BOUNTIFUL

BATALLING

by Gordon Friend, Keith Morris and Carolyn Thomson

The Batalling jarrah forest, east of Collie, has become a 'hotspot' for native mammals such as woylies, chuditch, brushtail possums, mardos and phascogales. As a result, the area has become a focal point for scientific research, a mammal conservation course and a new *LANDSCOPE* Expedition.

As the early morning sun filters through the jarrah forest, the rattling of a wire-cage trap heralds the first animal to be tagged, measured and released. It is a routine that is repeated each time researchers from the Department of Conservation and Land Management (CALM) set their traps among the tall trees of the Batalling, Hillman and Nundedine forest blocks. These forests are on the eastern edge of the forest belt, 35 km east-north-east of Collie. There is an abundance of fauna here now, with some species approaching numbers that were present during the countless years before Europeans opened up the vast areas of south-western forests. But the animals didn't always have it this good: like most areas in the South West, Batalling and the surrounding region has had a chequered history.

FARMS, COAL AND TIMBER

Alfred Hillman, a Government surveyor in the early years of the Swan River Settlement, was the first European to explore the area around Batalling and Darkan, the nearest township. Hillman explored the Hotham and Williams rivers in 1835 and began to survey a road from Albany to Perth. Williams was settled at around this time, and Hillman and his friend Arthur Trimmer continued exploring the hinterlands, discovering the Arthur and Hillman rivers in 1850.

The first Europeans to settle in the Darkan area were Mr and Mrs William John Gibbs, who had emigrated from England in 1834, and were later engaged by the Government to discover new country suitable for settlement. They made their home near a rock outcrop known as 'Darkan' by local Aboriginal people. Their son William settled at Boolading Gully, just south of Batalling, in 1874. The trials and tribulations of their life in the bush were recorded by his wife Sarah-Anne. In those days, flocks of sheep had to be continually watched by shepherds to prevent them eating the poison shrubs (*Gastrolobium* spp.) which were common in the district, and sleeper-cutting and hunting were regularly undertaken to supplement meagre financial and food resources. There was no time for conservation; the very challenge to survive meant that new natural resources were continually being sought for development. In the Collie-Darkan region this was achieved from two sources: coal and timber.

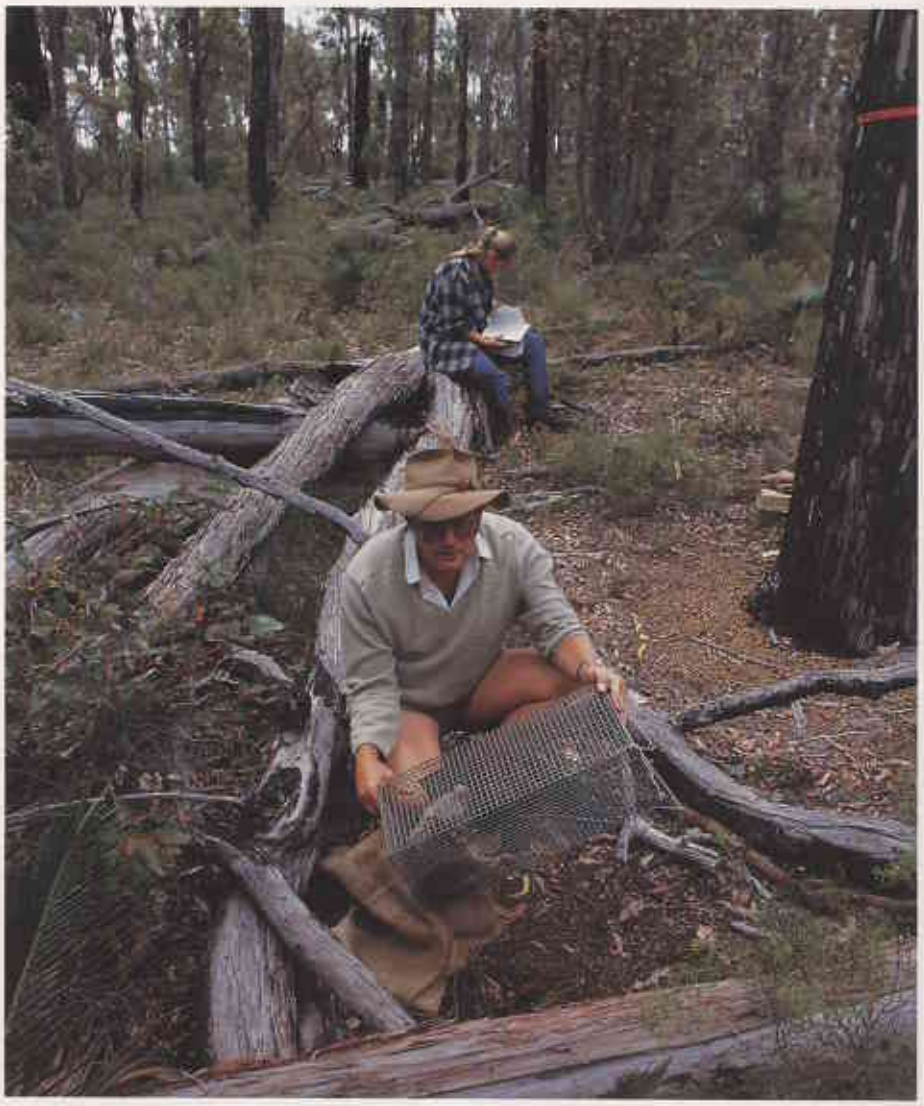
Although the Collie and Preston Rivers had been discovered and named as early as 1829, the town of Collie only began to materialise in 1883 with the discovery of coal. By the late 1890s, the coal industry and Collie were growing rapidly, coinciding with a world-wide demand for jarrah timber, and sleepers for the many railway lines forming

