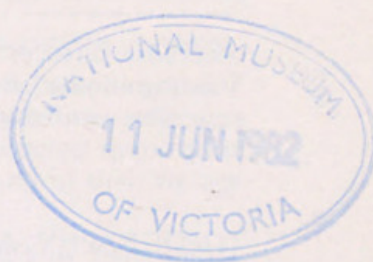


THE ACTIVITY AND MOVEMENT OF FAUNA
IN COMPARTMENT 2,
MAGGS MOUNTAIN, TASMANIA,

IN THE FIRST FIVE YEARS
OF
FOREST REGENERATION



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ABSTRACT

An area of *Eucalyptus delegatensis* regeneration in Compartment 2, Maggs Mountain, central northern Tasmania, has been monitored during the first five years of regrowth in an attempt to assess the progressive faunal changes. The topography, climate and botany of the area are summarised.

Fourteen species of mammals, 39 species of birds, 4 species of reptiles and 4 species of amphibians, have been found in the first five years following clearcut, slash and burn operations. The status of each species and their dependence on the changing habitat is discussed.

A series of nest boxes set out in an endeavour to test the demand for small nesting holes in trees failed to attract mammals or birds.

Some seasonal effects upon population statistics are summarised. Recommendations are made upon the retention of cull trees to form a limited canopy cover and on the formation of water-holes to improve the distribution and populations of animal species during dry periods.

A list of species recorded at Maggs Mountain, additional to those discussed by Green (1977) is appended.

INTRODUCTION

In 1975 a programme was commenced to observe and record progressive changes in the fauna occurring in a forest regeneration area following clearcut, slash and burn operations at Maggs Mountain, central northern Tasmania (map, figure 1). This study was part of a general fauna survey of the Maggs Mountain area commenced in 1974, the initial results of which are given by Green (1977). Pattemore (1980) has also given some results of a study into the effects of the pulpwood industry on wildlife in Tasmania.

The clearcut, slash and burn method of tree harvesting and seed bed preparation involves the falling of trees and extraction of all logs suitable for the production of sawn timber or pulp wood, felling of most of the forest residue consisting of dead, decayed or

otherwise unacceptable trees and the breaking down of any dense, green shrub layers. This is followed by a drying off period in preparation for firing and incineration of the area, thus removing much of the litter and creating a satisfactory seed bed.

THE STUDY AREA

TOPOGRAPHY AND CLIMATE

The area selected for monitoring was Compartment 2 on the plateau of Maggs Mountain, lat. 41°41' S; long. 146°12' E (map, figure 1). It comprises about 100 hectares of undulating land, being roughly rectangular in shape, measuring about 1700 m x 600 m, and is 880 m above mean sea level. From the eastern boundary, the topography drops steeply into the Mersey Valley, about 460 m below, and overlooks the spillway of Lake Rowallan Dam. The rest of the boundary is bordered by compartments in different stages of forest regeneration.

The soil is sand, gravel and talus which overlies basalt and related rock types.

Annual precipitation averages 160 cm, some of which falls as snow during winter months. Winter temperatures may drop to -12°C, mean temperature for July being 2°C. Snowfalls are common in winter, after which up to 30 cm may cover Compartment 2 for a week or more. Thawing is gradual and snow is usually present to some extent throughout July and August.

Summer temperature rises to 35°C with a mean for January of 10°C.

VEGETATION AND REGROWTH

Selective cutting of trees for saw logs has been carried on at Maggs Mountain for many years with the result that most of the forest has become degraded commercially. A brief account of species present in the three major forest types on Maggs Mountain is given by Green (1977). Prior to clearcutting, Compartment 2 supported a mixed sclerophyll forest with some small patches of Myrtle *Nothofagus cunninghami* (map, figure 1). It was clearcut in the autumn of 1974 and except for a small section in the north-west corner (map, figure 1), was slashed shortly afterwards and left to dry. Burning was carried out on 17th February 1975, the unslashed section being excluded and retained as a 'control' comparison for future reference.

A description of the preparations and firing, and their effects upon the fauna is given by Green (1977). As is usual, much of the wood in excess of 20 cm in diameter remained in various stages of incomplete incineration. Throughout the area small patches of grass, *Poa* spp. and *Agropyron pectinatum*, and associated ground cover which were then too green to burn were left.

Compartment 2 was seeded with *Eucalyptus delegatensis* from an aircraft in May 1975. Germination occurred in the following spring and many seedlings attained a height of 10 cm by January 1976. Grasses and fireweed, *Senecio velleiodes* and *S. linearifolius*, grew prolifically in the first postburn summer, producing an abundant crop of seeds and providing shelter and food for numerous animal species. By April many young eucalypts had attained a height of 20 cm. Leaf pruning by browsing mammals then became prevalent, the fine foliage being severed from the stem and dropped around the plant. This browsing damage was noticeable over most of the compartment and continued into the winter. Additional data on the immediate postburn conditions in Compartment 2 and the animals then present are given by Green (1977). About 25% of trees left standing after the burn collapsed in the first year.

In the second year after the burn, grass cover increased. Seed from the previous season's crop germinated and became established on the patches of ash and exposed soil while grass tufts which had survived the burn grew larger and more vigorous, attaining a height of 30 cm and supporting a prolific seed crop by mid February. Fireweed was

noticably less prevalent and the most advanced eucalypts had grown to a metre in height.

In the third year, a prolific growth of grass produced a dense swathe, standing above the dead and decaying foliage of the previous year, and created a hummocky effect in some areas. Fireweed had decreased and generally appeared stressed compared to previous years. Eucalypts had grown to two metres in some areas and the density of their foliage was starting to suppress the grass and small shrubs.

In the fourth and fifth years, the eucalypts had grown to three and four metres respectively. The grass had changed little in appearance, except in areas where the growth of eucalypts progressively overshadowed and suppressed it.

BOTANICAL PLOTS

On 11th November 1976 six plots, each 4 m², were pegged out at random points along the line of the transect walk (map, figure 1), the plants present in each plot were listed, the dominant species and percentage of ground cover noted, and the regenerating eucalypts counted. The vegetation assessment was repeated on 13th October 1980, and the results of these data are given in table 1.

TABLE 1

A list of botanical species present in each of six 4m² plots in Compartment 2 as recorded on 11th November 1976 and 13th October 1980, left and right columns respectively.

* = present, ⊕ = sub-dominant, x = dominant.

As grasses were not in flower at the time of recording, it is uncertain as to the identity of some and these are grouped under 'soft grasses'.

The percentage of ground cover and number of eucalypts in each plot is given.

	Species	Plot 1		Plot 2		Plot 3		Plot 4		Plot 5		Plot 6	
CARYOPHYLLACEAE	<i>Scleranthus biflorus</i>							*	*				
COMPOSITAE	<i>Cotula</i> sp. (<i>filicula</i>)			⊕	*		*						
COMPOSITAE	<i>Cirsium vulgare</i>			*	*								
COMPOSITAE	<i>Erigeron</i> sp.					*	*						
COMPOSITAE	<i>Gnaphalium</i> sp.			*				*					*
COMPOSITAE	<i>Helichrysum scorpioides</i>									*			
COMPOSITAE	<i>Hypochaeris radicata</i>						*	*	*				*
COMPOSITAE	<i>Senecio linearifolius</i>	*	*				*						
COMPOSITAE	<i>Senecio velleioides</i>	*	*	*					*				
CYPERACEAE	<i>Carex appressa</i>			⊕	*				*				*
EPACRIDACEAE	<i>Lissanthe strigosa</i>		*					*	*			*	
EUPHORBIACEAE	<i>Poranthera microphylla</i>	*	*	*		*	*	*	*				
GRAMINEAE	<i>Agropyron pectinatum</i>	*	*			*	*	x	*				
GRAMINEAE	<i>Agrostis</i> sp.						*						
GRAMINEAE	<i>Danthonia</i> sp.									*			*
GERANIACEAE	<i>Geranium potentillioides</i>	⊕		*	*	*	*	*	*	*	*	*	*
GRAMINEAE	<i>Poa</i> sp.	⊕	*	x		x	*	*	*			x	

Table 1 (Cont'd)

	Species	Plot 1		Plot 2		Plot 3		Plot 4		Plot 5		Plot 6	
HYPERICACEAE	<i>Hypericum japonicum</i>					*	*				*	*	*
JUNCACEAE	<i>Luzula</i> sp.	*		*		*	*	*		*	*	*	
LEGUMINOSAE	<i>Acacia dealbata</i>									*			
LABIATAE	<i>Ajuga iva</i>	*											
LEGUMINOSAE	<i>Pultenaea juniperina</i>									*	*	*	*
ONAGRACEAE	<i>Epilobium</i> sp.							*	*	*	*	*	*
OXALIDACEAE	<i>Oxalis corniculata</i>			*		*							
PROTEACEAE	<i>Lomatia tinctoria</i>	*	*								*	*	*
RANUNCULACEAE	<i>Ranunculus scapigerus</i>	*	*	*									
ROSACEAE	<i>Acaena</i> sp.	*	*	*		*	*	*	*				
RUBIACEAE	<i>Asperula</i> sp.							*	*		*	*	*
STACKHOUSIACEAE	<i>Stackhousia monogyna</i>	*									*	*	*
THYMELIACEAE	<i>Pimelea drupacea</i>	X	*								*	*	*
THYMELIACEAE	<i>Pimelea ligustrina</i>					*	*	*	*				
UMBELLIFERAE	<i>Hydrocotyle sibthorpioides</i>	*		*	*	*	*	⊕	*				
VIOLACEAE	<i>Viola hederacea</i>	*	*	*	*	*	*			*	*	*	*
FERN	<i>Polystichum proliferum</i>					*	*						
	Moss	*		*	*	*	*		*	*	*	*	*
	Ground Cover %	20	90	50	95	40	95	90	90	15	95	70	95
	Eucalypts present	9	12	0	0	1	6	2	0	3	4	0	0

METHOD OF FAUNA ASSESSMENT

The problems associated with assessing fauna and methods used to gather data for the general fauna survey of Maggs Mountain are outlined by Green (1977).

