

Transfer of Cinnabar Moth Larvae

Since the early 1960s, various individuals and government agencies have been involved in establishing the cinnabar moth as a biological control of tansy ragwort—a weed poisonous to livestock. Limited sources of the insect were available initially; this, coupled with slow reproduction, has made their spread rather slow. Now there are occasional surpluses to be transferred to new sites.

A few simple procedures will help make transfers of the larvae of the cinnabar moth successful. Properly handled, the larvae can be moved to a new home easily with little or no expense.

Obtain permission from the landowner before gathering larvae, and then respect the owner's interests. Leave gates open or shut as you find them, and take care not to damage fences, livestock, crops, or equipment.

When to gather

The larvae of the cinnabar moth hatch from late spring to early summer. When they have grown to about 1 inch in length, they are big enough to move. This probably will be in July (no earlier than late June).

Before considering a population for harvest, be certain it is well established in the gathering area. If there are only a few larvae on an occasional plant, wait until the area has a population large enough to have a major impact on the ragwort. If most of the ragwort plants are loaded with larvae and the foliage is stripped from some, with little more than a stalk remaining, then gathering would be appropriate. If larvae are not moved from a large area where foliage stripping is apparent, many of them are likely to starve.

How to gather

Gather and move larvae early in the day to avoid extremely warm temperatures. Shake the larvae off of a tansy ragwort plant into a paper bag or a cardboard box. *Do not* use a plastic bag.

Approximately 1,000 larvae are needed to make a release that is likely to overwinter in numbers sufficient for reproduction and establishment. Use of greater amounts does not help survival appreciably, but may hasten control in large infestations of ragwort.

Include a liberal amount of leafy tansy ragwort in the container to act as a food source while the larvae are in transit. Do not transport the ragwort seedheads, as this could cause accidental movement of seed to ragwort-free areas.

Transportation

Cinnabar moth larvae do not store well, so transport and release them as quickly as possible. Preselect release sites (see following section) to reduce the amount of time larvae are stored in a container in a hot vehicle.

If you use grocery bags or cardboard boxes as containers, tape the top and seams with masking tape to prevent the larvae from escaping through small holes or open seams. Some transfers have been made using styrofoam containers (camp refrigerators, ice chests, etc.) containing some ice or a "blue ice" coolant block. This is particularly helpful on hot days or long trips. Anchor the coolant so that it will not slide inside the container and crush the larvae. Keep ice in a separate container to prevent larvae from contacting it or drowning in water from the melting ice. Do not use dry ice as a coolant.

Overnight storage is not desirable, but if it is impossible to collect and release larvae the same day, keep them overnight in a refrigerator or in a cool, shaded outdoor area. Addition of more ragwort leaves may be necessary.

Release site and procedure

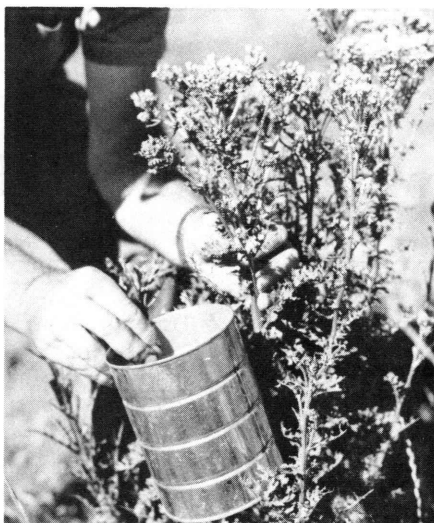
A suitable release site requires adequate feed, good drainage, and desirable pupation sites. If these needs are not met, survival will be limited.

Adequate feed means a large area of tansy ragwort. The needs of the larvae in the year of transfer are small, but the adults (moths) must be able to find plants easily if the following generations are to survive and multiply to the point of usefulness. This is particularly important when numbers are small. Therefore, an area with only an occasional plant or a small, dense patch of tansy is inadequate. Finally, transfer sites should be located in areas where tilling, spraying, sheep grazing, or other controls are not expected to deplete the food sources in the near future.

Good drainage is essential to the overwintering of the pupa of the cinnabar moth. Areas that are covered with water in the winter, are "boggy" or "seepy," or are subjected to ponding during rainy periods are not suitable.

A desirable pupation site has ground well covered with leaf litter or contains numerous brush piles, old logs, and stumps. The larvae will seek such areas as overwintering sites when they pupate in the latter part of the summer.

When releasing the larvae, keep handling to a minimum. Placing larvae on plants by hand is not necessary or even desirable. The simplest procedure is to open the container and gently shake larvae onto the tansy ragwort plants.



Discourage heavy grazing of a release site. Livestock trampling will cause heavy mortality in the population of overwintering pupae.

Expectations

Many people are disappointed when the larvae they have gathered and moved so carefully suddenly disappear. Don't be. As a normal part of their life cycle, the larvae will crawl into leaf litter or under the bark of an old stump to form the pupa stage of an insect's development. This happens after the larvae are 1 to 1½ inches long, probably in mid- or late summer. They will not be noticed again until the adult moth appears the following spring.

Because the moths are weak flyers and reproduce only one generation per year, they spread and increase their numbers rather slowly. The moths probably will not have a major impact on the tansy in a new area for 3 or 4 years. Other methods will provide much faster control in areas where the land can be tilled, sprayed, or grazed with sheep. Sheep generally are not poisoned by tansy ragwort. The cinnabar moth is expected to have its greatest impact

in areas not readily adapted to other control methods, such as clearcuts, slash areas, and other "wasteland."

Under suitable conditions, the cinnabar moth can be expected to reduce the population of tansy ragwort by 50 to 75 percent. Biological controls rarely, if ever, totally eliminate a weed problem. They will substantially reduce the seeding potential of the plant, which will increase the efficiency of other control measures in areas where tansy ragwort is a problem.

Much work, hope, and patience has gone into establishment of the cinnabar moth as a biological control for tansy ragwort during the 1960s and 1970s. If continued, this work should be very beneficial during the 1980s.

Work is proceeding on other biological controls and on range management and grazing techniques to control this noxious weed.

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