

# BUFFER STRIPS AROUND WETLANDS AND PONDS

Like all buffer strips, those around wetlands and ponds cushion water bodies from the impact of upland activities such as farming, forestry, residential and commercial activities.

In so doing, and through a rich mix of trees, shrubs and plants, buffer strips can play an especially important role in improving the diversity and quality of natural habitat, as well as water quality. Fish and other aquatic species, songbirds, waterfowl, deer and other



**Riparian and lakeshore wetlands are essential habitat for birds such as this least bittern.**

mammals find protection in them. They connect natural areas (i.e., wetland and watercourse) or can be suitable habitat in themselves (e.g., nesting areas for waterfowl). By shading marshes and ponds, trees help cool the water and improve its quality and value as habitat.

Like the wetlands and ponds they protect, buffers also provide a measure of flood control by storing water.

Our appreciation of wetlands' and ponds' contributions to water quality and habitat has grown considerably in recent years. As we'll see in this chapter, well-planned buffers allow wetlands and ponds to function at their best. The habitat created by buffers may attract wildlife that can lead to crop and livestock depredation.

## WETLANDS

Wetlands are lands that:

- are seasonally or permanently covered in water
- have water tables close to or at the surface for most of the growing season
- have soils that reflect long-term saturation, i.e., organic (muck) soils or dull grey-coloured mineral soils
- support water-tolerant vegetation.

There are four types of wetlands.



#### **SWAMPS**

Any permanently or seasonally flooded wetland that supports trees and shrubs can be considered a swamp.



#### **MARSHES**

Marshes are wetlands vegetated by rushes, reeds, cattails and sedges.



#### **BOGS**

Bogs are peat-filled depressional wetlands that support sphagnum mosses, sedges, shrubs and trees.



#### **FENS**

Fens are usually associated with areas of groundwater discharge and are vegetated by sedges, mosses, grasses, reeds and some shrubs.

## PONDS

There are six types of ponds.



### IN-STREAM

Created by damming watercourses, in-stream ponds interfere with the natural functioning of the stream, increase stream temperature and alter the habitat. It is difficult to get approval for in-stream ponds.



### IMPOUNDMENT OR EMBANKMENT

Impoundment or embankment ponds are the products of damming intermittent streams, draws and groundwater seepage areas.



### BYPASS

Bypass ponds are created in the floodplain of watercourses, and are fed and outletted by small channels or pipes connected to the watercourse.

**DUGOUT**

Fed by groundwater and surface runoff, these excavated ponds are isolated from other surface water bodies.

**NATURAL**

Natural ponds are found in landscape depressions, often as part of a small marsh or swamp, and are mostly fed by discharging groundwater.

**SHEETWATER**

The temporary ponds that form after snowmelt in spring, or after excessive rains in cropland and abandoned farmland, are known as sheetwater ponds.

## FUNCTIONS

Wetlands and ponds perform many essential functions that are naturally complemented by buffer strips. These include:

- ▶ **water quantity** – wetlands and ponds collect surface water, prevent floods, and store water for release into streams and other surface water systems as well as shallow aquifers
  - ▷ they can also help serve irrigation needs
- ▶ **water quality** – vegetation and soils in wetlands and ponds can utilize excessive crop nutrients and assimilate bacteria and organic pollutants from farm runoff
- ▶ **fish habitat** – many warm and cool water fish species need wetlands and ponds for fish nurseries
- ▶ **habitat** – an incredible number of species of plants and animals depend on wetlands for their habitat needs
- ▶ **renewable products** – these areas can be a source of timber, firewood and other natural plant products and fur
- ▶ **recreation** – hunting, fishing and nature appreciation.

## WILDLIFE HABITAT NEEDS



**A flushing bar is attached ahead of forage harvesters to scare hens (and other wildlife) off nests and resting areas to prevent their being killed.**



If wildlife habitat is the main reason you're interested in pond and wetland buffers, here are a few considerations.

