HOW TO DETERMINE WHETHER A BMP IS SUITABLE FOR AN AREA ON YOUR PROPERTY

This booklet describes best management practices (BMPs) that may apply to one, some or all potential habitat areas on your property. Use the chart below to identify appropriate BMPs for your goals and circumstances.

	FARMLANDS				
BEST MANAGEMENT PRACTICE and page number	**CROPLANDS**	**PASTURES**	**ODD AND ABANDONED AREAS**	**FARMSTEADS**	**WINDBREAKS, SHELTERBELTS AND TREED FENCEROWS**
Maintain the habitat you have, p.26	■	■	▲	■	▲
Plant vegetation for wildlife, p.27	■	▲	▲	▲	▲
Create piles of stones and/or brush, p.30		▲	▲		▲
Provide nesting structures, p.31	▲	▲	▲	▲	▲
Adopt cropland conservation techniques, p.33	▲	▲		■	■
Select and use pesticides with care, p.35	▲	▲	■	▲	▲
Establish, protect or enhance windbreaks, shelterbelts and fencerows, p.37	▲	▲	▲	▲	▲
Rotate grazing, p.39		▲			
Delay haying or use flushing bars, p.40	▲	■			■
Provide feeding structures, p.41				▲	
Manage woodlands, p.43					▲
Manage plantations, p.45	▲ (marginal and fragile lands)	▲ (marginal lands)	▲		▲
Maintain wildlife trees and shrubs, p.48	▲ (marginal and fragile lands)	▲	▲	▲	▲
Manage wetlands, p.50	■ (sheetwater)	■ (sheetwater)	■		
Establish, protect or enhance vegetated buffers, p.54	■	■	■		
Restrict livestock, p.57 Provide alternative watering, p.57					
Improve in-water habitat, p.64					
Control bank, channel and shoreline erosion, p.69					
Maintain drains, p.72	▲	▲			

▲ very appropriate
■ appropriate and/or indirectly benefits habitat

WOODLANDS	TRANSITIONAL		AQUATIC	
WOODLOTS AND PLANTATIONS	**WETLANDS**	**STREAMBANKS AND SHORELINES**	**WATERCOURSES**	**LAKES AND PONDS**
▲	▲	▲	▲	▲
▲	▲	▲		
▲		■	■	■
▲	▲	▲	▲	▲ (islands)
	■	■	■	■
■	■	■	■	■
■	■	■	■	■
	■		■	
	■	■		
▲	▲ (wooded swamps)	▲		
▲		▲		
▲				
▲	▲	▲		
■	▲	▲	■	■ (shorelines and wetlands)
▲	▲	▲	▲	▲
▲	▲	▲	▲	▲
	▲		▲	▲
		▲	▲	▲
	■	▲	■	■

LIST OF ABBREVIATIONS

BMP	Best Management Practice (refers both to remedial measures and the series of booklets)
CA	Conservation Authority
CWS	Canadian Wildlife Service – Environment Canada
DUC	Ducks Unlimited Canada
EFP	Environmental Farm Plan
MOEE	(Ontario) Ministry of Environment and Energy
OFAH	Ontario Federation of Anglers and Hunters
OMAFRA	Ontario Ministry of Agriculture, Food and Rural Affairs
OMNR	Ontario Ministry of Natural Resources
OSCIA	Ontario Soil and Crop Improvement Association

INTRODUCTION

Encountering wildlife up close is an unforgettable experience. Whether we're age four or 94, it's awe-inspiring to see a red fox dart across a concession road, hear a midnight chorus of frogs, watch a fish struggle to overcome a barrier on its upstream migration, or follow a hawk as it soars.

If you read no further, remember to take a little time out of your schedule to enjoy nature and the fish and wildlife in it. Your life, and the lives of your children, will be a little richer.

This booklet explains how to create, restore, maintain and enhance fish and wildlife habitats on rural lands. It also provides management tips for dealing with problem wildlife. Some of the best management practices (BMPs) relate solely to farming. Most are easy to implement and involve doing things that are very familiar to you – working with plants, animals and water. Many offer economic benefits. All are voluntary.

We begin with some background to habitat management, and 10 rules-of-thumb that underlie the BMPs described later in the booklet.

