



# Marsh Monitoring Program

## Participant's Handbook

### Getting Started

Revised 2009



Environment  
Canada

Environnement  
Canada

## About This Participant's Handbook

We want to clearly instruct participants in all aspects of the Marsh Monitoring Program (MMP). Please read this booklet thoroughly and adhere to the protocol carefully. If you have any questions, comments or recommendations, please give us a call at 1-888-448-2473 ext. 124.

Participant information is divided into three booklets: **Getting Started**, **Surveying Amphibians** and **Surveying Birds**. **Getting Started** provides background about the MMP, describes how routes are assigned/selected, what an MMP station is and how to place them on a route. **Getting Started** also covers the marsh habitat description protocol. The **Amphibian** and **Marsh Bird** survey booklets each contain detailed survey instructions, important tips to conduct a successful survey, and example forms to help you become familiar with each of the MMP survey types.

During your first survey year, you will receive the **Getting Started** booklet and one or both of the **Amphibian** and **Marsh Bird** survey booklets depending on the survey type(s) you have chosen. **It is a good idea to review these booklets prior to each survey season to refresh your memory and build confidence.**

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*Front cover: Quacker Pond wetland by Ryan Archer*

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## THE MARSH MONITORING PROGRAM NEEDS YOU!

The Great Lakes is the largest body of freshwater on Earth and includes some of our most valuable marsh resources. Wetlands across North America, and the plants and animals inhabiting them, face threats from development and pollution. In developed areas of the Great Lakes basin, two-thirds of the wetlands have been destroyed, mostly due to drainage and filling for development. Scientists around the world are concerned about the loss of marsh habitat and declining populations of amphibians and marsh birds. However, the extent of marsh bird and amphibian population declines is poorly documented.

The Marsh Monitoring Program (MMP) was established in 1995 to aid the conservation and rehabilitation of marshes in the United States and Canada by studying population changes and habitat requirements of marsh birds and amphibians. The MMP is a cooperative program of Bird Studies Canada (BSC), Environment Canada, and the U.S. Environmental Protection Agency. The program focuses on the Great Lakes basin, but any marsh in Ontario and U.S. Great Lakes states is of interest.

Special emphasis is placed on coastal Great Lakes marshes because many have experienced significant declines in extent and health due to heavy pollution and development. Several Areas of Concern (AOCs) around the Great Lakes have been identified as being particularly stressed by pollutants and in urgent need of rehabilitation. Remedial Action Plan teams and Public Advisory Committees have been established to rehabilitate the ecosystems in each AOC. Interested community groups and naturalist clubs are often involved in this process.

### Who Can Participate?

The Marsh Monitoring Program offers everyone, from amateur naturalists to professional biologists, a unique and rewarding opportunity to contribute to the knowledge and conservation of one of North America's most threatened ecosystems. However, participants need to have the skills necessary to conduct the surveys. It is important that there are no misidentified species. **Regardless of your experience level**, you will need to fully familiarize yourself with the training materials presented in this booklet, on the Training CD, and among our online resources annually.

Because there are only 13 species of frogs and toads in the Great Lakes basin, the **amphibian survey** is probably the easiest for beginners to conduct. The training materials provided in this book, on the Training CD, and through online resources are sufficient to conduct an amphibian survey, but ensure that you can identify each species call prior to attempting a survey. You don't need to be an ace-birder to conduct the **marsh bird survey**. Nevertheless, this survey is not suitable for novices. As a general guideline, participants should be able to correctly identify at least 50 species of common birds, by sight and sound, especially those living in and around marshes. The Training CD will serve as a useful memory refresher and to fine-tune your skills, but it alone will not be sufficient to learn all that's required.

If you are unsure of your ability to survey a route, even after looking through this Training Kit and listening to the accompanying Training CD, contact us. We may be able to put you in touch with a surveyor who needs field assistance. After you've assisted a surveyor for a field season, you may feel ready to survey your own route next year.

Need more information?  
Visit the MMP online at  
[www.birdscanada.org/mmpmain.html](http://www.birdscanada.org/mmpmain.html)

### **How Will the Program Help Conserve Marshes?**

To help guide the management and rehabilitation of marshes in Ontario and the Great Lakes states, the MMP is designed to answer a variety of basic questions:

- ! What is the relative abundance of the various bird and calling amphibian (frog and toad) species utilizing marshes?
- ! What long-term changes in species abundance and range are occurring?
- ! How do various habitat features influence species diversity and abundance?
- ! What are the habitat requirements of marsh birds and amphibians?
- ! What habitat changes are occurring?
- ! How does a “healthy” marsh differ from a “degraded” marsh?
- ! Are marsh rehabilitation efforts successfully restoring habitat quality and biodiversity?

The information gathered will be made available to scientists and land managers including AOC stakeholders, management teams and other researchers. In addition to basic research, the program will build a network of volunteers devoted to conserving our marsh resources and increase public awareness of marsh habitats and their plights.

### **What Am I Committing To?**

The MMP brings together a wide array of organizations and individuals from Canada and the United States who share a commitment to our marshes. People who are knowledgeable about natural history are increasingly volunteering their free time for a wide variety of environmental causes. Many of you already participate in one or more biological surveys. Still, we hope you can share a little of your expertise and enthusiasm with the MMP.

