Ecology, biology and control of some exotic-invasive weeds on federal lands in British Columbia, Canada.

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Scotch broom (Cytisus scoparius),Gorse (Ulex europaeus) Daphne (Daphne laureola) and English ivy (Hedera helix), are four prominent, invasive plants that pose a serious threat to Garry oak and associated ecosystems on federal lands in Victoria, British Columbia. These plants colonize disturbed areas quickly, form dense monospecific stands, remain persistent for long time and defy any easy eradication program. They suppress and inhibit the growth of native plants, and ultimately arrest forest succession. Several federal departments including the Dept. of Environment, Dept. of National Defence, Dept. of Fisheries and Oceans, Dept. of Indian Affairs, and Parks Canada have expressed great concerns regarding their rapid incursion, adverse impacts and degradation of native habitats. With a grant from the Dept. of Environment and the Dept. of National Defence, we have, therefore, conducted research to examine the population dynamics, phenology and control methods of these invasive plants on federal lands near Victoria, BC. Of the several methods of control tested, including manual cutting, application of a registered herbicide (Release- triclopyr), fungal bioherbicides (Chondrostereum purpureum, Fusarium tumidum) and a commercial plastic mulch, it was found that some treatments (mulch and herbicide) provided 100% efficacy on resprouting behaviour of the all four invasive species. While one bioherbicide (Fusarium tumidum) was very effective on Scotch broom under the greenhouse conditions, the other one (Chondrostereum purpureum) produced a variable response under the field conditions. Manual cutting was found to be the least effective. Also a novel prospective bioagent was isolated from dying and dead samples of Daphne from the field and preliminary results, under laboratory and greenhouse conditions, suggest that it may hold great potential for control. Continued and additional research is necessary to determine the appropriate formulations of these bioagents as well as the effectiveness of the different and integrated control treatments over a period of years.