The next section (page 8) gives an overview of each habitat type to help you identify which habitats are, or could be, on your property. The following section (page 24) describes the BMPs that are appropriate to each habitat. The final section (page 76) describes techniques to help you deal with nuisance wildlife.

In most cases, wildlife and agriculture can be compatible. This Hillsburgh-area farmer used his know-how in soil and water management to restore habitat:

> *When I was quite young, I would see all kinds of wildlife – a hawk landing in an old tree, deer jumping the fence...very graceful creatures. But as our operation grew, we used up more scrubland and took out fencerows – had to for feeding cattle and broilers. After that you didn't see much wildlife. Recently, though, we've made some improvements – planted trees on the steep slopes and improved the pond and wetland for ducks. Wildlife have returned. It's a lot nicer than just walking out there and it being barren and quiet.*
>
> GUY GARDHOUSE

The term **wildlife** includes wild organisms such as mammals, birds, reptiles, amphibians, fish, invertebrates (e.g., insects, worms, crayfish) and plants. In this booklet, we focus on mammals, birds, fish, reptiles and amphibians.

Raptors, such as owls and hawks, are predatory birds. They can help control some problem bird and rodent species around farms. In rural Ontario, the barred owl can be found in mature deciduous woodlands.

Children have a natural interest in wildlife.

INTRODUCTION

NUMBER OF SPECIES IN ONTARIO	
mammals	85
birds	300
fish	160
reptiles, amphibians	50
trees, shrubs, grasses, wildflowers	3000
mosses, lichens, fungi, algae, micro-organisms, insects, other invertebrates	Countless!

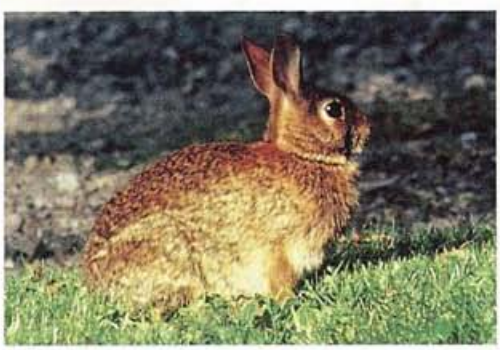
Fish and wildlife need living space, or **habitat**. They can only survive if the habitat available to them meets their four basic needs: food, shelter, water and space. An understanding of the habitat requirements of different species allows us to do things to either encourage or discourage them. This is called **habitat management.**

All habitats play important roles in sustaining wildlife. Habitats, the animals that dwell within them, and the actions of people are inseparably linked. Management actions that improve a habitat or control problem wildlife in one area may affect that species or others in the same area, in other parts of your property – and beyond.

Traditional wildlife management focuses on maintaining "game" species that could be hunted, trapped or fished, such as white-tailed deer, beaver and trout. In recent years, the focus has shifted to conserving all species within an ecosystem, a concept known as **biodiversity.**

Biodiversity refers to the variety of life on Earth. It's based on the idea that all plant and animal species, their habitats and ecosystems, and the relationships among them, are valuable and worth preserving and managing. When habitats are lost, so are species and biodiversity. When a species becomes extinct, it's gone forever!

This booklet considers the habitat needs of Ontario's mammals, birds, fish, reptiles and amphibians. Shown here (clockwise from bottom left) are a cottontail, a black rat snake, a pumpkinseed (sunfish) and a green frog.



INTRODUCTION

RESTORING HABITATS IN SOUTHERN ONTARIO

Most habitats in southern Ontario occur on private land. Landowners play an important role in ensuring the survival, diversity and health of Ontario's fish and wildlife.

Prior to European settlement, 85 percent of southern Ontario was covered in forest. In the past 200 years, urban development and farm practices, such as land-clearing and drainage, have fragmented habitats and populations. In some areas, many species are now forced to live in small, isolated "patches", rather than the vast tracts of forests or wetlands to which they are best adapted.

Other species, such as the once-plentiful passenger pigeon and blue walleye, are now extinct. Those that were once common in the south, such as the eastern cougar, marten, fisher, lynx, bobcat, timber wolf, black bear and red-shouldered hawk, are either no longer found there, or are found only rarely. Depending on rarity, a number of plant and animal species have been identified as vulnerable, threatened or endangered (VTEs). See page 5 for some examples.

Some species have adapted well to habitat fragmentation. These include white-tailed deer, fox, groundhog and raccoon.