Although all participants will be using the same methodology, there will still be differences between different observers (i.e., “observer bias”). The best way to minimize this effect is by having each route surveyed by the same person, in the same manner, year after year. We hope that you will take a personal interest in your marsh for many years, and pass your route on to your family and friends.

The MMP consists of two kinds of surveys: one for marsh birds and another for calling amphibians (frogs and toads). Whether you decide to survey marsh birds, amphibians or both, is entirely up to you. The program is meant to be an enjoyable and interesting experience. But there is a time commitment involved. Each survey route consists of a series of as few as one or as many as eight stations. Stations along marsh bird survey routes are visited twice during the breeding season in the early morning or evening, while stations along amphibian survey routes are visited on three nights during the spring and summer. On average, the total time required to complete a MMP survey season will be about 10 hours. Your first survey season will have a slightly greater time commitment as you become familiar with your route, the survey protocols and forms.

### **What is a Marsh Monitoring Program Sample Station?**

Whether you are surveying for amphibians or birds, MMP surveys are based on the “point count” method. Point counts are used to determine the abundance of each species utilizing a given location. They are carried out by standing at one point (the “focal point”) for a standard period of time and recording all birds or amphibians that you see or hear within a specified area or distance.

The marsh bird surveys are conducted from a central point located on a 100-metre (110-yard) semi-circular sample area (also referred to as a station). Focal bird species observations are recorded using an “unlimited-distance” point count, but MMP participants are asked to use their best judgement to record

whether each bird is observed inside or outside the 100-metre station area. This protocol is further explained in the Bird Survey Manual. The size and shape of this sample area has been chosen for several reasons (see below).

The amphibian surveys are also conducted from a central point located on the baseline of a 100-metre (110-yard) semi-circular sample area. MMP participants are asked to use their best judgement to distinguish whether each species detected is calling from inside the station boundary only, from outside the boundary only, or from both inside and outside the station boundary.

Why a semi-circle? First, a semi-circular sample area works best in marsh situations because stations will often be accessed along the marsh edge (e.g., along roads and dykes). A full circle would tend to sample non-marsh habitats. Second, in marshes there is often more than enough bird/amphibian activity to keep track of within a semi-circular sample area, let alone within a full circle.

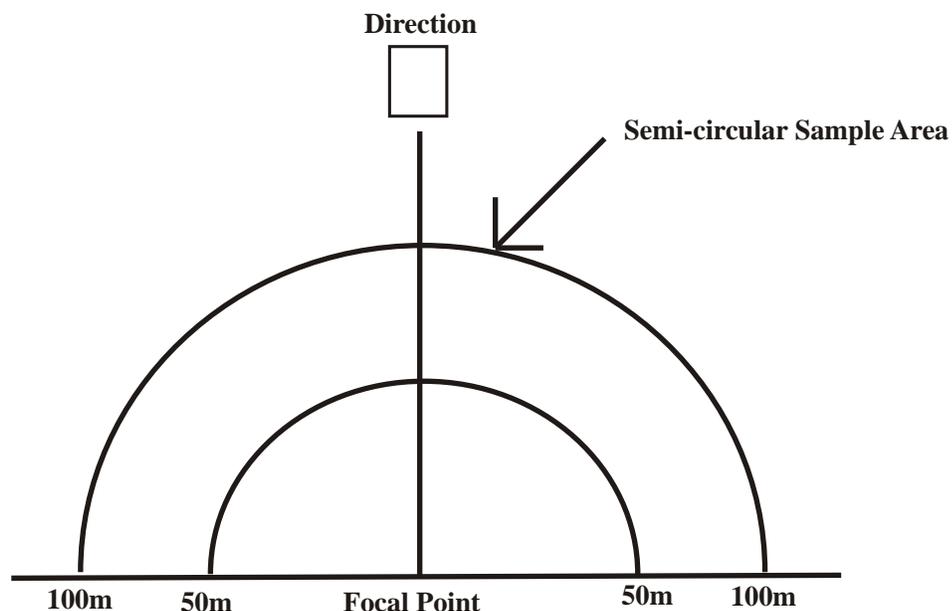
### **How Do I Set Up a Route?**

Route selection occurs in one of two ways. You may receive a pre-selected route and station locations for your survey area of interest from Bird Studies Canada (BSC), or you may be asked to select your own route and station locations.

#### **Pre-Selected Routes & Stations**

A priority of the program is to maintain existing routes. An existing, but currently inactive route may be assigned to you if one is located close to your area of interest. These routes already have a data history from past survey years, so it is important to continue surveying at these locations. The longer the data history for a route is, the more important it is that the route is re-activated for monitoring.

In some areas, volunteers may receive a list of routes and stations that are pre-selected through a random sampling design. This method of selecting survey sites is more powerful from a scientific perspective, increasing the power of the data you collect to evaluate species trends and associations. MMP staff or your local MMP regional coordinator will work closely with you if you have been assigned to monitor a route containing randomly-selected station locations. In such cases, we ask that participants establish their



**A Diagram of a Point Count Station**

## Getting Started

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stations as close to these randomly-selected locations as possible, wherever site accessibility permits. If access to a chosen station location is not possible, please establish your station in the next nearest location containing ideal habitat conditions.

### Self-Selected Routes & Stations

If you are not in an area in which sites have been randomly-selected, and if no inactive routes are in your area of interest, you must establish your own route and station locations. When looking for an appropriate location to establish your route, it is helpful if you can obtain a detailed topographic map of the area you are interested in surveying. Speak to your local MMP regional coordinator or MMP staff for help identifying marsh survey locations.

