COMPLETING THE PAPER MONITORING FORM (REQUIRED FOR ALL REPORTS)

Online submission information is found at the end of Section 7.

Please use the most current monitoring form, downloadable from www.plantsofconcern.org.

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

Refer for comparison 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 should enter data.

SECTION 1: GENERAL 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#: 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), so write in both the official owner and land manager. The land manager is typically an agency or organization rather than an individual such as a steward.

Plants in Subpop Found: Please create a report even if plants are not found as these data are as important as if the population were found. If you were able to search the previously known population area, **complete Sections 1, 4, 5, 6 and 7,** describing associate species, threats, invasive species, and management. If you searched a location where the species was known to occur, include GPS readings in **section 2**. 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.

SECTION 2: GPS

GPS Coordinates are required for new POC subpopulations or annuals, and existing populations at least every 2-3 years. Set your GPS unit to take readings in decimal degrees, using **WGS84** (see pg. 12). The readout for this will look something like N 42.06229° W088.14495°. Record accuracy in meters. Review the GPS instructions (pg. 10) before going into the field.

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 N ,S, E, W, and at the population center (Figure 1). If a population is long but less than 13 m wide, take a reading at the beginning, center and end, indicating N, C, S or E, C, W.

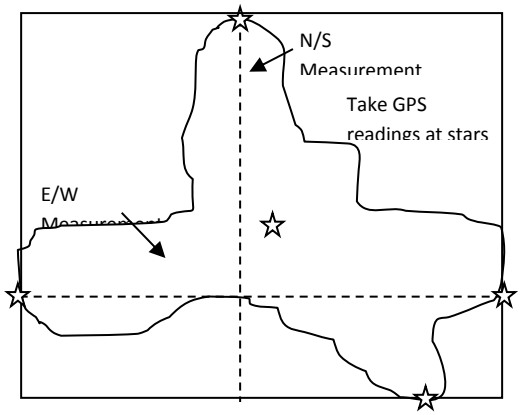

Figure 1.

SECTION 3: POPULATION INFORMATION

Distance Covered by Population: This is critical information. Population area, as well as the number of plants, show population change most directly.

- Place flags around the perimeter of the population and at the center of the population (Fig. 1). Use as many flags as needed to see the shape of the population area. Flagging plants inside the boundary may help in counting plants or clusters of plants. Use a meter tape to measure the population. If a tape is not available you can calculate the area of the population by pacing (see Pacing Exercise in this Manual.) Your paces should remain even - walk naturally, in a comfortable gait. Use your compass to keep in a straight line.
- Populations should be measured at their widest points E/W and N/S. Visualize the population enclosed in a box that contains all the edges of the population (see Figure 1). Either stand at or line up with the farthest plants at every direction point. Record how many meters N/S and how many meters E/W, using a tape or by pacing. If the population covers an area too large to measure by tape or pacing, POC staff can also calculate distances between points based on the GPS coordinates. Hand drawn maps are not required, but they can be very useful.

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 for the species you are counting, or use the same unit from previous reports. If the growth form on the website differs from what you used in the past, indicate in the notes section whether that creates a discrepancy with past counts.

> **STEM:** a stalk emerging directly from the ground or from the base of the plant, with at least some space between stems. Even if the stem branches above its point of emergence from the ground, it is still considered a single stem. (Examples: *Aster furcatus*, *Tomanthera auriculata*, trees).
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> **CLUMP:** a cluster of two or more stems arising from the ground at the same point (examples: some grasses, sedges and shrubs, *Cypripedium candidum*). Clumped plants may have more than one stem, but count the clump as a single plant.
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> **ROSETTE:** a circular-shaped vegetative form of a plant, usually a dense cluster of basal leaves flatly hugging the ground (examples: dandelions, *Cirsium hillii*, *Viola conspersa*). 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.

Plant Count Range & Total Number: Count the exact numbers of stems, clumps or rosettes if 100 or less. If an adequate number of monitors are present, 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.

> **Estimating population size** (see population estimation protocol on pg. 16) Whenever you estimate, note how this was done (e.g., transect method). Include a drawing if it clarifies your method.

Reproductive State: Monitoring during flowering 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 whether the plants were in flower, fruit, or both. As you count plants in small populations to determine the population size, keep track of how many of them have flowers and/or fruits on the stems; these are reproductive individuals. Divide the number of reproductive plants by the total number of plants you counted (e.g. if 32 plants had flowers and two had fruit out of the 100 you counted, the % reproductive would be 34/100=34%). If you are estimating the number of plants, use the percentage of reproductive individuals derived from your transect counts or from a sample of counted plants. If you are counting only flowering/fruiting plants because you are unable to identify juveniles, then 100% of the counted plants will be in the reproductive state.

Note: 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." In this case, it is unclear whether the plants were reproductive, so it would be inaccurate to call them vegetative.