The Compartment 2 study formed part of that survey. It has been based mostly upon transect walks of between two and a half hours and three hours duration. Data has been recorded on each of 44 visits made between November 1975 and December 1980. Because of other commitments, visits have been somewhat irregular but they have been spread over the period in an endeavour to obtain the most relevant data. Walks were undertaken only when weather conditions were favourable for gathering information and usually between 0900 hrs and 1200 hrs. The course followed was pre-determined, being based upon six established markers and the same was followed on each occasion (map, figure 1). Total distance walked on each visit was about 3,000 m. Mimic or distress calls were used to attract birds more closely when this was considered necessary for identification and data recording. There was no limit to the distance over which observations were recorded but only activity occurring inside the compartment boundaries was included in the transect data. Every effort was made to record each individual once only. It was noticeable that birds were more plentiful in the adjoining compartments and the unburnt 'control' section of Compartment 2.

The presence, prevalence and activities of animals were further deduced from data gathered by a variety of means including diurnal observations, spotlighting at night, trapping, netting, and observations on the abundance of faeces and footprints, the degree of grazing, browsing, scratching and digging, the formation of runways, and vocal activity.

SPECIES LIST

MAMMALS

All and only those species recorded from Maggs Mountain by Green (1977) are discussed. Each is prefixed by an assessment of its numerical status in the general area, based upon information available to December 1980.

Brush Wallaby *Macropus rufogriseus*

Abundant in the sclerophyll forest. Some of those disturbed from Compartment 2 during falling operations returned to live beneath the shrubs in the period prior to burning. During the burning operation, some were seen leaving the compartment well ahead of the fire.

Exploring individuals returned to the newly burnt area from the first night after the burn, but rarely were animals found hiding in the compartment during the day. In the autumn, when grasses responded to the open postburn conditions, the soft new growth attracted an increasing number of wallabies to enter the compartment at dusk to feed. From a vantage point on the southern boundary, up to twenty could be seen feeding before dusk. Around the boundaries, well-worn runways were formed along which animals travelled when entering and leaving the compartment. Hunting and shooting of wallabies for their meat and commercially valuable skins reduced the concentration but its numbers in the general area remained strong.

In the following summer, the growth of grass provided an enhanced food source while fireweed, growing up to a metre high provided some shelter, especially in places where it grew close to logs and limbs. These more sheltered conditions attracted some wallabies to hide in the compartment by day.

In April 1976, browsing of eucalypt seedlings was severe and a programme to reduce the numbers of possible culprit species was implemented. This involved shooting with the aid of a spotlight and poisoning with sodium fluoroacetate (1080) mixed with chopped carrot. These controls removed about 100 wallabies and did reduce the browsing pressure but a significant number of wallabies escaped and some could always be found in and around the compartment. The same control measures were used in the following two years, after which most of the young eucalypts were sufficiently advanced to be not adversely effected by browsing. Haphazard shooting and snaring during winter by amateur and professional hunters operating in the Maggs Mountain area has continued.

After five years of regrowth, the compartment supports a resident population of wallabies approximating that in the surrounding forest. Grass and shrubs growing in open patches are well grazed, and runways, formed beneath the eucalypts, are obvious in many places.

Pademelon *Thylogale billardierii*

Abundant in rainforest and dense sclerophyll forest.

Some individuals, disturbed from Compartment 2 at the time of cutting, returned later to live where shrubs and forest residue were sufficiently dense to provide adequate shelter. The subsequent burn cleared all pademelons from the compartment and the lack of dense cover in the following few years inhibited the return of a resident population.

The postburn growth of grass in the autumn of 1975 provided good feed and attracted pademelons to visit the edges of the compartment to feed. From a vantage point on the southern boundary, up to 40 could be seen feeding just before dusk. Entry was usually along well defined runways leading from adjacent rainforest and wet sclerophyll forest.

As for the wallaby, so the pademelon was hunted and poisoned both for its meat and fur and to reduce its number when browsing of young eucalypts became significant. Both animals were taken at the same time, in the same manner and in approximately equal numbers.

Though persisting in strong numbers in adjacent forest, from which it continued to invade the compartment at night to feed, it had not succeeded in re-establishing itself in Compartment 2 by the end of the fifth year.

Southern Potoroo *Potorous apicalis*

Common in sclerophyll forest. Sample trapping for this animal has been undertaken in Compartment 2 and though it was undoubtedly present before cutting, and is common in adjacent forest, it has not since been seen inside the compartment. However, diggings consistent with those of potoroos have been found on infrequent occasions in the fourth and fifth years after the burn.

Brush-tailed Possum *Trichosurus vulpecula*

Abundant throughout the general area. Clearfall operations forced many possums from Compartment 2 and the subsequent burn completely removed the remainder. As grass and other vegetation increased in the year following the burn, so the Brush-tailed Possum invaded the area at night to feed. Spotlighting often revealed single or pairs of animals sitting on logs and hunters snaring on runways for wallabies and pademelons often caught possums accidentally. With a considerable nocturnal movement in and out of the compartment, it is natural that some soon established a diurnal residency by hiding and sleeping in hollow logs and stumps.

Each winter hundreds of Brush-tailed Possums are shot under licence on Maggs Mountain and Compartment 2 has always been subjected to this hunting pressure. Additionally, some Brush-tailed Possums are killed when they eat baits set out for

browsing animals in autumn poisoning programmes. Though considerable numbers have thus been removed annually, the Brush-tailed Possum persists in the compartment.

Common Ringtail *Pseudocheirus peregrinus*

Uncommon in adjacent forest and recorded from Compartment 2 on only one occasion, when a heavily moulting adult was found sleeping in a tree hollow on 7th November 1978.

Sugar Glider *Petaurus breviceps*

Rare on Maggs Mountain and not recorded from Compartment 2.

Eastern Pigmy-possum *Cercartetus nanus*

Rare on Maggs Mountain and not recorded from Compartment 2.

Common Wombat *Vombatus ursinus*

Common in the sclerophyll forest and clearcut areas. The effect upon this animal of clearcut operations and subsequent drying of the slashed litter was not observed nor is it known how many may have survived the burn in the relative safety of their burrows. Occasionally individuals have been seen in Compartment 2 and fresh faeces have been prevalent throughout the area since the autumn of 1975. Some well used burrows are known to have supported resident animals over this time and additional individuals regularly visit the compartment at night to feed in grassy areas. However, the attraction of improved grazing has not resulted in a concentration of animals as was the case with the wallaby and pademelon. Nor has the wombat been deliberately subjected to population control though occasionally individuals may have died from eating poison laid for other grazing and browsing animals.

The frequency of footprints and faeces throughout the compartment since the spring of 1975 suggests the wombat re-established itself within the first year following the burn and has since maintained a stable population.

Brown Bandicoot *Isodon obesulus*

Common in sclerophyll forest. No information was recorded on this animal during the pre-burn months and it is unlikely that bandicoots would have remained in Compartment 2 following the burn. Eight cage traps set in Compartment 2 on 7th February 1978 caught a sub-adult male and an unoccupied bandicoot nest was found there on the same date. One was seen on 23rd June 1977 and diggings consistent with those of bandicoots have often been found throughout the compartment, suggesting the re-establishment of a resident population from about the second year after the burn.

Tiger Cat *Dasyurus maculatus*

Common throughout the general area. No information was recorded prior to the burn and no positive evidence of its presence in Compartment 2 has been found. However, faeces consistent with those of Tiger Cat, together with its known presence in adjacent forest, leaves little doubt that it hunts in the compartment and probably resides there, hiding in hollow logs or beneath dense regrowth.

Tasmanian Devil *Sarcophilus harrisii*

Common throughout the general area. No information was recorded from Compartment 2 prior to the burn. Subsequently its presence there has been recorded on numerous occasions from faeces and footprints. Its nomadic habits probably lead it to hunt across the compartment during its nocturnal wanderings and it appears to have thus utilised the area continuously since the burn. The accumulation of unburnt timber and regrowth was sufficient to provide it with diurnal hiding places from a year after the burn. Carcasses of

wallabies, pademelons and possums, discarded by hunters, are consumed within a few nights.

Dusky Antechinus *Antechinus swainsonii*

Common in rainforest. No information was recorded from Compartment 2 prior to the burn. Subsequent trapping across the compartment with both snap traps and Sherman tin box traps, baited with bread and peanut butter, on a total of about 1,000 trap nights during June, August, September and October 1976 and at the end of March 1977, the second and third years following the burn, failed to produce an antechinus. This result was expected as the habitat was unlike that in which this antechinus is generally found and it is unlikely that it will establish itself in Compartment 2 in the near future.

Eastern Swamp-rat *Rattus lutreolus*

Abundant in rainforest, wet sclerophyll forest and in some other areas where it finds the ground cover sufficiently dense for it to form tunnels beneath the vegetation. No information was recorded from Compartment 2 prior to the burn but the habitat before clearcutting was similar to that in adjoining areas where it has since been trapped.

Trapping (as described for Dusky Antechinus) failed to produce swamp-rats in other than a small section where drainage had created a swampy area, choked with green vegetation and some unburnt litter. It appeared to shun or be unable to live in the accumulations of partly burned timber and areas of regenerating eucalypts and fireweed.

In the fourth and fifth year after the burn, in places where poa and other grasses had developed to form dense, hummocky swathes near the wet areas, it expanded its range by forming runways beneath such vegetation.

Water Rat *Hydromys chrysogaster*

Recorded at Maggs Mountain from one road-kill in the Arm River Valley in September 1974. There is no evidence to suggest that the water rat occurs in or adjacent to Compartment 2 and the habitat there does not suit its requirements.

Long-tailed Rat *Pseudomys higginsii*

Common in rainforest and to a lesser degree in adjacent wet sclerophyll forest. No information was recorded from Compartment 2 prior to the burn but the habitat there before clearcutting included some small patches of rainforest and these areas would have been consistent with its requirements. Trapping conducted across the compartment in the second and third year after the burn (as described for Dusky Antechinus) produced 11 Long-tailed Rats (6 female, 5 male) in about 1,000 trap nights. These were taken from sets amongst fireweed and sticks and sometimes in semi-exposed places beside logs. Successful reproduction of the resident population was indicated by a half grown juvenile, taken on 30th March 1977 and a heavily lactating female, taken on 31st March 1977, from an area near the centre of the compartment.

