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THE IMPORTANCE OF LONG-TERM STUDIES IN THE MANAGEMENT AND ECOLOGY OF ALIEN PLANTS – SCOTCH BROOM (*CYTISUS SCOPARIUS*) 19 YEARS ON

Long-term studies are rare in ecology, and even more so in the study of alien plant invasions. However, information on the long-term demographics of alien plant invasions is crucial if we are to manage them effectively. Nineteen years ago an experiment was established to examine the invasion demography of the alien shrub *Cytisus scoparius* (L.) Link (Fabaceae), at Barrington Tops, New South Wales, Australia. Individual plants were tagged and monitored through time from a series of different invasion stages or starting points - being: i) initial invasion, ii) invaded, and iii) long invaded. By joining these different invasion stages together in a time-line sequence, longer-term trends can then be derived (ie the initial invasion stage combined with the invaded stage). This process can also allow for the examination of multiple generations (ie 1st versus 2nd generation) - here, the density of plants was reduced between the initial and the 3rd generation. In addition, by following the fate of individuals through time important information on alien plant demography can be obtained. For example, information on seedling survivorship revealed that the probability of a seedling becoming a flowering individual (>3 years old) was <2%; and the maximum plant age was >20 years - a value greater than the maximum age estimated from counting growth rings. However, the value of such long-term data can be greatly enhanced when combined with short-term ecological data (ie seed production). Such combinations can lead to more effective management of alien plants, through both better informed management strategies and predictive models.

keywords: Long-term study, *Cytisus scoparius*