- ▶ Buffers add diversity to the habitat afforded by adjacent wetlands and ponds.
- ▶ Land use activities around ponds and wetlands can be as important as the habitat itself – particularly to vulnerable, threatened or endangered (“VTE”) species.
- ▶ Female dabbling ducks (e.g., blue-winged teal, mallards) nest next to wetlands in long grass. A minimum of 300 metres (984 ft.) or a contiguous 12-hectare (30 ac.) block is necessary unless hay or pasture land is nearby. Ideally, adjacent pasture is managed with deferred grazing, or forage with delayed haying (after July 15). A flushing bar is recommended when cutting forage.
- ▶ Many species of birds depend on wetlands for their habitat. Generally, more species diversity will be found in larger buffers.
- ▶ Frogs, salamanders and reptiles are wetland-dependent, too. Wide buffers provide the necessary land habitats for these amphibians and reptiles.

## BMPS FOR WETLAND AND POND BUFFERS

It bears repeating: buffer strips should be part of an army of BMPs aimed at soil conservation, runoff control and pollution prevention. They can't do it alone! See the Soil and Water Conservation chapter on page 93.

Another caution: buffer strips aren't intended to protect wetlands and ponds from concentrated flow. That's what erosion control structures and practices do, by helping divert flow from cropland to a proper outlet. See the Streambanks and Shorelines chapter on page 102.

Buffer strips need to be wide enough to perform the function they were intended for. **In the absence of other BMPs**, wetland and pond buffers should have the widths presented below for their respective function.

WIDTH OF BUFFER STRIP AROUND WETLAND AND POND	FUNCTION OF WETLAND OR POND THAT BUFFER PROTECTS
3–5 metres (10–16 ft.)	<ul style="list-style-type: none"> <li>• bank and shore protection</li> <li>• some erosion control</li> <li>• some aquatic habitat protection – more if treed (e.g., travel corridor)</li> </ul>
15 metres (50 ft.)	<ul style="list-style-type: none"> <li>• moderate protection from runoff (sediment and other contaminants)</li> <li>• more aquatic habitat protection</li> <li>• good corridor width for some fur-bearers and predators</li> <li>• habitat for edge bird species, and some amphibians and reptiles</li> </ul>
30 metres (98 ft.)	<ul style="list-style-type: none"> <li>• better protection from sedimentation and contaminants</li> <li>• good aquatic habitat protection</li> <li>• better corridor width for mammals</li> </ul>
50 metres (164 ft.)	<ul style="list-style-type: none"> <li>• good protection from sedimentation and contaminants</li> <li>• good aquatic habitat protection</li> <li>• very good corridor width for mammals</li> <li>• good habitat for tree and grassland bird species</li> </ul>
120–300 metres (130–327 yds.)	<ul style="list-style-type: none"> <li>• best protection from sedimentation and contaminants</li> <li>• very good aquatic habitat protection</li> <li>• best corridor width for mammals</li> <li>• best habitat for most treed and grassland bird species</li> </ul>

- ▶ Read the chapter on Establishing and Managing Buffer Strips, starting on page 64, before you begin.
- ▶ Think of the slope. Remember that pond and wetland buffers work best on a slope of between 1 and 10 percent.



**A two-zone buffer design is suitable around ponds.**

- ▶ Use designs suited to ponds and wetlands. Two zones may be suitable: a narrow buffer (<5 metres or 16 ft.) at the same contour of the wetland or pond shore, with an upland buffer of trees or shrubs. Width and vegetation type are dependent on function and practicality.
- ▶ Grade the land before seeding and pack or roll to improve success with establishment.
- ▶ Select the species suited for the site conditions. Use grass and legume mixtures that can tolerate flooding and high water tables. Protection is more effective when woody plants are also chosen. Deeper-rooted plants, particularly trees, will more effectively uptake nutrient-rich base-flow.
- ▶ Depending on desired function, buffers may have to be mowed a couple of times each year. Another option is to forward rotational graze over a minimum number of days, being very careful not to cause overgrazing, compaction or contamination of the water body. When carefully managed, pasture can enrich wildlife habitat.



**A “good” buffer around a pond or wetland has one zone and is often used for forages.**



**A “better” buffer design includes trees + shrubs for shade and bank stabilization with a grassed buffer for filtration and separation.**



**A “best” buffer is wide, continuous, contains diverse vegetation and is connected to other natural areas.**