

Scentless chamomile seed weevil

Omphalapion hookerorum (W. Kirby, 1808)



Omphalapion hookerorum: a) larva in damaged flower head, b) adult, c) adults on a flower head (all images courtesy of Alec McClay)

Background

Omphalapion hookerorum (formerly known as *Apion hookeri*) is native to Europe where its only known host plant, scentless chamomile *Tripleurospermum inodorum* also originates. This weevil was the first biological control agent approved for release on scentless chamomile in Canada. Introductory releases began in Alberta and British Columbia in 1992.

Life cycle

Omphalapion hookerorum is a small black weevil about 2 mm in length, Adult females emerge from their overwintering sites in the spring and lay their eggs into scentless chamomile flower buds as they open. The larvae that hatch from these eggs are small, creamy white, legless, C-shaped grubs. They feed inside the flower heads, destroying the seeds as they develop. Each larva will eat about 11 scentless chamomile seeds before pupating. The adults emerge from the ripe seed heads in late summer, feeding on scentless chamomile foliage before overwintering in the soil or litter. There is one generation per year.

Release method

Omphalapion hookerorum can be released either in fall, or when scentless chamomile begins to come into bud in early summer. In either case, the entire lot of 200 weevils should be released as a group on a single point in the weed stand. Keep the weevils in a cool place and release as soon as possible after receiving them.

Release sites should be selected in advance, in areas with vigorous populations of scentless chamomile producing plenty of flowers. Select a site that can be left unsprayed and uncultivated to allow the insect population a chance to establish. Creek banks and slough margins make suitable release areas. The patch does not have to be very large; however, there should be other patches of scentless chamomile in the area to allow emerging weevils to disperse.

Mark the release point with a sign or stake and record the latitude and longitude coordinates using GPS on a *Biocontrol Agent Release Form* so that the release site can be identified for future monitoring purposes.

Monitoring

You can monitor your releases of *Omphalapion hookerorum* in two ways.

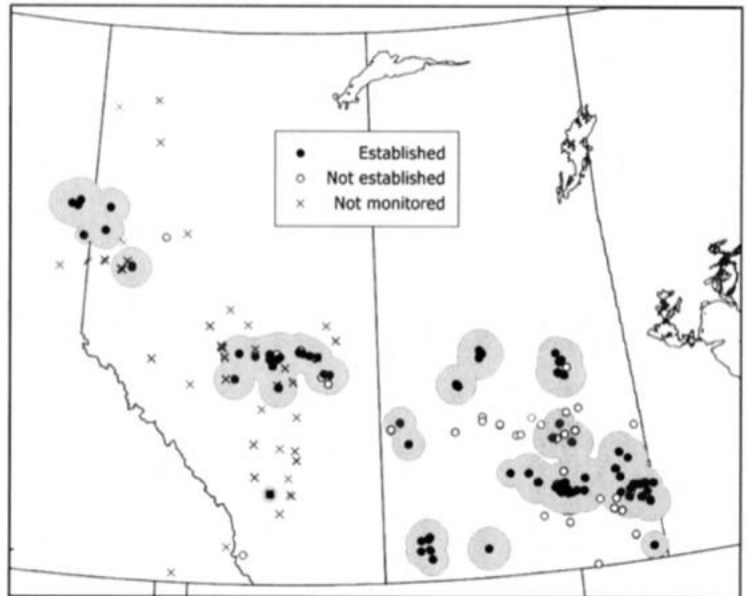
- 1). Look for adult weevils on the plants in early summer, the year after release, when the scentless chamomile is beginning to come into flower. Adults tend to sit up on the flower buds or shoot tips of the scentless chamomile plants and are quite easy to see. They are about 2 mm in length, black (sometimes with a slight green or violet sheen in a strong light), and teardrop shaped (pointed at the front and round at the back).
- 2). Collect ripe seed heads in late summer (mid-August is a good time). The heads should be brown and contain almost-mature seed, but not so ripe that the seed is falling off. Pick each seed head apart gently with your fingers or a pocketknife and look for the little black weevils inside. If the adults have already emerged, you may be able to see the hollow chambers among the seeds in which they developed. In the early stages of establishment, you may have to check quite large numbers of heads (50 or 100) to find any weevils. By recording the numbers found per 50 or 100 heads at each site every year, you will be able to estimate whether the population is increasing.

Results

Figure 1 illustrates the 2012 distribution of successfully established *O. hookerorum* populations resulting from releases in Alberta, Saskatchewan and BC. At that time, several of the release sites in Alberta showed over 25 per cent of scentless chamomile seed heads under attack, while in Saskatchewan this number had reached 95 per cent. *O. hookerorum* tends to disperse quite rapidly from the release point, so that the population at first becomes spread thinly over a large area. At Vegreville, *O. hookerorum* had spread from one release site at a rate of almost 3 kilometres per year.

Successful release of this insect will establish a population of the biological control agent that will spread and increase in density over the next several years. This will gradually reduce seed production and slow the spread of scentless chamomile. Most biological control agents do not kill plants outright or immediately.

Figure 1. Release sites and establishment of *Omphalapion hookerorum* in BC, AB and SK. Shaded areas show estimated distribution as of 2012 based on release locations and dates and rates of spread observed at Vegreville, AB. Some locations are approximate (McClay, A.S., Peng, G., Bailey, K.L., Hynes, R. K., and Hinz, H.L. Chapter 59 in *Biological Control Programmes in Canada 2001-2012* eds. P.G. Mason and D.R. Gillespie)



How to obtain it

The scentless chamomile seed weevil, *Omphalapion hookerorum* can be ordered in release units of 200 adult weevils from Strategic Weed Management Consulting in Edmonton, Alberta. Orders should be placed as early in the season as possible to ensure availability.

For further information

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