It was not determined if these were original occupants which had survived the burn or rats migrating into the compartment from adjoining areas in the second year after the burn, by which time fireweed and other such quick-growing plants would provide some cover additional to the partly burnt timber.

House Mouse *Mus musculus*

Sometimes common but fluctuating numerically throughout the general area. No information was recorded from Compartment 2 prior to the burn but it is probable that it occurred there as elsewhere. In the course of sample trapping across the compartment (as described for Dusky Antechinus), 27 were caught in about 1,000 trap nights. This

included 17 taken on the night of 23rd June 1976 from about 100 snap traps. No particular sites seemed to be favoured, mice being taken from a range of sets. Three females trapped at the end of March 1977 were all lactating and two males trapped at the same time had enlarged testes.

Rabbit Oryctolagus cuniculus

Abundant in grassy areas. No information was recorded from Compartment 2 prior to the burn but occasionally individuals and pairs were seen along nearby access roads and faeces were common in forest clearings. Following the burn, rabbits moved into the compartment and as the growth of grass was stimulated in the open environment so the rabbit numbers increased. This was evident by the amount of scratching and faecal pellets over the area. Rabbits were shot for their meat and skins, by hunters operating in the area and some were killed with poisoned carrot in the browsing control programme. Many rabbits survived these operations but were not seen in significant numbers, being generally timid and hiding beneath timber and regrowth. As the open environment gradually diminished with the establishment and growth of the young trees so the rabbit was inhibited, a trend which no doubt will continue as small, localised populations are further confined by their dependence upon the ever-diminishing areas of grass.

Myxomatosis was unknown at Maggs Mountain until 1977 when it was introduced in the Arm River Valley to control a high, but localised, population of rabbits. Though it has spread to other nearby areas, no infected rabbits have been seen in Compartment 2.

Long-eared Bat Nyctophilus geoffroyi

Little Bat Eptesicus regulus

Tasmanian Pipistrelle Pipistrellus tasmaniensis

The above three species of bats have all been collected at the field station below the north end of Maggs Mountain. To date, none have been recorded from Compartment 2. Bats are occasionally seen in the general area.

Feral Cat Felis catus

Rare and none have been recorded in Compartment 2.

Echidna Tachyglossus aculeatus

Common, individuals being regularly seen in spring and summer. No information was recorded from Compartment 2 prior to the burn but nomadic individuals have subsequently been seen on several occasions. The semi-open environment with decaying timber seems to provide a favoured habitat and diggings consistent with those of this mammal were often seen in the compartment.

Platypus Ornithorhynchus anatinus

Present in the Mersey and Arm Rivers but none have been recorded from Compartment 2.

BIRDS

Fifty-six species of birds were recorded from the Maggs Mountain area by Green (1977). Seven additional species have since been found there (see Appendix). Thirty-nine (62%) of these have been found in Compartment 2 in the first five years following clear-fall, slash and burn operations.

Each species account is prefixed by an assessment of its numerical status in the general area and is based upon information available to December 1980. Nomenclature and

order of presentation follows Schodde *et al.* (1978). Percentage quoted is of visits in which the species was recorded.

Pacific Black Duck *Anas superciliosa*

Locally uncommon. One was flushed from a water-filled drain after dark on the evening of 10th September 1975, seven months after the burn. This species has since been found in other such man-made water catchments in nearby clearcut compartments.

Brown Goshawk *Accipiter fasciatus*

Uncommon. One was seen flying over the compartment on 20th February 1979.

Wedge-tailed Eagle *Aquila audax*

Uncommon. One was seen flying high over Compartment 2 on 5th February 1980.

Brown Falcon *Falco berigora*

Uncommon. Single birds or pairs have been seen perched on tall dead trees or flying over the compartment on 13 visits (30%). These have been of a random nature and without seasonal bias, the first record being on 13th January 1976, 11 months after the burn.

Yellow-tailed Black-Cockatoo *Calyptorhynchus funereus*

Uncommon. From one to eight have been seen on five visits (11%). These were all in the first two years after the burn which represents 42% of visits made up to that of the last sighting when eight birds were present on 15th February 1977. In their search for wood-boring larvae, the cockatoos were chipping decaying logs, apparently attracted to the recently exposed and relatively accessible infestations.

Sulphur-crested Cockatoo *Cacatua galerita*

Uncommon. One was seen flying over Compartment 2 on 13th January 1976.

Green Rosella *Platycercus caledonicus*

Common. It has been seen in Compartment 2 on 11 visits (25%) usually single or in pairs. The largest numbers recorded were 15 in May and 20 in June, 1976. The heavy growth of fireweed which followed the burn was then carrying a crop of ripening seed and the rosellas were flocking to feed on it. This feeding activity was not seen in the compartment in subsequent years. Pre-breeding activity has been observed there on most spring-time visits, pairs being attracted to search for nesting holes in the few old, tall trees left standing. Rosellas have not been found in the young eucalypt regrowth and generally appear to favour the high forest canopy in adjacent compartments.

Blue-winged Parrot *Neophema chrysostoma*

An uncommon migrant. A flock of 15 was found feeding amongst green, seeded grass on 17th February 1976. When flushed they flew about 50 metres to rest on dead limbs and stumps before returning to the ground to resume feeding. Ten were present one month later, feeding in the same manner. On 15th February 1977, only four were found, again feeding amongst the grass. This habit of small flocks visiting clearcut areas in the first two autumns after the burn has been observed in other nearby compartments.

Fan-tailed Cuckoo *Cuculus pyrrhophanus*

A common migrant. Recorded from Compartment 2 on 14 visits (32%). Sightings have been spread over the five years but only in the warmer months, between October and March.

Shining Bronze-Cuckoo *Chrysococcyx lucidus*

A common migrant. Found calling in Compartment 2 on only three occasions (7%), February, October and December 1976.

Tawny Frogmouth *Podargus strigoides*

Common. Not found on transect walks but one has been seen on two occasions, near the centre of Compartment 2, when spotlighting at night.

White-throated Needletail *Hirundapus caudacutus*

A common migrant. Three were seen flying over Compartment 2 on 5th February 1980.

Welcome Swallow *Hirundo neoxena*

A common migrant. First recorded in Compartment 2 on 30th November 1977 when three were present. It has since been found there on seven additional visits (18%) between November and February. A pair was found nest-building in a hollow tree trunk on 8th November 1978.

Tree Martin *Cecropis nigricans*

Found flying over Compartment 2 on five visits (11%), the first occasion being 13th January 1976, subsequent sightings being between 8th November and 5th February.

Richards Pipit *Anthus novaeseelandiae*

An uncommon migrant. It has been found in Compartment 2 on 25 visits (57%). The first occasion was 11th November 1975, in the first spring following the burn. At least one pair have bred in the compartment every year since and a pair with three flying young was found on 12th December 1978. The earliest seasonal appearance was on 17th October and the latest, 16th March (figure 2). Most birds seen on any visit was nine on 12th December 1978. As the eucalypts developed so the pipit was confined to the diminishing grassy clearings.

Black-faced Cuckoo-shrike *Coracina novaehollandiae*

A common migrant. Found in Compartment 2 on 15 visits (34%), the first occasion being 10th November 1976. It usually occurs in pairs or small parties of transitory birds, occasionally resting on the tall, dead trees but never staying long. The earliest seasonal record was 10th September and the latest, 9th April.

Pink Robin *Petroica rodinogaster*

Three were found in Compartment 2 on 9th April 1979. These were all grey birds and apparently transient. This species breeds in rainforest in adjacent compartments.

Flame Robin *Petroica phoenicea*

A common migrant. Found in Compartment 2 on 38 visits (86%). It has been one of the most successful and prevalent species to colonise the compartment following the burn. It has bred there every year, nesting in crevices and on ledges in the logs and stumps and feeding from within the compartment boundaries. It is absent in June and July, the earliest seasonal record being 31st August and the latest 11th May. Peak populations occur in spring and autumn when migrating birds are present, often in loose flocks, the greatest number on any visit being 37 on 5th November 1978 (figure 3).

Dusky Robin *Melanodryas vittata*

Common. Recorded in Compartment 2 in every month, being found on 32 visits (73%). It appeared to be hesitant of entering the compartment in the first year following

the burn, but from the second year its numbers have remained relatively constant. It has bred there every year, nesting on ledges in logs and stumps or amongst the upturned roots of fallen trees.

Grey Shrike-thrush *Colluricincla harmonica*

Not recorded in Compartment 2 in the first year after the burn but a regular visitor in the second and third years of regeneration, individual birds making daily forays to feed. By the fourth summer, it appeared that some may have become resident and in the fifth summer several were occupying territories and apparently breeding. It has been recorded on 27 visits (61%).

Superb Fairy-wren *Malurus cyaneus*

Common. Recorded on 31 visits (70%) but only occasional exploratory birds were present in the first year after the burn. A marked increase was recorded in the second autumn when the growth of grasses and fireweed provided improved shelter, protection and feeding conditions for fairy-wrens, and 25 were recorded on 25th June 1976. Snow fell over winter and their population dropped dramatically. None were found on four visits between 10th September and 15th December 1976. In the third autumn, the fairy-wrens again moved into the compartment in numbers similar to the previous year but declined in the following winter. The 1977 decline was not so drastic, a few pairs surviving to breed there in the following summer, nesting amongst the dead grass and fireweed. By the end of the fourth autumn, the population reached its greatest peak when 36 were recorded on 26th June 1978. A winter decline again occurred and none were recorded in September and October 1978. A few pairs were found breeding from November with freshly laid eggs being found as late as 5th February, but the high autumn increase did not follow. Numbers have subsequently remained fairly constant, peaking at six and eight in December 1978 and December 1979 respectively (see figure 4).

