Clover <i>Lespedeza virginica</i>	COSEWIC	1986; reconfirmed status in 1999
Scarlet Ammania <i>Ammania robusta</i>	COSEWIC	1999
Toothcup <i>Rotala ramosior</i>	COSEWIC	1999
Cucumber Tree ⁶ <i>Magnolia acuminata</i>	COSEWIC	1999
Red Mulberry ⁷ <i>Morus rubra</i>	COSEWIC	1999
Pink Milkwort <i>Polygala incarnata</i>	COSEWIC	1984; reconfirmed status in 1998
Spotted Wintergreen <i>Chimaphila maculata</i>	COSEWIC	1987; reconfirmed status in 1998
Gattinger's Agalinis <i>Agalinis gattingeri</i>	COSEWIC	1988; reconfirmed status in 1999
Skinner's Agalinis <i>Agalinis skinneriana</i>	COSEWIC	1988; reconfirmed status in 1999
Bluehearts <i>Buchnera americana</i>	COSEWIC	1998

Common and Scientific Names	Designating Authority	Year Designated
<u>Birds</u> ⁸		
Acadian Flycatcher <i>Empidonax virescens</i>	COSEWIC	1994
King Rail ⁹ <i>Rallus elegans</i>	COSEWIC	1994
Northern Bobwhite <i>Colinus virginianus</i>	COSEWIC	1994
Barn Owl (eastern population) ¹⁰ <i>Tyto alba</i>	COSEWIC	1999
Kirtland's Warbler ¹¹ <i>Dendroica kirtlandii</i>	COSEWIC	1999
Prothonatary Warbler ¹² <i>Prothonotaria citrea</i>	COSEWIC	1996
<u>THREATENED</u>		
Vascular Plants		
Blunt-lobed Woodsia <i>Woodsia obtusa</i>	COSEWIC	1994
False Hop Sedge <i>Carex lupuliformis</i>	COSEWIC	1997
Small-flowered Lipocarpha <i>Lipocarpha (Hemicarpha) micrantha</i>	COSSARO	1996
Colicroot <i>Aletris farinosa</i>	COSEWIC	1988
Purple Twayblade ¹³ <i>Liparis liliifolia</i>	COSSARO	1996
American Chestnut <i>Castanea dentata</i>	COSEWIC	1987
Golden Seal <i>Hydrastis canadensis</i>	COSEWIC	1991
Kentucky Coffee-tree <i>Gymnocladus dioicus</i>	COSSARO	1995
Goat's-Rue <i>Tephrosia virginiana</i>	COSEWIC	1983
Bird's Foot Violet <i>Viola pedata</i>	COSSARO	1996
Deerberry <i>Vaccinium stamineum</i>	COSEWIC	1990
White Wood Aster <i>Aster divaricatus</i>	COSEWIC	1994
Amphibians		
Fowler's Toad ^{14 15} <i>Bufo fowleri</i>	COSEWIC	1995
		1999

Common and Scientific Names	Designating Authority	Year Designated
<u>Reptiles</u>		
Eastern Spiny Softshell ^{16 17}	COSEWIC	1991
<i>Apalone spinifera spinifera</i>	COSSARO	1995
Black Rat Snake		
<i>Elaphe obsoleta</i>	COSEWIC	1998
Eastern Fox Snake		
<i>Elaphe vulpina gloydi</i>	COSEWIC	1999
Queen Snake		
<i>Regina septemvittata</i>	COSEWIC	1999
Eastern Massasauga ^{18 19}	COSEWIC	1991
<i>Sistrurus catenatus catenatus</i>	COSSARO	1995
<u>Birds</u>		
Peregrine Falcon ²⁰		
<i>Falco peregrinus anatum</i>	COSEWIC	1999
Barn Owl (eastern population) ²¹		
<i>Tyto alba</i>	OMNR	1984
Hooded Warbler		
<i>Wilsonia citrina</i>	COSEWIC	1994
VULNERABLE		
<u>Vascular Plants</u>		
Broad Beech Fern		
<i>Phegopteris hexagonoptera</i>	COSEWIC	1983
Hill's Pondweed		
<i>Potamogeton hillii</i>	COSEWIC	1986
Few-flowered Club-rush		
<i>Scirpus verecundus</i>	COSEWIC	1986
Green Dragon		
<i>Arisaema dracontium</i>	COSEWIC	1984
Wild Hyacinth		
<i>Camassia scilloides</i>	COSEWIC	1990
Round-leaved Greenbrier ²²		
<i>Smilax rotundifloia</i>	COSSARO	1995
Eastern Prairie White Fringed Orchid		
<i>Platanthera leucophaea</i>	COSEWIC	1986
Shumard Oak		
<i>Quercus shumardii</i>	COSEWIC	1984; reconfirmed status in 1999
Dwarf Hackberry		
<i>Celtis tenuifolia</i>	COSEWIC	1985
False Rue-anemone		
<i>Isopyrum biternatum</i>	COSEWIC	1990
Climbing Prairie Rose		
<i>Rosa setigera</i>	COSEWIC	1986
Hop Tree		
<i>Ptelea trifoliata</i>	COSEWIC	1984

Common and Scientific Names	Designating Authority	Year Designated
Swamp Rose Mallow <i>Hibiscus moscheutos</i>	COSEWIC	1987
Branched Bartonia <i>Bartonia paniculata</i>	COSEWIC	1992
American Columbo <i>Frasera caroliniensis</i>	COSEWIC	1993
Blue Ash ²³ <i>Fraxinus quadrangulata</i>	COSSARO	1996
American Water-willow ²⁴ <i>Justicia americana</i>	COSSARO	1996
Indian Plantain <i>Cacalia plantaginea</i>	COSEWIC	1988; reconfirmed status in 1999
Willow Aster <i>Aster praealtus</i>	COSEWIC	1999
Crooked-stemmed Aster <i>Aster prenanthoides</i>	COSEWIC	1999
Western Silver-leaf Aster <i>Virgulus (Aster) sericeus</i>	COSEWIC	1988
Dense Blazing Star <i>Liatris spicata</i>	COSEWIC	1988
<u>Amphibians</u>		
Smallmouth Salamander <i>Ambystoma texanum</i>	COSEWIC	1991
<u>Reptiles</u>		
Spotted Turtle ²⁵ <i>Clemmys guttata</i>	COSEWIC	1991
Wood Turtle ^{26 27} <i>Clemmys insculpta</i>	COSSARO OMNR	1995 1985
Five-lined Skink ²⁸ <i>Eumeces fasciatus</i>	COSEWIC	1996
Eastern Hognose Snake ²⁹ <i>Heterodon platirhinos</i>	COSEWIC	1998
Butler's Garter Snake <i>Thamnophis butleri</i>	COSSARO COSEWIC	1996 1997
<u>Birds</u>		
Least Bittern <i>Ixobrychus exilis</i>	COSEWIC	1988; reconfirmed status in 1999
Red-shouldered Hawk <i>Buteo lineatus</i>	COSEWIC COSSARO	1983; reconfirmed status in 1996 1995
Yellow Rail <i>Coturnicops noveboracensis</i>	COSEWIC	1999
<u>Caspian Tern</u>		
<i>Sterna caspia</i>	COSEWIC	1978

Common and Scientific Names	Designating Authority	Year Designated
Black Tern ³⁰		
<i>Chlidonias niger</i>	COSSARO	1996
Short-eared Owl		
<i>Asio flammeus</i>	COSEWIC	1994
Great Gray Owl ³¹		
<i>Strix nebulosa</i>	COSSARO	1996
Red-headed Woodpecker	COSSARO	1996
<i>Melanerpes erythrocephalus</i>	COSEWIC	1996
Prairie Warbler	COSEWIC	1985
<i>Dendroica discolor</i>	COSSARO	1996
Cerulean Warbler	COSEWIC	1993
<i>Dendroica cerulea</i>	COSSARO	1996
Louisiana Waterthrush	COSEWIC	1991; reconfirmed status in 1996
<i>Seiurus motacilla</i>	COSSARO	1995
Yellow-breasted Chat (Eastern)	COSEWIC	1994
<i>Icteria virens</i>	COSSARO	1996
Mammals		
Eastern mole		
<i>Scalopus aquaticus</i>	COSEWIC	1980; reconfirmed status in 1998
Southern Flying Squirrel		
<i>Glaucomys volans</i>	COSEWIC	1988
Woodland Vole		
<i>Microtus pinetorum</i>	COSEWIC	1998
Gray Fox		
<i>Urocyon cinereoargenteus</i>	COSEWIC	1979
Polar Bear		
<i>Ursus maritimus</i>	COSEWIC	1991; reconfirmed status in 1999
Wolverine		
<i>Gulo gulo</i>	COSEWIC	1989
Woodland Caribou ³²		
<i>Rangifer tarandus caribou</i>	COSEWIC	1984
Insects		
West Virginia White ³³		
<i>Artogeia (Pieris) virginiensis</i>	OMNR	1990
INDETERMINATE		
Mammals		
Gray Wolf (eastern population)		
<i>Canis lupus</i>	COSEWIC	1999
Mountain Lion (Eastern Cougar)		
<i>Felis concolor cougar</i>	COSEWIC	1998

Common and Scientific Names	Designating Authority	Year Designated
EXTIRPATED		
Vascular Plants		
Illinois Tick-trefoil <i>Desmodium illinoense</i>	COSEWIC	1991
Blue-eyed Mary <i>Collinsia verna</i>	COSEWIC	1987
Birds		
Greater Prairie Chicken <i>Tympanuchus cupido</i>	COSEWIC	1990
Insects		
Frosted Elfin Butterfly ³⁴ <i>Incisalia irus</i>	COSEWIC	1999
Karner Blue Butterfly ³⁵ <i>Lycaeides melissa samuelis</i>	COSEWIC	1997

¹ Declared in Regulation under the Endangered Species Act, R.S.O. 1990, c. E. 15 in 1978

² Designated as nationally threatened in 1989 by COSEWIC and provincially threatened by COSSARO; uplisted to nationally endangered in 1999

³ Designated as nationally threatened by COSEWIC in 1988; uplisted to nationally endangered in 1999

⁴ Designated as nationally threatened by COSEWIC in 1988; uplisted to endangered in 1999

⁵ Designated as nationally threatened in 1988; uplisted to endangered in 1999

⁶ Declared in Regulation under the Endangered Species Act, R.S.O. 1990, c.E. 15 in 1987

⁷ Designated as nationally threatened by COSEWIC in 1987; uplisted to endangered in 1999

⁸ Recorded present in Ontario with breeding occurrences primarily in the southwestern portion of the province (Cadman, M. D., P. F. J. Eagles and F. M. Helleiner. 1988. Atlas of the breeding birds of Ontario. Federation of Ontario Naturalists and the Long Point Bird Observatory. University of Waterloo Press).

⁹ Designated as nationally vulnerable by COSEWIC in 1985; uplisted to nationally endangered in 1994.

¹⁰ Designated as provincially threatened by OMNR in 1984; designated nationally vulnerable by COSEWIC in 1984; uplisted to nationally endangered by COSEWIC in 1999.

¹¹ Declared in Regulation under the Endangered Species Act, R.S.O. 1990, c. E. 15 in 1978.

¹² Designated as nationally vulnerable by COSEWIC in 1984; uplisted to nationally endangered in 1996.

¹³ Designated as provincially threatened by COSSARO in 1996; designated nationally threatened by COSEWIC in 1989; uplisted to nationally endangered by COSEWIC in 1999.

¹⁴ Designated nationally vulnerable by COSEWIC in 1986; uplisted to nationally threatened by COSEWIC in 1999.

¹⁵ Fowler's toad is protected in Regulation under the Fish and Wildlife Conservation Act.

¹⁶ Eastern Spiny Softshell is protected in Regulation under the provincial Fish and Wildlife Conservation Act.

¹⁷ COSSARO reconfirmed the OMNR status of provincially threatened.

¹⁸ The Eastern Massasauga is protected in Regulation under the provincial Fish and Wildlife Conservation Act

¹⁹ COSSARO reconfirmed the OMNR status of provincially threatened.

²⁰ Subspecies *Falco peregrinus anatum* designated as nationally endangered in 1978; downlisted to nationally threatened by COSEWIC in 1999; COSEWIC downlisted *F. p. tundrius* from nationally threatened to nationally vulnerable in 1992; all subspecies of *F. peregrinus* covered in Regulation under the Endangered Species Act, R.S.O. 1990, c. E. 15 in 1973.

²¹ Eastern population of Barn Owl was designated as provincially threatened by OMNR in 1984; designated nationally vulnerable by COSEWIC in 1984; uplisted to nationally endangered by COSEWIC in 1999.

²² Ontario populations designated as nationally threatened by COSEWIC in 1994. COSSARO reviewed the scientific evidence against its Criteria in January 1995 and October 1995 and determined that a status of provincially vulnerable is warranted.

