

# MATELIA STUDY

In October we concluded our third year of studying a population of *Matelia carolinensis*, an inconspicuous vine in the milkweed family. Its common names — anglepod and twining milkweed — refer to a bend in the long axis of the pod and the fact that the stems twine around objects as they grow. Plants grow under a variety of environmental conditions.

Some grow in full sun surrounded by a dense community of competitive non-native grasses while others occur in deep shade with few other plants close by. Sexually mature plants produce from one to several dozen 7-9 cm pods. Pods change color from bright green to dark purple-brown as they ripen and each contains about 75 seeds at maturity.

Although *Matelia* all share the trait of twining upward, not all grow under conditions that permit this. Successful twining is possible only if there is a woody shrub, vine or tree close by. Those that do not acquire an aerial existence will twine along the ground. Large (over 2 m long) and productive plants all manage to twine upward. Twining may be an adaptation that serves to position pods in a favorable location for wind-aided seed dispersal; it may have other advantages as well.

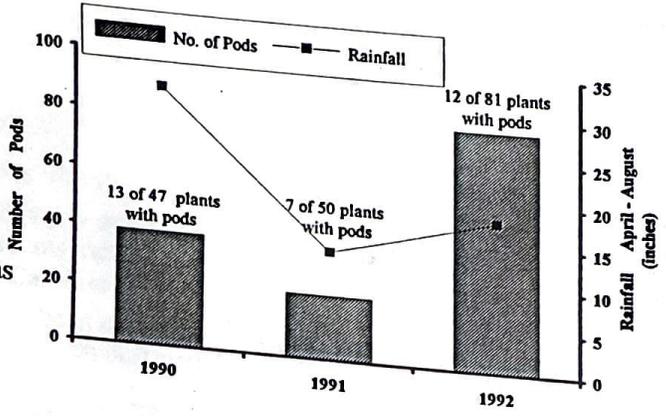
This species was listed by the Maryland Natural Heritage Program as extirpated (regionally extinct) in the state, when, in 1988, several plants were discovered at the

Bay. In 1992 more than 80 plants, its state certainly remains precarious.

Our study concentrates on phenology (timing of flowering, pollination, fruit development, seed dispersal, etc.), reproductive output, and characteristics of the habitat. The fecundity or reproductive output of a population is one measure of its health. We measure fecundity by determining the number of pods produced by the population. First, we attempt to find all the plants growing in the sanctuary. Then, each is tagged and its location is mapped. Each plant is monitored through the season.

The graph compares pod production with growing-season rainfall. We studied 47 plants in 1989, 50 in 1991 and 81 in 1992. Only 14% - 27% of plants actually produce pods with most pods growing on just a handful of plants. Pod production ranged from 39 in 1990 and 19 in 1991, to 82 in 1992. In 1992 almost half of all pods (39) were produced by just two plants!

With 18 inches of rain in spring/summer 1992 the plants produced four times as many pods as they did during the drought of 1991. Rainfall is just one factor influencing pod production. Gene Cooley, a botanist with the Natural Heritage Program, has suggested that insect pollinators may also limit reproduction. We have not yet determined who pollinates *Matelia*. That's a project for next summer! Thanks to volunteers Mary Beamis and Jennie Bravender for help in the field in 1992.



Comparison of *Matelia* pod production with Spring/Summer rainfall at Jug Bay, 1990-1992.

# BREEDING BIRD STUDY

On June 14th, 1992 at 7:00 in the morning we were briefly reunited with an old acquaintance when White-eyed Vireo # 1830-75075 dropped in to net #9. We'd not seen this fellow since placing an aluminum band on his leg on July 5th, 1990! Where had he been since then? White-eyed Vireos spend the non-breeding season in Cuba, Mexico and as far south as Honduras. In two years, #1830-75075 had made four trips between Jug Bay and the tropics! Now he was back on his breeding grounds in the woods near Otter Point. As many as 24

locally-nesting songbird species make similar treks to and from tropical locations. Jug Bay's nesting songbirds can be placed in two groups based on their seasonal occurrence. Over half are summer visitors that, like the White-eyed Vireo, arrive in April or May and depart by September. This group includes the Red-eyed Vireo, Wood Thrush, Acadian Flycatcher, tanagers, orioles and a variety of warblers. Known as neotropical migrants, these species spend the non-nesting season in Central and South America. The other group are year-round residents - species that stay