

PROGRESS IN THE BIOLOGICAL CONTROL OF GROUNDSEL BUSH

B.W. Wilson and P.J. McFadyen  
Department of Lands, Queensland

Groundsel bush (*Baccharis halimifolia*) is a serious noxious weed of coastal south-eastern Queensland and northern New South Wales, where it is a problem in dairying, grazing, and forestry. Its rapid growth and high seeding rate enable it to quickly dominate native grasses, overrun pastures, and invade exotic pine plantations.

Following Bennett's preliminary survey of *Baccharis* and its associated insects in south-eastern USA in 1960-1963, a program was initiated to test insects for their host specificity and, on the completion of this testing, to collect successful candidate insects and consign them into quarantine at the Queensland Department of Lands insectary.

This program was carried out in Florida, USA, by Officers of this Department from 1967 to 1969. Of the 12 insects tested, 6 were not host-specific and they were discarded. The rest were collected and consigned to Queensland where, as required by the Commonwealth Department of Health, they were reared through one generation in quarantine.

Insects that were introduced are:

*Trirhabda baccharidis* (Chrysomelidae)

*Oidaematophorus* spp. (Pterophoridae)

*Phalonia* spp. (Phaloniidae)

*Aristotelia* spp. (Gelechiidae)

*Rhopalomyia californica* (Cecidomyiidae)

*Cecidomyia* spp. (Cecidomyiidae)

After quarantine requirements were satisfied, the breeding of these insects was commenced, with varying degrees of success. Extreme difficulty was encountered in propagating the gall-forming insects *Rhopalomyia* and *Cecidomyia*, and only the former insect is still held.

*T. baccharidis*: A leaf-feeding beetle capable of extensively damaging the foliage of *Baccharis* both in the larval and adult stages. Its habit of diapausing in both the egg and pre-pupal stage ensures damage to the plant at two important periods - early spring when the plant is actively growing, and late

autumn when it is flowering. Large numbers are being reared in cages, and it has been released at five sites, ranging from tidal flats to hilly slopes in southern Queensland, and appears to be established at all five.

*Oidaematophorus* spp.: A stem-boring plume moth, it has also proved difficult to rear in cages because it requires thick stems to feed on and it is difficult to grow these for long periods in pot culture. Consequently, an artificial diet mixture was developed by the Queensland Department of Lands which has been useful but not entirely satisfactory. While the insect can kill small stems in the field, it seems unlikely that it will kill large plants. It has been released at only one site but it is not known whether it has become established there.

*Aristotelia* spp.: A leaf-skeletonizing moth having a short life cycle of approximately 1 month. Large numbers have been reared in cages and moths released at five different sites appear to be successfully established. This insect attacks young regrowth and seedlings.

*Phalonia* spp.: A small moth, with a slow rate of reproduction, but its habit of feeding on leaf buds indicates that it may be a very useful insect. To date, moths have been released at only one site and no evidence of field establishment has yet been obtained.

The future of these insects as controlling agents appears to be good. *T. baccharidis* will probably prove the most effective, as its defoliating habit has already been observed in the field. The role of the other insects will probably be supplementary.