### In both cases, the following methodology should always be adhered to:

- Establish routes **only** in **marsh**-dominated habitat. Marsh habitat is characterized by non-woody emergent plants such as cattails intermingled with shallow open water (see box on next page). Marshes can be found within other habitats such as along the edge of lakes and rivers and as part of other wetland complexes, but stations must be established in areas dominated by marsh characteristics (greater than 50%).
- Survey routes consist of **as few as 1** or **as many as 8** sample stations, but you must be able to survey **all** stations on a route during a single visit.
- In smaller or less accessible marshes, it may be feasible to establish only 1 or 2 stations. **This is OK.** Small marshes are entirely acceptable, provided that **marsh** habitat predominates within your 100-metre radius semi-circle. Surveys of small marshes are needed to help determine the effects of marsh size on species diversity and abundance. If all of the marshes in your region are small, you can design a route encompassing several smaller marshes.
- In very large marshes, multiple routes can be set up by one or more volunteers as long as all station focal points are separated by no less than the minimum inter-station distance (see below).
- Amphibian stations should be separated by at least 500 metres (550 yards) in order to minimize the possibility that individuals or choruses will be sampled twice.
- Because amphibian surveys are passive, stations can be placed back to back (i.e., in opposite directions). For example, one station facing east and a second facing west. This allows you to place additional stations in small and medium sized wetlands or along roadside routes.
- Marsh bird survey stations should be separated by at least 250 metres (275 yards).
- Because broadcasted calls carry the full 360 degrees, bird stations **cannot** be placed back- to-back.

#### What is a Marsh?

*A marsh is a vegetated, wet area, periodically or regularly inundated up to a depth of 2 metres (6 feet) with standing or slowly moving water. Small numbers of trees or shrubs may occur, but the predominant vegetation consists of a variety of emergent non-woody plants such as cattails, rushes, reeds, grasses and sedges. Where open water occurs, a variety of submerged and floating aquatic plants will often flourish. Swamps can easily be distinguished from marshes by their usually tree and/or shrub dominated vegetation, while bogs and fens are characteristically dominated by mosses.*

- While there is no maximum distance between stations, you need to be able to complete your route during a single visit. For this reason, we recommend that your stations be located within a reasonable distance of each other.
- You must **always** obtain landowner permission before entering private property. Don't hesitate to contact us for help to obtain the landowner's permission; however, you will need to provide us with the landowners contact information.
- Finally, contact us to let us know what marsh(es) your route(s) have been established in. This will help us ensure that no one else selects or is assigned the same locations.

### **I've Selected a Route: How Do I Set Up the Stations?**

Regardless of how your marsh and stations are chosen (existing, pre-selected or self-selected route), you will need to ensure that the site and stations are appropriate for surveying. Spend some time during daylight hours scouting out your route and sample stations and familiarize yourself with the unique qualities of your marsh.

- Many routes can be surveyed by walking along the marsh edge. Stations along roadsides are fine as long as traffic volume during the survey period is light (preferably less than 5 vehicles per 10 minutes). If you prefer to survey stations accessible only by boat or canoe, we heartily encourage you! Always refer to the safety information in Appendix 1 prior to heading out in the field.
- Interior sites are not well represented because they are often inaccessible. Wherever possible, include interior wetland stations (>100 metres from the perimeter of the wetland) on your route.
- If you are conducting both amphibian and bird surveys along the same route, try to place the two surveys at the same stations. Because of spacing differences between the two survey types, you may be able to use every other bird station in order to space your amphibian stations out as required.
- Keep in mind that the amphibian surveys will be done after dark, so easy access to your stations will be an important consideration. Wear bright or reflective clothing if surveying along roadsides.
- When you visit a potential station, assess the habitat within the sample area. You should orient the station so as to maximize the amount of marsh being sampled. At the same time, your stations should be representative of the entire marsh.
- Stations should be situated so that you can see and hear as much of the sample area as possible. For this reason, it is useful to pick a slightly elevated focal point. It is OK if shrubs and trees block your view of parts of the sample area, as long as the entire sample area can be surveyed by ear. Remember that visibility can become a problem once vegetation grows high later in the survey season.

### **Marking Survey Stations**

Whenever possible, each station's focal point should be permanently marked with a metal or wooden stake to facilitate relocating sites in subsequent years. While 2" x 2" wooden stakes are inexpensive and easily obtained at any lumber store, inexpensive 1/2" metal, electrical conduit piping is a more permanent alternative and can be found at most hardware or home building stores. We recommend electrical conduit 3 metres (10 feet) in length. These "stakes" can be easily pushed at least 1 metre (3 feet) into the marsh bottom, leaving the top portion of the stake visible for easy location from year to year. It is important to firmly anchor the stake in the marsh bottom, so that it withstands wind, waves, ice and frost action. In many managed wetlands sites, marking is controlled, so remember to check with the landowner or manager prior

## Getting Started

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to installing your stakes. If staking is not possible, landmarks (e.g., telephone pole codes, 911 numbers) can be used to locate station focal points.

The aluminum tags we provide with this kit are used to **permanently** identify each station. They are attached to the stakes simply by twisting their wire ends together. Inscribe each tag using a ballpoint pen to permanently etch it with the station letter (e.g., “Station A”). Press down hard and this inscription will last indefinitely.

