

POPULATION SIZE ESTIMATION PROTOCOL. Populations greater than 250

(optional, but encouraged – the size classes on the monitoring form for plant numbers > 100 are acceptable)

For POC, this is a different methodology than presented in the 2007 Manual for estimating plant numbers, which we think is more accurate than the former method of counting plants in quadrats. You will need a calculator. (Refer to Figures 1 and 2). If plants in the subpopulation are in separate sections surrounded by a large gap, you may repeat this protocol in each section to arrive at two or more estimates that can be added for the total.

1. Flag the perimeter or outside edge of the population, placing flags about 2 m apart.
2. Measure the N/S extent of the population at its widest: _____ m
3. Measure the E/W extent of the population at its widest: _____ m
4. Multiply these: _____ square meters

For very large populations, it is possible to determine these measurements from GPS readings or aerial photography. Please contact POC for assistance with this.

5. Mentally put a box around the population, from the N/S E/W extents used above. Use this whole imaginary box when setting up your transects (Figure 2).
6. Set a baseline along the short edge of the population, then run 3 parallel transect lines of 30-50 meters each at right angles to the baseline through the long orientation of the population starting at **3 random points** (you may choose a random starting point and then set the lines at equal intervals.)
7. Count all the plants within a meter (or two meters) to the left (or right) of the tape; pick one and be consistent. Tally flowering/fruited and vegetative plants **separately**.

If plants are large, count all plants within two meters of the tape; examples of these large plants are Carex bromoides, Comptonia peregrina, Rubus odoratus, Valeriana edulis var. ciliata, or Cypripedium candidum. If plants are smaller, count all within one meter.

8. Add all the plant numbers from the three transect lines:
_____ Fl/Fr plants + _____ Non-Fl/Fr plants = _____ Total # plants

9. _____ % reproductive (divide Flowering/Fruited plants by Total # plants)

10. Calculate the number of plants per meter square by dividing the total number of plants by the total number of meters in the transects.

_____ # plants per meter square

11. Multiply the # of plants/meter square by the final number of square meters in the populations (# 4 above) = _____ population estimate

POPULATION SIZE ESTIMATION EXERCISE DIAGRAMS