It thus appears that the Superb Fairy-wren found conditions in Compartment 2 favourable, from the second to the fourth year after the burn but was unable to tolerate the severe winters which prevail at that altitude, being killed by cold or forced to retreat to lower altitudes. After the fourth year, the height and density of regenerating eucalypts was creating conditions generally unacceptable to this fairy-wren and it is suggested that this was the reason for it failing to regain its former autumn numbers (figure 8).

White-browed Scrubwren *Sericornis frontalis*

Common. This species was present in Compartment 2 immediately prior to the burn and several were observed flying away from the fire. It started to return soon after the burn and has been recorded on 40 visits (91%). As the vegetation re-established so its population increased until the third year, since when its numbers have remained fairly constant (figure 5). After the first year, it bred in the compartment every spring and it appears to find the dense young eucalypts a favourable habitat.

Calamanthus *Sericornis fuliginosus*

Uncommon. This species leap-frogged forest to invade grassland and in Compartment 2 it has been recorded on 13 visits (30%). It first appeared in the second year after the burn when up to four were present from February to June. None were found throughout the following year and it was next recorded in Compartment 2 on 30th November 1977 when a pair was suspected of breeding. They remained in the compartment, being recorded on every visit until June 1978. Calamanthus was not again found in the compartment until 5th February 1980 when two pairs were found, each with three young which had just flown from their nests. All had apparently left the compartment by 18th March 1980, but a pair was again in residence on 13th October.

All these birds were found living on the grassy patches where eucalypts had not grown or were retarded. They often flew over the dense eucalypt regrowth when passing

from area to area and perched on dead limbs and stumps from which they watched and called.

Brown Thornbill *Acanthiza pusilla*

Abundant. Recorded on 28 visits (64%) but only occasionally were individuals or small parties found in the first two years after the burn, the most being seven in both May and June 1976. Numbers increased in the third year, a nomadic flock of about 30 being recorded on 23rd June 1977. Some were breeding in Compartment 2 in the following spring, nests being placed close to the ground amongst dry grass and in fireweed. Numbers diminished in late summer, after which it was only rarely recorded in the compartment until April and June 1978 when nomadic flocks had again returned, 24 and 20 respectively being recorded. Breeding birds were present in the following spring but again, a post-breeding late-summer exodus occurred with only one bird being recorded on 20th February and none on 9th April. A visit on 13th June 1979 failed to reveal any Brown Thornbills, nor has this species been found there since in other than small parties and breeding pairs. The pattern of its occurrence appears similar to that of the Superb Fairy-wren, being in greatest numbers from late autumn to June in the second, third and fourth years after the burn and least numerous in late summer when a post-breeding exodus occurs (figure 6).

Tasmanian Thornbill *Acanthiza ewingii*

Abundant. Recorded in Compartment 2 on seven visits (15%), all being between 2nd April and 6th September, the greatest number being seven. Such occurrences appear to be of a nomadic nature and sometimes made in company with Brown Thornbills.

Yellow Wattlebird *Anthochaera paradoxa*

Common. Though common in adjacent compartments, it has been recorded from Compartment 2 on only two visits (5%), these being of single birds in transitory flights. The almost complete absence of tall foliage-bearing eucalypts is apparently responsible for its shunning of the area.

Yellow-throated Honeyeater *Lichenostomus flavicollis*

Abundant. Recorded in Compartment 2 on 17 visits (39%). Only occasional exploratory visits were made until the fourth year after the burn when a resident and possibly breeding pair were recorded in November and December 1978. Two pairs, apparently resident breeding birds, were present from October to February 1979 and three pairs, apparently breeding, in October 1980. It has been absent or rarely recorded in autumn.

This species feeds amongst the twigs and limbs of eucalypts, by prying beneath loose bark, and it may thus be reasonable to assume that its delayed return to Compartment 2 as a resident species was in response to the rate of development of the regenerating eucalypts. Not until about the fourth year would these trees commence to shed bark sufficient to provide cover for the invertebrate fauna upon which the Yellow-throated Honeyeater might feed.

Strong-billed Honeyeater *Melithreptus validirostris*

Abundant. Only two transitory birds have been seen in Compartment 2 and these were on 12th May 1980.

Black-headed Honeyeater *Melithreptus affinis*

Abundant below 600 metres but only rarely found on the top of Maggs Mountain. One transitory bird was seen on 12th May 1980 flying low over the eucalypt foliage.

Crescent Honeyeater *Phylidonyris pyrrhoptera*

Common. One was seen on each of two visits in October 1976 and four were present on 17th October 1979. The latter birds were calling and feeding amongst the taller eucalyptus regeneration.

Spotted Pardalote *Pardalotus punctatus*

Common. Recorded in Compartment 2 in significant numbers on only three occasions (7%) the first being of 32 on 9th April 1979, the second of 25 on 13th June 1979, and the third of 54 on 12th May 1980 (figure 7). All three instances were of loose flocks feeding amongst the foliage in the tallest of the eucalypt regeneration. When flushed, birds would rise to perch on dead trees over-standing the eucalypts but soon returned to the foliage to recommence feeding. These are amongst the first instances in Compartment 2 of significant flocks of birds working the foliage of the eucalypt regeneration (figure 10).

Striated Pardalote *Pardalotus striatus*

An abundant migrant. Recorded in Compartment 2 on 25 visits (57%). The earliest seasonal record was on 5th September. Not until 1980 was this species found in the compartment after February. In that autumn one was still present on 18th March and two on 12th May. A few pairs have bred in holes in old, lofty, living eucalypts every year since the burn but its presence at such times appears limited by the lack of such breeding and living requirements.

Silvereye *Zosterops lateralis*

An abundant partial migrant. Recorded in Compartment 2 on 13 visits (30%). Only three sightings of single birds were recorded until 11th April 1978 when 40 were present, feeding amongst the foliage of the eucalypt regeneration. Subsequently, this species was recorded more regularly, 20 being present on 20th February 1979 and 20 on 13th June 1979. As with most other foliage gleaning birds, it was not until four years after the burn that the eucalypt regeneration was sufficiently advanced to provide an attractive feeding habitat (figure 10).

European Goldfinch *Carduelis carduelis*

A common nomad, recorded on 13 visits (30%). It occurred in Compartment 2 between autumn and early spring in most years following the burn but was not present during the summer months. A flock of 50 was present on 10th September, only seven months after the burn. In the following autumn, 100 were recorded on 13th April, 40 on 11th May and 20 on 25th June. These birds were flocked and feeding on the seed heads of the introduced Spear Thistle *Cirsium vulgare*. In the autumn of 1977 never more than ten were found. In the autumn of 1978, flocks of 40 and 33 were recorded for April and June respectively and on 13th June 1979 a flock of 160 was found feeding on the ground amongst the dry grass. None were found on a visit on 12th May 1980.

Beautiful Firetail *Emblema bella*

Common. Recorded in Compartment 2 on only three visits (7%), these being of three transitory birds in May and June 1976 and one in November 1979.

Common Starling *Sturnus vulgaris*

Uncommon. Recorded in Compartment 2 on only three visits (7%). Six were present on 16th November 1976 when they were observed seeking nesting holes in the few remaining old dead trees. On 15th December 1978 three were recorded, two of which were nesting in a tall eucalypt. Three were present in September 1978, also searching for nesting sites but were not believed to have succeeded in breeding.

Black Currawong *Strepera fuliginosa*

Abundant. Recorded in Compartment 2 on 16 visits (36%) usually as casual, transitory birds flying high from tree top to tree top and at no particular time of the year. One pair was found breeding in the compartment on 30th November 1977, the nest being situated about 15 metres above ground with an easterly aspect in the broken top of a dead tree trunk.

Forest Raven *Corvus tasmanicus*

Uncommon. Recorded only as transitory individuals or pairs on 14 visits (32%), usually flying high or perched in the tops of trees.

Observations

The numbers of individuals of different species in Compartment 2 changed with the growth of vegetation and establishment of the eucalypts. This is illustrated (figures 2-7) in the population changes of six of those species recorded over the first five years of forest regeneration. These figures reflect suitability of habitat and the progressive changes in the opportunities for food gathering for these species as the eucalypts increased in height and density.

Three species favouring relatively exposed areas (figure 8) established themselves in the first year after the burn but noticeably declined in abundance after the third year of forest regeneration, when the eucalypts closed over much of the clear ground.

Three species favouring shrubs (figure 9) increased in number with the growth of fireweed and eucalypts but declined after the third year when eucalypts commenced to smother the shrub-like vegetation.

Three species favouring eucalypt canopy (figure 10) did not appear in the compartment in significant numbers until the autumn of the third year, when eucalypt saplings had reached a height of about three metres, and these species have increased in number with the subsequent increase in the height of the trees.

REPTILES

Metallic Skink *Leiopisma metallica*

Abundant. An inspection of Compartment 2 on the day following the burn revealed that many Metallic Skinks had survived the fire, apparently by hiding in holes in the ground, beneath stones or inside unburnt timber. Most appeared to be completely disorientated, and when disturbed ran in any direction, even across the ash beds, as they sought places to escape. Five weeks later it was found to have re-established territories and hiding places and was apparently feeding on spiders and insects which had survived the fire or since migrated into the compartment. It has subsequently maintained a strong breeding population and is a common element of the fauna, living on or close to the ground and favouring the exposed grassy, log strewn areas. It avoids areas where eucalypt regeneration has grown tall and dense.

Small-scaled Skink *Leiopisma pretiosa*

Common. It was found living in Compartment 2 soon after the burn, a nucleus population apparently having survived the fire by hiding in holes or inside unburnt timber. It subsequently re-established and reproduced successfully, finding the open log strewn compartment a favourable habitat. It mostly climbs above the ground on logs and stumps in its search for invertebrate food items, and lives in holes and crevices in the dead timber.

Tasmanian Tiger Snake *Notechis ater*

Common. No live snakes have been seen by the author in Compartment 2 but a recently cast skin was found in February 1978. It is occasionally seen in adjacent compartments.

White-lipped Snake *Drysdalia coronoides*

Common. One was found near water on the western edge of Compartment 2 on 18th January 1977.