We also recommend labelling the stake itself with the same information that you inscribed on the aluminum tag, using a black waterproof felt marker on a piece of fluorescent flagging tape. Tying several strips of bio-degradable flagging tape above the height of full-grown vegetation at each station will help you relocate your stations later in the season should vegetation grow taller than your stakes. Though it may last only one field season, labelling with flagging tape is an inexpensive solution that will make your stations visible from a distance, is easily read in low light, and acts as extra insurance in case your aluminum tag is lost.

If you are doing amphibian surveys, be sure to attach a bit of reflector tape around the stake so that you can easily find the station marker with a flashlight at night. Adhesive reflector tape won't stick to a damp surface, so you may want to tie it to your station marker. Remember to remove non-biodegradable flagging materials at the end of the season.

If you are conducting marsh bird surveys, it is a good idea to mark the perimeter of the semi-circle. If that is not possible, mark a spot that you can see on either side of the focal point (and in front of you if possible) at a known distance (e.g., 25, 50, 75 metres) with flagging tape to help you estimate distance during bird and habitat sampling.

### Measuring Your Pace

*Measure exact distances if you can. Otherwise, a good measure of distance can be obtained by counting paces. Before you establish your route, measure your pace. To do this, mark a distance of 50 metres (or 50 yards) on the ground. Walk this distance in your normal stride, counting every stride. Record this number. Now, when you set up your stations, you merely keep track of the number of strides you take for each distance interval. As an alternative, you can measure your distance using a GPS unit.*

## Marsh Monitoring Program - Contact and Route Information Form

The MMP - Contact and Route Information Form is used to provide BSC with basic information about your route and stations; some of the information is required annually, other sections are required only once unless the information changes. **Route number, observer number and observer name must be filled-out annually.** If it is your first survey year or it is a new route, and you have not had route or observer numbers assigned, leave these fields blank; they will be assigned during data processing. Below this information, there are two boxes for contact information. If you are a returning volunteer, your contact information will likely be filled in, but if it is blank, incorrect or it is your first year surveying, please fill out the right-hand box with your contact information.

**Section A must be completed annually.** Please read through and answer each question carefully. **Sections B and C are completed for new or changed routes only** and deal with site and station information. Section B identifies basic location information for your site including marsh name, closest town, county and province/state. If your marsh lacks a name, provide a descriptive name that will easily identify it.

For data analysis purposes and to assist in volunteer route placement, BSC requires clearly identified station locations using geographic referencing, also known as geo-referencing. For this reason all participants are asked to provide detailed station information on Section C of their Contact and Route Information Form during their first survey season and when stations or routes are changed. If available, please collect focal point coordinates using a GPS unit. If a GPS unit is not available, please use a computer program to identify coordinates or provide a large-scale map that clearly shows each station's location.

## MARSH HABITAT DESCRIPTIONS

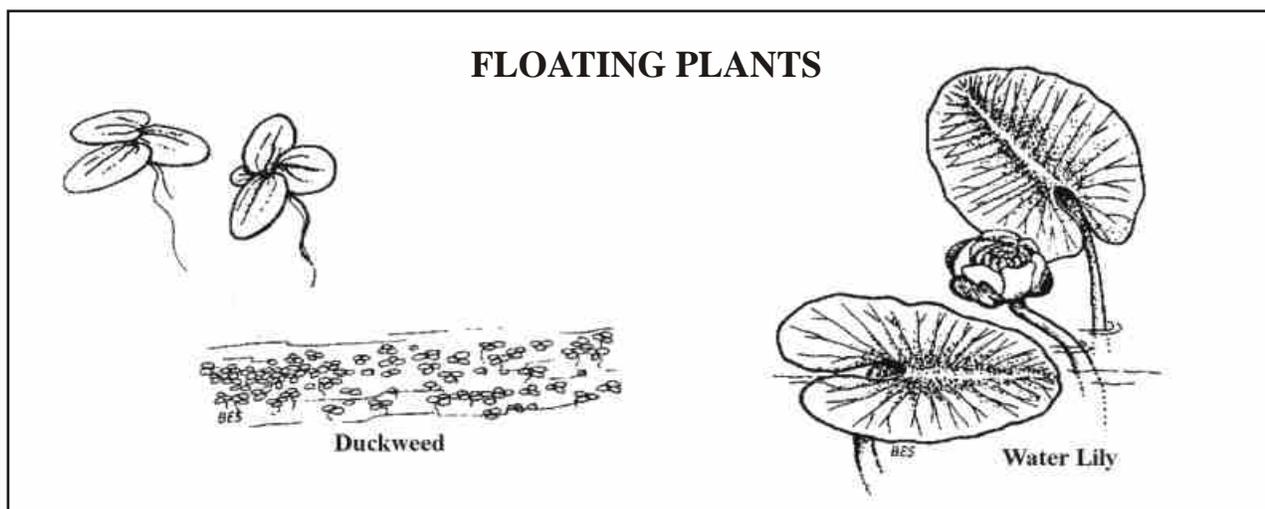
**It is very important that you describe the habitat in each of your stations!** Habitat associations for many species of Great Lakes wetland birds and amphibians are not well known. A good understanding of these relationships is critical to designing effective wetland management and conservation practices. When combined with information on trends in species occurrence or abundance, data on vegetation and other wetland characteristics help identify those wetland habitats most at risk of losing their ability to support marsh birds and amphibians. Marsh habitats are noted for changing in response to fluctuations in water levels, nutrient availability and other factors. If bird and amphibian populations change over time, we must be able to take habitat change into account. For these reasons, we ask that you conduct habitat descriptions **each year** to assess habitat characteristics for each MMP station. In addition, complete habitat descriptions may help you relocate your stations if your station markers are ever lost.

