UPDATE June 20, 2019. After the first year, please use herbivory barriers only if 50% of your plants are damaged by herbivores. The 50% rule will apply to any intervention such as watering, etc.

To: Dr. Emily Mohl, St. Olaf College

Fr: Dr. Patty Saunders, Ashland University, OH

Re: Optional method for deterrence of mammalian grazers for Milkweed Project field experiments

Date: 25-Apr-18

Background.

After transplanting milkweed seedlings to the experimental field site in late June of 2017, there was an almost immediate issue with grazers destroying plants. For a while there was little information to help me understand who was doing the grazing. After some additional experience, I think it was probably selective grazing by deer. This conclusion is based on two observations: (i) anecdotes re damage to tree seedling transplants at the same preserve (Dr. Dick Stoffer, emeritus professor of biology and preserve manager) and (ii) ecology class observation of near-total loss of wild milkweed plants at the site (plant locations had been marked in late June).

In late June, within a week of initial planting, the seedlings planted were all gone. A few had disappeared early in the week, and those I replanted. Then, between July 2 (am) and July 5, they were all gone.

After initial reports from our lab technician, our preserve manager Dick Stoffer had a close look and suggested a mix of deer and rodent herbivory, but neither of us was too sure. He and I also noticed that some of the plants were re-growing from the root (my count was 9 of 16).

Clipping above the 1-2 node before planting was not sufficient to protect replacement plants, as even these severed stems were grazed within 1-2 days after I first replaced plants.

In July, I attempted to defend the small plants at the experimental plot (some re-sprouted and some new, clipped transplants), and this methods helped. I used a combination of landscaping cloth and wire fencing (cylinders).

Barrier Construction Method.

I constructed this barrier system using 0.5” 19-guage chicken wire fencing and landscaping cloth, both pinned to the soil using the staples purchased earlier for the

weed-blocking paper. For sixteen cages, I used one 25-foot roll of chicken wire (Everbilt brand, different height options, purchased at Home Depot). I divided the 25-ft. length into 16 parts, cut with wire snips, and (carefully) secured the seam of each cylinder with several short lengths of the supplied wire. I ended up using just a part of one roll of landscaping cloth.

I used rough squares of the landscaping cloth, prepared with an X-opening cut for the small seedling. The idea was to prevent any potential rodent grazer from digging under the fence, more or less. In hindsight, I doubt this was necessary (rodents seem unlikely culprits for the total removal of large wild plants in the adjacent field).

Plants grew well enough inside the cages for ca. two months.

Follow up.

In late September, after the ecology class did plant measurements and insect observations, we removed all of the cages. Once again, the small plants were all removed to the soil line over the next few days. In some cases the plant was torn out of the soil. Our guilty party is vigilant and dedicated.

Addendum--I plan to install a camera trap in 2018. This should be fun for my introductory biology students and a good supplement to their field experience. I shall install a few extra plants as victims.