Invasive Phragmites Removal Protocol

The Land Between

Cottage Country's Conservation Organization

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Environment Canada | Environnement Canada

Dear Valued Phrag Fighter,

Hello, and thank you for participating in Invasive Phragmites removal with The Land Between Charity. We are very excited to have you as a member of our Phrag Fighting team! Your efforts will go a long way in the fight against Invasive Phragmites in our region.

This protocol is designed to manage and remove select stands of Invasive Phragmites within The Land Between, a bioregion that spans from the Georgian Bay Coast to the Ottawa Valley. The stands selected for removal were chosen based on a wide variety of factors including stand size, accessibility, and proximity to important habitat. Data on these stands was gathered through surveys conducted by you, our dedicated volunteers.

This protocol document includes detailed instructions on how to remove Invasive Phragmites using the spading technique. All of the information regarding this technique was taken from the Ontario Phragmites Working Group *Spading Method to Remove Invasive Phragmites Postcard* and the report entitled *Examination of Comparative Manual Removal Strategies for Non-Chemical Control of Invasive Non-Native Phragmites australis subsp. australis: PHASE II* by Lynn Short *et al.* (2017).

Please note that participation in this Invasive Phragmites removal program requires a **minimum commitment of 3 months** (one removal season). Within this three month commitment window, your assigned stand of Invasive Phragmites will ideally be cut 2 to 3 times. However, if for whatever reason it will only be possible for you and your team to spade your stand once this season, it is important that it be done at the appropriate time. Spading your assigned stand only once at the wrong time could result in more harm than good. For this reason, we ask that you adhere to one of the two spading schedules outlined in **Section F** of this protocol. Please see **Section A** for a complete breakdown of the required time commitment to participate in this program.

If you have questions regarding any aspect of this program, please do not hesitate to contact us. We can be reached by email at **CitizenScienceTLB@gmail.com** or by phone at 705-457-1222.

Thank you again for your assistance in keeping our ecosystems healthy.

Good luck with your Phrag fighting,

The Land Between Charity

Special Thanks

Special thanks to Lynn Short for sharing her insight and expert knowledge of Invasive Phragmites removal to help make this protocol as effective as possible. Special thanks also to David Overholt for providing his seasoned advice on volunteer Invasive Phragmites surveying.

Thank you also to Dr. Daniel Larkin, Dr, Susan Galatowitsch, and Julia Bohnen for the use of their *Guide to Identifying Native and Non-native Phragmites australis* in both our Invasive Phragmites Surveying and Removal volunteer packages.

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A. Time Commitment

I. Seasonal Time Commitment

- A **minimum commitment of 3 months** (one removal season) is required to participate in this Invasive Phragmites Removal Program.
- For the most effective results, we will aim to spade each stand at least twice (potentially three times) per season.
- Please see the **Spading Schedule** in **Section F** for a breakdown of the planned timing of each cut throughout the season.

II. Daily Time Commitment

- It is recommended that you allot at least half a day to remove your stand each time.
- The amount of time required to spade a stand will vary depending on stand size and density, the number of people on your removal team, and whether or not the stand has been spaded before.
- As an example, a dense 4x4 meter stand would take 4 adults about 2 hours to remove. We will be prioritizing the removal of stands that are 4x4 meters or less in size, so your assigned stand will likely not be larger than this.
- If it will not be possible for you and your team to completely remove your stand in one day, removal efforts can be completed over two consecutive days.

III. Continued Commitment

- In order for removal to be effective, each stand of Invasive Phragmites will need to be spaded multiple times a year for at least four years.
- In addition, the stands will need to be monitored for several years after removal to ensure Invasive Phragmites does not reemerge.
- Your continued commitment to our program would be much appreciated, but it is not required.

B. Before you Begin

Before you begin removing Invasive Phragmites, we ask that you ensure you have completed the following:

- Wait to be assigned a stand of Invasive Phragmites to remove.
- Wait for confirmation that you have permission to be conducting work at your assigned location.
- Acquire the necessary equipment. Please see **Section E - What you will need**, for a list of the required materials.
- If desired, assign roles to each group member. Please see **Section G** for a list of potential roles.

C. The (Please) Don't List

Throughout the process of Invasive Phragmites removal, it is important that the following be avoided to the best of your abilities. Invasive Phragmites grows persistently and aggressively, so any and all actions that could result in its additional spread or growth should be avoided.

So, **please don't**:

- Disturb the soil during the removal process. Soil disturbance can stimulate the growth of Invasive Phragmites and so should be minimized as much as possible.
- Dig the plants out of the ground. To minimize soil disturbance, please use the spading method outlined in **Section H - Spading Technique**.
- Harm or disturb any native plants that may be present in or near your stand. As much native vegetation should be left intact at the site as possible so that these species can take over the area after the Invasive Phragmites has been removed.
- Let any Invasive Phragmites material get away. Please do your best to ensure all of the plant material you clip or spade ends up in a bag for proper disposal.
- **Compost Invasive Phragmites.** Invasive Phragmites can sprout and form new populations in the composting area. Please follow the recommendations laid out in **Section I, Part 6** for proper disposal.
- Dispose of Invasive Phragmites improperly. Please follow the recommendations laid out in **Section I, Part 6 - Disposal**.

