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## COMPLETING THE PAPER MONITORING FORM

*Paper monitoring forms are required for all reports. Online submission is helpful, but not required. Instructions are found on page 10.*

**Use the most current monitoring form, downloadable from [plantsofconcern.org](http://plantsofconcern.org).**

**Respond to every question.** Write 'unknown' or use provided fields for NA or 'Don't Know' if you do not know.

**Refer to previous monitoring reports for each subpopulation.** This is especially important for how plants are counted (e.g., stems or clumps), GPS coordinates, associates, threats, invasive species, and directions. Check each item to ensure all data are updated for the current year. If the information has not changed for GPS coordinates, associate species, or directions, write "same as previous report" in the appropriate section. For GPS we encourage updating coordinates at least every 2-3 years, but see Section 2 below for more details. For associates, if you indicate "same as previous report," check species off on your copy of the previous report that you take in the field and add any new species. Submit this marked copy with your monitoring form if you don't wish to recopy the list.

**The lead monitor** is the person on the monitoring team designated to submit forms. Other members of the team may take leadership roles in coordinating site visits, following the protocols, etc. All approved monitors for a site and species are given that assignment and can check the previous reports online, but only the lead monitor should enter data.

### **SECTION 1: SPECIES AND SITE INFORMATION**

**Genus, Species, and Variety:** Use the species name assigned to you for monitoring. If there are multiple plant groupings (subpopulations) spread over a wide area at a site, with the closest plants further apart than 50 meters, record each on a separate monitoring form as Subpopulation 1, 2, etc. Use the same EOR# and site name. Use the same subpopulation number as established in previous years, or indicate 'new'.

**EOR#:** The Element Occurrence Record number (EOR) is the unique identifier used by POC to track locations of monitored species. Multiple subpopulations can have the same EOR. This number will be provided on your previous report or will be filled in later by staff. If it is a new population, write "new".

**Landowner/Land Manager:** Is the site on FPD, park district, or private land? Be as specific as you can. The land manager may differ from the owner (e.g. CFC manages Baker's Lake, which is owned by the Barrington Park District). The land manager is typically an agency or organization rather than an individual.

**Plants in Subpop Found:** Please fill out a report even if plants are not found as these data are important. If you were able to search the previously known population area, please provide GPS reading(s) for area searched, as well as associate species, threats, invasive species, and management for the searched area (all but section 3). If your search was not based on a specific, known location, fill out just **sections 1 and 8**. Your notes should explain things such as the habitat searched, the information you used to search, and when the species was last seen, if known.

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## SECTION 2: GPS INFORMATION AND SUBPOPULATION DIMENSIONS

Before you fill out this section, you'll need to determine where plants are located. Search the area where plants were located in the past, as well as any adjacent areas that seem suitable. Place flags around the perimeter of the population. Use as many flags as needed to see the shape of the population. Flagging plants inside the boundary may help in counting plants or clusters of plants. Then collect GPS and distance information. See Figure 1.

**GPS:** Coordinates are required for new POC subpopulations or annual species, and for existing populations at least every 2-3 years. If plants have not moved, you may select 'GPS is the same as before', and the previous reading will be carried over.

Indicate the coordinate system and datum your GPS unit uses. We prefer coordinates collected in the coordinate system **decimal degrees**, using the datum **WGS 84**. (The readout will look something like N42.06229° W088.14495°.) If your GPS unit is using different settings, indicate them on the form (under Other: ) and we will convert. If known, record accuracy in meters. You can review GPS instructions on page 12.

For populations smaller than 13 m x 13 m: take only one reading in the center of the population. For larger populations: take readings at the plants that are furthest North, South, East, and West (Fig. 1). A center reading can be taken for larger populations but is not critical. If a population is long but less than 13 m wide, take a reading at the beginning, center and end (e.g., you would record readings for North, Center, and South).

**Distance Covered by Population:** Measure the population at its widest points E-W and N-S. Visualize the population enclosed in a box that contains all the edges. Either stand at, or line up with, the farthest plants at every direction point (Fig. 1). Use a meter tape to measure the population's area or calculate the area of the population by pacing (see Pacing Exercise on page 16). Your paces should remain even - walk naturally, in a comfortable gait. Use a compass to keep in a straight line.