²³ Designated nationally threatened by COSEWIC in 1983. COSSARO reviewed the scientific evidence against its Criteria in July 1996 and determined that a status of provincially vulnerable is warranted.

²⁴ Designated nationally threatened by COSEWIC in 1984. COSSARO reviewed the scientific evidence against its Criteria in July 1996 and determined that a status of provincially vulnerable is warranted.

²⁵ Spotted Turtle is protected in Regulation under the Fish and Wildlife Conservation Act.

²⁶ Wood Turtle is protected in Regulation under the Fish and Wildlife Conservation Act.

²⁷ COSSARO was formed pursuant to the designation of the Wood Turtle by OMNR in 1985.

²⁸ Five-lined Skink is protected in Regulation under the Fish and Wildlife Conservation Act.

²⁹ Eastern Hognose Snake is protected in Regulation under the Fish and Wildlife Conservation Act.

³⁰ Designated as "not at risk" nationally by COSEWIC in 1996. This reconfirmed the committee's 1978 designation of "not in any category". COSSARO has reviewed the data for Ontario and considers that a designation of provincially vulnerable is warranted.

³¹ Designated as nationally rare (vulnerable) by COSEWIC in 1979, and delisted in 1996. The Great Gray Owl is retained on OMNR's list of provincially vulnerable species pending further consideration by COSSARO.

³² "Western population" of Woodland Caribou designated as nationally vulnerable by COSEWIC in 1984. Ontario population is considered part of this population.

³³ In 1990 OMNR removed the Western Virginia White from Regulations under the Endangered Species Act, R.S.O. 1990, c. E. 15. A status of provincially vulnerable is assigned pending further review.

³⁴ Declared in Regulation under the Endangered Species Act, R.S.O. 1990, c. E. 15 in 1990.

³⁵ Declared in Regulation under the Endangered Species Act, R.S.O. 1990, c. E. 15 in 1990.

APPENDIX Q

Evaluation Criteria for Significant Wildlife Habitat

This appendix is made up of four tables. They are as follows:

Table Q - 1: Evaluation Criteria for Seasonal Concentration Habitats

Table Q – 2: Evaluation of Rare Vegetation Communities or Specialized Wildlife Habitats

Table Q – 3: Evaluation Criteria for Species/Habitats of Conservation Concern

Table Q - 4: Evaluating the Significance of Animal Movement Corridors.

These tables provide extensive lists of criteria that can be used to evaluate various significant wildlife habitats. It is not essential that all criteria be used to evaluate every habitat. The evaluator should focus on those criteria they feel are most appropriate to their situation.

Table Q-1: Evaluation Criteria for Seasonal Concentration Habitats

Specific Habitat	Suggested Criteria	Guidelines for Evaluation
Winter deer yards	<ul style="list-style-type: none"> • relative importance of yard to local deer population • population size of deer supported by the site • size of the site • distribution of yards • quality of habitat • location of yard • historical use • importance of the winter yard to other wildlife • degree of disturbance 	<ul style="list-style-type: none"> • The yard is most significant if it is the only one in the planning area; it is significant if it is one of only a few in the area. • Heavily populated sites are the most significant. • Larger sites are usually more significant than smaller sites. • In areas where there are no clearly delineated large yards, smaller, more loosely aggregated yards are collectively significant. • Significant sites have denser conifer cover (i.e., > 60% canopy closure), more woody browse in the core area, and good foraging on adjacent lands (e.g., agricultural crops, acorns). • Significant sites have no barriers to safe movement by deer to and from the yard, and are located within a landscape providing cover and food. • Most significant yards will have a long history of use (e.g., at least 10 years). • Significant yards provide important habitat for other mammals and birds. • More significant yards will be less disturbed.
Moose late winter habitat	<ul style="list-style-type: none"> • relative importance of the area to local moose population • quality of habitat • location of habitat • degree of disturbance • historical use • importance of the winter habitat to other wildlife 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Most significant sites have denser conifer cover (i.e., > 60% canopy closure and large conifers) with abundant woody browse in the understory. • Most significant sites are surrounded by forest, with some open areas or south-facing slopes in the vicinity, and no barriers to safe movement to and from the site. • Most significant sites are less disturbed. • Most significant sites have a long history of use (e.g., at least 10 years). • Significant sites provide important habitat for other mammals and birds.
Colonial bird nesting sites	<ul style="list-style-type: none"> • relative importance of the site to local bird populations • presence of species of conservation concern • number of nests in the colony • species diversity • quality of habitat • size of site • level of disturbance • historical use 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Most significant sites support several species of concern; significant sites support one species. • Sites with the greatest number of nests are more significant. • Sites with the greatest number of species are more significant. • Significant sites generally have better habitat (e.g., optimal vegetation composition, ratio of open water to emergent vegetation; stable water level; abundant food) capable of supporting more birds for a longer time period.

Specific Habitat	Suggested Criteria	Guidelines for Evaluation
	<ul style="list-style-type: none"> • potential concerns of the planning authority 	<ul style="list-style-type: none"> • Larger sites may be more significant (especially for area-sensitive species). • Least disturbed sites are more significant. • Sites with a longer history of use may be more significant. • Suggested number of nests that should be considered significant: Great Blue Heron, 25; Black-crowned Night-Heron, 25; Green Heron, 10; Great Egret, 5; Great Black-backed Gull, 5; Herring Gull, 100; Bonaparte’s Gull, 10; Little Gull, 1; Caspian Tern, 75; Common Tern, 100; Black Tern, 10; Forster’s Tern, 5 (excluding Lake St. Clair); Cliff Swallow, 8; Bank Swallow, 100; Northern Rough-winged Swallow, 10; Yellow-headed Blackbird, 10; Brewer’s Blackbird, 5. • Where their populations are very high, even large colonies of Ring-billed Gulls may not be considered significant.
Waterfowl stopover and staging areas	<ul style="list-style-type: none"> • relative importance of the site to local waterfowl populations • presence of species of conservation concern • species diversity • abundance • quality of habitat • size of site 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Most significant sites support several species of concern; significant sites support one species. • Sites with the greatest number of species are more significant. • Sites with the highest number of individuals are more significant. • Trumpeter Swans and Ruddy Ducks have limited staging areas in Ontario, and their regular use of the habitat should be considered significant. • Regular staging areas for Canvasbacks and Redheads should be considered significant. • Significant sites generally have better habitat (e.g., optimal vegetation composition, ratio of open water to emergent vegetation; extensive shoreline; abundant food, nocturnal roosting cover) • Larger wetlands are more significant.
Waterfowl nesting areas	<ul style="list-style-type: none"> • relative importance of the site to local waterfowl populations • presence of species of conservation concern • species diversity • abundance • size of area • quality of habitat • location of site • nest predation • level of disturbance 	<ul style="list-style-type: none"> • Most significant sites are the only known sites in the planning area; significant sites may be one of only a few in the area. • Most significant sites support several species of concern; significant sites support one species. • Sites with the greatest number of species are more significant. • Sites with nesting and brood habitat for American Black Ducks should be considered significant • All nesting areas for Gadwall, Green-winged Teal, Northern Pintail, Northern Shoveler, and American Wigeon should be considered significant • Sites with the highest number of individuals are more significant.

Specific Habitat	Suggested Criteria	Guidelines for Evaluation
		<ul style="list-style-type: none"> • Larger sites of suitable habitat (e.g., grasslands adjacent to wetlands, ponds, lakes for many species) are more significant. • Most significant sites have better habitat (e.g., optimal vegetation structure, stable water levels, abundant cover, and a wetland/water body within 150 m). • Sites providing safe movement of broods from nest to wetland/water body (i.e., no roads) are more significant. • Sites with lower rates of nest predation are more significant. • Sites with little disturbance (e.g., haying, cattle grazing) are more significant.
Shorebird migratory stopover areas	<ul style="list-style-type: none"> • relative importance of the site • presence of species of conservation concern • species diversity • abundance • size of site • historical use of site • level of disturbance 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area; artificial sites (e.g., sewage lagoons) may be significant in some areas. • Most significant sites support several species of concern; significant sites may support one species. • Sites with the greatest number of species are more significant. • Sites with the highest number of individuals are more significant. • Large sites are more significant than smaller sites. • Sites that have been used for many years are more significant. • Least disturbed sites may be more significant.
Landbird migratory stopover areas	<ul style="list-style-type: none"> • relative importance of the site • presence of species of conservation concern • species diversity • abundance • size of site • habitat diversity • historical use of site • location of site 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Most significant sites support several species of concern; significant sites support one species. • Sites with the greatest number of species are more significant. • Sites with the highest number of individuals are more significant. • Large sites are more significant than smaller sites. • Sites with a variety of habitat types (e.g., forest, grassland) are often more significant than sites with homogeneous habitat. • Sites that have been used for many years are more significant. • Sites within 5 km of Lake Ontario and Lake Erie shoreline are most significant.
Raptor winter feeding and roosting areas	<ul style="list-style-type: none"> • relative importance of the site • presence of species of conservation concern • species diversity 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Most significant sites support several species of concern; significant sites support one species. • Sites with the greatest number of species are more

Specific Habitat	Suggested Criteria	Guidelines for Evaluation
	<ul style="list-style-type: none"> • abundance • size of site • level of disturbance • location of site • habitat quality • historical use of area 	<p>significant.</p> <ul style="list-style-type: none"> • Sites with the highest number of individuals are more significant. • Large sites (e.g., at least 20 ha) are more significant than smaller sites. • Least disturbed sites may be more significant. • Sites located near other open field areas, with adjacent woods are more significant. • Sites with better habitat (e.g., abundant prey and perches; a tendency toward less snow accumulation due to exposure to strong prevailing winds) are probably more significant. • Significant sites may have been used for several years and/or at least 60% of winters.
Bald Eagle winter feeding and roosting areas	<ul style="list-style-type: none"> • relative importance of the site • abundance • size of site • habitat quality • level of disturbance • location of roost • historical use of area 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Sites with the highest number of individuals are most significant. • Large sites are more significant than smaller sites. • Sites with better habitat (e.g., abundant open water and fish, extensive large trees and snags) are more significant. • Least disturbed sites may be more significant. • Sites adjacent to prime hunting area are often more significant. • Most significant sites have been used for several years and/or at least 60% of winters.
Wild Turkey winter range	<ul style="list-style-type: none"> • relative importance of the site • abundance • size of site • habitat quality • location of habitat • level of disturbance 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Sites with the highest number of individuals are most significant. • Large sites are more significant than smaller sites. • Sites with better habitat (e.g., extensive large conifer trees, springs and seeps) are more significant. • Sites located in valleys or lower south-facing slopes, close to foraging areas (e.g., farm fields, oak woods) and water may be more significant. • Least disturbed sites may be more significant.
Turkey Vulture summer roosting areas	<ul style="list-style-type: none"> • relative importance of the site • abundance • level of disturbance • historical use of area 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Sites with the highest number of individuals are most significant. • Least disturbed sites may be more significant. • Sites that have been traditionally used for at least 10 years are more significant.

Specific Habitat	Suggested Criteria	Guidelines for Evaluation
Reptile hibernacula bat hibernacula	<ul style="list-style-type: none"> • relative importance of the site • presence of species of conservation concern • species diversity • abundance • habitat quality • location of site • level of disturbance 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Most significant sites support two or more species of concern; significant sites may support one species. • Sites with the greatest number of species are more significant. • Sites with the highest number of individuals are more significant. • The following numbers of bats should be considered significant at maternity colonies and winter roosts, respectively: big brown bat, 30, 30; little brown bat, 100, 50; eastern pipistrelle, 10, 20; silver-haired bat, 10, N/A; long-eared bat, 10, 20; small-footed bat, 10, all sites. • Sites with better habitat (e.g., bats- deep cave with small entrance, water, abundant roosting area inside cave) are probably more significant. • Sites located within or adjacent to large areas of suitable habitat (e.g., forests) are more significant; for reptiles, sites found in areas with good movement corridors are more significant. • Least disturbed sites are more significant.
Migratory butterfly stopover areas	<ul style="list-style-type: none"> • relative importance of the site • presence of species of conservation concern • species diversity • abundance • size of site • habitat diversity • location of site • level of disturbance • historical use of area 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Most significant sites support two or more species of concern; significant sites may support one species. • Sites with the greatest number of species are more significant. • Sites with the highest number of individuals are more significant. • Large sites are more significant than smaller sites. • Sites with a variety of habitat types (e.g., forest, grassland) are often more significant than sites with homogeneous habitat. • Sites within 5 km of Lake Ontario and Lake Erie shoreline are most significant. • Least disturbed sites may be more significant. • Sites that have been traditionally used for at least 10 years are more significant.
Bullfrog habitat	<ul style="list-style-type: none"> • Relative importance of the habitat to local populations • Abundance • Size of site • Historical use of area 	<ul style="list-style-type: none"> • Significant sites are generally the only known sites in the planning area; significant sites may be one of only a few in the area. • Sites with the highest number of individuals are more significant. • Large sites with suitable habitat are more significant than smaller sites. • Most significant areas have supported bullfrogs for at least 10 years.

