**Protocol: Ongoing Seed Collection and Submission**

Updated 7/16/19

***Notes***: Please collect seed from **naturally occurring** *Asclepias syriaca* populations (remnant prairie or naturally colonized sites like old fields or roadsides) rather than planted populations.

***We ask that you collect at least 2 seed pods from 5 different stems that are ≥5 meters apart.*** Nevertheless, if that is not possible, we will do our best to work with the seed pods you can collect, as long as all the associated data are available.

**Site Selection and Characterization**. Please record this information on the **Site Data Form**. You will need to decide what the boundaries of your collection site are.

1. Choose a site with A. syriaca where you have permission to collect seedpods. Give your site a 3-6 letter name (e.g. STO or STOLAF) and record it in all caps on the **Site Data Form** online.

2. Identify common milkweed, *Asclepias syriaca*, at the site. As there are multiple milkweed species that may co-occur, be sure to collect seeds only from *Asclepias syriaca*. Similar-looking species include showy milkweed, *A. speciosa*, and poke milkweed, *A. exaltata*. In addition to the curriculum materials, the following resources may be useful to help identify *A. syriaca*, or common milkweed:

<http://www.monarchwatch.org/milkweed/guide/syriac.htm>

<http://extension.psu.edu/pests/weeds/weed-id/common-milkweed>

<http://www.wildflower.org/plants/result.php?id_plant=ASSY>

3. Record the origin of the milkweed plants at the site (N=Native, COL=Colonized Naturally, PL=Planted, UNK=Unknown.)

4. If seeds were planted, please note where the seeds were Collected or Purchased. If not planted or not applicable, record NA. If unknown, record UNK.

5. If planted, record the year the milkweed established at the site. If seeds were sown in the fall, record the following year as the year of planting. If not planted, record NA. If unknown, record UNK. If planting occurred over multiple years, record a list or a range.

6. Record the type of site (RESP=Restored Prairie, REMP=Remnant Prairie, OF=Old Field, RD=Roadside, FORE=Forest Edge, Other:\_\_\_)

7. Record the size of the site in hectares. To convert acres to hectares, divide the size in acres by 2.47. You may use these directions to find the size of your site.

<http://erenweb.org/wp-content/uploads/2012/08/EREN-PFPP_Appendix-III_WebSoilSurveyAreaCalc_30July2012.pdf>

8. Estimate the number of flowering stems of common milkweed, *A. syriaca*, at the site. Record L for less than 30, M for 30-1,000, and H for >1000. If it is not possible to estimate, record NA.

9. Record whether other milkweed species are present at the site. Y=yes, N=no, UNK=unknown.

10. If other milkweed species are present at the site, please list them.

11. Identify the dominant type of vegetation at the site, based on cover. If the site is an edge/boundary, you may record two of the following separated with a slash(/). NG=native grasses, NH=native herbaceous plants, NW=native woody plants, IG=introduced grasses, IH=introduced herbaceous plants, IW=introduced woody plants, Other\_\_\_\_\_\_

12. If possible, identify the dominant species at the site based on cover. If unknown, record UNK.

13. Disturbance History. Record the most recent year each of the following types of disturbance has occurred at the site: burning, mowing, plowing, spraying with herbicide. If the disturbance has never occurred, record 0. If the history is unknown, record UNK. Record other notes or other types of disturbance in the disturbance notes column.

14. Take a picture of the site of collection site where a milkweed plant is included but the surrounding vegetation is as well. Upload it with the data sheet. Label the file with the site name;\_your initials;\_date.

**Seed Collection**. Please print and take the Seed Collection Data Sheet and at leaset 5 Wild Milkweed Data Sheets with you to the field. Also be sure to bring your milkweed measurement guide. You will mail in the Seed Collection Data Sheet when you send in your seeds, and you will submit the data online on the Wild Milkweed Seed Collection Data Form, completing one form for each stem from which you collect seed pods.

1. Identify at least 5 stems that are producing seed pods and are separated by at least 5 meters. *A. syriaca* is clonal, so the distance is intended to ensure that collections are from genetically distinct individuals. Record the location of each stem using GPS coordinates in decimal degrees. It is often possible to find GPS coordinates on your phone. Please follow the directions on the Great Lakes Worm Watch site for how to find and record coordinates using GPS (Step 5) or iTouch Maps (Step 6): http://greatlakeswormwatch.org/team/singleplot.html#d4.

2. Only collect seed pods when they are mature (see Figure). Pods are ready when the seam splits when you press on it. If the pods are not ready yet, you may put a rubber band on the pods to help prevent seeds from dispersing before you can collect the pod. Avoid collecting pods with milkweed bugs or milkweed bug damage, as these seeds may not be viable. Collect at least two seed pods per milkweed stem, and no more than 1/2 of the pods from an individual plant. This means you will send us at least 10 seedpods, one from each stem, but you may send more.

3. When seed pods are ready, collect pods *individually (one pod in a bag)* into labeled paper lunch bags. Label each bag with

a. The stem number (1-5)

b. The pod number

c. The site name

d. The coordinates of the plant

e. The date of collection

4. Record all of the collection data for each pod collected. Record any notes for each seed pod.

5. For each of the stems from which you collect seeds, please complete a set of Wild Milkweed Measurements using the Milkweed Measurement Protocols and the Wild Milkweed Data Sheet and Data Form..

6. As with other milkweed measurements, if students are taking the data, we ask that at least 3 students/groups of students make independent measurements on the same plant.

7. Enter the data into the Wild Milkweed Seed Collection Form. You will complete the form at least once for each stem from which you collect seed pods. If additional measurements are taken on a stem, they may be submitted using the same form, simply recording “0” for the number of pods collected.

8. Send the processed seeds (below) along with your Seed Collection Data Sheet to Emily Mohl at the address at the top of the page..

**Seed Processing**. We prefer to receive seeds that are separated from the “fluff”.

9. **Please keep all the seeds from each seed pod together and distinct from other seedpods!** It may be possible to simply strip the seeds from the pappus (fluff/hairs) if the pod is newly opened.

10. If this is not the case, add a coin or two to with the seeds to a paper lunch sack and shake vigorously. Cut a small hole in the corner to pour out the seeds. The procedure may need to be repeated several times until most seeds have been collected.

11. Allow seeds to dry completely if they are not already dry. Put the seeds into a Ziploc bag labeled with the same information as identified in step 3 above. ***Use a separate bag for each pod collected.***

12. Record any notes about the collection or processing of each seed pod on the data entry forms online: you should complete one form for each seed pod collected.

13. Mail the seeds and the printed and completed Seed Collection Data Sheet to:

Emily Mohl

Biology Department

St. Olaf College

1520 St. Olaf Ave

Northfield, MN 55057

14. Send any questions to mohl@stolaf.edu.