If the population covers an area too large to measure by tape or pacing, POC staff can calculate distances between points based on the GPS coordinates. This should only be done very large populations. Hand drawn maps are not required, but they can be useful.

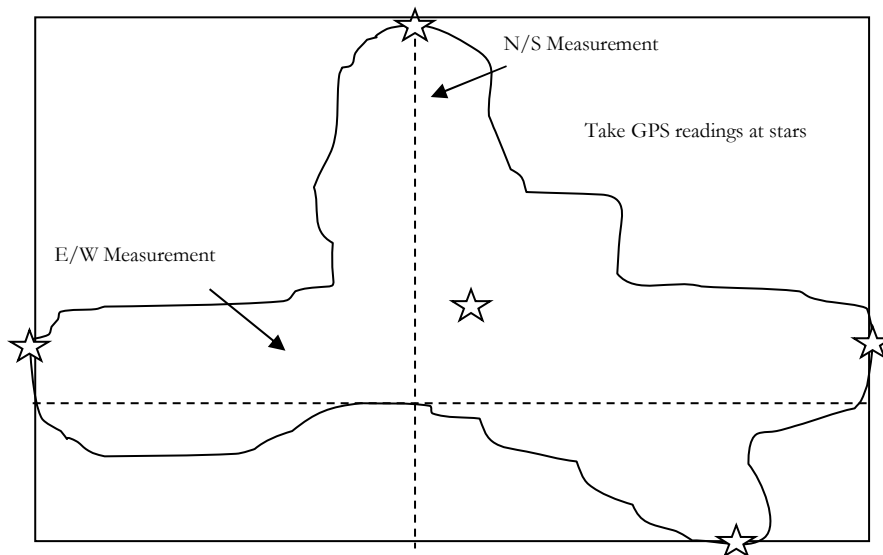


Figure 1. Diagram showing a hypothetical population greater than 13 meters in diameter. GPS readings are collected at farthest plants found in all cardinal directions, and distance is measured at the widest points of the population on a North-South, East-West axis. If the population were smaller than 13 meters, only a center GPS reading would be taken. N/S and E/W measurements would be done the same way.

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### SECTION 3: SUBPOPULATION INFORMATION

**Today's Soil Condition:** Is the soil flooded, saturated, moist, well drained, or dry? The physical condition of the soil can have a large impact on plants. Mark the option that reflects the soil condition at the time you are monitoring.

**Growth Form:** Check the POC website for the growth form designation (e.g., stems, clumps, rosettes) of the species you will be counting, or use the same unit from previous reports. If the growth form on the website differs from what was used in the past, indicate in the notes section whether that creates a discrepancy with past counts. Contact POC staff with questions. See Figure 2 for examples of how plants are counted.

**STEM:** a stalk emerging directly from the ground or from the base of the plant, with at least some space between stems (Examples: trees). Even if the stem branches above its point of emergence from the ground, it is still considered a single stem.

**CLUMP:** a cluster of two or more stems arising from the ground at the same point (Examples: some grasses, sedges and shrubs). Clumped plants may have more than one stem, but the clump should be counted as a single plant. Distinguishing clumps can be challenging in some species. Discuss with POC staff if you are unsure.

**ROSETTE:** a circular-shaped vegetative plant form, usually a dense cluster of basal leaves (Examples: dandelions, thistles, violets). A flowering stem bolts from the center of the rosette when the plant matures and flowers. Regardless of whether you find a vegetative rosette or a rosette with a flowering stem, mark "rosette". If the plant you are monitoring does not fit any of these categories, mark "Other" and describe how the plant is growing and what unit was counted.