### Marsh Vegetation

The habitat descriptions we want you to provide are very simple. Since we are mostly interested in broad habitat features, you don't need to be an expert botanist. You only need to be able to make fairly simple distinctions between important groups of plants. For these purposes, marsh plants are grouped into three basic categories: **floating plants**, **emergents**, and **shrubs/trees**. Below is some general information to help you categorize basic marsh vegetation. More detailed information about emergent plants, including colour photos, is available in the **Marsh Monitoring Program Habitat and Vegetation Guide**. A copy of the vegetation guide maybe provided during your first survey year and is a useful tool in the field when conducting your habitat survey.

### Floating Plants

The leaves of floating plants float on the water surface. Floating plants do not provide nesting habitat for birds, but their presence is very important to some species of frogs (e.g., Bullfrog). Floating plants can be a



## Habitat Descriptions

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very good indication of water depth and of the areal extent of open water. The most common floating plants are the tiny duckweeds (*Lemna* spp.) and large water lilies (white pond lily (*Nymphaea* spp.) and yellow pond lily (*Nuphar* spp.)).

### Emergents

Emergent plants are herbaceous (non-woody) species that are rooted in the marsh bottom, but rise up and out of the water. Several kinds of the more robust species (e.g., some grasses and sedges, cattail, water willow) maintain some structural integrity over the course of the winter, providing important habitat cues to birds and amphibians early in the breeding season. Other less-robust species (e.g., wild rice, arrowhead, pickerelweed) often leave little or no trace of their presence after the fall dieback and re-appear only late in the growing season. Emergent plants can be grouped into the following three categories: **narrow-leaved emergents**, **broad-leaved emergents** and **tall robust emergents**.

**Narrow-leaved Emergents:** These are grass-like plants, having both narrow stems and leaves. When fully grown, they stand less than 2 metres (6 feet) high. With the exception of the more robust grasses and sedges, which often grow in dense tussocks, many narrow-leaved emergents are simply too fragile and/or emerge too late in the season (e.g., wild rice, burreed, rush, bulrush) to be of much value to birds during the nesting season. However, all narrow-leaved emergents are apt to provide cover to amphibian tadpoles, while the stems provide call perches and egg-laying substrate for adults. Common examples include:

Wild Rice (*Zizania palustris*)

Bulrushes (*Scirpus* spp.)

Burreed (*Sparganium* spp.)

Rushes (*Juncus* spp.)

Horsetail (*Equisetum* spp.)

Sedges (*Carex* spp.)

Prairie Cord Grass (*Spartina pectinata*)

Rice Cut Grass (*Leersia*

*oryzoides*)

Reed Canary Grass (*Phalaris arundinacea*)

Bluejoint Grass (*Calamagrostis*

*canadensis*)

**Broad-leaved Emergents:** These plants have broad leaves and usually stand less than 1 metre (3 feet) tall. They have little value to nesting birds, but provide cover for adult and juvenile amphibians.

Examples include:

Pickerelweed (*Pontederia cordata*)

Arrowhead (*Sagittaria* spp.)

Smartweed (*Polygonum* spp.)

Beggar's-tick (*Bidens* spp.)

Purple Loosestrife (*Lythrum salicaria*)

Water Willow (*Decodon verticillatus*)

**Tall Robust Emergents:** These plants are tall and sturdy, ranging from 2 to 3 metres (5 to 9 feet) high when fully grown. Even after the fall dieback, they can usually withstand the winter, and this dead "overhang" provides important nesting substrate and cover for birds in subsequent breeding seasons. The most common species are:

Cattail (*Typha* spp.)

Common Reed (*Phragmites australis*)

### THE CATTAIL IS NEITHER REED NOR BULRUSH NOR RUSH

*There are some local names for plants that can sometimes bring us a lot of confusion. The most common and most critical problem arises from the various names given to **cattail** -- that wonderful, tall plant that gets a distinctive fuzzy brown head ("tail") perched near the top of a tall stem. Even if you're accustomed to calling these plants "reeds", "bullrushes" or "rushes", please record them as cattails. It's important that we all use the same terms for the same things, especially for such a prominent plant at the **cattail**.*

**NARROW-LEAVED EMERGENTS**



Wild Rice



Tussock Sedge



Bluejoint Grass



Burreed



Reed Canary Grass

**BROAD-LEAVED EMERGENTS**



Pickerelweed



Arrowhead



Smartweed

**TALL ROBUST EMERGENTS**



Common Reed



Cattail

**Shrubs and Trees**

Some marshes have shrubby zones and scattered trees, and most marshes have at least a few shrubs and trees around their margins. For the purposes of this program, there's no need to identify individual tree and shrub species. We define shrubs simply as woody plants that are 1 to 3 metres (3 to 9 feet) tall and multi-stemmed, whereas trees are taller. Shrubs and trees are important as perches and nesting sites for some birds, while branches in the water are used as calling perches and egg-laying sites for some amphibians. Common examples include:

Alder (*Alces* spp.)  
 Dogwood (*Cornus* spp.)  
 Willow (*Salix* spp.)