Table Q-2: Evaluation of Rare Vegetation Communities or Specialized Wildlife Habitats

Important Evaluation Criteria	Suggested Guidelines
Rare Vegetation Communities	
Current representation of community type within the planning area	<ul style="list-style-type: none"> • Vegetation communities with the poorest current representation within the planning area are most significant. • As much of each identified rare vegetation community should be represented as many times as possible (e.g., protect at least three examples of each identified rare community type in the planning area where no such protected sites currently exist). • Rare communities that could be lost or severely degraded and cannot be replaced by similar sites in the planning area, are highly significant.
Degree of rarity (e.g., presence of rare or uncommon species and/or endemic species)	<ul style="list-style-type: none"> • Highest priority for protection should be given to all provincially rare communities (e.g., S1, S2, S3 ranking) identified by the NHIC (Bakowsky, 1996). In most cases some or all of these sites should be protected. • All prairie and savannah remnants (S1 ranked) identified by the municipality should be protected because these communities are very rare throughout the province. See Appendix J. for a list of provincially rare vegetation communities in Southern Ontario. • The next priority is to identify, evaluate, and protect vegetation communities that are rare in the municipality. The planning authority might adopt criteria developed by the Nature Conservancy for determination of local rarity (e.g., communities that represent < 3% of remaining natural area and/or are found in only five or fewer locations within the municipality might be considered locally significant communities).
Diversity of site	<ul style="list-style-type: none"> • Sites with more than one rare vegetation community, higher plant species diversity, and/or supporting a number of rare species are more significant.
Condition of community	<ul style="list-style-type: none"> • In general, the highest quality representatives of rare community types are most significant unless only poor quality examples remain in the planning area. Some evaluation criteria to determine the relative quality of these communities might include: percentage of non-native species, percentage of indicator species, or relative abundance of associated features (e.g., large trees and/or older age classes of trees). Identified communities can be compared to the ELC community descriptions. • Undisturbed or least disturbed communities are more significant (e.g., no roads or infrequently used roads; no pollution, forestry operations, maple syrup production, grazing, human refuse; high level of human use; high proportion of non-native species).
Size and location of site	<ul style="list-style-type: none"> • The largest sites and sites that are part of large natural areas are generally most significant.
Potential for long-term protection of the site	<ul style="list-style-type: none"> • Sites that provide the best opportunity for long-term protection are usually more significant than similar sites with little opportunity for protection or facing an uncertain future due to potential threats (e.g., site in a large natural area versus an isolated site close to an expanding residential development). • Rare communities threatened with degradation or loss are more significant than similar, but currently unthreatened rare communities, if they can be protected.

Important Evaluation Criteria	Suggested Guidelines
Provision of significant wildlife habitat	<ul style="list-style-type: none"> Rare communities providing identified significant wildlife habitat (e.g., hunting areas for raptors, nesting areas for waterfowl or grassland birds, foraging areas for shorebirds, food sources for rare butterflies) are most significant.
Specialized Habitats for Wildlife	
Sites supporting area-sensitive species	
Presence of rare, uncommon, or declining species	<ul style="list-style-type: none"> Sites supporting area-sensitive species of birds that are rare or uncommon, and/or exhibiting population declines provincially are most significant.
Overall area of site	<ul style="list-style-type: none"> Largest natural forest stands in the municipality are likely most significant with those >30 ha being most likely to support and sustain a diversity of these birds. Largest grasslands in the municipality are likely most significant with those >30 ha most likely to support and sustain diversity of these species.
Area of forest interior contained within the forest stand	<ul style="list-style-type: none"> Most significant forest stands should contain at least 10 ha of forest interior excluding at least a 200m buffer around the forest interior. Smaller interior habitats may still be significant where no larger examples exist.
Age and tree composition of forest stand	<ul style="list-style-type: none"> Sites with an abundance of large (e.g., >40 cm DBH, >25 m tall), mature trees are more significant for certain nesting raptor species as well a number of songbird species.
Amount of vertical stratification of site	<ul style="list-style-type: none"> Forests and grasslands with a variety of different layers of vegetation at different heights likely provide more habitats and support more bird species and are consequently more significant. Uneven-aged forests are generally more significant than even-aged forests because they provide more forest structure.
Amount of contiguous closed-canopy/open areas in forest stand	<ul style="list-style-type: none"> Sites with largest contiguous canopy cover and fewest gaps in the canopy are likely most significant. Natural gaps (e.g., windthrown trees, woodland ponds) are preferred to man-made gaps (e.g., roads). Gaps should be < 20 m including roads and rights-of-way.
Degree of disturbance on site e.g., roads, forestry management and operations, grazing, crop production	<ul style="list-style-type: none"> Roadless, relatively undisturbed sites with no history of disturbance from grazing, forestry operations during the last 20 years are most significant. Sites with history of only light grazing and/or forestry operations over the last 20 years are potentially significant if properly managed. Uneven-aged forest stands are often more significant than even-aged forest stands because they may be less intensively managed, and generally contain a natural representation of species. Forest stands with a history of little or no forest management may be most significant. In general, early successional grasslands that are not being used for agricultural production are more significant than similar grasslands that are used for agriculture (e.g., crops, cattle grazing).
Amount of adjacent residential development	<ul style="list-style-type: none"> Sites with the least amount of adjacent residential development are more significant.
Current representation of specialized habitat in planning area	<ul style="list-style-type: none"> Sites that could be lost or severely degraded and cannot be replaced by similar sites in the planning area, are highly significant. Specialized habitats with the poorest current representation within the planning area are significant.
Provision of significant wildlife habitat	<ul style="list-style-type: none"> Sites providing several identified significant wildlife habitats (e.g., raptor nest sites, rare vegetation community, habitat for species of conservation concern) are most significant.

Important Evaluation Criteria	Suggested Guidelines
Potential for long-term protection of the site	<ul style="list-style-type: none"> • Sites that provide the best opportunity for long-term protection are usually more significant than similar sites with little opportunity for protection or facing an uncertain future due to potential threats (e.g., site in a large natural area versus an isolated site close to an expanding residential development). • Habitats threatened with degradation or loss are more significant than similar, but currently unthreatened habitats, if they can be protected.
Forest stands providing a diversity of habitats (e.g., tree cavities, fallen logs, vertical stratification)	
Provision of significant wildlife habitat	<ul style="list-style-type: none"> • Stands providing several significant wildlife habitats (e.g., forest interior habitat, raptor nesting, rare community) are most significant.
Size of site	<ul style="list-style-type: none"> • Large sites are likely most significant. • Small sites are significant if no large sites exist in the planning area.
Age, condition of trees on site	<ul style="list-style-type: none"> • Sites with a wide variety of age classes of trees are likely most significant for provision of a variety of habitats. • Sites with a high proportion of old or mature trees, and/or diseased or damaged trees are likely more significant because they provide more organic ground structure. • Uneven-aged forest stands are likely more significant than even-aged forest stands because uneven-aged management often results in retention wildlife habitat and they are often less disturbed by management activities.
Vegetation composition and diversity of site	<ul style="list-style-type: none"> • Sites with a diversity of tree and shrub species provide more understorey structure and consequently are more significant. • Sites with a high proportion of aspens, beech, basswood, conifers are likely most significant for tree cavity production. • Sites with majority of cavities located in living trees are likely more significant because these trees last longer than dead cavity trees. • Sites with cavities in living trees that also produce abundant mast (e.g., oak, beech, walnut, black cherry) are more significant. • Sites with variety of tree species (e.g., hardwoods such as maple, oak, softwoods such as poplar, conifers) are more significant because some cavities can be created quickly (e.g., in softwoods) and some will last longer (e.g., in hardwoods).
Cavity size, abundance, and location	<ul style="list-style-type: none"> • Sites containing a diversity of cavity sizes to meet the nesting, denning, foraging and resting habitat requirements of a variety of species are likely most significant. • Sites with trees with large cavities are more significant than sites with trees with mainly small cavities. OMNR forestry tree-marking guidelines suggest retention of 6 cavity trees/ha with at least one large cavity tree (>50 cm diameter at breast height) per ha and the other 5 trees with at least 25 cm DBH. • Generally, cavities in the upper trunk area of trees are more significant than cavities in the lower trunk area.
Location of site	<ul style="list-style-type: none"> • Sites near water may be more significant (i.e., breeding habitat of forest dwelling amphibians such as some salamanders and frogs is nearby, preferred nesting habitat of some raptors). • Moist soil conditions are attractive to species of amphibians.

Important Evaluation Criteria	Suggested Guidelines
History of forest management	<ul style="list-style-type: none"> • Sites with little or no management may be more significant because often this results in retention of more cavity trees, standing dead trees, vertical stratification, organic ground structure, cavity trees, and standing dead trees that will eventually become decaying woody debris, as well as a greater diversity of trees.
Woodlands supporting amphibian breeding ponds	
Provision of significant wildlife habitat	<ul style="list-style-type: none"> • Woodlands providing several significant wildlife habitats (e.g., forest interior habitat, raptor nesting, abundant tree cavities and down woody debris) are most significant.
Degree of permanence	<ul style="list-style-type: none"> • Woodlands with permanent ponds or those containing water in most years until at least mid July are most significant.
Species diversity of pond	<ul style="list-style-type: none"> • Ponds supporting high species diversity are more significant.
Presence of rare species	<ul style="list-style-type: none"> • Ponds supporting rare amphibian species are more significant than ponds supporting only common species.
Size and number of ponds	<ul style="list-style-type: none"> • In general, woodlands with larger and/or several ponds are more significant.
Diversity of submergent and emergent vegetation	<ul style="list-style-type: none"> • Ponds with a good diversity of emergent and submergent aquatic vegetation are most significant.
Presence of shrubs, logs at edge of pond	<ul style="list-style-type: none"> • Presence of shrubs and logs increase significance of pond for some amphibian species because of increased structure for calling, foraging, and escape and concealment from predators.
Adjacent forest habitat	<ul style="list-style-type: none"> • More significant areas will have closed canopy forest providing shaded, moist understorey and abundance of down woody debris for cover habitat. • Breeding ponds with shortest distance to forest habitat are more significant because of reduced risk to moving amphibians and are more likely to be used.
Water quality	<ul style="list-style-type: none"> • Prefer unpolluted waters.
Level of disturbance	<ul style="list-style-type: none"> • Woodlands with little or no disturbance (e.g., forest management, roads between breeding pond and forest habitat) are more significant.
Old growth or mature forest stands	
Current representation of old growth or mature forest stands within the planning area	<ul style="list-style-type: none"> • Due to the rarity and fragmented distribution of old growth forests in southern Ontario, as much of identified sites should be represented as many times as possible (e.g., protect at least three good examples of old growth or mature stands in the planning area where no such protected sites currently exist). • Sites that could be lost or severely degraded and cannot be replaced by similar sites in the planning area, are highly significant.
Age of trees	<ul style="list-style-type: none"> • Most significant sites will contain numerous trees of at least 140 years old. • Stands containing younger trees (e.g., 100 years or older) are significant where older trees no longer exist. • Stands containing predominantly long-lived trees are probably more significant than stands consisting primarily of short-lived species (e.g., trembling aspen, birch).
Age classes of trees in stand	<ul style="list-style-type: none"> • More significant sites will contain several distinctly different age classes of trees.
Presence of old growth characteristics	<ul style="list-style-type: none"> • Most significant sites will exhibit several to all of the following characteristics: broad array of fallen logs in various sizes and stages of decomposition; at least some very large fallen logs; large spectrum of tree sizes, including some very tall trees; some larger trees with more columnar form due to loss of large limbs from past storm damage; numerous snags; some pit and mound ground topography; uneven canopy with scattered gaps due to fallen trees and tree limbs .

