

Systematic Survey of Vertebrate Fauna in Lane Cove National Park

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SYSTEMATIC SURVEY OF VERTEBRATE FAUNA IN LANE COVE NATIONAL PARK

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All photographs are held by DEC. To obtain a copy please contact the Bioregional Data Group Coordinator, DEC Hurstville

Cover Photos

Feature Photo (Elizabeth Magarey) White-striped Freetail-bat (Michael Todd) Sandstone outcrops in Pennant Hills Park (E. Magarey) Powerful Owl (Narawan Williams) Lane Cove River (Michele Cooper) Common Ringtail Possum (Nick Corkish) Blackbutt – Smooth-barked Apple Forest (E. Magarey) Creekline habitat (E. Magarey) Short-beaked Echidna (David O'Connor) Blackbutt – Smooth-barked Apple Forest (Kylie Madden) Red-crowned Toadlet (Dave Hunter)

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OVERVIEW

This report documents a systematic survey of vertebrate fauna within Lane Cove National Park and adjacent council-managed land, undertaken by the Department of Environment and Conservation (DEC) between February and May 2004. The primary objective of the survey was to implement systematic fauna survey techniques within the study area for the first time and provide a baseline against which future work might be compared. In particular, the survey focused on fauna within the recent Pennant Hills additions to the park. DEC established and surveyed 47 systematic fauna survey sites covering the range of dominant habitats and landscapes present within the study area. A range of survey methods were applied to sample birds, reptiles, arboreal and terrestrial mammals and frogs.

The following results were obtained:

- One hundred and six vertebrate fauna species were observed during the survey period, including seventeen species that had not previously been recorded within the park (fourteen native and three introduced species). Over 670 records were collected during the surveys, including 345 within the boundaries of the park and 331 in neighbouring lands, thereby vastly increasing the knowledge of fauna distribution, abundance and habitat use in the area.
- Four species that are listed as threatened on the NSW Threatened Species Conservation Act (1995) (NSW TSC Act) were recorded. These were the Powerful Owl, Red-crowned Toadlet, Eastern Bent-wing Bat and Grey-headed Flying-fox.
- The study area supports particularly high numbers of Powerful Owl and Red-crowned Toadlet, contributing significantly to the survival of these species within the region.
- The Gang-gang Cockatoo was recorded, which in the north of the study area is part of the Hornsby and Ku-ring-gai Council Local Government Area population, which is listed as an endangered population on the NSW TSC Act.
- Ten introduced species, including four birds and six ground mammals, were recorded of which three (Cat, Fox and Rabbit) are listed as a Key Threatening Process under the NSW TSC Act.
- A complete list of fauna species for the park was derived from the Atlas of NSW Wildlife. A total of 156 species have been recorded within the study area since 1950, including nineteen threatened species and fifteen introduced species.

The results of the vertebrate fauna survey indicate that Lane Cove National Park supports a diverse mix of fauna species and plays an integral role in the survival of a number of native fauna species within the region. All of the records collected during the survey have been entered into the Atlas of NSW Wildlife, which can be accessed by park management and members of the public.

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1 INTRODUCTION

1.1 PROJECT AIMS

This report presents the results of a systematic survey of terrestrial vertebrate fauna in Lane Cove National Park (NP) and adjacent council-managed bushland (the study area). The survey was undertaken by the Department of Environment and Conservation (DEC, formerly the National Parks and Wildlife Service (NPWS)) between February and May 2004. The primary objective of the survey was to implement systematic fauna survey techniques within the study area for the first time and provide a baseline against which future work might be compared to determine long-term trends. Particular attention was given to the Pennant Hills Park addition and to fauna groups that had not previously been surveyed such as microbats. The ability to monitor change is fundamental to isolated reserves like Lane Cove NP, so that conservation management can respond to threats and changes in fauna values in the future.

The specific objectives of this report are to:

- 1. Document the methodology of the survey techniques applied.
- 2. Provide a list of fauna species detected during the surveys.
- 3. Identify and profile threatened fauna species that were recorded during the surveys.
- 4. Provide an updated list of vertebrate fauna recorded on the Atlas of NSW Wildlife within the study area.

Future projects can build on this project to more comprehensively address patterns in fauna occurrence and habitat use across the park and investigate differences between weed-infested and intact environments.

1.2 BACKGROUND

Lane Cove NP is located approximately nine kilometres north-west of Sydney GPO. The systematic fauna survey described in this report was undertaken across Lane Cove NP (including the newly gazetted Pennant Hills section), as well as within council and public lands that immediately abut the park (Map 1, the study area).

Lane Cove NP is the most southern of a series of reserves that stretch between the Parramatta and Hawkesbury Rivers (Map 1), and hence together with Berowra Valley Regional Park, Garigal NP and Ku-ring-gai Chase NP provides an important refuge for fauna within this densely urban landscape.

The fauna of Lane Cove NP is popular with locals and amateur naturalists, particularly bird watchers, who have contributed to the knowledge of flora and fauna in the area. A large amount of this information, together with records collected by Birds Australia, park rangers and field officers, recreational park users, and environmental consultants is held within the Atlas of NSW Wildlife. Vegetation within the study area has been surveyed on a number of occasions (including Clarke and Benson 1987, P. and J. Smith Ecological Consultants 1993), and most recently has been comprehensively analysed and mapped by UBM Consultants (2001). The study area, however, has never been the subject of a dedicated systematic fauna survey that sought to sample the full range of environments. The systematic vertebrate fauna survey described in this report was undertaken within the park over the summer and autumn of 2004 in order to address this shortfall.



1.3 ENVIRONMENT

The study area lies along an incised sandstone gully on the Hornsby Plateau, within the Sydney Basin Bioregion. The Bioregion is dominated by extensive sandstone plateaux between Ulladulla, the Hunter Valley and Mudgee. The Bioregion is characterised by a temperate climate with warm summers with no dry season (NPWS 2003). It consists of a geological basin filled with near horizontal sandstones and shales of Permian to Triassic age that overlie older basement rocks of the Lachlan Fold Belt.

A summary of geology, soils and historical land use of the park is provided in the *Lane Cove National Park Plan of Management* (NPWS 1998). Vegetation in the study area is typical of remnant Sydney Sandstone habitats in the region and described in *Lane Cove National Park Vegetation Survey* (UBM Consultants 2001). A map of the distribution of vegetation communities within the park is provided in Maps 2a and 2b.

Lane Cove NP and surrounds have a high level of disturbance, resulting from the large proportion of urban-bushland interface, heavy recreational use, and contamination of the catchment area with pollutants and weeds. Weeds are abundant within vegetation communities with higher fertility soils, along gully lines and watercourses. However, the dry sandy environments in the park are less affected by this disturbance, and retain relatively high integrity and habitat quality.

1.4 FIRE

Almost all of the study area has been affected by fire within the last decade. During January 1994 the Lane Cove Valley experienced a very high intensity fire that burnt approximately 87 percent of the park. In December 1994 a second fire broke out in the Fox Valley area and burnt a further eight percent of the park, leaving only small sections along Blue Gum, Blackbutt and Carters Creeks unburnt. In January 2002 an intense fire burnt the northern half of the study area, including all of the former Pennant Hills Park, and south to Christie Park. Consequently, native flora and fauna were still recovering from these fires at the time of survey.