Quick Guide: How to Monitor a Management Unit

May 2020

This quick guide provides instructions for monitoring a management unit (MU). The goal for monitoring is to accurately capture the level of *Phragmites* infestation in your MU so that PAMF can suggest an appropriate combination of management actions. Monitoring always takes place in July. If you implement a management action during the growing phase (e.g., glyphosate in late June), we recommend that you wait one month to monitor (e.g., late July) in order to assess the effectiveness of those control efforts. Instructions below are divided into steps in the field and steps on the Web Hub, although they can be done in conjunction if you have a wireless device that can access the Web Hub while in the field.

Equipment:

- Smartphone/tablet with access to the Web Hub OR clipboard with a paper copy of the blank monitoring field sheet*
- Pencil, if using a paper form
- 0.25-m² quadrat
- Vernier calipers
- Handheld GPS, smartphone, or tablet with GPS navigation

*If using a paper form, be sure to record the GPS coordinates of the Web Hub-established monitoring locations before going into the field. To do so, go to the Web Hub, click “View Management Unit,” select your MU, click “Report Monitoring.” Coordinates are below the map.

In the Field – Collecting Data:

1. **MU Observations: Consider your MU as a whole and make the following observations.**
   a. Determine percent establishment. Consider the proportion of your MU that contains live *Phragmites* regardless of stem density. Report this as 0-10%, 11-50%, or 51-100%. You may find it helpful to answer this question after you have walked the perimeter and traversed your MU collecting data at the five quadrats.
   b. Identify whether the *Phragmites* has spread out of your MU: Yes or No. Only answer this question after your MU’s first year of enrollment.
   c. Take pictures!

2. **Quadrats: Navigate to each of the Web Hub-established monitoring locations and complete the following tasks.** If one or more of the Web Hub-established monitoring locations does not work for you, use a method to substitute a participant-established location that accurately reflects your MU’s *Phragmites* infestation (suggestions provided in the Participant Guide):
   a. Place the quadrat on the ground around the *Phragmites*. Avoid bias toward spots with sparse/dense stems.
   b. Record the GPS coordinates of the quadrat’s placement if known.
c. Count the number of live *Phragmites* stems within the quadrat. Stem counts usually range between 1 and 60. Unless there is no *Phragmites* left in the MU, stem counts should always be above zero.

d. Measure up to 3 live stem diameters to the nearest millimeter using calipers. Diameters usually range from 1 to 15 millimeters. Stems should be selected randomly (e.g., stems closest to the middle of the quadrat and opposite corners).

e. Assess the *Phragmites* within the quadrat for signs of stress not associated with management actions. If the majority of *Phragmites* stems within the quadrat are stressed, note the type of stress (Environmental, Pathogen, or Insect). We encourage you to take pictures of the stress.

3. **Notes:** Make note of any unique conditions, characteristics, etc. For example, standing water or species of interest in your MU may be worth noting.

**On the Web Hub – Submitting Data:**


2. At the Home page, click “View a Management Unit,” click your MU’s name, and then select “Report Monitoring.”

3. Fill out the questions based on the information you gathered while at your MU.
   a. Note the percent establishment of *Phragmites* in your MU.
   b. Note whether *Phragmites* has spread from your MU (after year 1).
   c. Note whether you used Web Hub-provided or personal monitoring locations. If possible, enter quadrat coordinates.
   d. Note the live stem count in each quadrat.
   e. Note the stem diameter of up to 3 plants in each quadrat.
   f. Note whether the majority of *Phragmites* within each quadrat had visible stress, and if so, note the type of stress. Upload a picture, if possible.
   g. Upload pictures of the *Phragmites* in your MU.

4. Add any notes regarding unique characteristics, conditions, etc.

5. Lastly, click “Submit.”

6. To view your monitoring report, go to the “View Management Unit” tab, click your MU’s name, click “View,” click “View Monitoring Reports,” scroll down, and select “View” next to the report of interest.
   a. To edit your MU’s monitoring information, select “Edit” at the bottom of the page.

If you have further questions, please contact the PAMF coordinator ([pamf@glc.org](mailto:pamf@glc.org)) or refer to the *PAMF Participant Guide* and Web Hub where you can find more information.
Monitoring Field Sheet

<table>
<thead>
<tr>
<th>Management Unit Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent Establishment</td>
</tr>
<tr>
<td>(circle one)</td>
</tr>
<tr>
<td>0-10%</td>
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<tr>
<td>11-50%</td>
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<tr>
<td>51-100%</td>
</tr>
<tr>
<td>Has <em>Phragmites</em> spread</td>
</tr>
<tr>
<td>from your MU? <em>(circle one)</em></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

Remember: Take Pictures!

<table>
<thead>
<tr>
<th>Quadrat</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPS Coordinates&lt;sup&gt;2&lt;/sup&gt; (decimal degrees)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Live Stem Count (#)</td>
<td></td>
<td></td>
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<tr>
<td>Live Stem Diameters&lt;sup&gt;3&lt;/sup&gt; (mm)</td>
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<tr>
<td>Visible stress on the majority of live <em>Phragmites</em> in quadrat?&lt;sup&gt;4&lt;/sup&gt;</td>
<td></td>
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<tr>
<td>If Yes, indicate cause of stress&lt;sup&gt;5&lt;/sup&gt;</td>
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</tbody>
</table>

Notes:

1. Only answer after Year 1
2. If known
3. 3 measurements per quadrat – closest live *Phragmites* stem to the center of the quadrat and two opposite corners
4. Yes, No, or Unsure
5. Environmental, Pathogen, or Insect

Assess whether most of the Phragmites growing within the quadrat show signs of stress not related to management actions. Stress categories include environmental, pathogen, or insect. If possible, take a picture of the stress.