

Executive Summary

PURPOSE AND OBJECTIVES

The Macrofauna Management Plan (MFMP) is a requirement of the Environment Protection Strategy, under SREP 30. This REP delineates areas of the St Marys Property (SMP) that are to be developed for housing as well as areas to be reserved for conservation and as Regional Open Space (ROS). The MFMP does not deal with the actual development issues, but with the short and long- term management of macrofauna in the context of the REPs adoption. The primary purpose of this MFMP is to provide a plan for the humane management of the macrofauna populations that exist on the St Marys property (SMP) in western Sydney, NSW. **Within the plan, the term “macrofauna” is used to include only the populations of kangaroos and emus that occur at the SMP. The plan therefore covers three macrofauna species namely, eastern grey kangaroos (*Macropus giganteus*), red kangaroos (*Macropus rufus*) and emus (*Dromaius novaehollandiae*).**

The management strategies outlined in this plan have been developed after consultation with the ‘St Marys Macrofauna Management Working Group’. This Group comprised key stakeholders in the St Marys Property (SMP), representatives of animal welfare organisations and community groups. NSW National Parks and Wildlife Service attended the Working Group meetings as observers and when necessary provided specialist advice.

An independent Expert Panel, comprising specialists in macrofauna biology, was also involved in the formulation of the MFMP by providing advice about technical matters raised during the consultation process.

The MFMP has also been finalised after consideration of submissions received by the Department of Environment and Conservation following public exhibition of an earlier draft document prepared by Environmental Resources Management ERM (2003e).

The Macrofauna Working Group agreed that the MFMP for St Marys must be humane, ecologically sustainable and compatible with other proposed land uses for the St Marys Property including:

- conservation of Cumberland Plain flora and fauna within the proposed Regional Park; and
- urban development within all of the proposed development precincts in accordance with the REP.

Additionally all aspects of the MFMP must be practical and achievable under the legislative framework within which it must operate. The MFMP must have short-term, medium-term and long-term measurable outcomes proposed so that the achievements of the plan can be measured and adjusted through a system of adaptive management.

Although management strategies within the MFMP were developed via a consultative process, they do not necessarily represent the views of all members of the panel or Working Group members. Similarly, membership of the Working Group and Expert Panel does not imply that panel members are advocates for or supportive of developments proposed for the SMP. A summary of the key principles agreed to be the Macrofauna Working Group is included in the plan.

The MFMP has made use of an extensive array of literature about the flora and fauna of the SMP and has been prepared together with other reports that involve flora and fauna management of the Eastern Precinct of the SMP, including:

- *Biodiversity Assessment;*
- *Feral and Domestic Animal Management Strategy;*
- *Weed Management Plan;* and
- *Fire Management Strategy.*

The MFMP specifies management for kangaroos and emus in the short term (0 –2 years), medium term (2 – 10 years) and long term (greater than 10 years).

Key objectives of the MFMP include:

- description of the existing macrofauna populations;
- analysis of risks to macrofauna from human activities and from macrofauna to humans on the SMP;
- provision of a protocol for the treatment of sick or injured macrofauna on the SMP;
- analysis of management options for macrofauna management;
- outlining short term management of macrofauna in relation to proposed developments within the development precincts of the SMP;
- outlining medium term and long term management of macrofauna within the Regional Park and open space areas of the SMP;
- monitoring and research on the macrofauna and their interaction with the environment of the SMP, so as to inform and further refine ongoing management; and
- provision of appropriate mechanisms for monitoring performance, review and revision of the MFMP as required for adaptive management of the macrofauna populations.

It is important to note that the MFMP itself is subject to the decisions reached in the Regional Park Plan of Management. As a result, the MFMP may need to be adjusted or modified when that Plan of Management is finished in mid-2004. However, it is considered that the general

outcomes and objectives of macrofauna management on the SMP will remain generally unaltered.

LONG TERM VISION

It is part of the vision for this plan that eastern grey kangaroos and emus will be present in the SMP in the long term. The ultimate size of the populations and the areas that they occupy will need to be determined through a process of adaptive management and in conjunction with the development of the Regional Park Plan of Management.

The macrofauna to be retained will be within all or part of the Regional Park. As the park will become surrounded by urban development, there will be a need in the medium term and long term for appropriate fencing to both enclose the populations and to protect them from undesirable impacts from human activities.

BACKGROUND

The SMP supports sizeable populations of macrofauna comprising approximately 2275 - 3200 eastern grey kangaroos (*M. giganteus*), 248 - 448 red kangaroos (*Macropus rufus*) and 40 – 50 emus (*Dromaius novahollandiae*). Evidence from former ADI employees indicates that these populations have been introduced to the SMP, even though the eastern grey kangaroos and emus are species that would have originally occurred naturally on the Cumberland Plain at the time of European settlement.