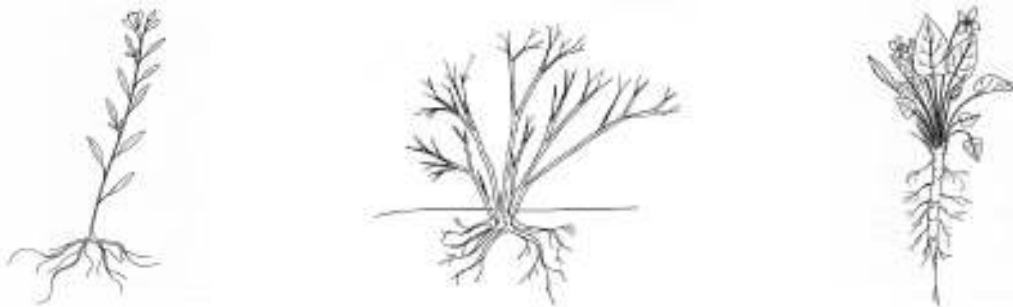


Figure 2. Stems (left), clumps (center), and rosettes (right) are three distinct ways of counting plants.

**Plant Count Range & Total Number:** Count the exact numbers of stems, clumps or rosettes if there are 100 or less. We encourage exact counts even for larger populations. However, you may estimate a range of plants if more than 100 stems are present. If there are significantly more than 800 plants, give your best estimate of the number of plants. You can estimate the total size of large populations using the **Estimating population size** protocol on page 17. Whenever you estimate, note how this was done (e.g., transect method) on the last page of the monitoring form. Include a drawing if it clarifies your method.

**Reproductive State:** Monitoring during flowering (or spore-producing) time is the norm. However, your species may have flowering and fruiting individuals at the same time and sometimes there may be both flowers and fruits on the same plant. Indicate the state you found plants in. As you count plants, keep track of how many have flowers and/or fruits. These are reproductive individuals. Divide the number of reproductive plants by the total number of plants counted.

*Example:* 32 flowering, 2 fruiting, & 66 vegetative plants counted.  $34 \text{ reproductive} / 100 \text{ total} = 34\% \text{ reproductive}$

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If you are estimating the number of plants, use the percentage of reproductive individuals derived from the sample you counted. If you are counting only flowering/fruited plants because you are unable to identify juveniles, note that 100% of the counted plants are in the reproductive state.

*On occasion your plants may be totally vegetative. If there are no fruits or flowers, indicate vegetative. If in the rare instance that monitoring is done after flowering and fruiting, when no reproductive parts are visible, answer "Don't Know" because in this case, it is unclear whether the plants were reproductive.*

**Juveniles Present:** Are there seedlings or immature vegetative plants with the same leaf characteristics as the adult individuals within the population area? It may take time and close inspection to determine this. You may need to move other vegetation aside to look near the ground. If you are not sure whether you've found a juvenile, it is best to check "Don't Know How to Identify" and to exclude them from your count. Annual plants do not have juveniles even when some individuals in the population are reproductive. If you are able, take a photo of a seedling or immature plant. Include juveniles in your total count if you know how to identify them and can determine their number.

#### **SECTION 4: NATIVE ASSOCIATE SPECIES INFORMATION**

Refer to the most recent monitoring report for comparison. Record at least the **dominant** native plants, those most numerous within and 1-2 meters around the population. At a minimum, enter the three most abundant trees, three most abundant shrubs, and five most abundant herbaceous species. Scientific names are preferred, but you can use common plant names if necessary. On your first visit, the land manager/steward/POC staff can help if you are not familiar with all the plants. If you don't know a plant species, don't guess; just write down the names of the plants of which you are confident. If the associate species are the same as those that are listed on the last monitoring report, you may write "Same as previous report." You can check species off on your copy of the previous report that you take with you in the field and add any new species.

#### **SECTION 5: INVASIVE PLANT SPECIES**

*Invasive species can be exotic or native, but are characterized by their negative effect on native plant species. See the Invasive Species List in this manual and reference past reports for your population to see which species could be considered an invasive threat.*

**Total Brush Encroachment:** These are woody plants that may be impacting the population. Estimate the percent of the population area affected by their stems or the shade that they cast. Look for small woody stems as well as larger shrubs. An example of a native woody that can be invasive is grey dogwood (*Cornus racemosa*).

**Invasive woody brush encroachment less than (<) 1 meter tall:** The impact of any invasive woody brush less than one meter tall is estimated here.

**Invasive brush/tree encroachment greater than (>) 1 meter tall:** The impact of any invasive woody brush greater than one meter tall is estimated here.

