

## Minnesota Wetland Health Evaluation Program Safety: Your First Concern

Thanks for joining our wetland monitoring team! Please remember that your personal safety should be your first priority. No data is worth risking your personal safety. All of us at WHEP want to make sure that you have a fun and enjoyable time in our wetlands.

Here are a few simple guidelines for you to follow:

1. **Never enter a wetland alone.** Always have at least one person along with you. It is also a good idea to let a family member or friend know where you are going in case something should happen. The bottoms of wetlands can be mucky and it is easy to get stuck. Some sites are also isolated and difficult to access alone.
2. Be sure to **have a first aid kit and if possible access to a cell phone.**
3. For many of you this may be your first time working in waders. **Be sure that the wader boot fits your foot.** A boot that is too large will be difficult to maneuver in. If the wetland bottom is soft and your boot is too big you will “walk out of the boot”. The boot will remain in the muck, but your foot will not. Wetland bottoms are also unpredictable; there are many holes, submerged logs and other debris. **Take care to walk slowly** and ensure the bottom is solid before completing your step. Try to always have a least one foot planted on a solid surface. A walking stick or an old broom handle works well to help maintain your balance and to check for a solid bottom or water depth before venturing further.
4. **Do not enter the water if there is a threat of severe weather.** This includes a thunderstorm or tornado warning and watch. If you hear thunder or see lightning be sure to remain out of the water.

Once again thank you for joining WHEP and remember safety should be your first concern. We hope your wetland experiences are enjoyable.



## **Minnesota Wetland Health Evaluation Program**

### **Setting a Bottletrap**

Before we begin placing our bottletraps let's review the necessary equipment.

You should have:

1. A clipboard with the field datasheet, a pencil, and a compass
2. 6 bottle trap bottletraps with funnels
3. 6 dowels or stakes
4. 6 clamps, be sure the wing nuts are secured
5. colorful flagging
6. waders for each person in the group

The next step is to choose our sampling location and include it on a map of the site. Sampling should occur in a near shore area with emergent vegetation away from inflows or outflows. The area should not be deeper than 3 feet. The samples will be taken in the water between the shoreline and up to 1 meter deep.

Now we are ready to place and set the bottletraps.

Let's begin with how to properly set the trap.

1. Stake the dowel into the wetland bottom and slide the trap, in a vertical position, along the dowel until it is mostly submerged. This can be done by squeezing the clamp together. Slightly tilt the trap so that water begins filling up the bottle. Be sure to prevent any debris or duckweed from entering the trap. Once the trap is mostly full, tip the trap under water so any remaining air bubbles escape. You can "burp" the trap by releasing the side of the funnel slightly.
2. Lower the bottle on the dowel, until the trap is about 3-5 inches or 3 fingers below the surface of the water.
3. Position the bottle so that it is horizontal in the water and tighten the wingnut.
4. Be careful to not disturb the area in front of the bottletrap. If the sediment has clouded the water, wait for it to settle and move on to set the next trap. In general place your bottletraps in pairs with members of a pair about 3-6 ft. apart. The pairs of traps should then be spread along the shoreline about 20 ft. apart.
5. Put at least 2 traps in very shallow water near shore, the others in shallow water not deeper than about 2-3 ft. Be aware of any rain events prior to trap placement and also forecasted future events. Wetland water levels can fluctuate quickly and traps could easily be submerged or even out of the water when you return.
6. After placing the bottletraps, be careful to not disturb the area in front of each trap and leave them out for 2 nights before collecting them. Be sure to have completed the necessary parts of the Field Datasheet.

## Minnesota Wetland Health Evaluation Program Retrieving a Bottle Trap

Our traps have now been out in the wetland for 2 nights and we are ready to collect them. Before we head out into the water, let's review our equipment needs.

