

ABSTRACT

BIOLOGICAL CONTROL OF THE NOXIOUS WEED GORSE ULEX EUROPAEUS L.

A STATUS REPORT

George P. Markin
US Forest Service, Institute of Pacific Islands Forestry
1643 Kilauea Avenue
Hilo, Hawaii 96720

Gorse is a spiny shrub introduced into Hawaii sometime before 1930 and presently established on about 25,000 acres of forest and range land on Mauna Kea on Hawaii and Haleakala on Maui. Initial control efforts were undertaken in the 1960's and primarily consists of the use of herbicides to eliminate or contain the infestations. The Hawaiian Department of Agriculture also attempted to introduce insects that attack the flowers and seeds with the objective of preventing further spread. In 1953 they successfully established the seed weevil Apion ulicæs (Förster).

Observation were conducted in the winter of 1983-84 (the flowering period for gorse in Hawaii) to determine the distribution, abundance and effectiveness of this weevil, and if possible the presence of other insects which might be affecting reproduction of gorse. On Maui, the seed weevil was well established and found attacking 82% of the new pods. However the presence of mites and mold attacking the eggs, and disease, competition and parasites attacking the larva, greatly reduced the number of successful attacks until overall seed yield was reduced by only 59%.

Although this weevil was originally established on the island of Hawaii none were found during the current survey. A review of records indicated that its original population was restricted to a small isolated pocket of gorse which was later destroyed in a herbicide control program before the population had spread to the major gorse infestation.

On both Hawaii and Maui several species of caterpillars were found feeding on the developing flowers. On Hawaii caterpillars were abundant enough to destroy only 15% of the flowers. However on Maui the combined loss of flowers due to caterpillar feeding (33%) along with gorse weevil attack on the developing seeds was estimated to reduce the overall reproducing potential of gorse by 73%.