Important Evaluation Criteria	Suggested Guidelines
Species diversity	<ul style="list-style-type: none"> • More significant sites will have a higher diversity of wildlife species because they provide many different habitats and regeneration niches for plants and animals.
Provision of significant wildlife habitat	<ul style="list-style-type: none"> • Sites providing several significant wildlife habitats (e.g., forest interior habitat, raptor nesting, tree cavities and/or amphibian breeding ponds) are most significant.
Potential for long-term protection of site	<ul style="list-style-type: none"> • Sites that provide the best opportunity for long-term protection are usually more significant than similar sites with little opportunity for protection or facing an uncertain future due to potential threats (e.g., site in a large natural area versus an isolated site close to an expanding residential development). • Sites threatened with degradation or loss are more significant than similar, but currently unthreatened sites, if they can be protected.
Stand history	<ul style="list-style-type: none"> • More significant sites will have experienced little or no substantial logging or other forestry activities (e.g., no management or only periodic light selection cutting).
Size and location of site	<ul style="list-style-type: none"> • The largest sites and sites that are part of large natural areas are generally most significant. • Smaller, isolated sites are significant in areas with little or no remaining examples of old growth or mature woodlands.
Degree of disturbance	<ul style="list-style-type: none"> • Undisturbed or least disturbed sites are more significant (e.g., no roads or infrequently used roads; no pollution, forestry operations, maple syrup production, grazing, human refuse; high level of human use; high proportion of non-native species).
Foraging areas producing fruit, hard mast (acorns, beechnuts)	
Provision of significant wildlife habitat	<ul style="list-style-type: none"> • Woodlands providing several significant wildlife habitats (e.g., forest interior habitat, raptor nesting, abundant tree cavities and down woody debris) are most significant.
Area/abundance of food source	<ul style="list-style-type: none"> • Large areas of fruit-producing shrubs (e.g., blueberries, wild blackberries, serviceberries) and mast-producing trees (e.g., oaks, hickories, beech) are likely most significant because they usually support more wildlife.
Size, age, health of trees	<ul style="list-style-type: none"> • Sites with a high proportion of healthy, mature trees with large crowns are more significant because these trees generally produce more mast. • Sites with numerous oak trees with 40-65 cm diameter at breast height are significant because such trees can produce heavy acorn crops.
Species diversity of site	<ul style="list-style-type: none"> • Sites with a variety of mast-producing tree species and/or fruit-producing shrubs are most significant since production by species can vary widely from year to year. • Sites within the Great Lakes-St. Lawrence forest region with abundant and vigorous red oak trees are significant since this species is considered the single most important mast-producing tree species in this region.
Permanence of food source	<ul style="list-style-type: none"> • Areas providing more long-term, relatively stable food supply are more significant than areas such as clearcuts and burns that provide more temporary sources of food.
Access to foraging areas	<ul style="list-style-type: none"> • Sites with travel routes that provide cover and reduce mortality risk for wildlife moving to and from foraging areas are most significant. • Sites well removed from people, particularly those used by feeding bears, are more significant because of reduction in wildlife/people interactions.

Important Evaluation Criteria	Suggested Guidelines
Consistent historical use by wildlife	<ul style="list-style-type: none"> • Since food production of such areas varies over time, areas traditionally used by wildlife are probably most significant.
Osprey, Bald Eagle Nesting Habitat	
Access to foraging areas	<ul style="list-style-type: none"> • Most significant nesting habitats are adjacent or close to relatively clear and shallow (< 1 m) water bodies with productive fish populations.
Presence of large, sturdy trees near shoreline	<ul style="list-style-type: none"> • Most significant nesting habitats have numerous large conifer and/or deciduous trees in good condition along the shoreline providing birds with good visibility and clear flight line to the nest.
Degree of disturbance	<ul style="list-style-type: none"> • More significant sites will have no disturbance from human activities within 200 m of the nest during the nesting season. • Some Ospreys may tolerate some disturbance but more significant sites and sites of more sensitive birds should not be disturbed after onset of nesting.
Evidence of use	<ul style="list-style-type: none"> • Most significant habitat contains several nests within a single area (e.g., within 1 square km) • Sites with current evidence of use are most significant. • Sites with traditional use are most significant (many nests are used for several consecutive years).
Current representation of potential sites	<ul style="list-style-type: none"> • Potential nesting habitats that could be lost or severely degraded and cannot be replaced by similar sites in the planning area, are significant.
Degree of threat	<ul style="list-style-type: none"> • Sites threatened with degradation or loss are more significant than similar, but currently unthreatened sites.
Turtle Nesting Habitat	
Size of habitat	<ul style="list-style-type: none"> • Larger sites are most significant because fewer nests are likely to be lost to predation and larger areas are more likely to be important to larger numbers of turtles.
Location of site	<ul style="list-style-type: none"> • Nesting areas adjacent to permanent water bodies and large wetlands, and removed from roads are more significant because of increased likelihood of nesting success and hatchlings reaching the water; as well as reduced road mortality. • Higher, well-drained sites are more important than poorly drained, low-lying areas at risk of inundation by water. • Sites with good exposure to sunlight are more significant.
Substrate	<ul style="list-style-type: none"> • Generally nesting areas of preferred substrate (e.g., sands and gravels) are preferred to sites over other substrates.
Evidence of use	<ul style="list-style-type: none"> • Presence of several nests or adult females observed during the nesting season, within a single area indicates a significant habitat. • Sites with evidence of use by several species are more significant. • Sites with traditional use are more significant.
Presence of rare species	<ul style="list-style-type: none"> • Nesting habitats used by rare species are more significant.
Level of predation	<ul style="list-style-type: none"> • More significant sites are less prone to nest predation (e.g., they are not located in highly active wildlife corridors).
Presence of movement corridor	<ul style="list-style-type: none"> • Most significant nesting habitats are connected to other turtle habitats (e.g., wetland) by corridors permitting relatively safe movement of these reptiles.

Important Evaluation Criteria	Suggested Guidelines
Degree of disturbance	<ul style="list-style-type: none"> • Nesting habitat that is relatively undisturbed by human activities (e.g., away from busy roads, residential areas) is most significant. • Sites buffered by natural landforms & vegetation are usually more significant than unbuffered, exposed sites because of their superior ability to protect nesting turtles, hatchlings, and nests from natural & human disturbance.
Degree of threat	<ul style="list-style-type: none"> • Sites threatened with degradation or loss are more significant than similar, but currently unthreatened sites.
Moose aquatic feeding areas	
Abundance of preferred aquatic food plants	<ul style="list-style-type: none"> • Areas containing abundant pondweeds, yellow waterlily, and milfoil are more significant.
Quality of adjacent forest habitat	<ul style="list-style-type: none"> • Aquatic feeding areas with dense stands of lowland conifer tree species immediately adjacent to aquatic feeding areas are most significant.
Degree of disturbance of site	<ul style="list-style-type: none"> • Undisturbed or least disturbed sites are probably significant (e.g., areas with no cottages and boat traffic in the vicinity of feeding areas are preferable).
Access to foraging areas	<ul style="list-style-type: none"> • Sites with travel routes that provide cover and reduce mortality risk for moose moving to and from aquatic feeding areas are more significant.
History of consistent use	<ul style="list-style-type: none"> • Sites with record of traditional use by moose are most significant.
<p>Mink and otter feeding/denning sites; marten and fisher denning sites Listed below are suggested guidelines. However, these sites are difficult to find. Therefore knowledge of the most suitable habitat for these mammals may be the most practical way to ensure that some prime habitat is protected.</p>	
Presence of suitable habitat	<p>For mink and otter</p> <ul style="list-style-type: none"> • Heavily vegetated shorelines, particularly those with abundance of shrubs are more significant. • Shorelines with numerous dead falls, large logs, log jams, and rock piles are more significant because of increased denning sites and because they also provide good habitat for prey species. • Amount of habitat-average mink home range is 316-1,626 ha <p>For marten and fisher</p> <ul style="list-style-type: none"> • Large contiguous coniferous or mixed forests with abundant large trees (e.g., at least 40 cm diameter at breast height) for maternal denning sites are most significant. • average marten home range is 1.3- 15.7 sq. km; average fisher home range is 17.5- 39 sq. km
Degree of disturbance	<ul style="list-style-type: none"> • Undisturbed areas with little or no human activity in vicinity are more significant, particularly for otters. • For otters, longer, undeveloped stretches of shoreline habitat are more significant, as well as creek systems joining several ponds.
Size of local fish population	<ul style="list-style-type: none"> • Water bodies producing large populations of fish (e.g., mesotrophic lakes) are more likely to sustain otters over the long-term than unproductive waters (e.g., oligotrophic lakes).
Areas of high diversity	
Current representation of such areas in the planning area	<ul style="list-style-type: none"> • Most diverse areas known for the planning area should be considered most significant until inventory information reveals more diverse areas.

Important Evaluation Criteria	Suggested Guidelines
Natural community diversity	<ul style="list-style-type: none"> Sites with high community diversity (e.g., site containing several different wetland types and/or forested uplands, open uplands, and grasslands) are generally more significant than sites with only one community and are usually more species rich than sites consisting of single communities.
Species diversity	<ul style="list-style-type: none"> Usually a community with high species diversity is more significant than a similar community supporting fewer species.
Presence of rare species	<ul style="list-style-type: none"> Sites supporting rare or uncommon species are more significant than those that support only common species.
Size of site	<ul style="list-style-type: none"> Larger sites are generally more diverse and consequently more significant than similar, but considerably smaller sites.
Seeps/springs	
Abundance of seeps/springs	<ul style="list-style-type: none"> Sites with several seeps/springs (e.g., >5) are most significant.
Duration of surface water	<ul style="list-style-type: none"> Most significant seeps/springs are present even during very dry summers.
Nature of adjacent area	<ul style="list-style-type: none"> Most significant sites support diversity of native vegetation.
Presence of rare species	<ul style="list-style-type: none"> Sites supporting rare or uncommon species (e.g., plants, salamanders), or species that are unique to the area (e.g., Wild Turkey) are more significant than those that support only common species.
Location of seeps/springs	<ul style="list-style-type: none"> Seeps/springs located on south-facing slopes are probably more significant than seeps with other aspects because of their winter value to some wildlife species. Seeps/springs in forest stands and/or headwater areas are generally more significant than those found in other areas. Seeps/spring found in relatively undisturbed areas are generally more significant than those found in areas disturbed by human activities (e.g., off-road vehicle travel).
Cliffs	
Current representation of cliffs within planning area	<ul style="list-style-type: none"> Consider as significant, relatively pristine cliffs that are currently unprotected and occur at less than 4 locations in the planning area.
Provision of significant wildlife habitat	<ul style="list-style-type: none"> Most significant sites will provide several significant wildlife habitats (e.g., reptile hibernacula, nesting sites, resting sites for Turkey Vultures, migratory bird stopover area, unique vegetation community).
Diversity of habitat features associated with cliff	<ul style="list-style-type: none"> Most significant sites will have a variety of habitat features including the presence of large rocks, crevices, caves, water for hibernacula; overhangs, flat ledges of at least 1 square meter for nesting birds; presence of a buffer (for nesting raptors); presence of mature/large trees on summit.
Current or historical use by wildlife species	<ul style="list-style-type: none"> Most significant sites will have active eyries or hibernacula. Significant sites will have historical record of presence of eyries or hibernacula.
Species diversity	<ul style="list-style-type: none"> Most significant cliffs have higher associated plant diversity than similar cliffs.
Presence of rare species	<ul style="list-style-type: none"> Cliffs supporting rare or uncommon species are more significant than those that support only common species.
Human disturbance	<ul style="list-style-type: none"> More significant sites are relatively undisturbed due to their inaccessibility.
Size and location of cliff	<ul style="list-style-type: none"> Most significant sites will be within a larger natural area. South-facing cliffs may be more significant due to greater diversity of associated plant species.

Important Evaluation Criteria	Suggested Guidelines
• Caves	
Solution versus physical (e.g. fissured, rock piles, abandoned mine)	<ul style="list-style-type: none"> • Solution caves are generally more significant than other caves types. • Abandoned mines may be significant to bats in areas with few or no natural caves.
Size of opening	<ul style="list-style-type: none"> • Caves with small openings may be more important to wildlife (e.g., bats) than caves with large openings permitting entry by humans.
Depth of cave	<ul style="list-style-type: none"> • Most significant caves have the greatest interior depth.
Ambient winter temperature	<ul style="list-style-type: none"> • Most significant caves have an ambient winter temperature slightly above freezing.
Ambient relative humidity	<ul style="list-style-type: none"> • Most significant caves have an ambient winter relative humidity above 90%.
Presence of water	<ul style="list-style-type: none"> • Most significant caves have some water supplies for hibernating species.
Human disturbance	<ul style="list-style-type: none"> • Most significant caves are undisturbed due to poor access.