You will need:

1. A clipboard with the field datasheet, a pencil, and a compass
  2. A large tote
  3. 1-2 sieves
  4. 4 sample bottles
  5. 2 squirt bottles (one filled with alcohol)
  6. 95-100% alcohol to fill the sample bottles
  7. waders for the group
  8. labels for the sample bottles (consisting of cardstock and tape)
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1. As you enter the wetland to retrieve the traps, take care not to disturb the area in front of the trap.
  2. While holding the base of the bottle, turn the bottle to an upright position. Be sure to keep a hand on the bottom of the trap to ensure it does not slip through the clamp. Raise the trap up the dowel, and remove the trap from the clamp. Pour the water contained in the funnel through your sieve. Remove the funnel lid, and pour the remaining contents into the sieve. Be sure to hold the sieve over the large sampling tray in case items spill.
  3. Dislodge any critters stuck to the inside walls of the bottle. What's on the outside of the bottle **is not** part of the sample.
  4. Collect the second trap of the pair, and pour contents into the sieve. Backflush the contents of the sieve into your sample jar with 95% alcohol. Each pair of bottletraps is collected into one jar (3 jars total for 3 pairs of bottletraps). If the sample occupies more than one-third of the volume of the jar, use a second jar.  
  
\*\*Please note that if you have a lot of leeches or other organisms in your traps, you may need to use more jars to preserve the sample. If you have fish, tadpoles or salamanders you should note these on your field data sheet and leave them at the site. Note approximate numbers.
  5. Once your sample and alcohol have been placed into the jar, be sure to label the jar properly. With a pencil or India ink write the site, date, type of sample and number of jars on a heavy piece of cardstock or notecard. Place the label inside the jar. Then label the outside with tape for convenience.

## Minnesota Wetland Health Evaluation Program Collecting a Dipnet Sample

Before we begin collecting our dipnet sample let's review the necessary equipment.

You should have:

1. A dipnet
2. A clipboard with the field datasheet, a pencil, and a compass.
3. A large tote that will hold smaller trays and a screen.
4. 2 small cooler trays to fit in tote
5. A screen that fits over the trays
6. 1-2 sieves
7. 4 sample bottles
8. 2 squirt bottles (one filled with alcohol)
9. 95-100% alcohol to fill the sample bottles
10. waders for the group
11. labels for the sample bottles (cardstock and tape)

You will collect one dipnet sample per site. Each dipnet sample consists of 2 dipnetting efforts. Dipnet in the near-shore vegetated zone in water up to one meter deep. Sample close to the edge and into the vegetation. Avoid sampling near the bottletraps if possible.

Before you take your first dipnetting effort:

1. Put water in your collecting pans that sit underneath your screen.
2. Place the screen over the trays so that its edges don't hang over the edge of the pans. This way the critters go down into the water in the pans.

Sample in the shallow emergent vegetation zone in water not deeper than 3 feet.

1. Hold the long-handled dipnet vertically, one hand near the net, and one hand up on handle (much like you would hold a canoe paddle).
2. Using strong strokes, sweep the net through the water towards you about 3-5 times.
3. Be sure to sample into the vegetation near shore.
4. Dump all of the net contents onto the hardware cloth screen. Get everything out of the net.
5. Spread the vegetation and loosen it. Do this periodically for up to 10 minutes. This allows the critters to get down into the water in the pans. After 10 minutes, remove the vegetation.
6. You are now ready for the second dipnetting effort. Move to a different shallow area and repeat the process.
7. After spreading out the vegetation for 10 minutes, remove it and pour the water from the collecting pans through your sieve. Be sure to pour the contents over the large pan in case of spilling. Dislodge the leeches and snails that might attach to the pan.
8. Backflush the sieve contents into your sample jar with 95% alcohol. Be sure to get any critters that are attached to the sieve walls. Use two jars if critters and debris occupy more than one-third of the jar volume.
9. Once your sample and alcohol have been placed into the jar, be sure to label the jar properly. With a pencil or India ink write the site name, date, type of sample and number of jars on a heavy piece of cardstock or notecard. Place the label inside the jar. Then label the outside with tape.

## **Minnesota Wetland Health Evaluation Program Selecting the Vegetation Survey Area**

Before we begin the vegetation survey let's review the necessary equipment.