D. Safety

I. General

- Phragmites removal can be strenuous, labour intensive, and involve working outdoors for multiple hours at a time. Please know your limits, and pay attention to your body's signals. Take frequent breaks in the shade, and drink plenty of water.
- Ensure that you have packed enough food and water to last you for the day.
- The leaves of Invasive Phragmites have serrated edges that can cut and irritate the skin; long sleeved shirts, pants, and gardening gloves are recommended.
- Heavy-soled shoes and eye protection are also recommended.
- Dress for the weather; sunscreen, a hat, sunglasses and bug repellant/a bug jacket are strongly recommended.
- Do not remove Invasive Phragmites in inclement weather. This includes heavy rain or wind, or days when the temperature will be extremely warm or cold.

II. Working Near Roads

- Be vigilant and alert at all times; pay attention to oncoming traffic.
- Wear a high visibility vest when working near roads.

- Do not work on the side of the road unless permission has been secured to do so.
- If you are parked on the side of the road, ensure that your car is pulled as far off the road as is safe to do so (outside the white lines).

III. Using Tools

- Spades and pruners can be sharp. Care and caution are strongly recommended when using all tools.
- When you are not using your spade, ensure that you lay it down in a safe location, do not stick it in the ground.

IV. Invasive Phragmites Disposal

- If you will be burning Invasive Phragmites to dispose of it, only do so if it is permitted in your area. Use caution when working around flames and ensure that you have the ability to properly contain the fire.

E. What You Will Need

I. Removal Equipment

- One sharp spade per person
- One pair of pruners per person
- Paper yard waste bags*
- Black plastic garbage bags*
- Other garbage bags (if required)**
- Camera/phone with a camera
- Hand-held GPS/phone with a GPS
- Tape measure
- Clip board
- Pencil/pen
- Calculator
- Hand-held tally counter (if desired)
- Stand Information Sheet
- Copy of this protocol
- Field Data Sheet
- Stiff brushes (to brush off your clothes, shoes and equipment when you are done for the day)
- Burn barrels (if applicable)
- First aid kit
- Extra water (for cleaning shoes and equipment at the end of the day)
- Car(s) with enough space to transport the Invasive Phragmites material away from the site

*Please use the information regarding stand size on the **Stand Information Sheet** to estimate the number of yard waste and black plastic garbage bags you will require for your stand. If you have already cut your stand once, you can use your knowledge of the amount of supplies required for the first cut to aid in your estimate.

**If you are able to dispose of your Invasive Phragmites material at a municipal invasive species disposal site, you may be required to collect the plant material in a specific type of bag. Please contact your municipal invasive species disposal site to determine if a specific type of bag is required.

II. Personal Equipment

- Work gloves
- Heavy soled shoes
- Sunscreen
- A change of shoes (to change into at the end of the day to avoid tracking plant material away from the site)
- Long sleeved shirt, pants
- Bug spray/bug jacket
- Sun hat, protective eyewear
- Water and snacks
- Cell phone and charger
- High visibility vest

F. Spading Schedule

This section outlines the approximate schedule we ask you and your removal team to follow when spading your assigned stand of Invasive Phragmites throughout the season.

This spading schedule is based on the report entitled *Examination of Comparative Manual Removal Strategies for Non-Chemical Control of Invasive Non-Native Phragmites australis subsp. australis: PHASE II* by Lynn Short *et al.* (2017), as well as email correspondences with Lynn Short.

I. Multiple Spadings Throughout the Season

This schedule outlines the ideal scenario in which you and your team are able to spade your stand at least twice throughout the season, with the potential to undertake a third spading if you and your team are willing and able.

Table 1. Spading Schedule - Multiple Spades per Year

Spade Number	Timing
1 (optional)*	Mid June
2	Mid July
3	Mid August

* If you and your team are willing and able, you can spade your stand for the first time in mid June. Spading at this time would be beneficial, but is not required. If you and your team will not be able to spade your stand in June, please spade your stand first in mid July, followed by a second spading in mid August.

II. One-time Spade

If it will only be possible for your team to spade your assigned stand once during the growing season, it is recommended that it be done when the seed heads (plume-like structures on top of the stem) are beginning to emerge. This will likely occur some time between **mid July and mid August**. It is recommended that one or two members of your team be assigned as pre-removal surveyors to monitor the stand for seed head emergence and therefore to determine when the best time will be to remove the stand.

Please note that dead standing stems produced in previous years may be present at your site and may have exposed seed heads. To determine the best time to spade your stand, **look for seed heads on green (new) stems**, not dead standing stems.

Please also note that cutting your assigned stand only once at the **wrong time** could result in more harm than good. For this reason, we ask that you adhere to the timing recommendations outlined in this section.

G. Roles

This section outlines a list of potential roles that you and your team members may wish to take on when removing your stand of Invasive Phragmites. If you would prefer to divide the work in other ways that is completely fine, these are simply recommendations.

It is also recommended that the roles be alternated throughout the day or season so that team members doing some of the heavier labour can take breaks as needed.

Potential Phrag Fighting roles include:

I. Seed head cutter(s) (if applicable): If seed heads are present, this person will be responsible for cutting the seed heads into a black plastic garbage bag before the stems are cut. This is done to prevent the potential spread of seeds.

II. Stem spader(s): These people will be responsible for spading the stems of the Invasive Phragmites. This can be a very labour intensive process so it is recommended that those taking on this role alternate with others on a regular basis to prevent fatigue.