Silver Maple  
 (*Acer saccharinum*)  
 Tamarack (*Larix* spp.)

Buttonbush  
 (*Cephalanthus occidentalis*)

### Completing The Habitat Description Form

Habitat features at each station are recorded on the **Marsh Monitoring Program - Habitat Description Form**, and must be completed **once annually**. The form is quite simple and takes only a few minutes to complete. To assist you, some instructions covered below are summarized on the back of the form. Remember, this information is very important for us to properly analyse your marsh bird and amphibian data.

Habitat surveys are best conducted in late May to mid June, when plants are flowering and can be readily identified, but before they grow so tall that they restrict your visibility. If you are doing bird surveys, we recommend that you fit the habitat descriptions in as part of your **first bird survey**. Amphibian surveyors, however, will probably have to make a special outing to their stations during daylight hours, ideally around the time of the **second amphibian survey**.

Because we're only interested in the dominant features of your sample area, you don't need to access the entire sample area to describe the habitat. Merely stand at the focal point and record what you see within the bounds of the sample area. Depending on the height of the vegetation (and your height!), you may not be able to see the entire area. That's OK. Again, we're looking for the **characteristic features of the habitat**, and don't require a lot of detail.

#### Location Information

The top portion of the **Habitat Description Form** identifies the date the habitat survey is conducted, the route number (route name is only on the **Contact Sheet and Route Information Form**), station letter, survey type (bird or amphibian), and observer information (observer number and name). This information should be **filled out for each station**, each year. If it is your first year of study and you do not know your observer number, please fill in your name and leave the observer number field blank.

#### The Sketch Map

On the bottom of the form, take a minute to very quickly sketch the **major** habitat features lying **within the 100-metre (110-yard) radius semicircular sample area** (see sample on page 12). Record what direction you are facing in the small box on the map (e.g., "23° NNE" or just "NNE" if you can't take a compass bearing). Information on the sketch map will be useful for you as a way of relocating the station in the future and will help you quantify some of the attributes called for on the rest of the form. It will also help us visualize habitat structure.

#### Sections A- F

- A** First, we want you to provide some summary information about the **major kinds of habitat cover**. It may help if you can visualize yourself looking down from a height of about 100 metres. From this imagined bird's-eye view, scan the sample area. Estimate the **percentages of the total sample area** that are covered by emergent vegetation, open water (including floating plants), exposed mud/sand/rock, trees, and shrubs. These values should add up to 100%.

*What is "open water?" Because we're most interested in how water adds to the structural mosaic of the habitat, we define "open water" as including any patch of water that is **at least 4 x 8 feet** in size. Open water supports little if any **emergent** vegetation, but it can have **floating plants**. As a rule of thumb, if you could float a small canoe in it (and maybe even paddle around a little), then it is probably "open water."*

- B** Look again at the open water zones, and categorize the amount of **floating plant cover**.

- Ⓒ Wetland permanency is categorized according to the following definitions:

**Permanent:** Almost never dries up; water usually quite deep (knee to chest deep). Often a large water body, usually with a direct source of inflowing water.

**Semi-permanent:** Can dry up in some years of low precipitation (or if water level is periodically drawn down by marsh managers); water usually fairly shallow (not much more than knee deep). Often a smaller water body, often sustained by ground seepage.

**Seasonal:** Usually flooded in spring and early summer, but tends to dry up in late summer or in dry years. Even when flooded, the water is shallow (not much more than calf deep). Almost always sustained by spring melt-water or rainwater.

- Ⓓ Estimate the **size of the entire contiguous marsh complex**, excluding large bodies of navigable water like lakes and bays. For your information, one hectare (about 2.5 acres) measures 100 metres x 100 metres. One hundred hectares is 1000 metres x 1000 metres.

**Tiny:** Between 1.5 and 2.5 hectares (3.5-6 acres).

**Small:** Between 2.5 and 5 hectares (6-12 acres).

**Medium:** Between 5 and 25 hectares (12-60 acres).

**Large:** Between 25 and 50 hectares (60-125 acres).

**Huge:** Greater than 50 hectares (>120 acres).

- Ⓔ What kind of habitat occurs directly **behind** you (i.e., within 100 metres)? We want to have some idea of whether the station is situated in a marsh-interior or whether it is likely to be influenced by non-marsh habitats such as a forest or field. Choose only one category.

- Ⓕ Some common **human influences** that might affect marsh quality (positively or negatively) are listed, but you may want to add others (e.g., agriculture, industrial pollution, etc.). Circle as many of the choices as apply to the marsh you are monitoring.

**Section Ⓖ: Dominant Emergent Vegetation**

We don't want you to conduct a complete plant inventory of the site. We are only interested in the most visible (most "dominant") kinds of plants. Is the site a simple cattail marsh, or is it a cattail-grass association? Maybe it's more complicated, perhaps a cattail-grass-water- willow-burreed community? We can determine these classifications from information you provide in the **Dominant Emergent Vegetation** box (see sample on page 38). Since broad species identifications are sufficient, we've already done a bit of grouping for you (e.g., grasses and grass-like sedges are grouped together).