**Degree of Threat of Invasive Plants:** First estimate the total impact of each woody species you considered invasive in 'Total Brush Encroachment' above, regardless of height. Then list all other herbaceous species that may be invading the population, estimating the percent of the population area affected. If confirming the absence of an invader, select 'None'. This data is use for research projects when monitors are asked to report on a specific subset of species, but can also be used to report notable absences (e.g., honeysuckle present for many years has disappeared). Otherwise, monitors should only report on the invasive species present.

**New Invaders Watch Program (NIWP):** Monitors can report invasive plants new to an area through NIWP. Those who take the training for this optional program, separate from POC, are given a set of ID cards with images and descriptions of new invaders. Reports are submitted on-line. Visit [www.newinvaders.org](http://www.newinvaders.org) or reference contacts listed on page 28.

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## **SECTION 6: THREATS TO THE POPULATION**

**Degree of Threats:** Evaluate all threat categories, evaluating the percent of the population affected by each one. If there is no impact, select 0%.

**Deer browse:** Estimate the percentage of individuals of the species you are monitoring (% of study plants) that have been browsed. Next, estimate the percent of all individuals, including the monitored species, in the population area and in the immediate vicinity that have been browsed. Look for jagged and chewed off stems. You can note other evidence of deer – deer beds, droppings or bark rubbings – under ‘Threat Notes’.

**Erosion:** Estimate the percent of the population area impacted by erosion.

**Authorized/unauthorized trails:** Does either type of trail threaten the plant population under study? Unauthorized trails can include deer paths and ATV trails. Authorized trails are purposefully constructed by a land owner, and include signed trails, roads and railroads. Estimate the percent of area impacted.

**Other:** If you notice additional threats write them down in the “Other” section and record their degree of impact. Other types of threats include: insect damage, drought stress, human trampling, human theft/damage, trail mowing, ATV’s, nearby development and other land uses that would negatively impact the population.

**Threat notes:** Include any notes here that clarify threats you observed.

## **SECTION 7: MANAGEMENT WITHIN THE SUBPOPULATION IN THE PAST YEAR**

Record management that has occurred within the past year that directly impacts the population (i.e., occurred immediately adjacent to or within the population). Record the percent of the population affected if known. Only record management that you can observe or know about from a steward, land manager, or from personal experience. If you’re not sure, indicate ‘Don’t Know’.

**Brush or invasive tree removal:** Look for freshly-cut stumps within and immediately surrounding the population, as well as recently piled brush in the vicinity. Although fire is also a brush management tool, manual/mechanical brush removal is what is being referred to here. Indicate which species were removed if known.

**Herbaceous invasive removal:** Look for piles of invasives that have been pulled (e.g., sweet clover, garlic mustard), or brown stems that have been treated with herbicide. Indicate which species were removed if known.

**Burning:** Look for ash on the ground, which would indicate recent burning, or an absence of leaf litter (woodland) or duff (dried matted prairie vegetation).

**Mowing:** Look for evidence of evenly cut stems and fresh clippings within the population. Only include mowing that has clearly been done as management. Inadvertent mowing (i.e. trail mowing accidentally affecting a POC population) is a threat to the population and should be noted in the “Threats” section.

**Other management:** Note any other management that affects the population, and indicate the percent of the population affected. Examples might include hydrological remediation or deer culling.

## **SECTION 8: DIRECTIONS TO THE POPULATION AND NOTES**

**Directions are required** for first time visits, new subpopulations, or annual plants whose location may change. Be as specific as possible. This information will be used for many years by other monitors and/or researchers. Use as many permanent landmarks as possible in your description (large boulders, roads, buildings, etc.). Start by providing a general location and then get more specific. Refer to the nearest town, route, and parking area. Use local landmarks to create a “trail” for the person to follow, for example: ‘take main trail east for 100 m to large

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boulder on right and go south for 50m.” If previous directions are effective and no edits are needed, write ‘Same as last report’. Amend or edit previous directions if needed.

**Notes:** Insert any additional observations you think are relevant, such as reasons for observed changes to population metrics. If you estimated the number of plants in your population, detail your methods here.