III. Stem bagger(s): This person will be responsible for folding the stems of Invasive Phragmites into small bundles and placing them into bags as they are cut. It is recommended that the stems be folded to maximize the available space in the yard waste bag, and to prevent pieces of stem from protruding through the sides of the bag. This role can be combined with the stem spader or the stem counter if desired.

IV. Stem counter(s): This person will be responsible for keeping track of the total number of stems that have been cut and removed from the stand. You can keep track of the number of stems removed using the tally sheet included in **Table C** of the **Data Sheet**, or through the use of a hand-held tally counter. This role is only required the first time you cut your stand.

V: Pre-removal surveyor(s): If your team will only be spading your stand of Invasive Phragmites once this season, this person or team will be responsible for determining the best time (between mid-July to mid August) to remove the stand. This will involve visiting the stand a few times between mid-July and mid August and monitoring when the seed heads (plume-like structures on top of the stem) are beginning to emerge. The best time to spade a stand, if only spading once, will be when seed head emergence occurs.

Please note that dead standing stems produced in previous years may be present at your site and may have exposed seed heads. To determine the best time to spade your stand, look for **seed head emergence on green (new) stems**, not dead standing stems.

VI. Disposal lead: This person will be responsible for drying out the Invasive Phragmites stems and disposing of them properly. See **Part 6 of Section I - Procedure** for proper disposal methods.

H. Spading Technique

This section outlines the technique that will be used to spade and remove Invasive Phragmites stems. These steps are also repeated in **Section I - Procedure.**

This technique is from the Ontario Phragmites Working Group *Spading Method to Remove Invasive Phragmites Postcard* and the report entitled *Examination of Comparative Manual Removal Strategies for Non-Chemical Control of Invasive Non-Native Phragmites australis subsp. australis: PHASE II* by Lynn Short *et al.* (2017).

1. If there are seed heads present (on either live or dead standing stalks), remove them first. To do this, place a dark plastic bag over the seed heads and clip them into the bag using a set of pruners. See **Part 6** of **Section I** for how to properly dispose of the seed heads after removal.

2. If there are no seed heads present, or after the seed heads have been removed, begin spading the stems (both dead and alive) of Invasive Phragmites. To spade the stems, take the following steps:

    a. Place the blade of your spade on the ground about **2 to 5 cm** from the base of the stem.

b. Position your spade so that the angle between the blade of your spade and the stem is approximately **45 degrees**.

c. With your foot, push the spade **at least 5 cm** into the ground, cutting the stem below the ground.

d. Remove your spade from the ground at the same 45 degree angle at which it was pushed into the ground.

e. With your free hand, remove the stalk from the ground, being careful not to disturb the surrounding soil as you do.