AMPHIBIANS

Brown Tree-frog *Litoria ewingii*

Common and localised. It was collected in Compartment 2 in February 1979 and is often heard calling in water catchment areas in spring and autumn.

Smooth Froglet *Geocrinia laevis*

Common and localised. A small breeding population was found in a swampy, vegetated area on the western edge of Compartment 2 where it had been heard calling in February of 1978, 1979 and 1980.

Brown Froglet *Ranidella signifera*

Common and localised. It has been collected in adjoining compartments and was heard calling from a swampy, vegetated area on the western edge of Compartment 2 in February 1977.

Tasmanian Froglet *Ranidella tasmaniensis*

Common. A small breeding population was found in a swampy, vegetated area on the western edge of Compartment 2 where it was recorded calling in October and December 1976. It may be found in summer, hiding amongst rushes growing near waterholes, elsewhere on the plateau of Maggs Mountain.

INVERTEBRATES

Insects and spiders were found in Compartment 2 from the day after the burn and were abundant after the spring of 1975. Butterflies, moths, flies, grasshoppers and field crickets were very conspicuous in January 1976. The brown butterfly *Argymnina hobartia* was very common in the compartment on 25th October 1977. Grasshoppers have been abundant every summer, making their first seasonal appearance in September and reaching a peak mass in February and March. They have been found to be a favoured prey of the introduced European Wasp *Vespula germanica* which is prevalent in the Maggs Mountain area, attacking many indigenous insects, dismembering their bodies and eating or carrying away the remains.

Series of insects and spiders were collected from the foliage of young eucalypts in Compartment 2 on several occasions in 1978-1980. This material still awaits sorting and identification.

NEST BOXES

Concern has often been expressed about the removal of dead or over-mature trees in the course of clearfelling because the decaying trunks and limbs provide nesting sites for several species of mammals and birds. Without such sites the ability of some species to live and breed is totally or partially restricted.

When Compartment 2 was clearfelled most dead or overmature trees were removed. In June 1977 an experiment was set up in an attempt to test the demand for small nesting holes by setting out a series of wooden nesting boxes, both in Compartment 2 and in other nearby areas.

DESCRIPTION

The boxes were 10 x 10 x 30 cm with an entrance hole about 3.5cm² near one end. A partial partition in the middle of the box divided it into two chambers, thus providing additional shelter and seclusion. A leather hinged side, fastened shut by a hook and staple, served as an inspection opening and a handful of old sawdust was placed in each. Boxes were wired to the trunks of trees and on stumps, at about two metres above ground, without consideration as to aspect. Most were placed in a horizontal position but some were placed vertically with the hole uppermost. In June 1977, 15 were positioned across Compartment 2 at intervals of about 50 metres, 15 in regenerating forest in an adjoining compartment, and 12 in dry sclerophyll forest at a lower altitude.

Animals which might have been expected to use these boxes are pigmy possums, dunnart, antechinus, bats, tree martin and pardalotes. No boxes suitable for larger animals were tested.

RESULTS

All nest boxes were opened and examined on each of the 23 visits between the date of placement and October 1980. No evidence could be found of mammals or birds having entered any of the 42 boxes. The only vertebrate animal found inside boxes was the Small-scaled Skink, one or two being found on several occasions, in boxes sited outside Compartment 2. Cockroaches, spiders and pupating insects were regular inhabitants. Torpid European Wasps were often present, 12 being found in one box on 3rd December 1979.

The absence of mammals and birds is not considered significant. The relatively low positions in which boxes were placed may have been a deterrent and further testing with alternative designs and sitings is necessary before conclusions can be drawn.

SEASONAL AFFECTS

The direct or indirect affect of different seasons has had a significant influence upon the numerical status and activity of birds in Compartment 2. Greatest numbers were found to be present in late autumn and early winter but with the onset of snow, numbers fell quickly and were lowest in mid and late winter (table 2). Because of the sparsity of large trees and the relatively exposed nature of the habitat, most species were more vulnerable to the extremes of climate, such as snow, frost, wind and sun, than was the case in adjoining compartments where shelter was abundant.

Annual migration also produced fluctuating numbers as did post breeding when juveniles joined the population. The seasonal bloom of flowers, seeds and invertebrate fauna attracted a number of species, which in turn may have attracted larger predators. The availability of water was an important attraction during the hot, dry months. The annual change in the botanical structure within the compartment, which is produced with every summer growing season was highly influential on the composition of the fauna. Such influences must be considered when endeavouring to interpret reasons for population changes and in the planning and design of clearfall, slash and burn operations if the best results are to be achieved in re-establishing both forest and fauna.

TABLE 2

Visits in each months with total of all birds counted in those months from September 1975 to October 1980 and the mean monthly totals in that period.

	January	February	March	April	May	June	July	August	September	October	November	December
Visits	3	6	3	4	2	4	—	1	*5	6	6	4
Total	91	304	132	377	187	496	—	21	303	278	288	159
Mean	30	61	44	94	94	124	—	21	60	46	48	40

* Two visits were made in September 1976.

RECOMMENDATIONS

SHELTER TREES

The sparsity of canopy trees left standing in Compartment 2 following the burn has been influential in deterring a number of animal species from entering, living or breeding in the compartment. Possums, falcons, hawks, cockatoos, rosellas, owls, tree martins, shrike-thrushes, cuckoo-shrikes, pardalotes, silvereyes, honeyeaters, wattlebirds, ravens and currawongs were all partially deterred from entering and dwelling in the areas when the vegetation was the equivalent of an exposed shrub layer or less. All these animals are important elements in the maintenance of a balanced ecological system and their proportional representation is beneficial to the regenerating forest, to the total faunal composition and to the aesthetic appeal of the region.

The need to fall residue cull trees and thus reduce excessive overstory for maximum regeneration is acknowledged but in Compartment 2 this resulted in too few trees left standing for the overall benefit of the compartment and its fauna. A significant percentage of those residual trees standing immediately prior to the burn were felled by the fire or became so weakened as to be blown down in the following year. The maximum number of green trees, in addition to all dead trees, which might be left without causing undue detriment to the quality of forest regeneration should be assessed with an allowance for a loss of up to 50% by fire and wind. Such a quota of trees should not then be felled.

About five large, green trees per hectare, at various stages of development and decay, overstanding a regenerating compartment, would produce a significant increase in the numbers of many forest animals attempting to recolonise such areas. The proportion of such increase would be directly related to the number, size and condition of the trees retained and therefore the maximum possible should be left standing. Such retention would not only foster forest fauna but would also reduce direct cutting costs and provide a degree of shelter for young trees against snow, frost and wind in the early years of regeneration.

WATER

In areas where a good supply of accessible free water is not readily available, the building of small dams or 'turkey-nest' waterholes should be planned and developed in each compartment at the time of clearfall and slash operations. As free water is an

essential commodity for many animal species, its availability in dry summer months is influential upon the retention and survival of animal populations. At such times, it is normal and natural for the distribution of the various species to be limited to the extent of their respective abilities to range to and from water. This is a possible reason for the low numbers of some species of birds found in Compartment 2 during the peak summer months. At times of drought or long, dry periods, such restrictions produce local concentrations of fauna which inevitably lead to increased mortality from starvation and predation. The establishment of two or three good watering points per 100 hectares, surrounded by a margin of bush with tall trees, in compartments where free water was not otherwise available, would greatly assist in maintaining a wider and more even distribution of many species and thereby permit the survival of greater numbers.

Clearfell, slash and burn operations have a detrimental effect upon many species of forest-dependant animals when their habitat requirements are removed and varying periods of time elapse before forest regeneration is sufficiently advanced to again support viable populations. This restricts the natural distribution and population of species and any compensatory measures which might be taken to help in lessening this impact is desirable. The progressive establishment of a grid-like pattern of watering points is therefore strongly recommended. Such an accessible water supply, distributed throughout the regenerating compartments, would also be of value to firefighters.

APPENDIX

The vertebrate fauna of Maggs Mountain, as known to December 1976, is listed and discussed by Green (1977). In the subsequent four years, some additional species have been found there and further information on the status of others previously listed has been collected. These additions are treated below in the same manner as formerly. Those marked with an asterisk(*) are first records for Maggs Mountain.

MAMMALS

* Eastern Bettong *Bettongia gaimardi*

Uncommon and restricted to areas of dry sclerophyll forest where individuals occasionally have been seen by spotlight.

Sugar Glider *Petaurus breviceps*

Some fur and the tails of two were found close together in a small clearing in dry sclerophyll forest near the field station on 12th April 1977. These appeared to have been killed and eaten by Masked Owl *Tyto novaehollandiae* within the previous few days.

Eastern Pigmy Possum *Cercartetus nanus*

A sub-adult female was caught on the plateau of Maggs Mountain as it crossed a road when attempting to escape from a compartment burn on 14th February 1977.

* Little Pigmy Possum *Cercartetus lepidus*

Probably restricted to areas of dry sclerophyll forest. An adult male was found in a pit-fall trap near the field station when servicing sets on 4th February 1980.

Platypus *Ornithorhynchus anatinus*

As previously foreshadowed, it has now been observed in both the Arm River and the Mersey River.

BIRDS

* White Goshawk *Accipiter novaehollandiae*

One was attracted to the field station by the presence of a caged Green Rosella on 13th April 1978. A pair were present in the same general area on 20th June 1978.

* Swamp Quail *Coturnix ypsilophora*

One was flushed in open dry sclerophyll forest near the field station on 6th February 1980.

Brush Bronzewing *Phaps elegans*

Since 1976, this bird has been seen on several occasions feeding on the verges of gravel roads.

Sulphur-crested Cockatoo *Cacatua galerita*

Since 1976 it has been seen regularly. Up to ten were roosting in the canopy of dry sclerophyll forest near the field station in the autumn of 1979.

* Southern Boobook *Ninox novaeseelandiae*

One was caught in a mistnet set at the field station on 17th October 1979.

* Masked Owl *Tyto novaehollandiae*

One was collected in the Mersey Valley below Maggs Mountain on 1st March 1978.