Table Q-3: Evaluation Criteria for Species/Habitats of Conservation Concern

Criteria for Identification of Species/Habitats of Conservation Concern	Suggested Guidelines for Evaluation of Habitats of Species of Conservation Concern
Degree of rarity of species found at site	<ul style="list-style-type: none"> • Habitats of the rarest species are more significant than those of less rare species. For example, habitats for species ranked S1 and S2 should be considered more significant than habitats for species ranked S3. Species ranked as vulnerable by the OMNR should also be considered significant. • Less rare species and their habitats in the planning area may be deemed species of conservation concern by the municipality based on such factors as the number of known occurrences, total extent of remaining habitat, degree of threat or risk to habitat, and/or local interest in a particular species. • If a species' habitat is to be protected, sufficient area (based on the species' known requirements) should be retained to ensure a viable and sustainable population.
Documented significant decline in a species and/or its critical habitat	<ul style="list-style-type: none"> • The habitat for species experiencing the greatest declines is most significant. • The habitat for declining species that has the lowest representation in the planning area is more significant. • Those habitats that provide the best opportunity for the long-term sustainability of the declining species are most significant (e.g., large well-protected sites; sites that best meet the species' habitat requirements; sites with good connections to other similar habitats).
Species whose range is solely or primarily found in Ontario (i.e., provincial responsibility)	<ul style="list-style-type: none"> • Habitat for those species with the poorest representation within the planning area is more significant. • These species and their habitats are significant even if well represented in the planning area, due to high provincial responsibility for their protection. • Those habitats that provide the best opportunities for the long-term sustainability of the target species are most significant (e.g., large well-protected sites; sites that best meet the species' habitat requirements; sites with good connections to other similar habitats).

Criteria for Identification of Species/Habitats of Conservation Concern	Suggested Guidelines for Evaluation of Habitats of Species of Conservation Concern
Condition of existing habitat at site	<ul style="list-style-type: none"> • Sites that provide habitat that best meets the survival requirements of the target species and that also include a natural buffer zone are most significant (i.e. most likely to sustain species/population over the long-term). • Sites that contain the fewest non-native species of potential threat to the target species are significant. • Undisturbed or least-disturbed habitats (e.g., no/few deleterious impacts from roads, human activities) are significant. • Sites capable of producing a large number of individuals of a single species of conservation concern are significant. • Highly diverse sites that support one or more species of conservation concern are most significant.
Size of species population at site	<ul style="list-style-type: none"> • Habitats supporting large populations of a several species of conservation concern are most significant. • Habitat supporting large populations of a single species is significant.
Size and location of habitat	<ul style="list-style-type: none"> • Large sites supporting large populations of several species of conservation concern are most significant. • Large sites are generally more significant than most comparable but smaller sites. • Sites large enough to ensure long-term support and viability of species of conservation concern are significant. • Sites with large areas of suitable habitat that are also connected to other potentially suitable habitat and/or natural areas are most significant.
Potential for long-term protection of the habitat	<ul style="list-style-type: none"> • Habitats that provide the best opportunity for long-term protection are usually more significant than similar habitats with little opportunity for protection or facing an uncertain future due to potential threats (e.g., habitat found in a large natural area vs. an isolated site close to an expanding residential development). • Habitats threatened with degradation or loss are more significant than similar, but currently unthreatened habitats, if they can be protected. • Habitats of species currently experiencing severe population declines in Ontario (e.g., grassland bird species) due to habitat loss are most significant. • Habitats of species currently experiencing significant population declines in the municipality are significant.
Representation of species/habitat within the municipality	<ul style="list-style-type: none"> • Poorly represented habitats for species of conservation concern are significant. • Habitats that could be lost or severely degraded and cannot be replaced by similar habitats in the planning area, are highly significant.
Evidence of use of the habitat	<ul style="list-style-type: none"> • Sites with documented traditional use by species are most significant.
Species of particular interest to the planning authority (e.g., the CAC may recommend certain species such as indicator species)	<ul style="list-style-type: none"> • Sites providing the best examples of habitat that will ensure the long-term sustainability of the species are significant.

Table Q-4: Evaluating the Significance of Animal Movement Corridors

Criteria	Suggested Guidelines for Evaluation of the Significance of Movement Corridors
Importance of areas to be linked by corridor	<ul style="list-style-type: none"> • Corridors linking the most significant natural areas both in and outside the municipality are most significant (e.g., wetlands, ANSIs in municipality, important waterfowl staging areas). • Corridors that provide access to and from the most critical habitats within a species/ home range are significant. • Corridors connecting locally important conservation areas and/or currently unevaluated natural areas in the planning area may be significant, particularly if the adjacent landscape is greatly fragmented by roads, residential development, or agricultural activities.
Importance of corridor to survival of target species	<ul style="list-style-type: none"> • Corridors linking most significant or critical identified wildlife habitats for a target species are most significant (e.g., winter deer yards and summer feeding areas, spring breeding ponds and summer woodlands for some species of amphibians). Animals must be able to get to and from their critical habitats.
Dimensions of corridor	<ul style="list-style-type: none"> • Wider corridors are usually more significant than narrow ones because they generally provide more food and habitat for more species and better protection from predation, natural and human disturbance. Most significant woodland corridors should be at least 200 m wide. • Shorter corridors are usually more significant than longer ones because they minimize the time animals spend in the corridor and the mortality risks to moving animals.
Continuity of corridor	<ul style="list-style-type: none"> • Continuous corridors consisting of native vegetation, unbroken by roads, or other gaps such as fields, water bodies, residential areas are most significant. • Corridors with few small gaps and crossed by small, infrequently used roads are more significant than corridors containing numerous small gaps and crossed by busier roads. Gaps should be < 20 m.
Habitat and habitat structure of corridor	<ul style="list-style-type: none"> • Corridors with several layers of vegetation (e.g., mature tall trees, understory trees, shrubs, herbaceous ground cover) are generally more significant than corridors with few vegetation layers because they provide more cover (therefore protection from adverse weather, predators) for a wider variety of animals and potential sources of food. • Corridors with variety of ground cover (living low vegetation, down woody debris, stumps, rock piles) and subterranean entries are usually more significant than corridors consisting of mostly sparsely covered ground because they provide more and a greater variety of cover. • Corridors through natural landscapes are more significant than those through more anthropogenic landscapes • Corridors with buffers of native vegetation on both sides are more significant than corridors with no natural buffer(s) of native vegetation because they help to reduce impact of natural and human disturbance. Adequate buffers can also reduce predation by raccoons, foxes, cats and other wildlife, on species residing in the corridor; as well as provide a place to feed for small mammals and birds that live in the corridor. Most significant riparian corridors should have at least 15 m of vegetation on both sides of the waterway. • Corridors containing water sources are usually more significant than similar corridors without water because of its importance to a variety of wildlife. • Corridors with fruit and nut-producing vegetation are probably more significant than corridors with no such vegetation because they provide a better food supply for many mammals and birds moving through or living in them. • Corridors that best meet the habitat requirements for the target species are significant.
Species found in corridor or presumed to be using corridor	<ul style="list-style-type: none"> • Corridors containing high overall species diversity (vegetation, invertebrate, vertebrate species) are probably more significant than corridors with less species diversity. At least some of these species found in a corridor provide food for users of that corridor. Diversity of vegetation also provides cover for more species. Taken together, these factors increase probability that unobserved animals actually use a corridor. • Corridors used for movement by many species are usually more significant than corridors

Criteria	Suggested Guidelines for Evaluation of the Significance of Movement Corridors
	<p>used by only a few species.</p> <ul style="list-style-type: none"> • Corridors used by rare species are significant (e.g., several species of salamander that move between woodlands and their breeding ponds, southern flying squirrel moving between two woodlots). • Corridors providing safe movement for large numbers of a single species (e.g., salamanders) may be significant, especially if few or no other corridors for that species have been identified for the planning area. • Corridors with a high diversity of species permanently residing within corridor are more significant than corridors with few permanent species.
Risk of mortality for species using corridor	<ul style="list-style-type: none"> • Corridors providing safest passage for wildlife moving across the landscape are most significant. Best corridors will have the lowest risk of mortality associated with them (e.g., from predation, roadkills, or their location with respect to adjacent residential areas with cats, dogs).
Opportunity for protection	<ul style="list-style-type: none"> • Corridors with the best opportunity for protection (e.g., unopened road allowances, rights-of-way, borders of conservation areas, undeveloped shorelines, hydro and pipeline corridors) are significant. However, this does not imply that more important or better corridors should not be protected simply because these more easily protected corridors are found in the same area.
Provision of other related values	<ul style="list-style-type: none"> • Numerous and/or large corridors that could effectively increase the overall area of the existing system of protected natural areas in the planning area are significant. • Corridors that could increase local representation and diversity of habitats, successional stages, or area of natural buffer zones are significant. • Corridors that could result in increased foraging opportunities for wide-ranging species (e.g., fisher, black bear) are significant. • Corridors that may permit the future expansion of wildlife populations into an area (e.g., fisher, southern flying squirrel) as habitat for these species improves are significant. • Corridors that could increase or maintain landscape resistance to soil erosion, desiccation, water quality (e.g., riparian corridors along lake shorelines, woodlands) are significant.

APPENDIX R

Summary of Existing Ontario Ministry of Natural Resources Habitat Management Guidelines

Over the past 20 years, the Ontario Ministry of Natural Resources has developed a series of forest management guidelines. These guidelines have been developed to assist resource managers to maintain or create a forest that has structure and composition to provide functional habitat for a variety of wildlife species. A variety of constraints and different timber harvest techniques are recommended in the guidelines in order to protect a specific habitat. While these may be considered of limited value to the municipal planning process, the general concepts of forest size, diversity and distribution on a landscape scale are useful. These guidelines offer concise summaries of specific habitat requirements for a number of wildlife species. Habitat requirements for some of these species are very specific (e.g. area sensitive species) while requirements of others may be more general. This information can be applied equally well in the municipal planning process.

Many of the guidelines recommend protecting wetlands and riparian forest areas. These areas provide habitat for a large number of wildlife species. Because of this, many of these areas can be considered significant wildlife habitats (see Tables 10.2 - 10.4 in the text).

Where available, large forest areas will meet habitat requirements of many of the more specialized area sensitive species. The guidelines recommend protecting these areas from fragmentation. Many municipalities do not have large tracts of forest. Instead they may have numerous smaller tracts of forested land that may or may not be interconnected by corridors of forest, thicket or riparian vegetation. The guidelines recommend retaining these corridors, rather than fragmenting the forest landscape further. This may be enough to protect critical habitat of some more specialized, yet adaptable wildlife species.

The concept of establishing buffer zones and timing restrictions for development activities to occur around known significant wildlife habitat is presented in many of these guidelines. Timing restrictions are particularly important during critical life stages (e.g. nesting, calving). All the guidelines provide lists of reference material.

While many of the wildlife species referred to in these guidelines are protected, in varying degrees, by provincial or federal legislation, only those species covered under the *Endangered Species Act* have protection extended to their habitat.

This appendix is arranged into two parts. The first part provides a list of existing guidelines with a short summary of how each may be valuable to the municipal planning process. The second part is a more detailed description of each set of guidelines.

It is important to take into account that many of these guidelines were written in the mid-1980s. Since that time, there have been some changes in landscape ecology concepts. For example, today there is a greater emphasis placed on protecting large, undisturbed tracts of land and lesser emphasis on preserving edge habitat. Even so, all of the guidelines are a good source of information about habitat requirements for many individual species.

When referring to these guidelines, please keep in mind that protecting natural features during forest management activities may be less stringent than those required for urban development. This is because urban developments result in more dramatic and permanent changes to the landscape.

A complete copy of many of these guidelines is available for review at your local Ministry of Natural Resources office. *The Black Rat Snake in Ontario, Rideau Lakes Population*, specific to Kemptville District and *Bird Habitat Guidelines for Forests and Grasslands*, an Illinois document only are available at the Kemptville District Office.

