Protocol for seedling and other plant re-finds in remnants, 2010

Goals:

1. Record status of each seedling and other plant identified in seedling searches 2006-2010
2. Record the precise location of each plant so that it can be found next season

Information needed for each plant:

1. status (seedling06, seedling07, seedling08, seedling09, seedling10, basal, flowering, can’t find)
2. rosette number
3. leaf number
4. length of longest leaf

Protocol:

1. At each site, locate and flag each focal plant for which seedlings or other plants were found during previous seedling searches.
2. Using maps and distance matrices from the previous searches, re-find the seedlings and other plants. During seedling searches in 2009 and 2010, seedlings were marked with a toothpick, placed 5 cm from the seedling in the direction of the focal plant. In 2007 and 2008 the toothpicks were placed 5 cm to the north of the seedling.
3. As each plant is found, mark it by placing a pencil in the ground next to the plant.
4. Each seedling or basal plant on a map should be identified with a letter (*a*, *b*, *c*, etc.) or tag number. These identifiers can also be written on pieces of paper and attached to the pencil erasers with tacks.
5. Make corrections and improvements to the map as necessary. Include measurements to at least three tagged plants from each seedling or juvenile plant. If you do not find enough tagged plants nearby, place one or more tagged nails in the ground, and make measurements to the nails. In the past, it has been helpful to place tagged nails 0.5 m from the focal plant, in cardinal directions. Include the locations of the nails in your map.
6. Make notes on the map to indicate the status of each plant, along with the date and your initials.
7. If a map gets too crowded or busy, construct a distance matrix on a separate sheet of paper.
8. Using the visor form, record demographic information for each plant on the map.
   1. Site
   2. Focal plant tag number
   3. Plant tag number or identifier letter
   4. Status (seedling06, seedling07, seedling08, seedling 09, basal, flowering, can’t find)—select all that apply
   5. Rosette number
   6. Leaf number
   7. Length of longest leaf
   8. Nearby neighbors (within 12 cm)
   9. notes

Equipment:

* GPS
* Computer with map
* Metal detector
* Long measuring tapes
* Pins
* Flags
* Flag bags
* 5-meter and 8-meter tapes
* 15-cm rulers
* Re-find data sheet
* Site notebook with circle maps and distance matrices
* Blank matrix sheets and circle maps
* Clipboards
* Visors
* Sets of pencils, tacks, and paper
* Pencils, pens
* Nails
* Metal tags
* Toothpicks