**Monitor names and roles:** Include names of all monitors and whether they are volunteers, volunteer stewards, interns or staff. If a new, unassigned volunteer participates, please notify POC and ask that person to complete a Confidentiality Form and CBG application. Provide contact information for that person so that POC can follow up.

### **HOW AND WHEN TO SUBMIT YOUR FORMS (LEAD MONITORS ONLY)**

Submit your monitoring report within three weeks of the monitoring date, but no later than October 1.

### **POC requires you to submit an original field form, so be sure to take legible and complete notes in the field!**

The original data are very important to the scientific value of the program, allowing us to confirm online entry and maintain an archive of original submissions. If you have taken notes on a past report and these notes are readable, you may submit these as your original field form. Send the original monitoring form(s) and any maps to POC. You can do this via mail or email (a scanned image or pdf of your form). See mailing address on page 2. You can keep a copy of each monitoring form with maps for your own records.

If you are also able to enter data online, we greatly appreciate it. To submit online, you must create a user account, be approved by POC, and have a designated assignment. Directions for online submission are incorporated in the website’s submission process. If you encounter any issues with submitting data online, please contact POC.

### **Accessing POC Data Online:**

1. Go to [plantsofconcern.org](http://plantsofconcern.org) and log in to **My POC Account**.
  - a. If you have an existing account, you may need to re-set your password the first time you log-in. If you need a new account, create the account online and wait for it to be approved by POC staff.
  - b. If you forget your password, you can reset it at any time by clicking **Request New Password**.
2. Once logged in, visit the **My Contact Info** on the left-hand menu to check that we have your correct information on file.
3. Click on **Forms** in the menu at left to access and submit data.
  - a. All sites and species assigned to you will appear in the drop-down menus. You may select your assignment by site or by species name. Contact POC if you do not see the correct assignments.
4. After you have selected an assignment, scroll down and choose a subpopulation. From here, you may view a previous year’s form or enter a new monitoring form.
  - a. View a previous year’s form by selecting a date from the drop-down menu and clicking **View Form**
    - i. Print a report you’re viewing by selecting **Print Report** at the top of the page
  - b. Submit new data for a subpopulation by clicking **Enter New Monitoring Form**

★ *If you use Internet Explorer, using the back button on our page may cause it to expire. If this occurs, click “refresh”, or avoid using the back button by navigating using the links within the website. You can also use a different browser to avoid this issue. We recommend Google Chrome, which is free to download.*

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#### New for GPS data

- A map is created for each monitoring report that has GPS data. You can view a larger version by clicking **View Full Page Google Map**. Zoom in or out and re-center the map to suit your needs.
- You can print the map by clicking the print button at top left, but it will not show the population location. To print the map showing the population location, take a screen shot (alt-print scrn) and paste into a word document.
- GPS data are now shown in **Original coordinates** and **Converted coordinates**. POC converts all coordinates to WGS-84, decimal degrees (our preferred format), but we list both on the report.

#### Submitting POC Data Online:

1. After navigating to the **Enter New Monitoring Form** button for an assignment (see above), enter Section 1 information. When you click on the date field, choose the date when you monitored from the calendar. After all fields in this section are filled out, click **Save**. This creates your new monitoring report.
2. You now can choose **Back to Main Form** or **Continue to Next Section**.
  - a. The Main Form is where you will see all of the sections of your monitoring form. You will also see whether each section is marked as **complete**, **empty**, or **incomplete**. Empty sections are not required to be completed before submitting the form. Incomplete fields must be completed.
  - b. **Continue to Next Section** takes you to the next section for data entry in the monitoring form.
3. Continue through all the sections, entering data from your monitoring report and saving each section.

*You may log out of your account at any point. All data that were entered and saved will be available by clicking **Incomplete Forms** on the menu at the left, or navigating back to the subpopulation through the **Forms** menu at left.*

4. After entering the last section (**Monitor Information**), you will be taken back to the Main Form. Check that all of your data has been entered correctly and click **Submit**. Once you submit, your form is sent to POC for review and you will no longer be able to make edits. If you need to make any changes to your report after submitting it, contact POC.