Tawny Frogmouth *Podargus strigoides*

Since 1976 it has been seen on about ten occasions when spotlighting.

* White-throated Needletail *Hirundapus caudacutus*

Three were observed hawking above the field station on 6th February 1980.

* Blackbird *Turdus merula*

One was found living in the vicinity of the field station in October 1980. It is occasionally heard calling from wet sclerophyll forest on the western side of Maggs Mountain.

Common Starling *Sturnus vulgaris*

Loose flocks of up to 100 birds sometimes visit grassland areas in the Arm River valley in autumn.

* Grey Currawong *Strepera versicolor*

One was seen at the field station in the autumn of 1977 and four were there in March 1980.

AMPHIBIANS

* Banjo Marsh-frog *Limnodynastes dumerilii*

One was calling from a pond below Lake Rowallen Dam on 6th February 1980.

ACKNOWLEDGEMENTS

I gratefully acknowledge the assistance of the Tasmanian Forestry Commission in giving me the use of a building at Maggs Mountain for accommodation and laboratory purposes, for their financial support and for the help of staff on many occasions. Associated Pulp and Paper Mills Ltd. have also supported the work in a practical manner.

Mrs. Mary Cameron, Honorary Associate in Botany, has identified specimens and assisted with the botanical plots.






Miss Judy Gadsby, Technical Assistant, drew the histograms and map.



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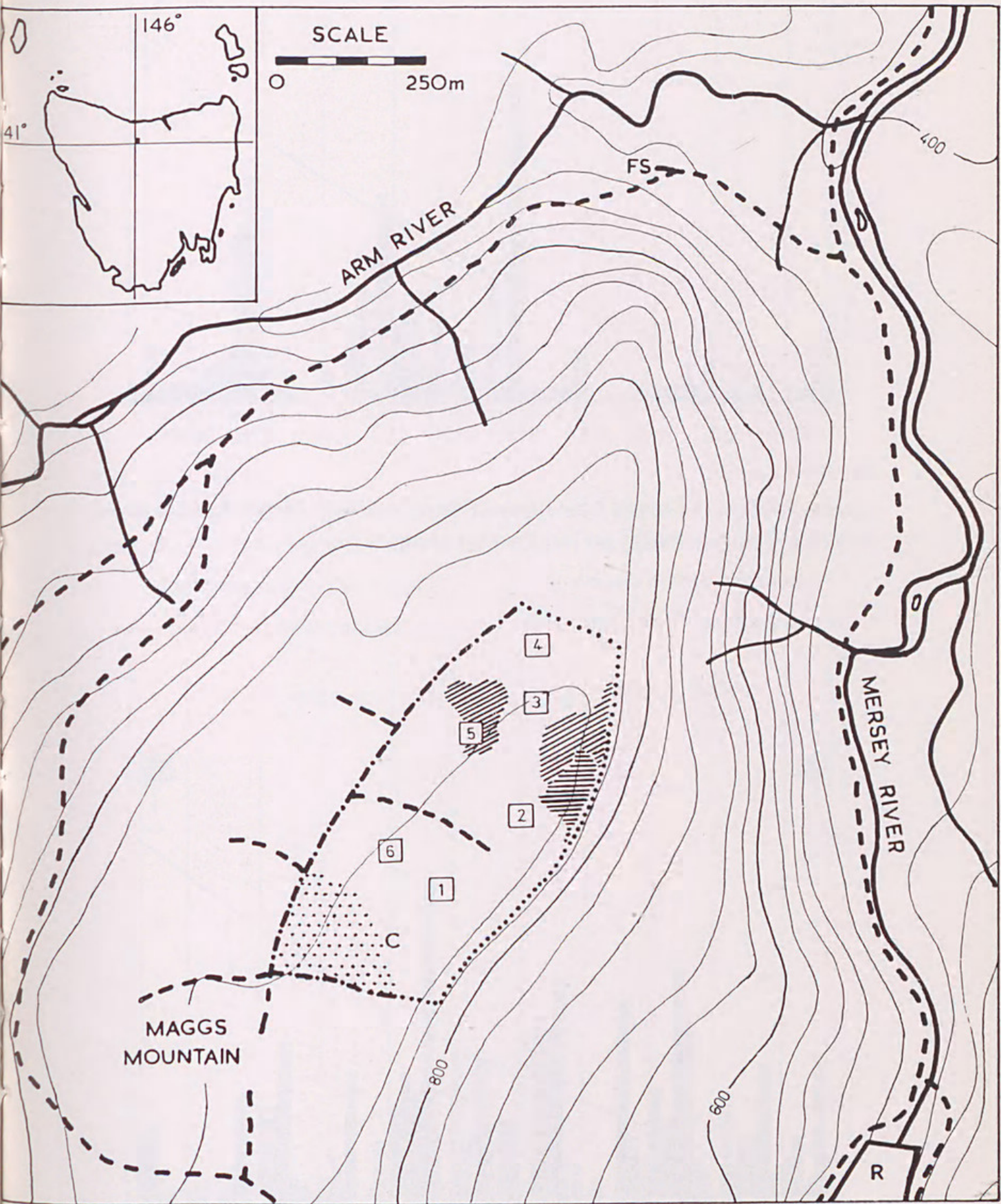
FIGURE 1

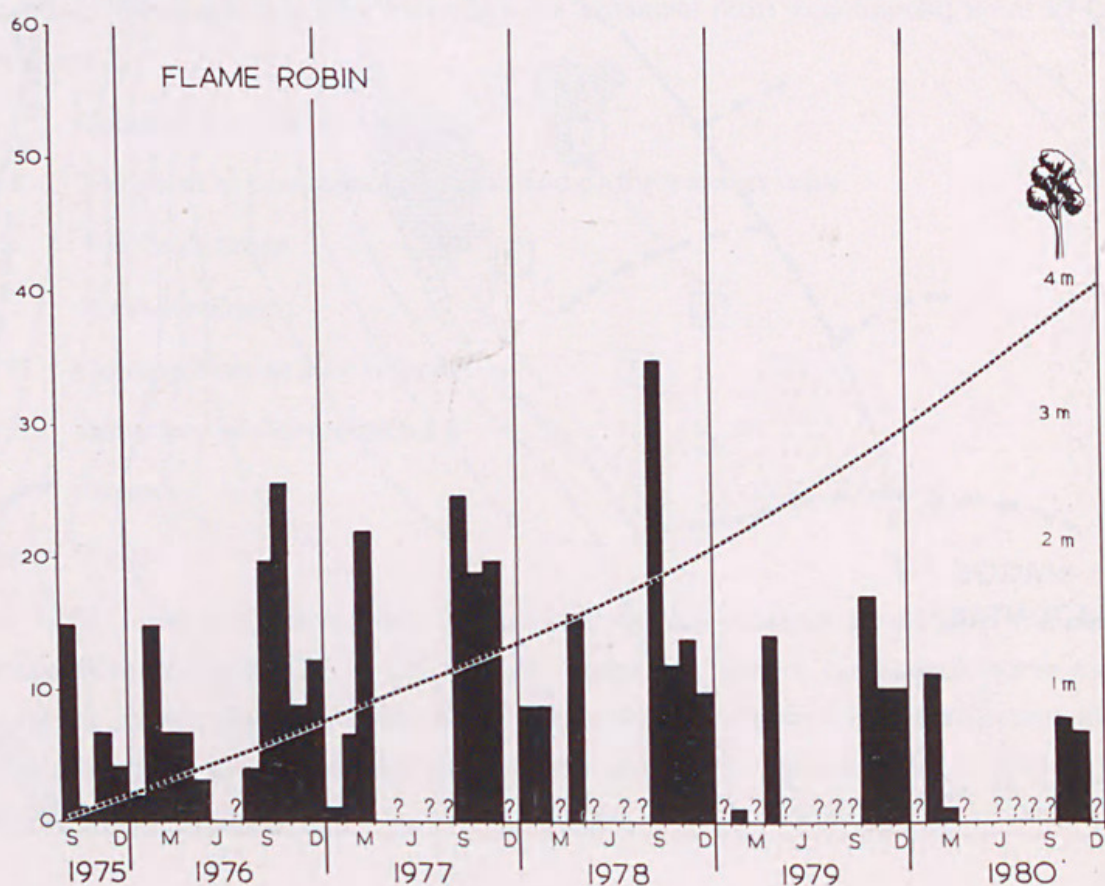
Topographical map centred on the northern end of the plateau of Maggs Mountain. Numbers in squares (e.g. 3) represent the botanical plots and transect point in Compartment 2.

