Abstracts: Theme 8 – Release Activities and Post-release Evaluations

Monitoring of ground cover post release of *Aphthona nigriscutis* near Lander, Wyoming

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In 1990, *Aphthona nigriscutis* was released for the control of leafy spurge (*Euphorbia esula*) at 20 locations near Lander, WY. Establishment at several locations by 1993 prompted a post-release monitoring effort. Permanent transects were established at many locations. Eight sites are still usable, the rest being lost to development or herbicide use. At four of these sites, five 50-ft (15.25-m) transects radiate out from the initial point of release at approximately 70° intervals. Ground cover was measured at 5-ft (1.52-m) intervals along each transect by using a ten-pin point frame, recording the first contact with each pin. At the other four sites, there were eight radial transects, 100 ft (30.5 m) long, with data collected at 10-ft (3.04-m) intervals. The sites differ by slope, aspect, soil type and moisture. Data has been collected annually at the peak of vegetative production in late July or early August. Since 1993, leafy spurge has declined from 52% of the ground cover to 11% across all eight sites. Perennial grasses and forbs have increased, while bare ground has declined.

Benefits to New Zealand’s native flora from the successful biological control of mistflower (*Ageratina riparia*)

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A white smut fungus (*Entyloma ageratinae*) and a gall fly (*Procecidochares alani*) were released in New Zealand to suppress the invasive weed mistflower (*Ageratina riparia*). The impacts of the agents on the target weed and surrounding vegetation were monitored over 5 years. The fly was released 3 years after the fungus and spread much more slowly, so most of the impacts observed are attributable to the fungus alone. Nonetheless, the number of stem galls produced by the insect increased exponentially to reach damaging levels at release sites. Annual monitoring of study plots revealed that the mean percentage of leaves infected by the fungus reached 58%, and there was a significant decrease in the maximum height of mistflower plants. In heavy infestations, the mean percentage cover of mistflower declined from 81% to 1.5%. As the weed declined, the mean species richness and percentage cover of native plants increased to approach that of areas without mistflower. In contrast, there was no significant change in the species richness or percentage cover of exotic plants (excluding mistflower). There was a weak ‘replacement weed effect’ from the invasive African club-moss (*Selaginella kraussiana*), but mostly, the decline in mistflower benefited indigenous plants, including two rare endemic *Hebe* species.

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