Management of Grassy Ecosystems-Arthur Rylah Institute for Environmental Research

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The Ecologically Sustainable Agriculture Initiative (ESAI) Grazing for Biodiversity and Profit project is a joint initiative between the Department of Sustainability and Environment and the Department of Primary Industries. The 4 year project (2001-2005) aims to achieve a more socially and environmentally acceptable balance between biodiversity and agricultural productivity in native grasslands and grassy woodlands that remain on Victorian farms and provide farmer and other land managers with current knowledge and skills to manage their native grasslands.

Victoria's grassy communities have been severely altered through 150 years or more of grazing and cultivation. A dramatic decrease in plant and animal diversity and a subsequent shift in plant species dominance from tall warm season native perennials such as Kangaroo Grass (*Themeda triandra*), to shorter cool season native perennials (eg. *Austrodanthonia* spp.) and exotic annual and perennial grasses (eg. *Vulpia* spp. & *Phalaris* spp.) is clearly evident. A loss of ecosystem stability in the form of fluctuating water tables, salinity, erosion and exotic species invasion has also been recorded and is considered a serious threat to landscape ecosystem function.

To date the project has undertaken a detailed review of current literature on grassland management for biodiversity conservation and market research to ascertain the attitudes and concerns of farmers in regard to the conservation and management of their native grasslands. The outcomes of this research can be seen in the report by P. Watson and R. Pryor; 'Grazing for Biodiversity and Profit; Farmer Segmentation Study & Evaluation of Research and Extension Worker Attitudes', published by Down to Earth Research, Frankston, Victoria.

The field component of the Volcanic Plains study aims to examine the role of timing and duration of 'resting' on native and exotic plant cover, diversity and habitat structure. Evidence suggests that the exclusion of grazing at particular times of the year may promote an increase or decrease in the abundance of particular groups of species. Three grassland sites across the Victorian Volcanic Plain were chosen and six treatments were investigated. These are a 1) spring rest (peak flowering period), 2) summer rest (peak fruiting period), 3) a combined spring and summer rest, 4) winter rest (period of establishment for some exotic species, high rainfall), 5) continuous grazing (set stocking) and 6) no grazing. There are three replicates of each treatment at each site. Fieldwork is currently under-way and will be completed by June 2005.

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