Previous page
Main: A pygmy by both name and nature, this tiny possum nests in tree hollows or blackboy leaves.
Photo - Gordon Friend
Inset top: Numbats have been reintroduced to the Batalling area and a recent monitoring trip showed they were breeding.
Inset below: The delightful brush-tailed phascogale is frequently caught at Batalling forest.
Photos - M & I Morcombe

Below: Intensive baiting for foxes at Batalling forest has resulted in a resurgence of native animals.
Photo - Kim Howe

transport webs throughout the Colony. Collie became the focal point for many timber mills, and the jarrah forest became interlaced with roads, railway lines and small settlements for timber workers.

Two such settlements, Buckingham and Bowelling, sprang up just south of Batalling. Ernest and James Buckingham acquired a logging concession on the newly opened Collie-Darkan railway line in 1910 and built a sawmill. This mill operated for the next six decades, and Buckingham became a sizeable settlement. Unfortunately, much of it was destroyed in a wildfire in 1945. Similarly, Bowelling mill grew into a



Right: Wire-cage traps are baited with a tasty combination of peanut butter, sardines and oats - a gourmet delight for this brushtail possum.
Photo - Carolyn Thomson

Below: This young chuditch was about the same size as a grain of rice at birth, and will be weaned at around six months of age.
Photo - Jiri Lochman

major rail siding. The mill closed in the early 1980s, but the neat little rail siding and platform still stand today.

FOREST MANAGEMENT

These forests were harvested by small-scale selective cutting, over a long time period. Only large jarrah and wandoo trees capable of producing sleepers and mill logs were removed, with little if any marri being taken. Thus any one area in the forest may have had several cuttings over a long time frame, resulting in a multi-aged forest with a number of very large, old jarrah and marri trees, and many younger trees.

Fire has played an equally important role in shaping the features of the Batalling and surrounding forests, and this has been very well documented since the late 1930s. Agricultural development was in full swing in the years following the first and second world wars. Thousands of trees were ring-barked, left to die, then felled and burnt to clear the country for farming. Inevitably, these clearing burns escaped into the surrounding forests, causing frequent and often high intensity wildfires. Some areas were burnt as often as every 1-5 years, though it is unlikely that successive fires were of high intensity. Most of these fires burned unchecked as access was poor, and humanpower and equipment levels were low.

After a series of wildfires in the late 1950s, regular prescribed burning was introduced. Over the next 20 years, most areas of the forest were burnt every 5-6 years by cool spring and occasional autumn burns. The frequency of burning has declined over the last 20 years, but it is clear that fire has been a major influence, alongside harvesting, in determining structure and pattern throughout the forest. However, clearing for agriculture and settlement, and the introduction of feral animals like the rabbit and fox undoubtedly had more of an impact on the animal life.

FERALS AND NATIVES

Prior to the coming of Europeans this area of the eastern jarrah forest probably supported about 26 mammal species, including at least six species of bat. Over the next century, as development gathered momentum, species numbers were reduced. Some of these species may have been reduced through hunting, but long-term residents in the area state that many of the smaller species disappeared quite suddenly around 1910, supposedly from some kind of disease. Foxes followed the rabbits into this region in the early to mid-1930s and, from what we now know of their potential impact, undoubtedly sounded the local death knell for species like woylies, numbats and ringtail possums, already struggling to survive in an environment dramatically altered by clearing and other human impacts.