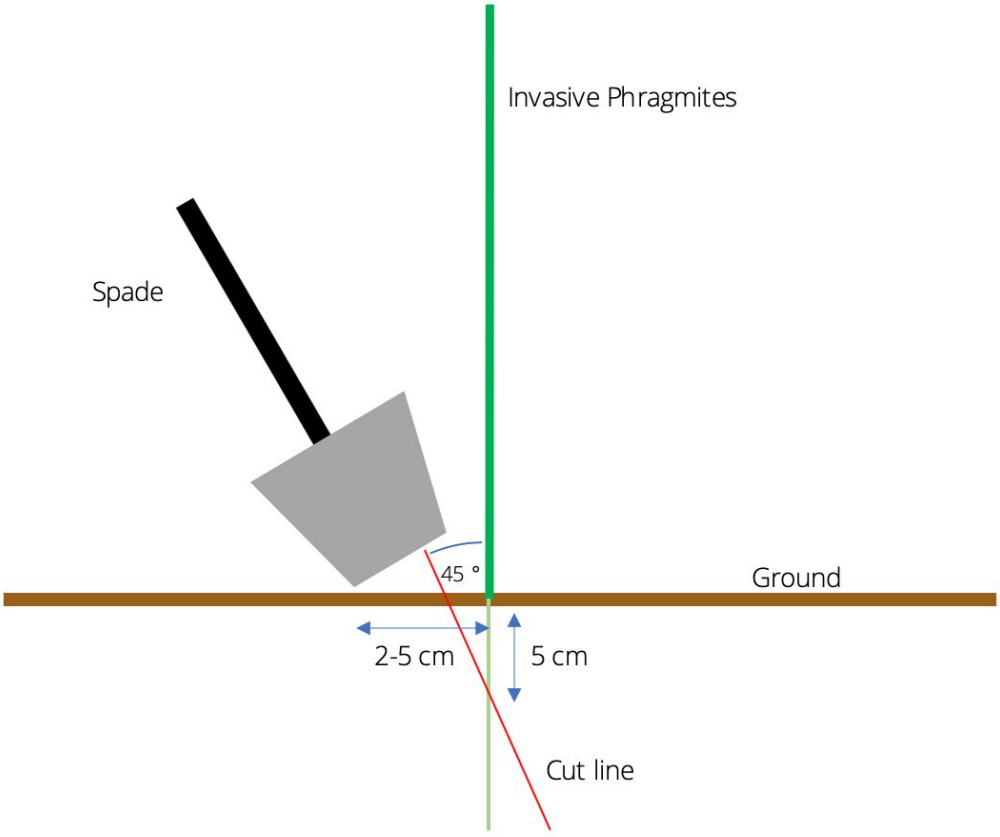


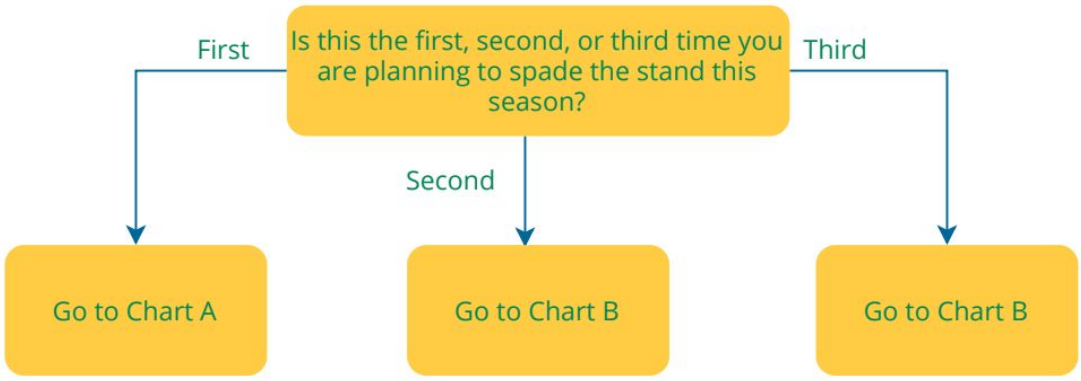
Figure 1. Spading technique for effective Invasive Phragmites removal

I. Procedure

Part 1 - Planning

When: This portion of the protocol should take place in advance of the removal day(s).

Please use the flow charts below to determine what steps are required of you and your team. Please note the **blue flags** in the flow charts refer you to relevant sections of this protocol. Please see the referred sections for additional information.



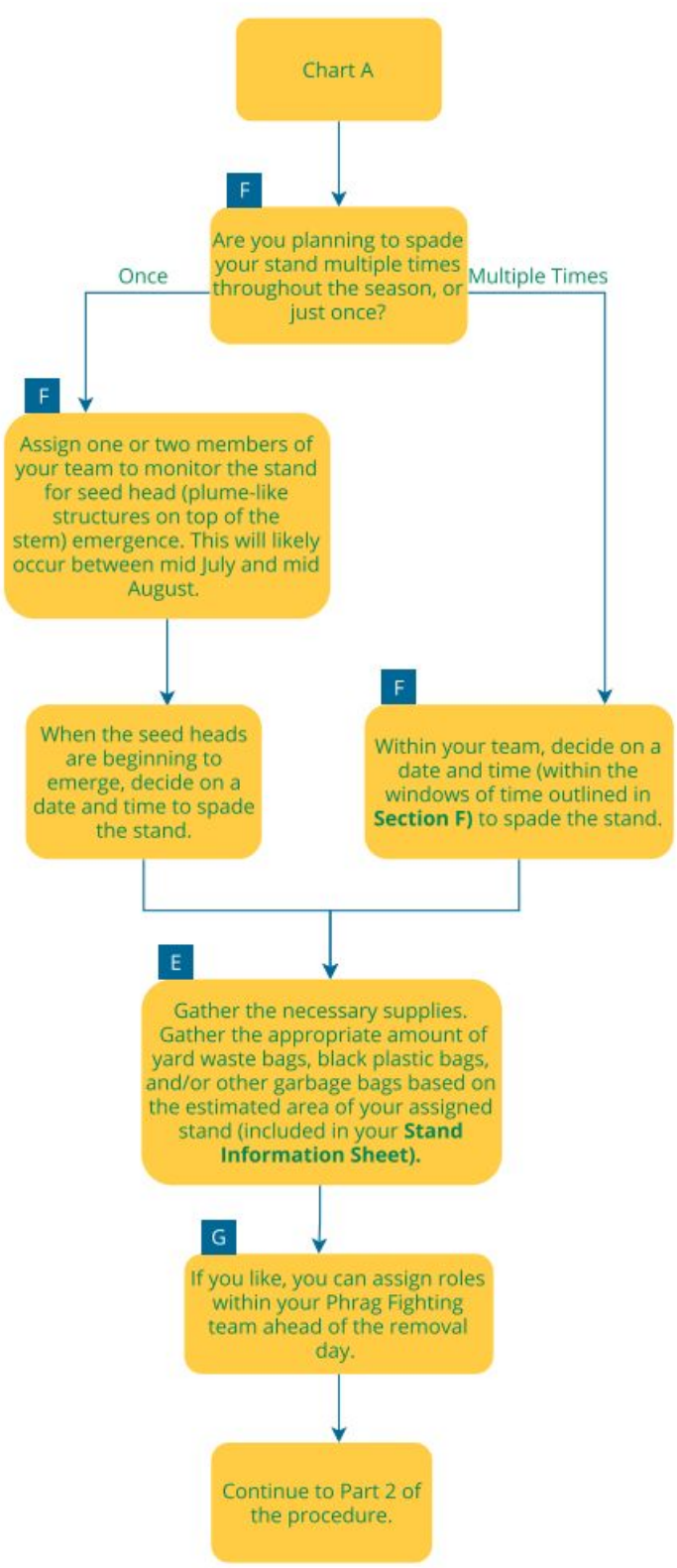


Chart A
F
Are you planning to spade your stand multiple times throughout the season, or just once?
Once
Multiple Times
F
Assign one or two members of your team to monitor the stand for seed head (plume-like structures on top of the stem) emergence. This will likely occur between mid July and mid August.
When the seed heads are beginning to emerge, decide on a date and time to spade the stand.
F
Within your team, decide on a date and time (within the windows of time outlined in **Section F)** to spade the stand.
E
Gather the necessary supplies. Gather the appropriate amount of yard waste bags, black plastic bags, and/or other garbage bags based on the estimated area of your assigned stand (included in your **Stand Information Sheet).**
G
If you like, you can assign roles within your Phrag Fighting team ahead of the removal day.
Continue to Part 2 of the procedure.

