

Monitoring Hints For Unusual Plants

The goal of the Unusual Plants program is to track the unusual or locally rare plants in the East Bay by revisiting and monitoring these populations as often as possible, and to assess their health and well being over time. It is not enough to just note whether or not the population still exists, it is increasingly important to collect the pertinent data to help make those assessments, mainly number of plants, area of population, and threats.

Population Count

Counting the number of plants in a population may seem simple and straightforward, but is not always as easy as it sounds.

A population is usually defined as the number of plants of a particular species that occur in a one-quarter mile area. The plants can be dense, scattered, or anything in between.

Large plants with ample space in between are usually fairly easy to count, but shrubs and smaller plants that may grow in dense thickets or bunches can be more difficult. Shrubs, especially, can often grow in very dense thickets that cannot even be penetrated to do a count, and branches can twine around each other making it difficult to determine which branches belong to which plant.

So an exact count is not always easy or even possible. Thus, other methods must sometimes be used.

Tally - Scattered

For plants that are scattered along a trail for a long stretch, it is pretty easy to just keep a tally, but it is very important to define the length and width of the area that they cover, eg. ¼ mile x 100 ft. Thus, when the site is re-visited, the same area can be surveyed and compared. When recording the number of plants, it should be indicated that the plants are scattered - this can be entered in the Comments field.

Extrapolation - Dense

In the case of large, dense populations, if the density is uniform, the total can be extrapolated by counting the number of plants in a small defined area, a 5' x 5' square, e.g., then determining how many of that size square will cover the population, multiply, and thus extrapolate the total plants for the population. Note, this method should only be used if the density is uniform.

In dense populations that are not uniform, sparser areas can usually be counted, and denser areas extrapolated or estimated.

Estimation - Miscellaneous

Note that, in general, estimating the number of plants in a population should only be a last resort if the other methods won't work. On the other hand, there are a lot of situations where only an estimation is possible. Sometimes you just have to do the best you can within the circumstances.

Transects - Many and/or Smaller

In grassy and more open areas, a simple walk-through is sometimes all that is needed to count how many plants there are, especially if there are only a few. But be sure to cover the whole area where they may be growing.

But in larger areas with more plants, transects may be required, especially in the case of smaller, less visible plants. Measuring tapes, or even string, can be laid to form columns. Each column is walked and the plants counted that occur between the lines, adding up the totals from each column at the end. This is the best way to avoid counting some plants twice, or not at all. It is also a lot more fun if several people are involved, since walking a lot of transects by oneself in a big field can get tedious.

When laying transects, the width of the column is determined by the size of the plant. The columns can be wider when you can see the plants easily. But the smaller the plant and the harder to see, the narrower the transect. For very tiny plants, it is sometimes necessary to do transect on your hands and knees, which is probably why we have less data for some of our smallest plants.

Clumps vs. Individual Plants

Finally, some plants, such as *Helianthella castanea*, grow in clumps, and it can be hard to determine an actual number of individual plants. In these cases, the total is usually recorded as "clumps" rather than "plants".

The situation of the population, plus common sense, will usually determine which method should be used to get the most accurate count.

Population Size

The size of a population, or the area covered by it, is also important. If a GPS unit is available, points can be taken around the perimeter of a population. Otherwise a tape measure can be used, or the size can just be estimated. Measurements should be in feet or inches, and should include both the length and the width.

Threats

Threats should also be recorded, such as weed invasions, pathogens, over-grazing, excessive foot traffic, drought impacts, development threats, etc.