Juveniles Present: Are there seedlings or immature plants? It may take time and close inspection to determine whether there are small, vegetative plants with the same leaf characteristics as the adult individuals within the population area. You may need to move other vegetation aside to look near the ground. Juveniles are small and will not have flowers or fruit. If you are not sure whether you've found a juvenile, it is best to check "Don't Know How to Identify." Annual plants do not have juveniles even when some individuals in the population are reproductive. Note: if you are able, take a photo of a seedling or immature plant. Digital images are best because they can be shared electronically. 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 DOMINANT native plants. These are the most numerous plants within the population and within 1-2 m of the population. 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. At a minimum, enter the three most abundant trees, three most abundant shrubs, and five most abundant herbaceous species. If the associate species are the same as those that are listed on the last monitoring report, you may write "Same as previous report." 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: THREATS TO THE POPULATION

It is critical to compare current threats to the last report (if applicable), to determine any changes. **Fill in all blanks**.

Degree of Threats: Check each threat category (0% if none).

Invasive woody brush encroachment less than (<) 1 m tall: woody plants, native or exotic: estimate the percent of the population affected by their stems or the shade that they cast. Look for small woody stems as well as larger shrubs. Examples of native woodies that can be invasive are Grey Dogwood, Green Ash or Quaking Aspen.

Invasive brush/tree encroachment greater than (>) 1 m tall: woody plants, native or exotic: estimate the percent of population impacted by their stems or their shade.

Deer browse: Estimate the percentage of individuals of your target species (% of study plants) that have been browsed. Next, estimate the percent of all individuals, including the target species, in both the population area and in the immediate vicinity (1-2 m), that have been browsed. Look for jagged and chewed off stems, as well as other evidence of deer – deer beds, droppings or bark rubbings.

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. Authorized trails include signed trails, roads and railroads. Estimate % 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.

Invasive species: Use either common or scientific names and list all species you consider invasive. Indicate the percent of area affected by the invasion. Invasive species can be exotic or native, but not all non-natives are invasives. See the Invasive Species List in this manual or on the POC website.

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. *(POC monitors should also record NIWP invaders in the invasives section of the POC form if they occur within the monitored population.)* For further information, see www.newinvaders.org or reference NIIPP contacts listed on pg. 28.

SECTION 6: MANAGEMENT WITHIN THE SUBPOPULATION IN THE PAST YEAR

Management: Only 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 percent of population affected if known. Record management that you can observe or know about from a steward, land manager, or from personal experience.

Burning: Look for ash on the ground or an absence of leaf litter (woodland) or duff (dried matted prairie vegetation).

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.

Mowing: Look for evidence of evenly cut stems and fresh clippings within the population. Only include mowing that has clearly been done as management in primarily open or prairie areas; small brush may also be removed by this activity. 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 7: DIRECTIONS TO POPULATION AND NOTES

Directions: Required only for first time visits, for new subpopulations, or for 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, so it is imperative that a written record of the population location be kept. 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 boulder on right and go south for 50m." Review the directions that were previously provided carefully to identify the need for possible edits or refinements. If no changes are required, write "same as previous report."

Notes: Insert any additional observations you think are relevant, such as insects observed on plants, drought, etc.

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)

Even if you submit the data from your form online, POC requires you to submit an original field form that provides a backup if anything ever happens to the database. The original data are very important to the scientific value of the program. If you wish to recopy your field notes onto a new form, please submit these as well.

Submit your monitoring report within three weeks of the monitoring date, but no later than October 1 for late-blooming species. We appreciate your adherence to the submission deadlines.

Submitting paper forms: 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. Keep a copy of each monitoring form with maps for yourself. We also require a signed Confidentiality Form and CBG application for each monitor, so please ensure that all monitors on your team have submitted this form.

Submitting online: Input your monitoring form(s) within three weeks of the monitoring date, but no later than October 1. To submit online, you must create a user account, be approved by POC, and have a designated assignment. If you submit your form online, please check the box indicating you have done so at the top of the paper copy before sending it to us. Directions for online submission are incorporated in the website's submission section. If you encounter any issues with submitting data online, please contact POC.

How to submit POC forms online

★Note: Some issues can occur when using Internet Explorer. If you use the back button, the webpage may 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.

Viewing Monitoring Forms Online:

1. Go to www.plantsofconcern.org and log in to **My POC Account**.
    a. If you have an existing account, you will 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**.
    c. Visit the **My Contact Info** link in the left-hand menu to check that we have your correct information.
2. Click on **Forms** in the menu at left.
3. 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. You may either:
    a. View a previous year's form by selecting a date from the drop-down menu and clicking **View Form**
        i. When viewing a form, you can print a previous year's form by selecting **Print Report**
    b. Submit new data for a subpopulation by clicking on **Enter New Monitoring Form**

New for GPS data

- Clicking **View Google Map** (in Section 2) creates a map of the center GPS reading and the area covered by the population. Note: Not all GPS readings are mapped, only the center point. You can print this map and take it in the field with you.
- GPS data are now shown in **Original coordinates** and **Converted coordinates**. POC now converts all coordinates to WGS-84, decimal degrees (our preferred format), but we list both on the report.

Entering New Monitoring Forms 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 filled in before submitting the form. Incomplete fields must be filled out.
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.

4. After entering the last section (Monitor Information, Section 8), 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 edit it. If you need to make any changes to your report after submitting it, contact POC.