Currently, four broad habitats for kangaroos and emus occur at the SMP, namely grassland, grassland/open woodland, woodland/forest and riparian forest. The major feeding areas for the kangaroos and emus are the grassland, and the grassland/open woodland.

Under the SREP 30, the majority of woodland and open forest on the SMP will be conserved and regenerated. Regeneration of such native vegetation will almost certainly increase the cover of trees and shrubs at the expense of grassland, resulting in a reduction in food available for kangaroos. Also, the major grassland areas consist largely of exotic pastures and most of these will be subject to development. Therefore, as development and regeneration takes place across the site, major reductions in the feeding areas for kangaroos and emus will occur.

Currently Kangaroo numbers are abundant at the SMP and exert heavy grazing pressure on the vegetation of the site. This is reflected in part of the listing of 800 ha of the SMP on the Register of National Estate, which states:

“Emus (Dromaius novahollandiae) and grey kangaroos (Macropus giganteus) have been re-introduced to the site and red kangaroos (Macropus rufus), which are not native to the area have been introduced. The current high level of the kangaroo population may now be impacting on the capacity of the site to regenerate.”

The key reasons why active management of macrofauna is required are explained within the plan. They include the need to manage an already overabundant kangaroo population, whilst also considering the predicted changes (decreases in feeding areas) to existing habitats, ongoing animal welfare issues and the incompatibility of a large macrofauna population with the future land uses within the designated development areas of the SMP.

Kangaroos are currently in high numbers in the SMP due to an extensive food supply in grassland and open woodland areas, the presence of permanent drinking water supplies and an absence of major predators and competitors. Conditions are also suitable for emus, but are apparently less conducive to population growth as the numbers of these animals are much smaller. The maintenance of the fence around the SMP encloses the populations and provides a high degree of protection from humans.

A large kangaroo population also raises animal welfare issues. The SMP may be able to sustain the large kangaroo population under optimum conditions (*i.e.* plentiful food and water). However, this population is not likely to be sustainable under adverse conditions such as prolonged drought. Under adverse conditions such as drought, food and water resources become limited and where kangaroo densities are already placing pressures on limited resources, some animals are likely to become sick and may die.

If the current situation of a very large kangaroo population is maintained the following impacts on the macrofauna of the SMP are anticipated:

- Increased frequency of injury through collisions between macrofauna and motor vehicles as traffic increases within the development precincts;
- Increased frequency of threats and attacks on people by kangaroos and emus and vice versa as the numbers of people increase within the development precincts;
- Kangaroos and emus continue to escape from the property into surrounding suburbs with the risk of accident and injury as described above;
- Kangaroo and emu populations will increase during seasons of high food availability but are likely to be reduced during drought years due to food shortages; and
- If left unchecked, overgrazing by kangaroos has potential to damage the understorey of Cumberland Plain Woodland and other high conservation value vegetation types.

The woodland and forest areas of the 900 hectare Regional Park do not produce much grass and are unlikely to sustain more than 0.3 – 0.4 kangaroos per hectare. As such, confinement of the population to the park will result in a substantial reduction in the current population sizes. As emus feed on a wider array of plant materials and are probably limited by fox predation rather than food shortage, it is considered that the small number of emus currently on the SMP could potentially be maintained within the proposed Regional Park.

KEY COMPONENTS OF THE PLAN

The key components of the plan include:

- Long term plans to have eastern grey kangaroos and emus in the Regional Park;
- Detailed provisions for the humane treatment of sick and injured animals;
- Phased removal of all red kangaroos by means of translocation to other sites and fertility control;
- Reduction of eastern grey population density to a target density of between 0.3 and 0.5 animals per hectare by means of translocation and fertility control;
- Immediate exclusion of macrofauna from the eastern area by fencing;
- Progressive exclusion of kangaroos and emus from other development areas; and
- Provisions for adaptive management and regular revision of the plan.

The plan is based upon **core management outcomes** that include:

- Kangaroos and emus will be actively managed in a humane and sustainable manner;
- Population reduction will be achieved as far as possible by translocation of animals to alternate sites and by fertility control measures, whereas culling by shooting remains an option of last resort;
- Viable populations of eastern grey kangaroos and emus will be present in the SMP in the long term;
- Red kangaroos will be progressively removed from the SMP;
- There will be no net increase in grazing pressure on native vegetation within the Regional Park;
- Any increase in grazing pressure will be managed and confined within areas outside the Regional Park.
- Impacts of grazing will be monitored managed and researched to establish sustainable grazing levels, and to prevent significant impacts.

Protocol for Sick and Injured Animals

As large populations of kangaroos and a small population of emus occur within the SMP, it is inevitable that some of these animals will become sick or suffer injury. Moreover, as these populations are artificial, being contained within a fenced property, the property owners have a duty of care to maintain the wellbeing of these animals.