GUIDELINE TITLE	APPLICATION VALUE TO MUNICIPAL PLANNING
Forest Management Guidelines for the Provision of Pileated Woodpecker Habitat (OMNR 1996)	<ul style="list-style-type: none"> - developed to address Timber Environmental Assessment requirements - intended to ensure adequate representation of mature forest habitat - provides an excellent summary of Pileated Woodpecker behaviour and habitat requirements - particularly useful reference for planning at the landscape scale - application of these guidelines should provide adequate forest habitat for other woodpecker and cavity nesting bird species - also see <i>Habitat Management Guidelines for Cavity-nesting Birds in Ontario (1984)</i>
Habitat Management Guidelines for Cavity-nesting Birds in Ontario (OMNR 1984)	<ul style="list-style-type: none"> - includes provisions for establishing minimum forest habitat for 27 cavity-nesting birds - includes habitat descriptions for the following species of woodpeckers: Pileated, Red-headed, Red-bellied, Black-backed, Three-toed, Hairy, Downy, Yellow-bellied Sapsucker, Northern Flicker, Black-capped Chickadee, Boreal Chickadee, Tufted Titmouse, Red-breasted Nuthatch, White-breasted Nuthatch, American Kestrel, Barn Owl, Eastern Screech-owl, Hawk Owl, Barred Owl, Saw Whet, Great Crested Flycatcher, Tree Swallow, Brown Creeper, House Wren, Eastern Bluebird, Prothonotary Warbler
Habitat Management Guidelines for Warblers of Ontario's Northern Coniferous Forests, Mixed Forests of Southern Hardwood Forests (OMNR 1984)	<ul style="list-style-type: none"> - includes distribution maps and habitat descriptions/ requirements for the following species of warblers: Tennessee, Nashville, Northern Parula, Magnolia, Cape May, Black-throated Blue, Yellow-rumped, Black-throated Green, Blackburnian, Pine, Bay-breasted, Cerulean, Black-and-white, Mourning, Hooded, Canada, American Redstart, Ovenbird, Northern Waterthrush - lists factors affecting management considerations - identifies area-sensitive warbler species (please note: there has been extensive work in this area in recent years; additional species have been identified as area sensitive since the guideline was written)
Bird Habitat Guidelines for Forests and Grasslands (Illinois Department of Conservation undated)	<ul style="list-style-type: none"> - augments information provided in <i>Habitat Management Guidelines for Warblers of Ontario's Northern Coniferous Forests, Mixed Forests of Southern Hardwood Forests (1984)</i> (includes area requirements for 17 additional forest species not covered in warbler guidelines) - provides estimates of minimum areas to sustain viable breeding populations of area sensitive forest (23) and grassland (14) bird species (includes 17 forest species not
<p>Only available through MNR's Science Technology Transfer Unit, Kemptville office See <i>Web Page</i> http://www.npwrc.usgs.gov/resource/othrdata/manbook/manbook.htm for a more current version of Illinois guidelines</p>	<ul style="list-style-type: none"> - suggests the expected maximum number of nest sites /9200 ha of land-base for Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk and Red-shouldered Hawk - recommends buffer zone sizes for Bald Eagle, Osprey and heronries - recommends riparian zone widths according to degree of slope (same as recommended in <i>Guidelines for Furbearer Management in Ontario</i> and <i>Habitat Management Guidelines of Waterfowl in Ontario</i>)
Guidelines for the Protection of Forest-nesting and Wetland-nesting Bird Habitat by means of Modified Management Areas (OMNR 1985)	<p>use In conjunction with <i>Management Guidelines for the Protection of Heronries in Ontario, Management Guidelines and Recommendations for Osprey in Ontario, Habitat Management Guidelines for Ontario's Forest Nesting Accipiters, Buteos and Eagles, Bald Eagle Habitat Management Guidelines, Golden Eagle Habitat Management Guidelines</i> and <i>Forest Management Guidelines for the Provision of Pileated Woodpecker Habitat</i></p>

GUIDELINE TITLE	APPLICATION VALUE TO MUNICIPAL PLANNING
Habitat Management Guidelines for Waterfowl in Ontario (OMNR 1985)	<ul style="list-style-type: none"> - includes a description of species habitat requirements for a number of wetland, upland and cavity-nesting waterfowl species - recommends riparian zone widths according to degree of slope (same as recommended in <i>Guidelines for furbearer habitat management in Ontario, 1985</i>) - wetland and adjacent land protection measures are intended to provide sufficient protection to wetland and riparian forest-nesting waterfowl
Guidelines for Furbearer Habitat Management in Ontario (OMNR 1985)	<ul style="list-style-type: none"> - provides description of habitat requirements, effects of habitat alterations and habitat management tactics for both wetland-associated and forest-associated furbearers - recommends riparian zone widths according to degree of slope - wetland and adjacent land protection measures are intended to provide sufficient protection for wetland-associated furbearers
Habitat Management Guidelines for Birds of Ontario Wetlands - including marshes, swamps and fens or bogs of various types (OMNR 1985)	<ul style="list-style-type: none"> - includes habitat requirement descriptions for the following species: Pied-billed Grebe, Horned Grebe, Red-necked Grebe, American Bittern, Least Bittern, Green Heron, Northern Harrier, Merlin, Yellow Rail, King Rail, Virginia Rail, Sora, Common Moorhen, American Coot, Sandhill Crane, Greater Yellowlegs, Lesser Yellowlegs,, Solitary Sandpiper, Whimbrel, Hudsonian Godwit, Marbled Godwit, Semipalmated Sandpiper, Least Sandpiper, Pectoral Sandpiper, Dunlin, Stilt Sandpiper, Short-billed Dowitcher, Common Snipe, American Woodcock, Wilson's Phalarope, Red-neck Phalarope, Parasitic Jaeger, Little Gull, Common Tern, Forster's Tern, Black Tern, Great Gray Owl, Short-eared Owl, Alder Flycatcher, Eastern Kingbird, Gray Jay, Sedge Wren, Marsh Wren, Swainson's Thrush, Gray Catbird, Cedar Waxwing, Northern Shrike, White-eyed Vireo, Solitary Vireo, Philadelphia vireo, Blue-winged Warbler, Golden-winged Warbler, Yellow Warbler, Palm Warbler, Black-and-white Warbler, Connecticut Warbler, Yellowthroat, Wilson's Warbler, Savannah Sparrow, Le Conte's Sparrow, Sharp-tailed Sparrow, Lincoln's Sparrow, Swamp Sparrow, Yellow-headed Blackbird, Rusty Blackbird, Brewer's Blackbird - wetland and adjacent land protection measures are intended to provide sufficient protection for wetland birds
Management Guidelines for the Protection of Heronries in Ontario (OMNR 1984)	<ul style="list-style-type: none"> - identifies habitat requirements and sensitivities - particularly useful to identify work or timing restrictions and buffer zones during development in areas close to existing heronries - helps determine suitable distance for development to occur
Management Guidelines and Recommendations for Osprey in Ontario (OMNR 1983)	<ul style="list-style-type: none"> - identifies habitat requirements and sensitivities - can be used to identify work or timing restrictions and buffer zones during development in areas close to Osprey nesting sites - different restrictions apply for northern and southern Ontario nest sites
Habitat Management Guidelines for Ontario's Nesting Accipiters, Buteos and Eagles (OMNR 1984)	<ul style="list-style-type: none"> - includes habitat requirement descriptions and distribution maps for the following species: Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Broad-winged Hawk, Bald Eagle
Peregrine Falcon Habitat Management Guidelines (OMNR 1987)	<ul style="list-style-type: none"> - recommends developing a nest site management plan within a 3 km radius of any nesting site (short outline of plan and description of management options are included)

GUIDELINE TITLE	APPLICATION VALUE TO MUNICIPAL PLANNING
Bald Eagle Habitat Management Guidelines (OMNR 1987)	<ul style="list-style-type: none"> - provides description of essential habitat, Bald Eagle life history and critical periods during the nesting period - offers recommendations for regional (landscape scale) management that may be of value for municipalities that have known Bald Eagle nesting sites
Golden Eagle Habitat Management Guidelines (OMNR 1987)	<ul style="list-style-type: none"> - similar to <i>Bald Eagle Habitat Management Guidelines (1987)</i> with the exception of offering large clearings beyond the 100 m buffer zone
Forest Management Guidelines for the Provision of Marten Habitat (OMNR 1996)	<ul style="list-style-type: none"> - provides an excellent summary of marten behaviour and habitat requirements - particularly useful to refer to requirements at the landscape scale - application of these guidelines would provide habitat required by mammals and birds associated with mature –overmature coniferous forests, cavity trees, woody debris
Habitat Management Guidelines for Bats of Ontario (OMNR 1984)	<ul style="list-style-type: none"> - includes distribution maps, description of habits, diet, habitat requirements - species include: little brown myotis, Keen’s myotis, small-footed bat, silver-haired bat, eastern Pipistrelle, big brown bat, red bat, hoary bat - guideline implementation requires knowledge of known roosting, nursery or hibernation sites
Forest Management Guidelines for the Provision of White-tailed Deer Habitat (OMNR 1997)	<ul style="list-style-type: none"> - excellent summary of winter and summer habitat requirements for deer (note: deer do not yard as readily in southern portions of Ontario unless the winter is severe) - protection of deer habitat will protect habitat for other wildlife species that rely on mast producing trees and plants and require connectivity between forest patches
Forest Management Guidelines for the Provision of Moose Habitat (OMNR 1988)	<ul style="list-style-type: none"> - wetland and adjacent land (120 m) protection measures will go a long way to protecting moose feeding areas - provides recommendation for no development areas adjacent to critical mineral lick or calving sites
The Black Rat Snake in Ontario, Rideau Lakes Population (OMNR 1977) - A Field Guide	<ul style="list-style-type: none"> - not a guideline document - provides concise description on range, habitat, prey hibernation, reproduction of black rat snake - specific population information limited to eastern Ontario
<p>Copy available for viewing at Kemptville District Office or from the Science and Technology Transfer Unit, Kemptville</p>	

Forest Management Guidelines for the Provision of Pileated Woodpecker Habitat Version 1.0 (OMNR, 1996)

A. Habitat types influenced

Mature or old growth productive forests (mixed, deciduous and to lesser extent coniferous)
Snags
Downed woody debris

B. Intent of Guidelines

These guidelines were prepared as a commitment to the Class Environmental Assessment for Timber Management. The Pileated Woodpecker is representative of mature and old growth forest habitat in the Great Lakes-St. Lawrence Forest Region. Guidelines include provisions for the management of forest habitat in order to meet current and future habitat needs of the Pileated Woodpeckers throughout the Great Lakes – St. Lawrence forest region by:

- 1) allowing sufficient flexibility in management options to suit a variety of situations

C. Environmental and Biological Factors Affecting Management Options

- ✓ availability of large tracts of interconnected mature forest in the landscape
- ✓ current abundance and distribution of Pileated Woodpeckers

D. Management Approaches

- maintain sufficient supply of roosting trees, cavity nesting trees, potential cavity trees and trees that provide a food source
- encourage continuous, adequate supply of downed wood and dead standing trees

E. Level of Guideline Specialization

Provides an overview of habitat needs for the Pileated Woodpecker. Application of these guidelines should provide adequate habitat for other woodpecker and cavity nesting bird species.

F. Other Comments

- describes rationale and objectives for the guidelines
- deals with habitat needs at the *Stand Level* (10s' of hectares) and *Landscape Level* (1000s' of hectares)
- guidelines provide an extensive list of reference materials, ecosite types and criteria for selecting cavity trees

Habitat Management Guidelines for Cavity-nesting Birds in Ontario (OMNR, 1984)

A. Habitat types influenced

Semi-mature, mature forests (mixed, coniferous, deciduous)
Forest edge
Snags or hollow, living trees
Downed woody debris

B. Intent of Guidelines

Includes provisions for establishing minimum forest habitat for 27 cavity-nesting bird species and general habitat management guidelines by:

- 2) promoting the protection of large, undisturbed tracts of land
- 3) recommending minimum (not optimum) habitat requirements

C. Environmental and Biological Factors Affecting Management Options

- ✓ available number of snags in a given area
- ✓ variety of diameters and height of snags
- ✓ diversity of tree species and ages
- ✓ forest size
- ✓ width of riparian forest areas
- ✓ Site Region location
- ✓ presence/absence of primary cavity excavators

D. Management Approaches

- maintain large, undisturbed tracts of forest area (650-2500 ha)
- preservation of deciduous forests, particularly on the Canadian Shield (avoid clear cutting)
- maintain 100 m wide corridors between fragmented forest areas, especially along shorelines
- preservation of adequate number of trees with heart-rot, dead or dying trees, malformed trees
- girdle undesirable trees
- retain fallen logs and slash during forest operations
- create irregular forest edge habitat
- protection of riparian forests
- erect artificial nesting cavities (nest boxes)

E. Level of Guideline Specialization

Protection and preservation of optimum habitat requirements for primary cavity excavators, like the Pileated woodpecker, are most likely to provide sufficient habitat for other cavity-nesting bird species. Also see *Forest Management Guidelines for the Provision of Pileated Woodpecker Habitat (OMNR, 1996)*. In addition to birds, a variety of mammal, reptile and amphibian species benefit from the application of these guidelines. These species are generally ones that: a) require travel corridors to move from one habitat to another; b) require large tracts of mixed wood, deciduous and coniferous forests; and, use a variety of lowland and upland forests habitats; forest and riparian edge habitat; and, downed woody debris.

F. Other Comments

- provisions should be made to conserve tracts of forest large enough to provide for an entire bird population, not just a single, breeding pair

Habitat Management Guidelines for Warblers of Ontario's Northern Coniferous Forests, Mixed Forests of Southern Hardwood Forests (OMNR, 1984)

A. Habitat types influenced

Forests
Forest edge
Downed woody debris
Riparian areas

B. Intent of Guidelines

Provides forest management options to preserve and protect forest habitats in general and large forest habitats from fragmentation in particular.