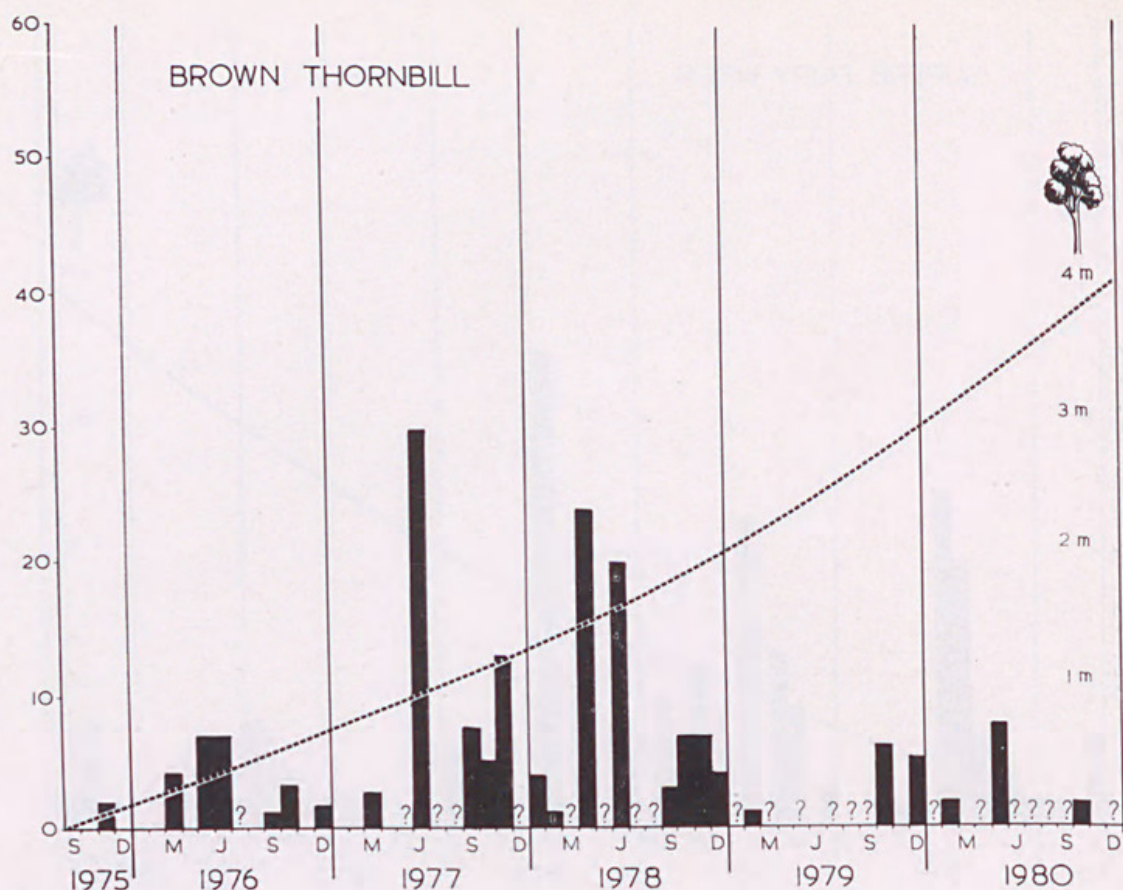
-  Unburnt 'control' section
- C The point of commencement and end of the transect walk
- FS The field station
- R Rowallen Dam
-  Contour lines at 40m intervals
-  Boundary of Compartment 2
-  Rivers
-  Roads

In 1948, most of Compartment 2 supported mature eucalypt forest with the canopy above 60m and with 22 to 30 eucalypt stems per hectare (unshaded), some mature eucalypt forest, canopy 30-60m and 2-30 eucalypt stems per hectare plus some myrtle and secondary species (shaded ) and scrub only (shaded ). (Ref. 45/14. Middlesex sheet of vegetation types, etc. Lands and Surveys Department, Hobart.)

The Activity and Movement of Fauna in Compartment 2, Maggs Mountain, Tasmania, 25
in The First Five Years of Forest Regeneration



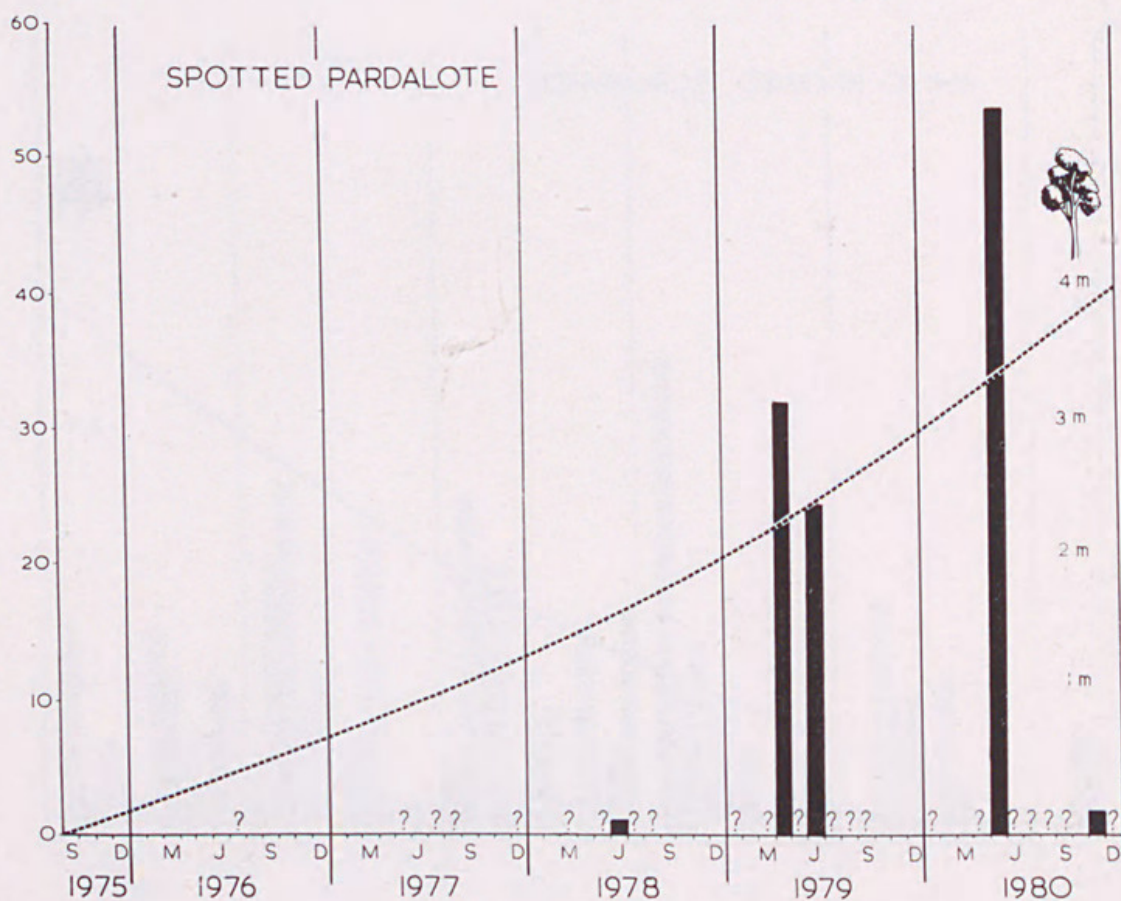


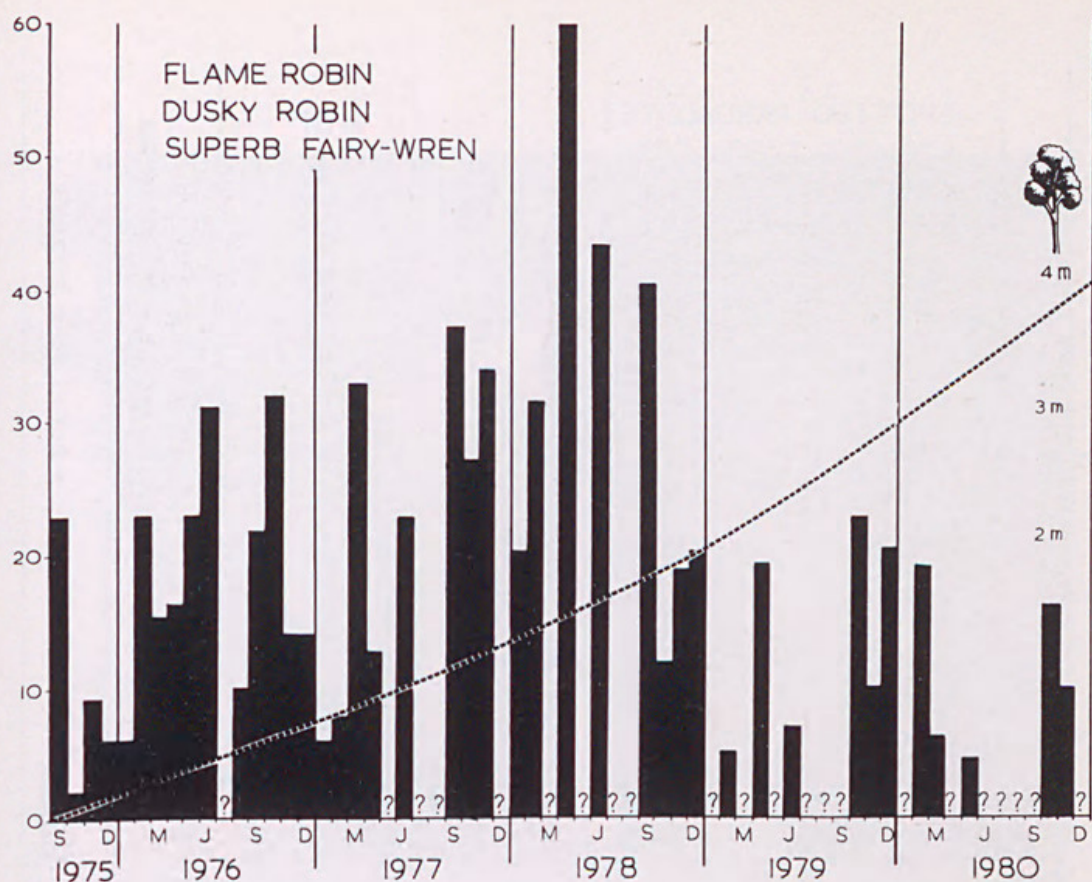


The numbers of Brown Thornbills (figure 6, above) and Spotted Pardalotes (figure 7, below) counted in Compartment 2 in the first five years of regeneration.

