RARE PLANT MONITORING, ANPS

Rare plant monitoring has one overriding objective: to keep track of how the plant is doing. With regular visits the botanist learns whether a local population is spreading, contracting, or remaining stable.

What sorts of information tell how the plant is doing? Numbers, distribution, and dominance are the three basic kinds of information: how many there are, where they are located, and how they compare with their competition. These things can be recorded in a systematic way on each visit, following the same methods each time.

Described below are three sets of methods, according to the kinds of rare plant populations on which they can be used.

1. Plants few in number, located in a small area. This calls for a complete census, a map, and an estimate of competing vegetation.

   a. Census. Count all plants on each visit. Visits should be at the same time each year.

   b. Map. On a piece of graph paper, show the location and size of each plant or clump. If there are fixed reference points such as large trees, include these in the map or measure distances and directions from at least 3 marked points. You may need to set metal stakes as reference points.

   c. Competing vegetation. You need a record of how completely the ground is covered with other plants, using a "line transect." Stretch a measuring tape or rope across the area occupied by the rare plants, with the ends anchored to two permanent markers (record these on map). Using a measuring stick (yardstick or meter stick) measure and record the length of line crossed by any plants, whether they be beneath the line or overhang the line. Do this for (1) woody and (2) non-woody vegetation separately. Then calculate the percentage of the line which is covered by each of the two categories of competing plant. You may need to do a second or third line transect if the rare plants are grouped in two or three distinct areas.

2. Plants numerous, herbaceous, spread over larger area. This calls for a sample, a map, and an estimate of competing vegetation.

   1. Sample. When you have located the main part of the rare plant population, you will need to use one or more line transects. Do them just as described above under 1.c., "Competing vegetation," but also keep track of the rare plant separately. Lay the transects out across the population, using enough transects to intercept at least 50 individuals of the rare species. Don't overlap the transects. Remember to set permanent markers for the ends of the transects. If the "lines" keep missing the rare plants, turn them into "belts." To do this, hold your measuring stick crosswise centered on the line, and take the diameter of

any rare plant included in the belt, which is the band of ground described as you move the measuring stick down the line. However you do the line, calculate the results as percent cover by the rare species, woody vegetation, and non-woody vegetation.

b. Map. On a piece of graph paper, draw a line enclosing the main group, and indicate other individuals or clumps. Be sure to include permanent points of reference, and search for outlying individuals.

c. Competing vegetation. One or more of the rare plant sample lines will give this information, as described above under 2a.

3. Plants numerous, woody, spread over larger area. This calls for pretty much the same approach as with herbaceous plants, namely, a sample, a map, and an estimate of competing vegetation.

a. Sample. One or more permanent line transects should be used as outlined in 2.a., until you have intercepted at least 50 individuals of the rare species. Calculate percent cover by the rare species, by other woody plants, and by non-woody plants.

b. Map. Handle the same as in 2b. Be sure to look for outlying individuals and include permanent reference points.

c. Competing vegetation. If the rare plant is woody, competition can come from either woody or non-woody vegetation. You will need line transect data as described in 1.c. for both kinds of competing vegetation.

Extra information. On the plant survey forms supplied by the Natural Heritage Commission, there is room for observations about the species and its habitat. Note any changes that occur between your visits. If part or all of the population is doing poorly, it is vital to find connections between details of the habitat and success of individual plants. For example, are the plants dying back in dry soils; did a cow step on vulnerable individuals; has fire hindered the success of the species?

How to locate a population of rare plants for monitoring. Natural Heritage Commission botanists know of locations where rare plants need monitoring. Although they are understandably hesitant to circulate detailed directions to the general public, they will gladly guide ANPS members to one or more populations. You may wish to select a nearby species from their list. If you prefer, they will aid you in your selection. Simply contact either Jeff Rettig or Bill Pell, Arkansas Natural Heritage Commission, Little Rock, telephone 371-1706.