You should have:

1. A clipboard with the Site Information Sheet, the Releve Datasheet, the Metric Scoring Sheet, a pencil, and a compass
  2. 4 tall garden stakes or plastic rebar (6-8 ft.) to mark the corners of the sampling plot
  3. colorful flagging
  4. 1 or 2, 30-50 meter measuring tapes
  5. plant identification guides
  6. waders for the group
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1. The vegetation survey method relies on the observer placing the sampling plot in a representative area in the wetland. When you first get to the wetland you are going to sample, spend some time surveying the overall vegetation patterns. You should identify the different major vegetation zones in the wetland such as emergent, aquatic, woody, or open water. Record this information in the Site Information field sheet by writing a brief description and making a rough sketch of the wetland. Also, note the surrounding land use practices as well as any point source pollution inputs such as stormwater pipes.
  2. After you have identified the major vegetation patterns of the wetland, you will need to select a single location where the sampling plot will best capture the different vegetation types found in that wetland. Most often this occurs at the interface between emergent and aquatic vegetation. In the wetland shown here we have an area of emergent plants along a few edges, a section of woody plants, and some open water.
  3. To be sure to get a representative sample, we want to try and include each of these plant types in the plot.

## **Minnesota Wetland Health Evaluation Program Establishing the Vegetation Sample Plot (Releve)**

The first thing we need to do to establish the sampling plot is to choose the plot shape. The plot we are going to establish will be 100 square meters in size, but it can either be square, with 10 meters on each side, or long and narrow, measuring 5 x 20 meters. The preferred plot shape is the square 10 x 10 m plot, but when a wetland has a very narrow emergent fringe the long rectangular plot is more effective at capturing the emergent aquatic interface. Because our wetland has a narrow emergent fringe and there is a sharp drop off, we will use the 5 x 20 m shape.

Keep in mind that you want to capture the emergent/aquatic vegetation interface; therefore a portion of the plot should be in each vegetation type.

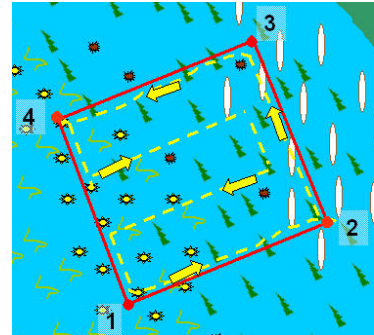
1. Stake corner #1 with a tall stake. Colorful flagging tied to the top will make it easier to see.
2. Using a tape measure mark off the first side of the plot, holding the tape measure away from your body and walking outside of the plot area. Stake this point as corner #2.
3. Turn 90 degrees using a compass, or your best visual judgment, and measure out the second side to corner #3. Repeat these steps to establish corner #4. The plot should have an area equal to 100 square meters. Adjust the corners and sides if necessary.
4. Be sure to record releve shape, location, and other required information on the Releve data sheet.

## Minnesota Wetland Health Evaluation Program Plant Inventory

The plot is established and now we are ready to begin the wetland inventory. Be careful to minimize trampling within the plot, it is ideal if only one or two people walk the plot while a third person records data on the Releve Data sheet. Begin at corner #1 and walk just inside the plot toward corner #2, identifying plants as you go.

Remember plants rooted outside of the plot but have stems or leaves extending over into the plot should be counted. Proceed around the remaining edge of the plot.

After passing corner #4 go about 1/3 of the way down the side of the plot and cut through to the opposite side to observe the vegetation in the interior. When you get to the opposite side, move down another 1/3 of that side and cut through the plot again. Finally, return to corner #1.



Plants should be identified to the genus level. Use the wetland plant identification key included in your WHEP vegetation guide to help make identifications. The Releve datasheet contains a listing of the common plant genera you are likely to encounter. They are listed alphabetically by descriptive groups to aide your recording. There are also blank spaces provided to record plants that are not already listed. Record the genera you encounter by checking the present box next to each genera.

The plant inventory should now be complete. In very dense emergent vegetation it may be necessary to do a third interior path. Also if you have a 5 x 20 m plot shape, 4-5 interior paths may be necessary. In our plot a few plants we found were two different species of *Scirpus* or bulrush and *Spartanium* or burreed.

The final step is to estimate the abundance of the plants present in the plot. To do this we are going to use what are called cover classes. Cover is the proportion or percentage of the plot taken up by a specific plant when looking straight down on the plot. Our cover estimates have been simplified by using percent cover ranges. Determine the Cover Class or CC for each plant found in the plot and record this in the corresponding CC box in the Releve Data sheet.

For example, the group has determined that *Scirpus* or bullrush covers somewhere between 50 and 75% of the plot. *Scirpus* would therefore receive a cover class value of 5. Record this value in the column labeled "CC". Repeat this process for each plant found in the plot.

The plant survey is now complete. You can now move ahead and score the vegetation IBI and complete the wetland assessment.