RECOVERY

In the early 1980s, CALM researchers Per Christensen and Tom Leftwich, then of the Forests Department, became concerned about the fact that woylies were confined to two small populations at Dryandra and the Perup Forest, near Manjimup. They wanted to expand the mammals' range and embarked on a search for areas offering similar habitat. Noticing that Batalling had similar soils, vegetation and landforms to Perup, they released 56 woylies in the area in 1983.

Some fox control was done, but baiting techniques were not as sophisticated in those times and the woylie population remained at very low levels until 1991, when regular fox baiting with 1080 began. Woylie numbers have now increased dramatically. Trapping success has increased from only one woylie caught in 200 traps set in the late 1980s, to 15 in 100 traps set now. Woylies have also expanded their distribution in the forest and are no longer restricted to the heartleaf poison (*Gastrolobium bilobum*) thickets which provided protection from foxes before baiting programs were implemented.

The Batalling forest has now been designated a Fauna Reconstruction Site and CALM aims to return many of the

native animals that once occurred in the area, and to increase populations of those that still persisted. Numbats were reintroduced to the area by CALM research scientist Tony Friend in 1992 and 1993, and the success of this is currently being monitored. There are also proposals to establish populations of tammar wallabies and ringtail possums in the area.

In addition to these reintroduced species, several other medium-sized mammals also persisted in the Batalling forest. Until 1990, the chuditch, southern brown bandicoot (or quenda), brushtail possum and western brush wallaby had been recorded in low numbers. These increased dramatically after 1991, with the beginning of comprehensive fox control. Smaller species such as the mardo, brush-tailed phascogale and various dunnarts also persisted in the area, despite their disappearance from other areas.

So why is the area such a hotspot for fauna? The answer lies partly in the wide range of tree ages, from young to old, at Batalling. The hollow limbs of old jarrah and marri trees provide excellent refuge sites for brushtail possums and phascogales. Ground logs, both those felled for timber and left and those which have fallen naturally, develop hollows suitable for chuditch and numbats. However, many places throughout the jarrah forest have a range of tree ages, without corresponding diversity in the fauna. Site characteristics such as soils, vegetation and rainfall are probably the key to such diversity. Possums don't favour areas with a dense understorey. Woylies prefer clumped, relatively open vegetation with sandy soils that are easy to dig. They are rarely found in higher rainfall areas. The drier areas of jarrah forest with good soils, such as Batalling and Perup, appear to be the most productive for wildlife.

The mosaic of autumn and spring burning has also contributed to the diversity of wildlife. The heartleaf and

Opposite page: Participants on a *LANDSCOPE* Expedition to Batalling in November will have the rare experience of handling some of WA's secretive nocturnal animals.
Photo - Gordon Friend

Top left: When disturbed, echidnas often dig themselves into the ground, leaving their protective spines exposed.
Photo - Gordon Friend

Top: CALM researcher Brent Johnson with a chuditch which has just been measured, tagged and weighed. Volunteer Alison Sampey records the data.
Photo - Jenny Daniels

Right: Research is under way on the effects of fuel reduction burns on the animals of the jarrah forest.
Photo - Gordon Friend

melaleuca thickets, which provide refuge for woylies and tammars, require infrequent hot fires to regenerate, while creeks and swamps that support bandicoots require only cool burns, which leave patches of unburnt vegetation.

A FOCAL POINT

The wealth of mammal life in the forest has made it an ideal area for scientific research. One of the first research projects was the reintroduction of woylies to Batalling in 1983, and subsequent monitoring. In 1991, CALM research scientist Keith Morris began investigating the impact of fox baiting programs on the chuditch (see *LANDSCOPE*, Summer 1992-93). Being a carnivore like the fox, it was feared that this threatened species would also eat the poison baits laid to control foxes. However, by trapping and radio-tracking chuditch through several fox baiting sessions over three years, it was found that these fears were unfounded. In fact, fox control led to a significant increase in numbers of chuditch as well as woylies, bandicoots and brushtail possums.

After an approach from CALM's Collie District, research scientist Gordon Friend began investigating the impact of prescribed burning on animals of the jarrah forest in November 1992. Small mammals, reptiles and frogs are trapped using pitfall traps, small metal Elliott traps and wire-cage traps. They are then individually marked, measured and released. Many of the medium-sized