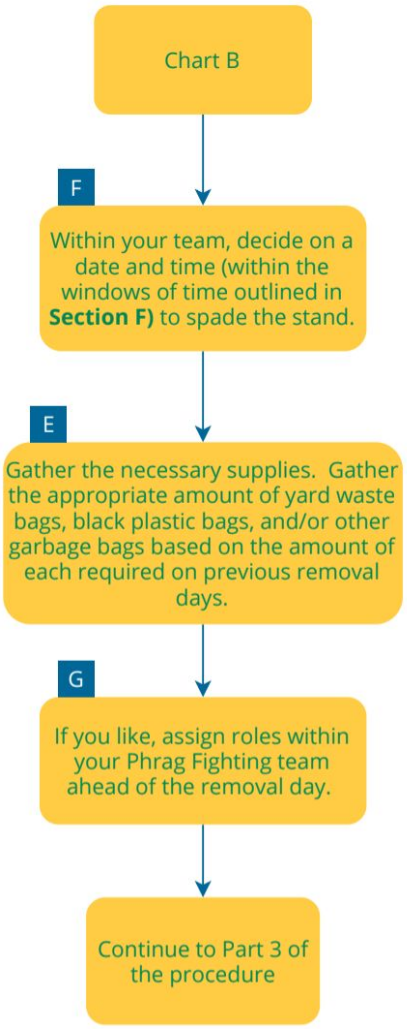


Chart B
F
Within your team, decide on a date and time (within the windows of time outlined in **Section F)** to spade the stand.
E
Gather the necessary supplies. Gather the appropriate amount of yard waste bags, black plastic bags, and/or other garbage bags based on the amount of each required on previous removal days.
G
If you like, assign roles within your Phrag Fighting team ahead of the removal day.
Continue to Part 3 of the procedure

Please note: you and your team should plan to meet on a day when the weather will be favorable (not rainy, windy, etc), and everyone can devote enough time to spade the entire stand. It is recommended that you alot **at least half a day** for the removal efforts. If the stand cannot be completely removed in one day, the removal efforts can be completed over two consecutive days.

It is also recommended that you and your team **decide how you will be disposing of the Invasive Phragmites materia**l before you begin the removal process. Please see **Section I - Part 6: Disposal** for an explanation of each of the disposal options. The method of disposal you choose will impact your removal procedure.

Part 2 - Estimating Stand Area

When: This portion of the protocol should take place the same day the stand will be removed. These steps are only required the first time the stand is cut each season.

1. Ensure that permissions have been secured for you to be at your removal site. Arrive at the site at the agreed upon time.

2. Record the date, time and location (latitude and longitude) of the stand in **Table A** of the **Data Sheet**.

3. Record the spade number in **Table A** of the **Data Sheet**. For example, if this is the first time the stand is being cut this season, circle 1.

4. * Using a tape measure, measure the approximate length and width of the stand in meters. This can be an approximate measurement made by assuming the stand is roughly rectangular in shape. Please see Figure 2a and 2b for a visual representation. Record the length and width in **Table B** of the **Data Sheet**.

5. Calculate the approximate area of the stand by multiplying the length and width of the stand together. See **Appendix 1** for an example of how to make this calculation. Please round the calculated value to two decimal places (i.e. 3.14) and record it in **Table B** of the **Data Sheet**.

   *** Please Note:** Although an estimate of the stand area was already made (by the reporter of the stand) and has been provided to you in your **Stand Information Sheet**, estimating stand area without measuring is notoriously difficult. It is also possible that the area of the stand has changed since the time it was first reported. As such, we ask that you take the actions outlined in step 5 to generate a more accurate estimate of the stand area for our records.