Despite the significant loss of habitat, we are fortunate in Ontario. This province still offers diverse existing and potential habitats, from the boreal forests of the north, where agriculture is confined to a few small areas, to the mixed forests of the Great Lakes – St. Lawrence region in the south and the Carolinian zone in the southwest.

In some intensively farmed areas, there are many opportunities for improving habitat while meeting farm business objectives. Modern farming practices, such as the use of cropland conservation techniques, Integrated Pest Management and the reforestation of marginal lands, are playing important roles in re-establishing habitats – but much more can be done.

About 10 species of animals and 40 species of plants are thought to have been eliminated from Ontario since European colonization. An additional 25 animal and 190 plant species are now vulnerable. Unless steps are taken to protect or restore habitats, more species risk extinction, and biodiversity will be diminished.

When European settlers arrived in the 18th and 19th centuries, about 85% of what we now know as agricultural Ontario was forest or wooded swamp.

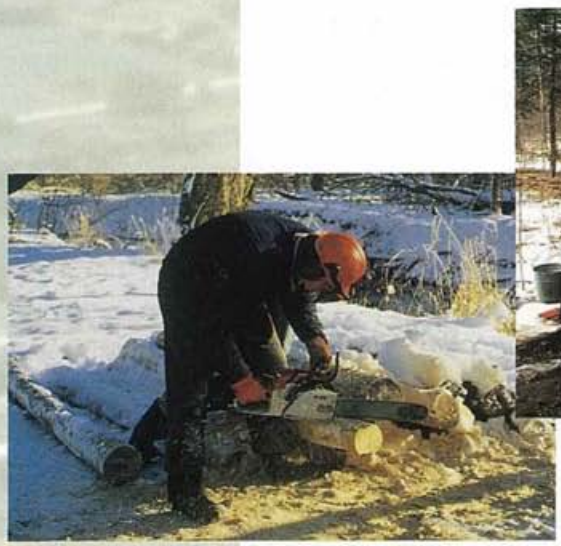
Natural habitats have been fragmented in agricultural areas.

The barn owl is a vulnerable species in Canada.

INTRODUCTION

ADVANTAGES

By taking remedial measures to help fish and wildlife habitat, you can reap many benefits.



Carefully managed farm woodlots can generate revenues through the sale of firewood, timber products, poles and maple syrup.

Hawks, owls, foxes, coyotes and other predators feed on rodents and other small mammals. This goshawk is feeding on a rabbit.

Anglers, hunters and other wildlife enthusiasts may pay to use natural areas on your farm.

Changes in some fish and wildlife species populations can and have provided humans with early warnings of potential threats to human health. Fish, such as brook trout, can be a barometer of our environment's health.

INTRODUCTION

ADVANTAGES OF FISH AND WILDLIFE TO FARMERS AND RURAL LANDOWNERS

ECONOMIC

production gains
- less soil loss with windbreaks, buffers and fenced water bodies
- improved herd health by keeping livestock out of water
- better insect and rodent control using natural predators

increased revenue
- fees from hunting/angling and naturalist groups
- sale of woodlot products (timber, fuelwood and maple products)
- increased tourist activity in the community
- reduced operating costs, e.g., lower drain maintenance costs due to improved erosion control from buffers

property improvement
- trees add property value
- fences built, trails maintained etc. through agreements with hunters, anglers and naturalists

ENVIRONMENTAL

improved quality and quantity of ground and surface waters
- natural vegetation and vegetated buffers around water bodies, drains and wetlands filter out contaminants and sediments, and absorb excess nutrients

improved air quality
- trees and plants absorb carbon dioxide and pollutants, and release oxygen

future genetic resources
- all species provide potential genetic resources for medicines and food crops

early warnings
- problems with individual species can alert us to threats to human health, e.g., recent declines in amphibian populations throughout the world are thought to be related to climate change

improved farmland quality
- habitats created by retiring fragile and marginal lands to trees and shrubs will reduce erosion

SOCIAL

improved quality of life
- in 1991, 90% of Canadians took part in wildlife-related activities, such as hiking, canoeing, birdwatching, hunting, fishing, studying plants and animals, and other forms of recreation

recreation
- Ontario's wildlife-dependent recreation and tourism industry is worth several billion dollars annually