Some injuries to kangaroos and emus can arise from human-induced accidents. In particular, current use of the St Marys Property for industrial purposes generates traffic throughout the eastern half of the property and, despite the speed restrictions throughout the SMP, it is likely that some animals will be injured or killed as a result of collisions with vehicles. Additionally, disease, old age and lack of food and/or water during current adverse conditions will result in some animals becoming sick and possibly dying.

Under this plan, it will be necessary that appropriate steps be undertaken to ensure that injured or suffering animals are treated humanely and in a way that is consistent with relevant legislation and policy.

Kangaroo Population Reduction

An integrated approach to kangaroo population management will be required at the SMP incorporating several management options. Kangaroo management must take into account three key considerations:

- that there is an urgent need to reduce the population of kangaroos to ensure that the population is not subject to inhumane conditions under adverse conditions and through the loss of habitat as development of the SMP commences;
- that there is a need for long term management of the population in the context of the future land use of the SMP in development areas which is, for the large part, incompatible with the retention of kangaroos throughout the SMP; and
- the option to manage a sustainable population of kangaroos within all or part of the Regional Park.

The short-term management priorities for macrofauna at the SMP are:

- Phasing out of the red kangaroo population from the SMP;
- Immediate commencement of a fertility control program for eastern grey kangaroos with the aim of achieving a short term reduction of the population of eastern grey kangaroos within the first two years of the plan (focusing upon animals within the eastern area first);
- Monitoring and management of the emu population; and
- Exclusion of kangaroos and emus from the eastern area of the SMP
 - Under this plan, the eastern area of the SMP will be fenced with appropriate macrofauna-proof fencing;
 - Kangaroos will either be translocated to other sites outside the SMP or to other parts of the SMP; and

- Emus will be translocated to other parts of the SMP.

The objective of exclusion is to remove kangaroos and emus from the Eastern Precinct (and later other precincts), to prevent conflicts between macrofauna and humans in the development area.

MONITORING AND ADAPTIVE MANAGEMENT

The MFMP is based upon an adaptive management approach, with regular monitoring, research and review. This will allow the kangaroo and emu populations to be managed in an optimal way that ensures animals are:

- removed from development areas; and
- where retained (in the short-term or permanently) they are maintained in a healthy, humane condition at densities that do not unsustainably impact upon the condition and use of the Regional Park.

Monitoring data will be collected and reported about:

- Herbivore population numbers, densities and distribution;
- Impacts of grazing by macrofauna and rabbits on vegetation condition;
- Incidents/accidents between kangaroos and people; and
- Other parameters as specified by the permit conditions.

This information will be used to regularly update the management plan and, if necessary, improve management.

STRUCTURE OF THE PLAN

The MFMP plan consists of the following sections and chapters:

Section 1 contains background information that supports the plan including:

- Chapter 2 which provides the methodology used to prepare this MFMP;
- Chapter 3 which summarises the statutory requirements relevant to the MFMP;
- Chapter 4 which provides a rationale for macrofauna management; and
- Chapter 5 which outlines the issues addressed during the Working Group Meetings.

- **Section 2** comprises the short term and long term elements of the plan that are proposed for implementation:
- Chapter 6 outlines the core management outcomes of the MFMP;
- Chapter 7 provides a protocol for treatment of sick and injured macrofauna;
- Chapter 8 provides prescriptions for kangaroo population reduction;
- Chapter 9 provides prescriptions for exclusion of macrofauna from the eastern area of the SMP and other development precincts;
- Chapter 10 details medium and long term options for macrofauna enclosures within the Regional Park;
- Chapter 11 provides prescriptions for emu management;
- Chapter 12 assesses the environmental impacts of the MFMP;
- Chapter 13 provides a schedule for implementation, monitoring and review of the MFMP.

ACRONYMS USED IN THE MFMP

ADI Australian Defence Industries

AHC Australian Heritage Commission

AHC Act Australian Heritage Commission Act

DEC Department of Environment and Conservation (previously referred to as National Parks and Wildlife Service in ERM 2003)

EPBC Act Environment Protection and Biodiversity Conservation Act

EPS Environmental Planning Strategy

GPS Global Positioning System

MFMP Macrofauna Management Plan

PCA Act Prevention of Cruelty to Animals Act

PoM Plan of Management

RNE Register of National Estate

RSPCA Royal Society for the Prevention of Cruelty to Animals

SMP St Marys Property (The former ADI site)

SREP 30 Sydney Regional Environmental Plan No. 30

SWOT Strengths, Weaknesses, Opportunities and Constraints

TSC Act Threatened Species Conservation Act

YAF Young-at-foot