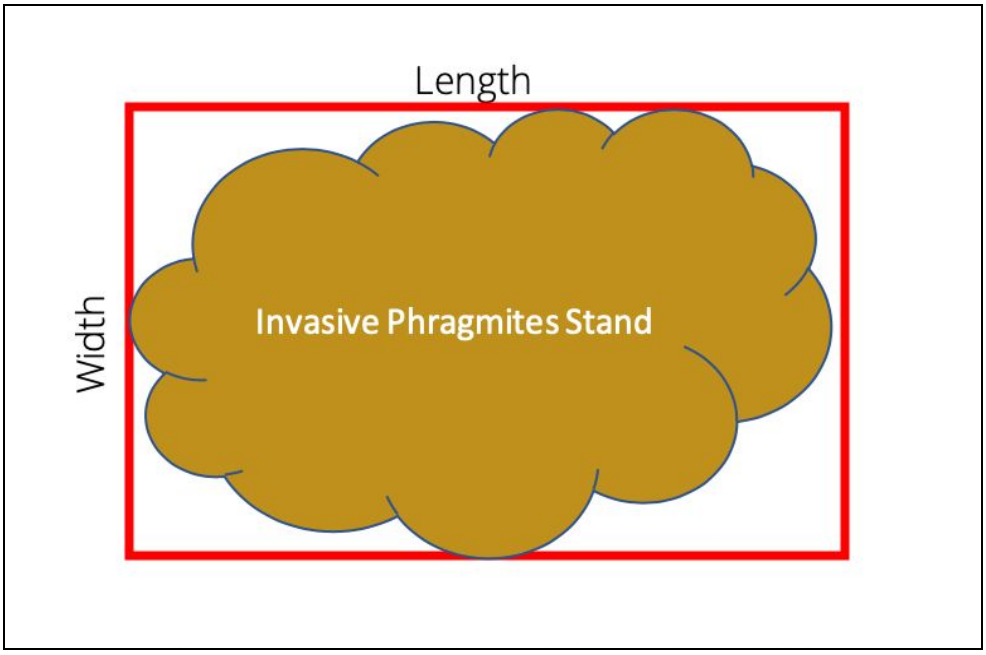


Figure 2a. How to calculate the area of a stand of Invasive Phragmites, example 1. Stand Area = Length X Width

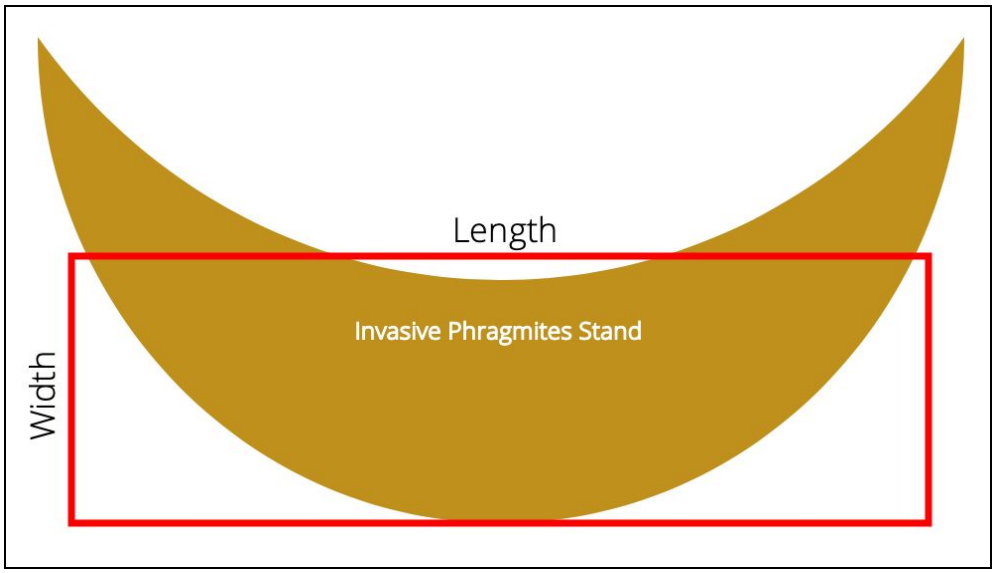


Figure 2b. How to calculate the area of a stand of Invasive Phragmites, example 2. Stand Area = Length X Width

Part 3 - Removal

Please Note: Throughout the removal process, it is important that you do your best to minimize soil disturbance, as it can stimulate the growth of Invasive Phragmites. Further,

native vegetation in and around the stand should be left intact and undisturbed as much as possible. This way, these plants will be able to take over the area after the Invasive Phragmites has been removed. Please see **Section C - The (Please) Don't List** for additional best practices.

It is recommended that the removal process be carried out as follows:

1. Ensure that permissions have been secured for you to be at your removal site. Arrive at the site at the agreed upon time.

2. Take a photo of the stand **before you begin**. Please capture as much of the stand in one photo as you can, and include something to demonstrate the scale of the stand (a person, spade, etc).

3. If there are seed heads present (on either live or dead standing stalks), remove them first. To do this, place a dark plastic bag over the seed heads and clip them into the bag using a set of pruners. See **Part 6** of **Section I** for how to properly dispose of the seed heads after removal.

4. After the seed heads have been removed, begin spading the stems, **working from the outside of the stand in**. Please spade and remove both the **live stems** as well as the **dead standing stems** (stems produced in previous years).

   To spade the stems, take the following steps:

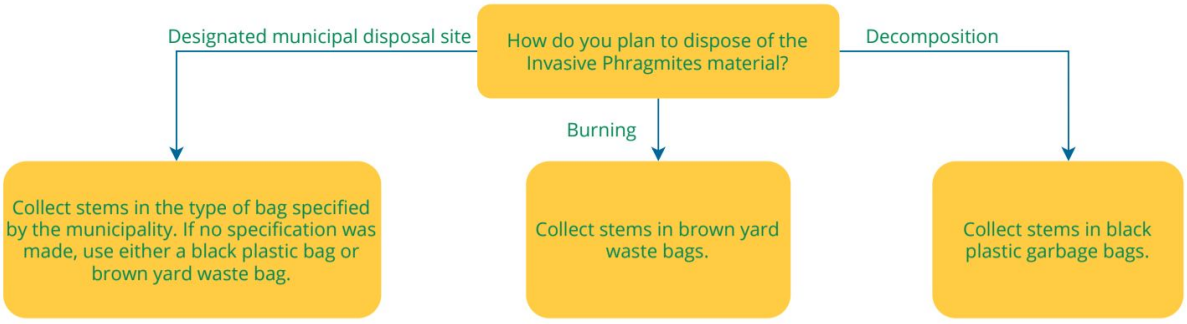
   a. Place the blade of your spade on the ground about **2 to 5 cm** from the base of the stem. Position your spade so that the angle between the blade and the stem is approximately **45 degrees**.

   b. With your foot, push your spade into the ground **at least 5 cm**, cutting the stem below the ground.

   c. Remove your spade from the ground at the same angle at which it was pushed into the ground.

   d. With your free hand, remove the stalk from the ground, being careful not to disturb the surrounding soil as you do.

   e. Fold the stem into a small bundle and place it into a bag. Use the flowchart below to determine what kind of bag to use (see **Part 6** of **Section I** for a description of each of the disposal methods).