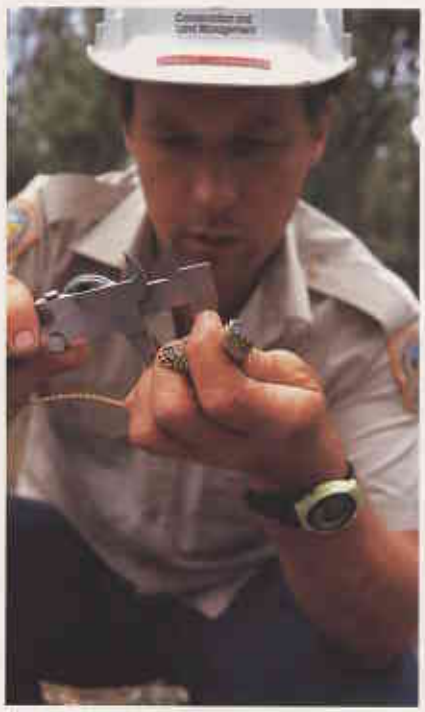
mammals are also fitted with radio transmitters and will be tracked closely for several months. Retrapping and radio-tracking of such animals provides valuable data on growth, breeding, movements and habitat use. The study will be carried out over five years and will provide feedback to managers on the effects of prescribed burning and fox baiting. This will allow them to develop management plans that take the multiple values of the jarrah forest into account.

With an increasing number of researchers visiting the area, CALM has leased an old farmhouse on a property adjoining Batalling. The farmhouse has become a haven for the district staff that manage the area, visiting researchers and school groups. The house has a rustic charm and can accommodate large groups. This facility has provided the opportunity to teach other CALM staff and paying volunteers about the department's scientific research. The CALM Bunbury operations staff and research scientists working in the area developed a mammal conservation course at Batalling for CALM staff, which has now been held twice since 1992. They use current research and monitoring projects to demonstrate animal survey and handling techniques, data recording and analysis and wildlife management techniques such as radio-tracking and fox baiting. Lectures are also given on the ecology and management of the forest fauna.

CALM and UWA Extension, of the University of Western Australia, have now run several *LANDSCOPE* expeditions, which bring people face to face with wildlife they wouldn't otherwise see and give them a chance to help carry out important research. 'Fauna of the Batalling Forest', to be held this November, will give paying volunteers the chance to see and handle secretive nocturnal animals such as chuditch, bandicoots, woylies and brushtail possums. Many people have enjoyed going on 'A Wild Weekend with CALM' to Perup forest (see *LANDSCOPE*, Summer 90-91). The Batalling course is similar, but will be something of a wild *week* with CALM.

CALM is to spend $20 000 upgrading facilities at the homestead to support the development of nature-based tourism in the Collie region. The work is now under way and includes laying new floor coverings, installing a new shower and toilet and providing more comfortable chairs and beds. The farmhouse will then be available to tourist operators, allowing them to take up to 20 people on expeditions into the forest.

But perhaps one of the most important developments at Batalling is the special co-operation that is occurring between researchers from CALM's Perth-based Wildlife Research Centre and the department's Collie District Office. All the planning and sampling for the studies at Collie have involved both scientific and district personnel. This has given district staff the chance to get hands-on experience and gain a practical understanding of ecological research. It has undoubtedly increased awareness about native animals and their habitat requirements throughout the district. As a result, virtually all management activities in the area are now undertaken in consultation with the researchers. In the end, it is the forest and its unique inhabitants that will gain from this relationship.



Top: Small mammals, lizards and frogs are captured in a series of pitfall traps.
Photo - Gordon Friend

Right: Goannas are quite long-lived. If this young animal is captured again it will provide interesting information about its growth.
Photo - Jenny Daniels

A *LANDSCOPE* Expedition to the Batalling forest will run from November 14-18. For further information, or to book, phone Jean Collins of UWA Extension on (09) 380 2433.

Gordon Friend and Keith Morris are research scientists at CALM's Wildlife Research Centre on (09) 405 5100. Carolyn Thomson is media liaison officer at CALM Corporate Relations Division (09) 389 8644. The contributions of Per Christensen, Peter Moore, Rob Brazell and Brent Johnson to this article are gratefully acknowledged.

Hand in hand with nature. This brushtail possum is just one of the animals studied during fauna surveys of the Batalling Forest. *See page 16.*

Lush vegetation and a welcoming smile greet you as you arrive at Mt Hart Homestead, the 'Oasis in the Leopolds'. *See page 48.*

LANDSCOPE

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'Fire, Wind and Water', on page 42, tells of recent research into the rehabilitation of exploration tracks in the Rudall River area of the Little Sandy Desert.

Deep beneath the Southern Ocean lies the wreck of the Sanko Harvest. *This rotting hull is now an artificial reef attracting marine life and divers alike.* *See page 23.*

Plantations of brown mallet in the early 1900's began a chain of events that resulted in the 'Woodland Wonderland' of Dryandra. *See page 28.*

FEATURES

REGULARS

COVER

Woylies prefer clumped, relatively open vegetation with sandy soils that are easy to dig. They are found, among other places, at Batalling Forest and the Dryandra Woodland. See stories on pages 16 and 28.

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