Again, it may help if you can visualize yourself looking down at the sample area from above. Your sketch map may also provide you with useful information. The key thing to remember is that the **estimates** you make in this case are based on the **total area covered by emergent vegetation only** (i.e., open water/floating plant/shrub/tree zones are ignored). Visually scan your sample area and quickly decide which kinds of emergent plants dominate the area. Concern yourself only with the **four most commonly occurring** species. What proportion of the total emergent vegetation cover does each of these dominant plants occupy?

Because other, less common, plants may be present, the dominants do not need to add up to 100%. In some marshes, virtually all of the emergent vegetation may be represented by a single dominant species (e.g., cattail = 100%) or by a couple of species (e.g., cattail = 75% and grass = 20%). If so, you don't need to list any other species in the Dominant Emergent Vegetation box. As a general rule of thumb, any species that accounts for less than about 10% of the cover really can't be considered as a "dominant." The species list we provide identifies the most common emergent vegetation species; if a dominant species at your site isn't

**9848294150 Marsh Monitoring Program-Habitat Description Form**

Please print with BLOCK CAPITALS, remain within the boxes and mark each individual choice by filling in the corresponding circle. Please use pen (not felt tip).

Day Month Year Route # Amphibian Survey Y/N:  Station Letter: **A** (A - H)  
 08 05 2008 0N036 Bird Survey Y/N:  Station Letter: **A** (A - H)

Observer # Observer Name  
 15329 Kathy Jones

**A % of major habitats in 100 metre radius station area**

herbaceous emergent vegetation cover:	80
large patches of open water/floating plants:	18
exposed mud/sand/rock:	1
trees:	1
shrubs:	0
Total:	100

Note: These must sum to 100%

**B Floating plant cover in open water zones (fill in one)**  
 none  slight  moderate  dense   
 unknown  not applicable

**C Wetland Permanency (fill in one)**  
 permanent  semi-permanent  seasonal

**D Overall marsh size (fill in one)**  
 tiny  small  medium  large  huge

**E Area within 100 metres behind you is mainly (fill in one)**  
 marsh  field  forest  urban  other

**F Human influences affecting sample area (fill in one or more)**  
 none  dykes  channels  roadside  sewage lagoon   
 urban  pollution  industrial  agriculture   
 natural/protected area   
 other

**G Dominant Herbaceous Emergent Vegetation**  
 Step 1: Identify the herbaceous emergent plants that dominate the station (see section A).  
 Step 2: Of the total percent emergent herbaceous vegetation cover, select the top 4 and estimate the percent of their contribution.

cattail ( <i>Typha</i> ).....	45
reeds ( <i>Phragmites</i> and <i>Phalaris</i> )....	20
grasses and grasslike sedges.....	
rushes/buirushes ( <i>Juncus/Scirpus</i> ).....	
purple loosestrife ( <i>Lythrum</i> ).....	10
water willow ( <i>Decodon</i> ).....	
pickereel weed ( <i>Pontederia</i> ).....	
arrowhead ( <i>Sagittaria</i> ).....	
smartweed ( <i>Polygonum</i> ).....	10
bur-reed ( <i>Sparganium</i> ).....	
wild rice ( <i>Zizania</i> ).....	
other.....	
other.....	
other.....	

Note:  
 - Sums of percentages must equal or be less than 100%, never more.  
 - Please DO NOT include woody (eg. shrubs) or floating (eg. waterlily) plants in this section

Sketch map of key habitat features showing a 100m radius area with handwritten notes: "old willow", "cattail/reed mix plus others", "water floating plants", "purple loosestrife", "osprey nest on pole", "road", "911# 4026".

listed in the box, list it under "other." If you can't identify it, take your best guess, followed by a question mark (e.g., "milkweed?=25%"). Remember, the values you provide are estimates only and you don't need to spend a lot of time trying to calculate actual percentages. In fact, if you spend any more than a couple of minutes on this task, you're probably over-doing it!

### Returning Your Data to Bird Studies Canada

You should return all original copies of your MMP data forms (contact/route, bird, amphibian and habitat) in a single package by July 31<sup>st</sup> of the survey year to the address listed at the back of this booklet. It is very important that you keep a photocopy of all of your forms for your future reference and to guard against them getting lost in the mail. Alternatively, you may enter your survey data into Bird Studies Canada's online data-entry webpage. However, you will still need to mail your forms to BSC for quality control purposes. Please contact MMP staff for details.

## APPENDIX 1: Safety First!

Your surveys should be an enjoyable experience, which also means a safe experience. Ultimately, safety is your responsibility, and if you are ever concerned about your safety, **don't survey**. But, to assist you, keep the following guidelines in mind.

### General Survey Safety:

Carry a flashlight, whistle, cell phone, bug repellent, and spare batteries  
 Arrange a designated check-in time with a friend or relative

### Bring a Partner!

### Site Safety:

Make sure your site is accessible in low light conditions  
 Avoid local 'hang-out' spots or unsafe neighbourhoods

### Road Routes:

Wear bright or reflective clothing  
 Be aware of traffic  
 Park safely off-road or use reflective cones  
 Follow all traffic laws

### Boat Routes:

Wear a lifejacket  
 Bring bailer(s)  
 Have lights for the bow and stern of your boat  
 Follow all marine regulations  
 Be aware of boat traffic

**BRING A PARTNER and IF IN DOUBT, DON'T SURVEY**

## APPENDIX 2: Tips For Filling In Scannable Forms

Using scannable forms decreases data entry time, thereby decreasing program costs and allowing more time for other important activities. Although the computer scanning program can decipher most writing, following the simple guidelines provided below will ensure accurate and efficient data processing.