C. Environmental and Biological Factors Affecting Management Options

- ✓ insect abundance
- ✓ availability of downed woody debris
- ✓ diversity of habitat (forest, forest edge, openings)
- ✓ forest size
- ✓ forest type (coniferous, deciduous, coniferous)
- ✓ stratification (overstory, understory, ground cover) within a stand (otherwise referred to as structure)
- ✓ location and availability of riparian areas
- ✓ presence of bird species (may include species requiring special habitat needs e.g. area sensitive, old growth forest)
- ✓ present and future development pressures

D. Management Approaches

- manage for larger rather than smaller tracts of forest
- maintain corridor connections between smaller forest areas
- avoid cutting riparian forests

E. Level of Guideline Specialization

Guidelines are somewhat generalized. Descriptions of specific species requirements is valuable.

F. Other Comments

- provides habitat requirements for 19 warbler species
- identifies species that require large tracts of forest (area sensitive species) and mature to old growth forests
- identifies species that are tolerant of timber harvest and may respond positively to logging
- identifies species that require dense growth of deciduous shrubs, riparian habitats, closed canopies
- includes a list of reference material

Bird Habitat Guidelines for Forests and Grasslands (Illinois Dept. of Conservation, c. 1988)

A. Habitat types influenced

Forests
Grasslands

B. Intent of Guidelines

To provide guidance to resource managers who wish to enhance habitat of grassland and forest interior birds.

C. Environmental and Biological Factors Affecting Management Options

- ✓ availability of larger-sized forest blocks situated away from forest edge effects
- ✓ availability of contiguous areas of grassy habitats (pasture, hayfields, but not row crops)
- ✓ presence/absence of highways or other disturbances
- ✓

D. Management Approaches

Forests

- avoid unnecessary fragmentation of forest
- maintain maximum contiguous woodland with least amount of edge in small tracts of forest (even as small as 2 ha)
- retain connecting corridors between isolated forest tracts
- promote canopy closure
- retain diversity of vegetation
- plan to maximize unfragmented areas or reforest harvested or fragmented forest blocks
- restrict human activities during breeding season

Grasslands

- optimal area for restoration of grassland areas is more than 100 ha
- reduce amount of linear edge habitat
- adjacent areas should be open, not close to forest edge
- prescribed maintenance burning during early spring or late fall

E. Level of Guideline Specialization

For a variety of interior forest and grassland bird species.

F. Other Comments

- includes a list of references specific to forest interior bird species and grassland nesting birds
- includes a list of true grassland nesting bird species and other birds that may breed or spend part of their life in grasslands
- includes a list of area sensitive forest birds and minimum forest area required to sustain viable breeding populations
- a 1993 revision to this document entitled *Habitat establishment, enhancement and management for forest and grassland birds in Illinois* can be located on the following Internet web page: <http://www.npwrc.usgs.gov/resource/othrdata/manbook/manbook.htm> or, by writing to James R. Herkert, Division of Natural Heritage, Illinois Department of Conservation, Springfield, Illinois

Guidelines for the Protection of Forest-nesting and Wetland-nesting Bird Habitat by means of Modified Management Areas [draft] (OMNR, 1985)

A. Habitat types influenced

Mature or old growth forests
Forest edge
Riparian areas
Wetland areas

B. Intent of Guidelines

To help resource managers integrate wildlife management concerns into forest management plans and operations.

C. Environmental and Biological Factors Affecting Management Options

- ✓ presence of species with more specialized habitat requirements
- ✓ quality and quantity of available habitat (diversity, size)
- ✓ existing and future development pressures

D. Management Approaches

- ❑ aim to meet optimum, not minimum habitat requirements of wildlife species
- ❑ preserve snags, downed woody debris, riparian habitats
- ❑ manage for habitat diversity (species richness)
- ❑ provide forest tracts large enough to maintain healthy populations, not just single pairs

E. Level of Guideline Specialization

Special management guidelines are offered for Pileated Woodpecker (see 1996 guidelines), accipiters and hawks (see 1984 guidelines), Bald Eagle, Golden Eagle, Osprey, herons (see 1987 and 1984 guidelines), Sand Hill Crane, Great Gray Owl, American Woodcock. Also provides general guidelines for wetland and forest habitats.

F. Other Comments

- includes a list of reference material
- includes species lists and habitat association, a list of area sensitive bird species, dimensions for building nest boxes for cavity-nesting birds
- recommends sizes of buffer zones around nest sites, by bird species

Habitat Management Guidelines for Waterfowl in Ontario (OMNR, 1985)

A. Habitat types influenced

Mature upland forests
Grasslands (openings)
Mature riparian forests
Wetland areas (critical habitat)
Open water areas

B. Intent of Guidelines

To assist resource managers in protecting and enhancing waterfowl habitat, particularly as it relates to timber harvesting.

C. Environmental and Biological Factors Affecting Management Options

- ✓ nesting and feeding requirements of ducks and geese
- ✓ forest/woodpecker associations (in provision of critical habitat for cavity nesting ducks)
- ✓ availability of wetland, riparian and upland forest habitats and their proximity to one another

D. Management Approaches

- restrict activities during waterfowl nesting period
- encourage preservation of riparian areas
- maintain uneven-aged, old growth forests with openings

E. Level of Guideline Specialization

Recommended management options are limited to forest management. Does not include recommendations for the management of habitat for all species of waterfowl.

F. Other Comments

- includes a list of waterfowl species that nest in forested areas of Ontario
- includes a list of reference material

Guidelines for Furbearer Habitat Management in Ontario (OMNR, 1985)

A. Habitat types influenced

Forests
Forest edge
Riparian areas
Wetland areas
Downed woody debris

B. Intent of Guidelines

To assist government and industry foresters and biologists to develop appropriate forest management prescriptions.

C. Environmental and Biological Factors Affecting Management Options

- ✓ whether furbearer is associated with forest or wetland habitats
- ✓ diet, size, reproductive requirements and behaviour of furbearers
- ✓ furbearer species interactions
- ✓ habitat diversity and availability
- ✓ water level permanence, fluctuation

D. Management Approaches

Wetland-associated furbearers

- protect wetland habitat from development (drainage, channelization, filling etc.)
- avoid development in riparian areas, particularly road development
- maintain wetland cover
- reduce water velocity and avoid extremes in water fluctuation that may negatively affect furbearers at critical periods in their life (e.g. extreme water fluctuations during winter months can either drown-out or freeze-out muskrats)

Forest-associated furbearers

- maintain dense, continuous overhead cover
- retain snags, downed wood
- protect old-growth forests
- manage for future mature – old growth forest
- protect large tracts of forested area
- retain or create corridors to connect smaller tracts of forest

E. Level of Guideline Specialization

Maintaining habitat quality of beaver and muskrat will have beneficial effects on habitat of mink, otter and other wetland species. Forest-associated furbearers have a wide diversity of habitat requirements, larger carnivores requiring larger, contiguous tracts of forested area. Management for these species benefit their prey (e.g. small mammals such as rabbits, voles, mice).

F. Other Comments

- specific measures may be needed to meet the needs of individual species
- guidelines include a list of reference material and description of individual species requirements

Habitat Management Guidelines for Birds of Ontario Wetlands, including marshes, swamps and fens or bogs of various types (OMNR, 1985)

A. Habitat types influenced

Wetlands – a variety of different types of marsh, swamp, bog or fen habitat
Riparian areas
Open water areas
Forest edge
Seepage areas

B. Intent of Guidelines

Includes provisions for timber harvest operations that are intended to help preserve remaining wetland habitat in Ontario for 66 Ontario wetland bird species by -

1. promoting the protection of riparian forests and forests on steep banks
2. recommending a minimum no-cut zone (50 m) on either side of a river or lake
3. providing suitable conditions for all wetland species by managing optimum habitat for the more habitat-specific species

C. Environmental and Biological Factors Affecting Management Options

- ✓ existing size, form and function of wetland
- ✓ wetland rarity (e.g. marshes are more rare in northern Ontario, whereas bogs are more rare in southern Ontario)
- ✓ species diversity (flora and fauna)
- ✓ surrounding land uses
- ✓ future development pressures

D. Management Approaches

- preserve all remaining wetlands, particularly rarer forms that support several rare species of flora or fauna
- conserve riparian and drier surrounding edges
- avoid creating channels in river wetlands
- discourage logging or development of swampy and riparian areas
- encourage natural water regulation to promote a diversity of plant life
- avoid use of chemical pesticides
- encourage public education programs and stewardship
- encourage research on wetland species
- identify critical breeding, migration areas for rare species, or areas of high use
- consider limiting recreational use of critical wetland areas during the breeding season
- encourage wetland creation

E. Level of Guideline Specialization

Habitat requirements for a large number of species of flora and fauna are met when wetland habitat in general is protected.

F. Other Comments

- an important aspect of wetland protection and management is the preservation of the area where water and land meet (riparian zone)
- protection of provincially significant wetlands now also involves the recognition of a 120 m adjacent land area since many species use both wetland and upland areas to meet all their life's requirements

- for many species that are not area sensitive this adjacent land area may be sufficient to provide the required travel corridors to move from one habitat to another, or meet a breeding, nesting, foraging or shelter habitat requirement
- upland habitat may include: mixed-wood, deciduous, coniferous forests; open grassland areas; forest edge; and, downed woody debris

Management Guidelines for the Protection of Heronries in Ontario (OMNR, 1984)

A. Habitat types influenced

Mature hardwood forest types
Forest edge
Riparian areas
Wetland areas (marshes for feeding; swamps for nesting)

B. Intent of Guidelines

Includes provisions for preventing the loss of heron and egret colonial nesting sites by:

- 1) encouraging educational programs to promote appreciation of herons
- 2) providing information about the sensitivity of herons to disturbance
- 3) specifying buffer zones for different levels of development disturbance

C. Environmental and Biological Factors Affecting Management Options

- ✓ size of colony
- ✓ location of colony
- ✓ level of significance a colony has to the contribution of regional heron populations
- ✓ quality of habitat conditions throughout the landscape

D. Management Approaches

- conduct inventory of existing heronries and potential nest sites
- protect and manage relative to size of heronry, and its significance to regional population of herons
- conserve habitat for future heronries
- develop and follow buffer zone criteria for various levels of development
- specify activities prohibited and permitted during the breeding and non-breeding season

E. Level of Guideline Specialization

Specific to Great Blue Heron, Black-crowned Night Heron, Green Heron, Great Egret, Cattle Egret, although management techniques and use of buffer zones during development activities may benefit other wetland species, including Osprey.

F. Other Comments

- includes field and record sheets for the Ontario Heronry Inventory
- includes a dated but extensive list of reference material

Management Guidelines and Recommendations for Osprey in Ontario (OMNR, 1983)

A. Habitat types influenced

Open water areas
Riparian areas (treed)
Wetland areas (treed)

B. Intent of Guidelines

Includes provisions for Osprey habitat and nest site improvement and preservation.

C. Environmental and Biological Factors Affecting Management Options

- ✓ distribution and abundance of Osprey
- ✓ Osprey health (in the past, reproductive success has been negatively affected by high levels of pesticides)
- ✓ level of human disturbance

D. Management Approaches

- maintain and report nesting records of Osprey (assists in estimating breeding bird populations)
- develop and follow buffer zone criteria for various levels of development according to northern and southern Ontario criteria
- specify activities prohibited and permitted during the breeding and non-breeding season
- encourage educational programs to promote awareness and appreciation of Osprey

E. Level of Guideline Specialization

Specific to Osprey. Osprey may also benefit from the protection of heronries.

F. Other Comments

- includes a standard inventory data sheet for nesting osprey
- includes a dated list of references

Habitat Management Guidelines for Ontario's Forest Nesting Accipiters, Buteos and Eagles (OMNR, 1984)

A. Habitat types influenced

Mature or old growth forests (mixed, deciduous and to lesser extent coniferous)

Forest edge

Riparian areas

Wetland areas

B. Intent of Guidelines

Includes provisions for the protection of nesting and feeding habitats of six forest nesting species of raptors by:

- 1) promoting the preservation of riparian forest habitat, forest edges and openings
- 2) managing for present and future trees suitable for nesting and perching
- 3) recognizing many raptors are area sensitive
- 4) limiting human disturbances

C. Environmental and Biological Factors Affecting Management Options

- ✓ Site Region location of forest stand
- ✓ existing size of forest
- ✓ raptor species involved and its specific habitat requirements

D. Management Approaches

- maintain extensive forest cover, particularly near riparian edges
- suppress human activities where raptors are known to occur, particularly during the nesting season
- manage areas to provide adequate nesting and perching sites

E. Level of Guideline Specialization

Specific habitat requirements and forest management guidelines are outlined for the following diurnal forest-dwelling raptors: Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Broad-winged Hawk and Bald Eagle.

