

impacts of insects. The protocol provides two independent estimates of herbivore pressure which serve to check for artefacts associated with procedures for herbivore-removal and associated with potential errors related to the timing of censuses. This experiment also made it possible to calibrate the results from an extensive survey at 22 sites over a six-year period to measure the spatial variation in herbivore pressure. These results demonstrate that: (i) only a small proportion of the insect species that are adapted to feed on goldenrods ever reach sufficient densities to cause significant damage; (ii) flower production is more sensitive to herbivore attack than vegetative growth; (iii) the total herbivore pressure exerted by the dominant insects caused no detectable reductions in contemporary plant-performance in over 75% of the censuses; but, (iv) the cumulative effects of these chronic low-levels of herbivory are sufficient to lower plant-fitness and to limit the competitive dominance of goldenrods in successional plant communities. Investigations must be continued for several years to detect the full impact of herbivores on perennial plants.

## Biological control of *Mimosa pigra* begins to work

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*Mimosa pigra* (Mimosaceae) is a native of Mexico, Central and South America. It was probably introduced into Australia as an ornamental plant at the Darwin Botanical Gardens in the late 1800s and, since reaching its favoured habitat on the coastal floodplains during the 1970s, has become an extremely invasive weed, completely changing ecosystems. It has a major impact on conservation, primary industry, tourism and traditional Aboriginal use of wetlands in the Northern Territory, and threatens all wetlands of tropical and sub-tropical Australia. Seven insect species and one pathogen have been imported into Australia from Mexico or Brazil and released in an attempt to control the weed. All have become established. The tip-boring gracillariid moth *Neurostrota gunniella* is ubiquitous and is reducing seed-production. The stem-boring sesiid moth *Carmenta mimosa* is beginning to spread and promises to be more damaging, especially to edge-plants and regrowth following fire or bulldozing. The impact of these species, plus the potential of the newly-established bud-feeding weevils *Coelocephalapion aculeatum* and *C. pigrae*, the coelomycete pathogen *Phloeospora mimosae-pigrae* and species still under evaluation in quarantine, was discussed.