- **PLEASE USE PEN;** please don't use pencil or felt tip pen, these are poorly read by the scanner
- **PLEASE PRINT;** preferably using block letters. The scanner does not easily decipher stylised writing
- **NUMBERS AND TEXT;** place one character in each box and keep within the box lines/ticks. Close 0's and O's
- **PLEASE FILL IN CHOICE CIRCLES;** avoid using checkmarks and fill in all applicable choices individually
- **MISTAKES HAPPEN;** you can mark an error with an "X" and fill in the correct value or use correction fluid. If your mistake is large and you run out of space, place your correction in the nearest comment box, **BUT** include the section number to which the correction relates (e.g., "I messed up on Visit 1, Station A: there were 10 Barn Swallows not 100").
- **LEGIBILITY;** if you think your form is no longer legible, contact us and we will mail you a second copy or email you an Adobe Acrobat version.

Great!	OK	Not So Good	Indecipherable

### Some Frequently Asked Questions:

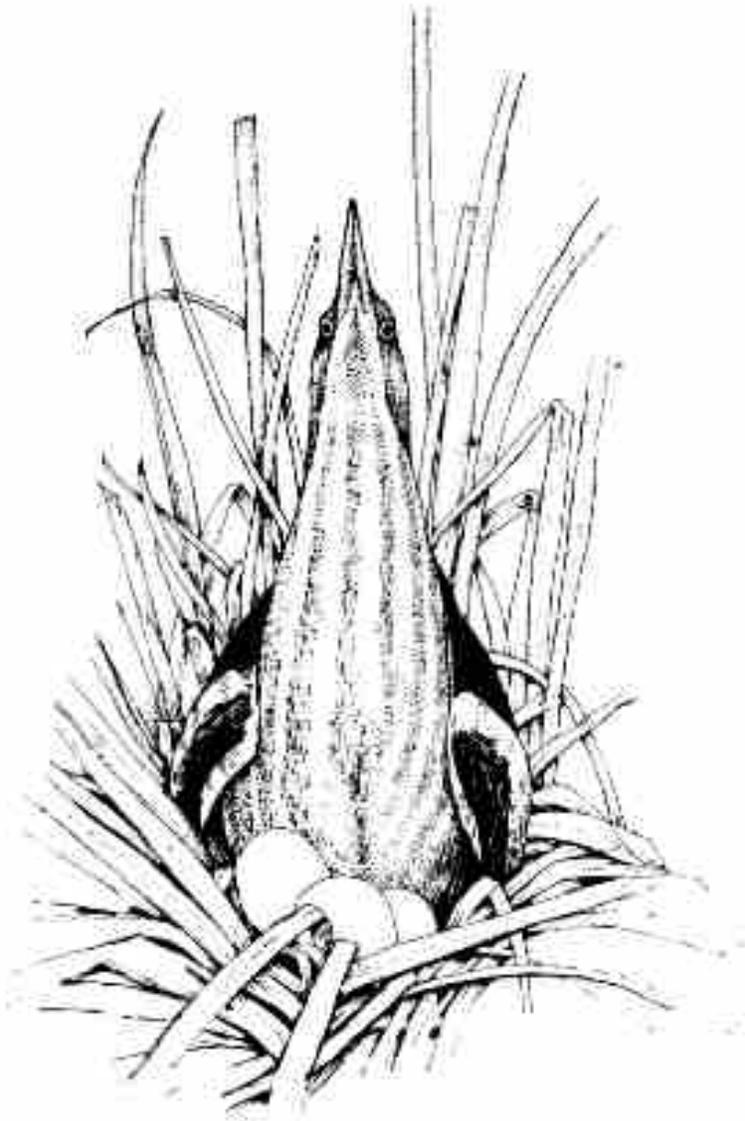
**Can the forms be stapled? YES.** The four reference marks (four corners of this page) and bar code or a scanning form identification number (lower right corner) must remain undamaged (don't staple through them).

**Can I photocopy the forms? YES.** Teleform works best with the original document. Please send original forms to BSC and keep copies for yourself. **Do not** increase or decrease the size of the document when you photocopy them, this may prevent them from being scannable.

**Can I use an Adobe Acrobat version of the form? YES.** Before printing, ensure that the "fit to page" printer option is **not** checked. The "fit to page" option may shrink the form enough that it cannot be scanned.

**MAJOR SUPPORTERS AND PARTNERS OF THE  
MARSH MONITORING PROGRAM:**

Bird Studies Canada  
Environment Canada – Canadian Wildlife Service  
U.S. Environmental Protection Agency



**For more information about the Marsh Monitoring Program contact:**

**Aquatic Surveys Volunteer and Data Coordinator  
Bird Studies Canada, P.O Box 160, Port Rowan, Ontario, Canada, N0E 1M0  
Phone: (519) 586-3531 Toll Free: 1-888-448-BIRD (2473)  
Fax: (519) 586-3532 Email: [aqsurvey@birdscanada.org](mailto:aqsurvey@birdscanada.org)**