F. Other Comments

- of all the bird species, raptors are among the most easily disturbed by clearing or logging practices
- provision of only minimum habitat requirements may lead to sub-optimal conditions that can lead to low nesting success and eventual extinction of a population
- guidelines include a copy of the inventory data sheet and the Ontario nest record card
- guidelines include a dated but extensive list of reference material

Peregrine Falcon Habitat Management Guidelines (OMNR, 1987)

A. Habitat types influenced

Cliffs

Urban settings (sometimes nesting on tall buildings)

Open areas

Wetland areas

Forest (early successional and mature)

B. Intent of Guidelines

To provide criteria for the protection of existing and potential Peregrine Falcon nesting sites and for the protection of Peregrine Falcons from human disturbance during the breeding season.

C. Environmental and Biological Factors Affecting Management Options

- ✓ Peregrine Falcon occurrence and distribution
- ✓ variability in tolerance to human presence
- ✓ availability of nesting sites adjacent to open water of lakes or rivers
- ✓ proximity of potential hunting areas (lakes, wetlands, forest openings, forest canopy) to the nest site
- ✓ availability of prey
- ✓ location and rate of human development as they relate to nesting site

D. Management Approaches

- survey for presence of Peregrine Falcon, assess habitat potential (data records)
- collect information on historical nesting records for an area
- identify and preserve Peregrine Falcon hunting areas
- prepare site-specific management plans (within 3 km radius) for each nest site
- identify buffer zones around nests within which human activities and habitat alterations are restricted
- buffer zones above cliffs where nesting sites (eyries) are located should be wider than those at base of cliff
- prohibit human recreational activities with 0.6 and 0.8 km of nest site during breeding season
- preserve potential nest sites

E. Level of Guideline Specialization

Specific to Peregrine Falcons, but preservation of habitat types that provide nesting sites for prey species for Peregrines also preserve habitat for other species.

F. Other Comments

- cliffs and urban areas provide nesting sites for Peregrines; open areas, wetlands, forests provide sites that produce prey species suitable for Peregrines (e.g. protection of snags preserves habitat for cavity nesting bird and mammal species)
- guidelines include a one page summary of a Peregrine Falcon nest site management plan
- guidelines include a short list of reference material

Bald Eagle Habitat Management Guidelines (OMNR, 1987)

A. Habitat types influenced

Mature or old growth forests (super canopy trees)
Forest edge
Riparian areas
Open water

B. Intent of Guidelines

To provide criteria for the protection and maintenance of Bald Eagle breeding habitat and for the protection of Bald Eagles from human disturbance during the breeding season.

C. Environmental and Biological Factors Affecting Management Options

- ✓ Bald Eagle occurrence and distribution
- ✓ variability in eagle tolerance to human presence
- ✓ availability of large contiguous areas of habitat
- ✓ rate of human development

D. Management Approaches

- survey for presence of Bald Eagle, assess habitat potential (data records)
- essential habitat at each nest site includes aquatic and terrestrial habitats of 260 hectares (640 acres) or more
- prepare site-specific management plans to suit size and configuration of essential habitats
- identification of buffer zones around nests within which human activities and habitat alterations are restricted
- maintain prey base consistent with Bald Eagle food habits (fish)
- preserve potential nest and roost trees

E. Level of Guideline Specialization

Specific to Bald Eagle and Golden Eagle with one exception (see *Golden Eagle Habitat Management Guidelines* for exception)

F. Other Comments

- includes list of reference material
- includes Bald Eagle Breeding and Nest Area Record sheets

Golden Eagle Habitat Management Guidelines (OMNR, 1987)

A. Habitat types influenced

Mature or old growth forests
Forest edge
Grasslands
Wetland areas
Rock cliffs

B. Intent of Guidelines

To provide criteria for the protection and maintenance of Golden Eagle breeding and foraging habitat and for the protection of Golden Eagles from human disturbance during the breeding season.

C. Environmental and Biological Factors Affecting Management Options

- ✓ Golden Eagle occurrence and distribution
- ✓ variability in eagle tolerance to human presence
- ✓ availability of large contiguous areas of forest habitat with large, adjacent clearings
- ✓ rate of human development

D. Management Approaches

- ❑ survey for presence of Golden Eagle, assess habitat potential (data records)
- ❑ essential habitat at each nest site includes aquatic and terrestrial habitats of 260 hectares (640 acres) or more
- ❑ prepare site-specific management plans to suit size and configuration of essential habitats
- ❑ identification of buffer zones around nests within which human activities and habitat alterations are restricted
- ❑ maintain prey base consistent with Golden Eagle food habits (small mammals, particularly rabbits or hares)
- ❑ preserve potential nest and roost trees

E. Level of Guideline Specialization

For full description of guidelines see *Bald Eagle Habitat Management Guidelines (1987)*, with the exception that Golden Eagles benefit from large, contiguous clearings beyond 100 m from the nest site. These clearings are used as feeding areas.

F. Other Comments

- Golden Eagles are highly sensitive to disturbance during the breeding season

Forest Management Guidelines for the Provision of Marten Habitat Version 1.0 (OMNR, 1996)

A. Habitat types influenced

Moist, mature or overmature coniferous forests
Hardwood dominated forests and wetlands to a lesser extent

B. Intent of Guidelines

These guidelines were prepared as a commitment to the Class Environmental Assessment for Timber Management. The Marten is representative of contiguous, mature forest habitat in the Boreal Forest Region. Includes provisions for the management of forest habitat in order to maintain sufficient quality and quantity of habitat to support healthy populations of marten in the boreal forest region.

C. Environmental and Biological Factors Affecting Management Options

- ✓ availability of suitable forest coverage (hectares) and type and interconnecting corridors
- ✓ availability of downed wood on the forest floor
- ✓ prey availability
- ✓ current abundance and distribution of marten

D. Management Approaches

- maintain core habitat areas of between 30 and 50 km²
- maintain diversity of surrounding habitats to increase diversity of potential prey
- provide suitable numbers and distribution of potential maternal and resting den sites

E. Level of Guideline Specialization

Provides an overview of habitat needs for marten. Application of these guidelines may provide some habitat required by other mammals and birds that are associated with mature and overmature forests, cavity trees and coarse woody debris.

F. Other Comments

- describes rationale and objectives for the guidelines
- deals with habitat needs at the *Stand Level* (10s' of hectares) and *Landscape Level* (1000s' of hectares)
- guidelines provide an extensive list of reference materials

Habitat Management Guidelines for Bats of Ontario (OMNR, 1984)

A. Habitat types influenced

Forests (particularly snags that provide roosting sites)
Riparian areas (critical)
Aquatic areas (critical)
Natural and man-made caves
Urban and rural areas (open buildings)

B. Intent of Guidelines

Summarizes general and specific habitat requirements for a number of bat species.

C. Environmental and Biological Factors Affecting Management Options

- ✓ bat habits, diet
- ✓ specialized habitat requirements for some species of bats
- ✓ temperature
- ✓ humidity
- ✓ availability and location of natural or man-made caves

D. Management Approaches

- protect all known major and marginal hibernacula
- protect roost sites (e.g. snags)
- restrict activities during periods of roosting and hibernation (caves, hollow trees)
- limit accessibility to known hibernation sites
- avoid disturbance of riparian areas
- provide artificial roost sites (bat houses)

E. Level of Guideline Specialization

While specifically written for bats, recommendations provided in these guidelines offer protection of habitat components (e.g. snags and cavities) for other wildlife species. Potential roosting sites for bats may also be protected through the application of habitat management guidelines for other cavity nesting species.

F. Other Comments

- bats are unique and specialized in their habits and habitat requirements
- roosting and hibernation site availability is main factor limiting bat populations
- guidelines include distribution maps, a description of habits, diet and habitat requirements for eight bat species, a list of reference material, a summary of bat diseases, instructions on how to build a bat house

Forest Management Guidelines for the Provision of White-tailed Deer Habitat (OMNR, 1997)

A. Habitat types influenced

Coniferous forests
Early successional forests
Forest edge
Grasslands

B. Intent of Guidelines

Includes provisions for summer and winter deer habitat by -

- 1) promoting early successional growth for summer forage production
- 2) protecting known migration and travel routes
- 3) maintaining conifer cover and providing sufficient deer browse

C. Environmental and Biological Factors Affecting Management Options

- ✓ quality, quantity and availability of cover- and forage-species
- ✓ quality of summer habitat
- ✓ quantity and quality of winter habitat
- ✓ winter severity
- ✓ traditional deer-use patterns

D. Management Approaches

Winter Habitat

- select for conifer species
- promote regeneration of hemlock and cedar specifically
- retain browse species such as cedar, hemlock, viburnums, maples, red oak, dogwood, beaked hazel, birch

Summer Habitat

- establish openings (0.4 to 4 ha in size)
- promote growth of grasses, annuals, forbs
- retain or release growth of mast producing species (oak, beech, raspberry)

E. Level of Guideline Specialization

Protection of deer habitat also provides habitat for a variety of species that: a) rely on mast producing trees and plants; b) require travel corridors to move from one habitat to another; and, c) use upland forest; lowland treed swamp areas; open grassland areas; forest edge; and, downed woody debris.

F. Other Comments

- areas of irregular terrain and areas containing wind-throws or downed woody debris provide good winter habitat
- hemlock and cedar are best conifer cover, often associated with preferred browse species
- browse should be within 30 m of suitable winter cover in northern areas; 100 m in southern areas
- protection of known travel corridors is essential
- quality of summer habitat determines reproductive rate
- quality of winter habitat and winter severity determines spring survival

Forest Management Guidelines for the Provision of Moose Habitat (OMNR, 1988)

A. Habitat types influenced

Coniferous forests
Early successional forests
Forest edge
Wetlands

B. Intent of Guidelines

Includes provisions for protecting moose habitat in the Boreal and Great Lakes-St. Lawrence Forest Regions by -

- 1) promoting growth and abundance of young deciduous stands
- 2) protecting known feeding areas, calving sites and mineral licks
- 3) maintaining large areas of semi-mature and mature conifer cover

C. Environmental and Biological Factors Affecting Management Options

- ✓ quality, quantity and availability of specific (high sodium content) aquatic plant species
- ✓ quality and quantity of summer, fall and early winter habitat (early successional forests)
- ✓ availability and quality of winter concentration areas, mineral licks, calving areas
- ✓ traditional moose-use patterns
- ✓ occurrences of natural disturbances such as fire or insect damage
- ✓ forest region differences (e.g. winter severity; dominant forest types)

D. Management Approaches

- select harvest operations that create irregularly shaped cuts, scattered shelter patches, high diversity of age-class and species composition
- prescribed burns
- in the Boreal Forest Region, maintain growth of existing and encourage growth of new mixed wood stands; in the Great Lakes St. Lawrence Forest Region maintain existing semi-mature and mature coniferous growth
- exclude development (particularly roads) near or in known mineral lick and calving sites and aquatic feeding areas
- establish forested buffer zones between clear cuts, scattered trees within cutovers; shelter patches 3-5 ha in size, spaced 300-400 m apart, being at least 6 m high and have 11 m²ha⁻¹ basal area

E. Level of Guideline Specialization

It has been estimated that the needs of 70% of all wildlife in an area will be satisfied if provisions for moose habitat are made in accordance with these guidelines. Protection of moose habitat provides habitat for a variety of species that: a) require travel corridors to move from one habitat to another; inhabit treed islands; and, c) use mixed wood and coniferous forests; lowland treed swamp, bog or marshy areas; open grassland areas; forest edge; and, downed woody debris.

F. Other Comments

- the best habitat should provide conditions enabling a moose to be within 200 m of shelter patches or other cover
- a buffer of 120 m should be maintained around aquatic feeding areas, mineral licks and calving sites; travel corridors to these areas should be maintained

The Black Rat Snake in Ontario, Rideau Lakes Population (OMNR, 1977) - A Field Guide

A. Habitat types influenced

Talus slopes
Rock outcroppings
Downed woody debris
Forests
Forest openings, grasslands

B. Intent of Guidelines

Is not a guidelines document but represents a collection of information on black rat snakes, with a particular reference to an area in eastern Ontario.

C. Environmental and Biological Factors Affecting Management Options

- ✓ increases in vehicular traffic
- ✓ interactions with human activity
- ✓ availability of suitable habitat and sufficient prey
- ✓ presence of predators
- ✓ development pressures and loss of habitat

D. Management Approaches

- hold public education events regarding the conservation of black rat snakes
- conduct population assessments and estimates
- locate and evaluate habitat (identify hibernacula and nesting sites)
- protect known nesting and hibernation sites

E. Level of Guideline Specialization

Specific to the black rat snake. Not a true habitat management guidelines document.

F. Other Comments

- this document is available for viewing at Kemptville District Office or from the Science Technology Transfer Unit, Kemptville; it may not be readily available at other MNR offices
- provides a concise description on the range, habitat, prey, hibernation, reproduction of the black rat snake
- includes a list of reference material