

Reproductive Biology of Gorse in the Mount Lofty Ranges of South Australia and Sri Lanka

Ms Champika Kariyawasam¹, Asso. Prof Duncan Mackay², Dr Molly Whalen²

¹Ministry of Mahaweli Development and Environment, ²Flinders University, School of Biological Sciences

Gorse (*Ulex europaeus* L.) is an extremely competitive invasive plant that displaces native biodiversity including agricultural wealth. Assessments of the phenology and soil seed bank of gorse are needed to understand the factors influencing their high reproductive efficiency and invasiveness. This study aims at understanding how certain traits of gorse contribute to its reproductive success in two climatically distinct regions in its invasive range, South Australia and Sri Lanka. Several traits, namely fruit:flower ratio, seed production, pod predation and the density of seeds in the soil seed bank were examined. Results suggests that the reproductive success of gorse in Sri Lanka, in terms of fruit:flower ratio, is less than that of gorse plants in South Australia. Results also suggest that gorse populations in Sri Lanka had higher seed numbers per pod compared with gorse in South Australia. Predation of pods was negligible in the study sites in both countries during the period of study. We observed significant differences in the density of gorse seeds in the top 5 cm layer of the seed bank between 3 m away from shrubs and under gorse shrubs. This estimated density of gorse seeds under shrubs in Sri Lanka was 2141 / m² which was 1.5 times higher than that of South Australia. The findings of this study provide some baseline information for managers to design programs for control of gorse. Also it reveals that the contributions of traits that influence the reproductive success of gorse could vary among countries in the invasive range.