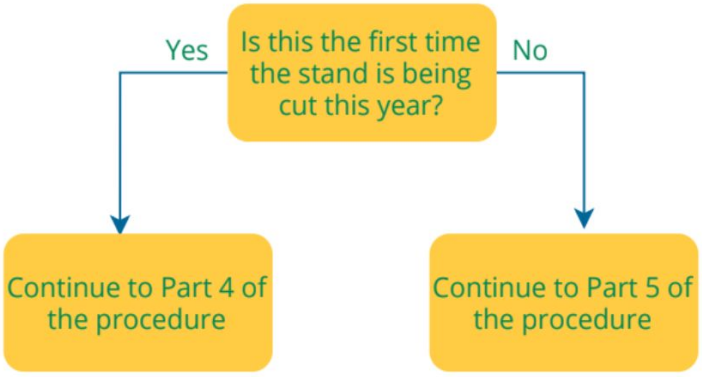
Please ensure that all of the plant material is placed in the bag and that no pieces are left behind.

f. If this is the **first time** you and your team are spading the stand this season, please **count the stems as they are placed in the yard waste bags**. This tally can be kept and recorded in **Table C** of the **Data Sheet**. If this is your second or third time spading the stand this season, tallying the stems is not required.

g. Repeat steps a-f until all of the stems (alive and dead) have been removed.

5. Take a photo of the area after the stems have been removed. Please include something in the photo to demonstrate scale (a person, spade, etc).

6. Use the flowchart below to determine your next step.



Part 4 - Estimating Stand Density

Calculate the approximate density of the stand. To do so, divide the total number of stems removed by the calculated estimate of the stand area. See **Appendix 2** for an example of

how to make this calculation. Please round your calculated value to two decimal places (i.e. 3.14). Record the calculated value in **Table D** of the **Data sheet**.

Part 5 - Decontamination

When you are done for the day, please take the following steps to properly decontaminate your clothing and equipment. All decontamination measures should be taken at the removal site to avoid transporting plant material away from the area.

1. Thoroughly brush off and wash all the equipment that was used in the removal process. Remove all dirt and visible plant material.

2. Thoroughly brush off your clothes.

3. Brush off and wash your shoes, paying particular attention to the grooves on the soles. Use a stiff brush to remove as much debris as possible.

4. Just before you leave the site, do another check to make sure that nothing you will be transporting away from the site has any dirt or plant material on it.

5. When you are ready to leave the site for the day, change into a different pair of shoes. Do this in an area that is free of mud and plant material.

6. Follow the steps outlined in **Part 6** to properly dispose of the plant material.

Part 6 - Disposal

When: Begin the disposal process as soon as possible.

Proper disposal of Invasive Phragmites is crucial to its effective management and short cuts should not be taken. This section outlines the three options for disposal of Invasive Phragmites stems. Please choose the method that is best suited to your situation and location.

Option 1: Designated municipal site

If your municipality has a designated place to properly dispose of invasive plants such as Phragmites, the plant material (seed heads and stems) can be taken to one of these locations. The Invasive Phragmites material should be collected at the removal site in the type of bag (black plastic, clear plastic, yard waste, etc.) that is recommended or required for disposal of invasive plant material by your municipal facility.

Transport of the Invasive Phragmites from the removal site to the disposal location must be done carefully to ensure that no plant material is spread in the process. Ensure that the bags containing the Invasive Phragmites are properly and securely closed.

Please note, The Land Between Charity is currently working with municipalities across the region to create additional invasive species disposal areas.

Option 2: Drying and Burning

If your municipality does not have a designated location to dispose of invasive plants, and if it is permitted in your area, the stems of Invasive Phragmites can be burned. If you will be burning the stems of Invasive Phragmites, the stems should be collected at the removal site in **brown yard waste bags**.

To dispose of Invasive Phragmites stems via burning, please take the following steps:

1. If the stems had seed heads, they should have been removed first and collected in black plastic bags (see **Part 3 of Section I - Procedure).** These bags should be sealed and left in the sun for a few weeks until the seed heads are rotten. When the seeds are rotten, the bags can be disposed of in the garbage.

2. Transport the yard waste bags full of stems to the location where they will be dried. This must be done carefully to ensure that no plant material is spread during the transportation process. Ensure the bags containing the Invasive Phragmites are properly and securely closed.

3. Store the bags in a covered and dry location. Leave the stems of Invasive Phragmites to dry in the yard waste bags in which they were collected.

4. After the stems have dried completely, **if it is permitted in your area**, the stems can be burned in small batches in burn barrels or in another controlled manner. Be sure to follow the rules specific to your location regarding burning and fire. A permit may be required to dispose of the Invasive Phragmites in this manner.