? Count not made in that month

----- Approximate height of eucalypts

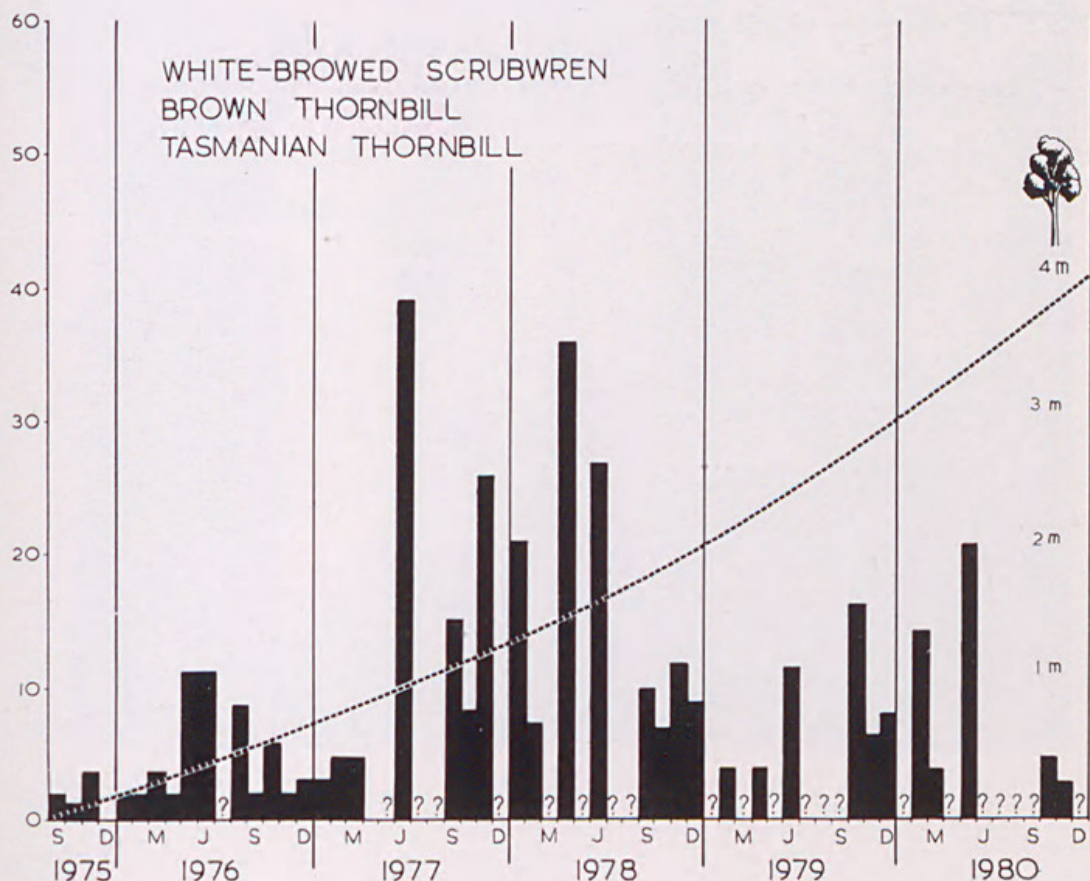




FIGURES 8 and 9

The combined numbers of three species of birds which favour exposed areas (figure 8, above) and three species of birds which favour shrubs (figure 9, below) counted in Compartment 2 in the first five years of regeneration.

? Count not made in that month ----- Approximate height of eucalypts



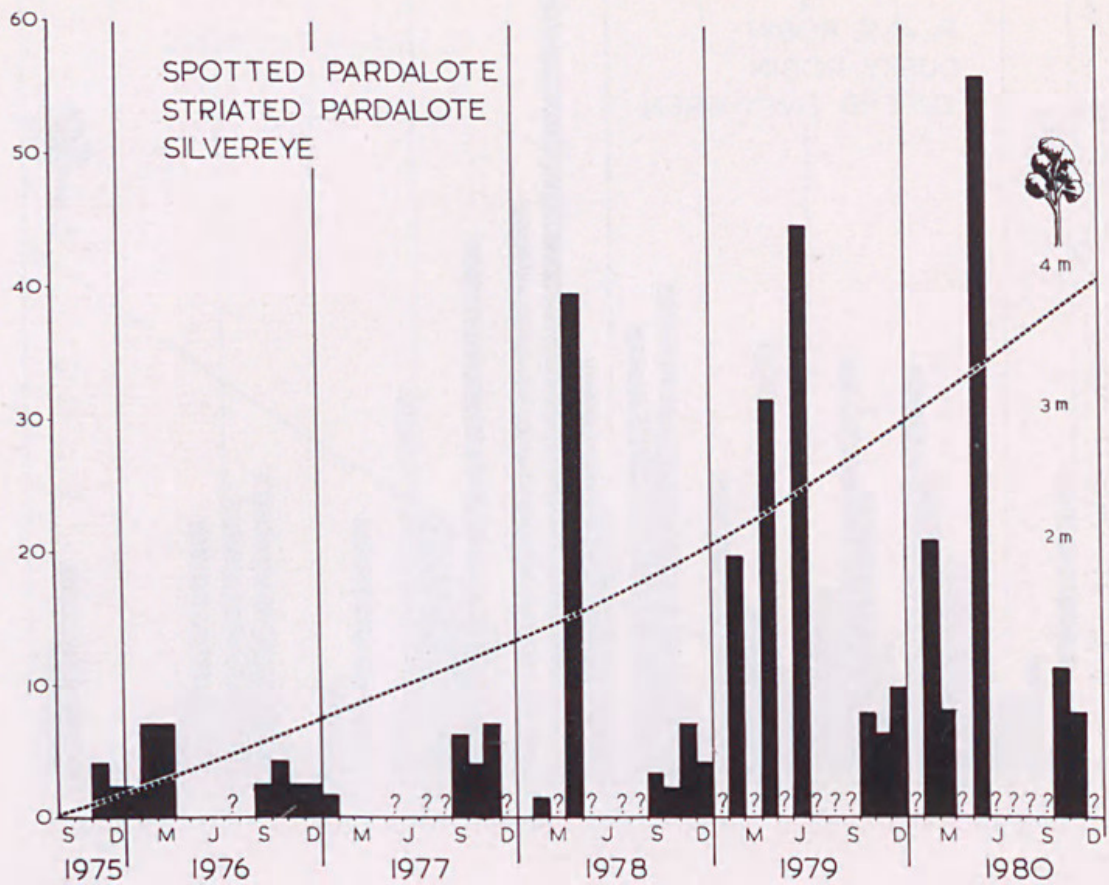


FIGURE 10

The combined numbers of three species of birds which favour eucalypt canopy, counted in Compartment 2 in the first five years of regeneration.

? Count not made in that month

----- Approximate height of eucalypts

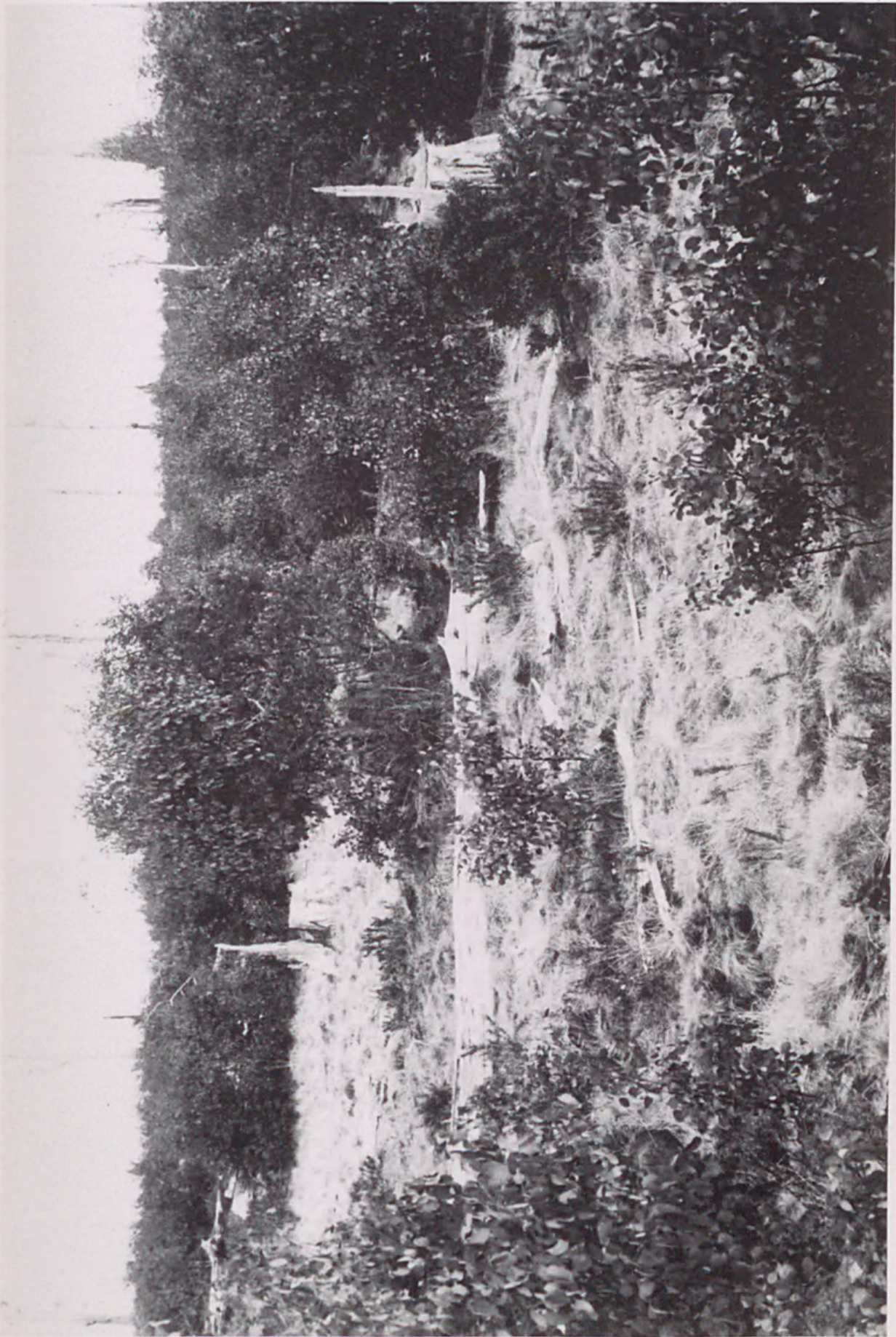


PLATE 1

Looking west from Plot 4, Compartment 2, Maggs Mountain, 13th October 1980,
showing *Eucalyptus delegatensis* after five years growth.



Green, Robert Hewett. 1982. "The activity and movement of fauna in Compartment 2, Maggs Mountain, Tasmania, in the first five years of forest regeneration." *Records of the Queen Victoria Museum Launceston* 75, 1–31.

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