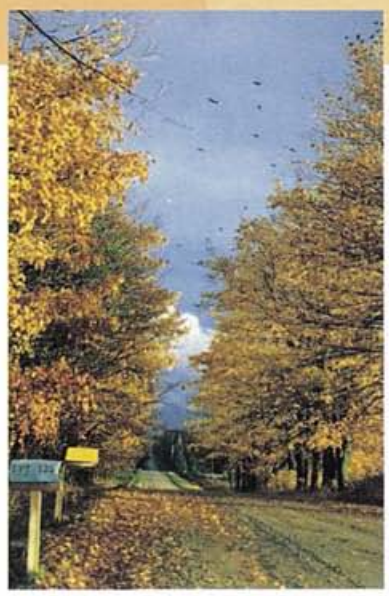
education
- youth have a natural interest in wildlife – the foundation of a conservation ethic

EXAMPLES OF VTEs

Vulnerable
- **red-shouldered hawk**
- **spotted turtle**
- **prairie white-fringed orchid**
- **southern flying squirrel**

Threatened
- **Henslow's sparrow**
- **eastern spiny softshell turtle**
- **ginseng**
- **Kentucky coffee tree**

Endangered
- **blue racer**
- **karner blue butterfly**
- **loggerhead shrike**
- **cucumber tree**



Plant a tree! Besides providing shade, habitat and wood products, two to three mature trees help offset the amount of carbon dioxide produced by one person in a year. Trees use sunlight to convert CO_2 into oxygen.

INTRODUCTION

DISADVANTAGES

Human activities have provided favourable habitat for some species while discouraging others. In local situations, their numbers can become high, and measures to control problem animals may be necessary. Typical wildlife-related problems are:

- ▸ crop damage by deer, other mammals, birds and insects
- ▸ flooding of fields, lanes and roads by beaver
- ▸ preying on livestock by coyotes, coy-dogs and stray dogs in the south and wolves in the north
- ▸ risk of rabies transmission to livestock and humans from fox and skunk
- ▸ contamination of grain storages and other crop inputs by bird droppings.

Beaver dams can cause significant financial loss due to flooding of farm fields and roads.

Geese are responsible for damaging many hectares of cropland each year in Ontario.

INTRODUCTION

TEN RULES-OF-THUMB

The following general principles underlie fish and wildlife habitat management. Keep these in mind as you consider making changes to your property:

- **bigger is better** – because so little natural habitat remains in some parts of rural Ontario, and because the areas that remain are so small, it's good to provide as big a natural area as you can: more species will have their needs met
- **areas connected to one another by vegetation or structures such as treed fencerows or valleylands are normally more valuable** to fish and wildlife than isolated habitats – connections between habitats act as "corridors", which allow animals to move from one area to another
- **edges are good** for many species – edges occur where woodlots meet open fields, along shorelines and fencerows, or any other place where different habitats meet; habitats with lots of edge are more diverse and support more species than those with less edge
- **areas that provide the four basic habitat needs** (food, water, shelter and space) are more useful than areas that don't
- **native plant species are usually preferred** over non-native species – they tend to be less invasive and are usually better suited to the wildlife they support
- **protecting sensitive areas** such as streams, shorelines, drains and wetlands with **vegetated buffers** is a good idea – the wider, the better
- **consider leaving a habitat alone** if it's healthy or if you can't implement BMPs
- **control of problem animals may be necessary** when they are in the wrong place at the wrong time – tolerate losses where possible, manage habitats to minimize problems, but exercise control when economic losses to crops and livestock are significant
- **managing habitats for certain species,** such as grouse or wood duck, often makes sense and will usually benefit other species, but remember that your management actions may negatively affect other species that share the habitat
- **communicate and cooperate with your neighbours** – the actions you take on your land may affect your neighbours' properties.

If you farm but choose not to manage habitats directly, you can still help fish and wildlife and improve the long-term viability of your farming operation at the same time. Consider adopting many of the BMPs for soil and water conservation described in this booklet and others in the BMP series. Titles are listed on the front page.

Species such as interior forest birds will only use a woodlot if it's large enough.

The wider the corridor, the better.

A word of caution: creating too much edge in habitats used by species that require large blocks of similar habitat may result in the loss of these species.

Hunting and trapping can help control the numbers of some species that cause damage.