

Concept Plan SP 2006-009

**Factors affecting fauna recovery in the Wheatbelt:
Lake Magenta and Dunn Rock Nature Reserves**

Animal Science

Project Core Team

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Project Team

granted

Program Leader

granted

Directorate

granted

Factors affecting fauna recovery in the Wheatbelt: Lake Magenta and Dunn Rock Nature Reserves

Science and Conservation Division Program

Animal Science

Parks and Wildlife Service

Service 2: Conserving Habitats, Species and Ecological Communities

Background and Aims

The European red fox (*Vulpes vulpes*) arrived in the south-west of WA in the late 1920s (King and Smith 1985) and has been implicated in the decline of several species of medium-sized marsupials (Burbidge and McKenzie 1989). Like all canids, foxes are highly susceptible to the toxin sodium monofluoroacetate, or 1080 (McIlroy 1981, McIlroy and King 1990) while most native WA mammals are tolerant to this poison (King *et al.* 1978, 1981; Mead *et al.* 1979). In areas of Western Australia where foxes were controlled with regular 1080 poisoning, populations of rock-wallabies (*Petrogale lateralis*), numbat (*Myrmecobius fasciatus*), tammar wallaby (*Macropus eugenii*), woylie (*Bettongia penicillata*), brushtail possum (*Trichosurus vulpecula*), and chuditch increased significantly (Kinnear *et al.* 1988, 1998, Kinnear 1990, Friend 1990, Start *et al.* 1998, Morris *et al.* 2003). In 1996, the Western Shield fauna recovery program commenced (Bailey 1996), with fox baiting occurring over approximately 3.5 million hectares of conservation estate. In a short space of time, this led to a significant increase in woylie, quenda (southern brown bandicoot *Isodon obesulus*) and tammar wallaby populations, and in 1998 these species were removed from the State and Commonwealth threatened fauna lists (Morris *et al.* 1998).

However, by 2000/2001 Western Shield monitoring started to detect declines in populations of some medium-sized mammals, most notably woylies, which had attained extremely high abundances (up to 60% trap success). In a review of Western Shield in 2003, Orell (2005) identified several sites in the south-west of WA where fauna had not recovered, or had declines, despite ongoing fox control. Lake Magenta nature reserve was one of these sites. Chuditch were reintroduced to Lake Magenta in 1996 and woylies were translocated there in 1997. Following 12 months of fox control, populations of the quenda and brushtail possum were also discovered. Presumably they had persisted at Lake Magenta prior to fox control commencing, but at undetectable levels. Trap success rates for all species increased in the period 1996-2001. However, after this time, trap success rates for quenda and woylies declined to a point where they are no longer trapped, and chuditch and brushtail possums have persisted, but at reduced abundances.

This project is part of a larger program examining introduced predator control and sustained fauna recovery in the rangelands and south-west of WA. In particular this project will be examining whether there has been a mesopredator release effect after several years of fox control ie have other introduced / native predators increased in abundance and become a threatening process for fauna survival.

Expected outcome

Knowledge of the causal factors responsible for declines of medium-sized mammals at Lake Magenta nature reserve, leading to more effective management and species conservation. This will be achieved through:

- An assessment of the effectiveness of the current fox control program.

- Determining whether mesopredator release (i.e. increased cat abundance) occurs following fox control.

- Identifying periods of peak abundance of potential fox/cat prey items to assist in improving fox/cat baiting efficacy.

If necessary, the development of a baiting regime to effectively control both foxes and feral cats, and the testing of the effectiveness of this through translocations of vulnerable species.

An understanding as to the role disease may play in regulating wildlife populations in WA.

The benefits to CALM include having the information required to improve fauna recovery in the Wheatbelt, and to have available revised native and introduced fauna monitoring protocols which will allow future changes in populations to be adequately assessed and explained. This project is also part of CALM's contribution to the Invasive Animals CRC.

Strategic context**Expected collaborations****Proposed period of the project**

None – None

Staff time allocation

Role	Year 1	Year 2	Year 3
Scientist			
Technical			
Volunteer			
Collaborator			

Indicative operating budget

Source	Year 1	Year 2	Year 3
Consolidated Funds (DPaW)			
External Funding			