Option 3: Decomposition

If your municipality does not have a designated location to dispose of invasive plants, and you are unable or unwilling to dry and burn the stems of Invasive Phragmites, you can dispose of the stems through decomposition.

To dispose of the Invasive Phragmites stems via decomposition, collect the stems from the removal site in black plastic garbage bags. Seal the garbage bags and leave them in the sun until the plant material is rotten. When the plant material is rotten, it can be thrown away.

If the stems had seed heads, they should have been removed first and collected in black plastic bags (see **Part 3 of Section I - Procedure).** Just as with the stems, these bags should be sealed and left in the sun for a few weeks until the seed heads are rotten. When the seeds are rotten, the bags can be disposed of in the garbage.

Part 7 - Data and Photo Submission

Once you have completed your removal efforts for the day, please send an email with the before and after photos of your site, as well as a photo/scanned copy of your data sheets to **CitizenScienceTLB@gmail.com.** Please include your team name in the subject line.

Repeat the steps outlined in this section (Section I - **Procedure**) according to the **Spading Schedule** in **Section F.**

Part 8 - Long Term Commitment

In order for a stand of Invasive Phragmites to be effectively removed using these techniques, it must be spaded multiple times a year for several consecutive years. As such, the steps outlined in **Section I** of this protocol must be repeated for a minimum of 4 years, likely more. Each stand will also require ongoing monitoring for several years to ensure the Invasive Phragmites does not reemerge. Your continued commitment to the cause would be much appreciated.

Sources

Georgian Bay Forever. The Process for Invasive Phragmites Removal in Georgian Bay Wetlands and Shorelines. Retrieved from: https://georgianbayforever.org/the-process-steps-for-invasive-phragmites-removal-in-georgian-bay-wetlands-2/#Planning

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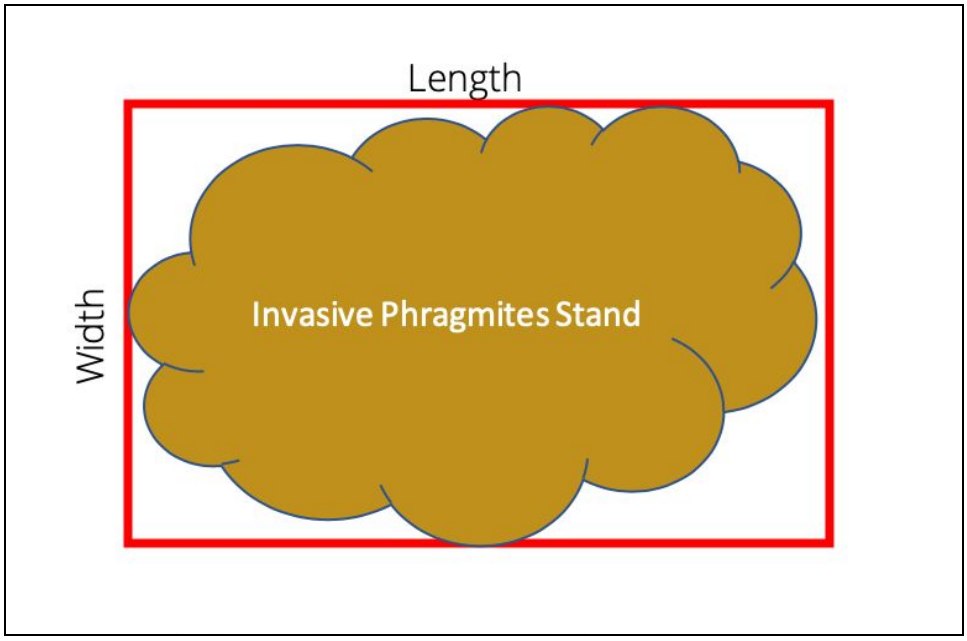
Appendix 1 - Sample Stand Area Calculation



In this example, the length and width of the stand have been measured with a tape measure. The measurements of the stand are as follows:

Measured length: 3.5 meters
Measured width: 2.1 meters

Using these measurements, the approximate area of the stand can be calculated by taking the following steps:

Stand Area = length x width

Stand Area = 3.5 x 2.1

Stand Area = 7.35 ㎡

Appendix 2 - Sample Stand Density Calculation

In this example, the following has been determined:

The approximate area of the stand is 7.35 ㎡.
The stand contained 567 stems of Invasive Phragmites (i.e. 567 stems were cut).

Using this information, the density of the stand can be calculated by taking the following steps:

Stand density = total number of stems removed ÷ stand area

Stand density = 567 stems ÷ 7.35 ㎡

Stand density = 77.1428571429 stems/㎡

This stem density can then be rounded to 2 decimal places so:

Stem density = 77.14 stems/㎡

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Please complete this table <u>every time</u> you spade this stand!

Table A. General Information

Team Name	
Team Members	
Date	
Stand Location - Block number (see stand information sheet)	
Stand Location - Latitude* (see stand information sheet)	
Stand Location - Longitude* (see stand information sheet)	
Is this your 1st, 2nd, or 3rd time spading this stand this year?	1 2 3
Did you take a photo of the stand before removal? (yes/no)	Yes No
Did you take a photo of the stand after removal? (yes/no)	Yes No

*In decimal degrees

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These tables only need to be filled your <u>first</u> time spading this stand!

Table B. Stand Size Estimate

Measured stand length (m)	
Measured stand width (m)	

Table C. Stem Tally

Tally of stems removed	
Total number of stems removed (sum of tally)	