

Biological control of common tansy – information for potential funders

The problem

Common tansy (*Tanacetum vulgare*) is a vigorous, perennial plant in the family Asteraceae, native to Europe. It was introduced into North America by early settlers as a kitchen and medicinal herb, and has become widely established across most of Canada and the USA. It forms large clumps of stems up to 180 cm tall, with flat-topped bunches of bright yellow button-like flower heads in late summer. The clumps spread outwards gradually, and the plant also produces large quantities of seed, which helps it to spread. All parts of the plant have a strong aromatic odour.

Tansy is now rarely used as a medicinal or garden plant, but has become a troublesome weed in many areas. It is widespread in pastures, roadsides, waste places, river and creek banks, cities, parks, and natural areas across western Canada and the northern USA. It contains several toxic compounds. The essential oil of tansy can be fatal to humans in small amounts, and the plant was widely used as an abortifacient in the 19th century. There are anecdotal reports of livestock abortions due to feeding on tansy. Tansy also reduces the productivity of desirable grasses and thus reduces the carrying capacity of pastures. It is listed as a noxious weed in Alberta, British Columbia (locally), Colorado, Manitoba, Minnesota, Montana, Washington, Wyoming, and South Dakota (locally). Tansy is also spreading in forested areas. In northern Alberta it is increasing along the Athabasca River, and some cut blocks have been sprayed to control tansy. In Minnesota, dense tansy infestations on some cut blocks have hampered reforestation.



Common tansy plant



A pasture infested with common tansy

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Biological control as a solution

Biological control is a potential solution for the common tansy problem. This is the use of highly specific natural enemies, like plant-feeding insects or fungi, introduced from the areas where tansy is native. Living organisms used in this way are called biological control agents. Biological control has been very effective in Canada and the USA against other perennial weeds like leafy spurge, St. John's wort, tansy ragwort, and purple loosestrife.

Biological control can provide specific control of a targeted weed like common tansy without damaging any non-target plants. As there is no chemical involved, it can be used without restriction in sensitive habitats like forested or riparian areas. Biological control is not an overnight solution: it requires quite a lengthy lead time for suitable biological control agents to be identified, approved, established in the

field, and build up to high enough densities to have an impact. But once biological control is successful it can provide permanent control without the need for continual retreatment.

Common tansy should be a good target for biological control, as it is a perennial plant growing in relatively stable habitats, which allows insect populations to build up over time until they have reached high enough levels to have an impact. There are also few native North American plants closely related to common tansy, which makes it easier to find biological control agents that are specific enough to be safe for introduction. And surveys in Europe, where common tansy originated, have shown that it is attacked by a large number of insects, mites, and diseases. This means that there should be good candidates to choose as potential biological control agents.

In order to put biological control into practice, potential biological control agents must be carefully selected to ensure, as far as possible, that they will not damage desirable non-target plants, and that the most effective agents are used. This involves extensive studies in which the insects are exposed to a wide range of plant species related to the target weed to assess whether they can feed and develop on any other plants. Ideal biological control agents are highly host-specific to their target weed and cannot survive on any other plant. Once these studies have been completed, the potential agents are reviewed by regulatory authorities in Canada and the USA, who decide whether to issue permits for them to be released in the field.

The proposed program

Efforts are under way to develop a biological control program for common tansy. The collection and testing of possible biological control agents would be done by the CABI Bioscience laboratory in Delémont, Switzerland. This is an internationally recognized centre with a long track record of success in this type of project. Funding efforts are being led by the Alberta Invasive Plant Council in Canada, and by the Minnesota Department of Agriculture in the USA. In Canada, funding proposals are being considered by the Invasive Alien Species Partnership Program (Environment Canada), the Advancing Canadian Agriculture and Agri-Food Program (ACAAF: Agriculture and Agri-Food Canada) and the Agriculture Development Fund in Saskatchewan. In the USA, funding is being sought from a number of state departments of agriculture and the Minnesota Department of Transportation. Some funding is also expected from private industry.

How you can help

To gain access to some of these Canadian funding programs, some funding has to come from private-sector sources. Possible sources could include the livestock, energy, and forestry industries, all of which are responsible for managing land affected by common tansy. This funding will be leveraged very efficiently, as a relatively small non-government contribution allows us to access much large amounts from publicly funded programs. Our target is to raise at least \$15,000 per year over the next 3 years from non-government sources.

If you are interested in supporting this program, please contact one of the following for more details:

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