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FLORA AND FAUNA SURVEY OF JOHN FORREST NATIONAL PARK AND THE RED HILL AREA

Report to

Heritage Council of Western Australia

from

Department of Conservation and Land Management

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GENERAL INTRODUCTION

John Forrest National Park (about 1580 ha) and the Red Hill area (about 970 ha) are about 25 km east of Perth and lie between Great Eastern Highway and the Toodyay Road (see Maps 1, 2). The area is mostly within the Jane Brook catchment, with the extreme north-west corner being in the Strelly Brook catchment. The western third of the Red Hill area is in the Shire of Swan, with the remainder, plus all of John Forrest National Park, being in the Shire of Mundaring. The area was the subject of System Six recommendations M21.1 to M21.4 (Department of Conservation and Environment 1983). As part of these recommendations, it was proposed that the Red Hill area be managed as if part of John Forrest National Park. Negotiations are continuing concerning the adding of this area to the National Park.

John Forrest National Park is extremely popular for recreational activities, particularly in the vicinity of the facilities area and along Jane Brook between Hovea Falls and Rocky Pool. The park receives some 250 000 visitors annually (CALM records).

The Darling Scarp runs along the western boundary of the area, which is underlain by the Archaean "granites" of the Darling Plateau (Briggs *et al.* 1980, Sallal 1983). These are overlain by a lateritic duricrust which is dissected by stream zones to expose different soil types depending on the age and degree of dissection. In the minor valleys are the sandy gravels and orange earths of the Yarragil unit. Downstream of this are the red and yellow earths of the Murray unit and, in the deepest valleys, the Helena unit. The Darling Scarp consists of very steep slopes with shallow red and yellow earths and much rock outcrop (Churchward and McArthur 1980).

Previous biological work in the area has not included site specific assemblage data. However, a detailed plant list has been compiled by Paul Armstrong (unpublished) for John Forrest National Park and the vegetation of the whole area has been mapped at a scale of 1: 250 000 by Heddle *et al.* (1980). Other than strictly opportunistic collections, previous data on vertebrates consists of a list of birds compiled by David Briggs (unpublished) and the results of trapping for mammals carried out by Morris and Bromilow (1991, unpubl.). There has been a need for an integrated botanical and zoological survey.

The Darling Scarp as a whole has important conservation values (Dell 1983, Dell and How 1988, Heddle and Marchant 1983) and John Forrest National Park is believed to provide important components of these values (Department of Conservation and Environment 1983, Muir 1983). However, there has been a clear need for such values to be more objectively assessed. Furthermore, because of the perceived conservation values together with the high recreational use, the Department of Conservation and Land Management has commenced writing a management plan for the area. The present study was therefore commenced with the aim of providing a more objective assessment of the conservation values and at the same time provide a better basis for management planning. When similar data become available for other parts of the Darling Scarp and Plateau (eg for Serpentine National Park - D. Lamont, in prep.), it will also be possible to evaluate the conservation values of John Forrest National Park in a more objective regional context.

The project has been carried out with funds provided by the Department of Conservation and Land Management, together with generous funding under the National Estate Program, which is a Commonwealth-financed grants scheme administered by the Australian Heritage Commission (Federal Government) and the Heritage Council of Western Australia (formerly the Western Australian State Government's Heritage Committee). Funds from the Heritage Council were used to employ consultant zoologists Ninox Wildlife Consulting and consultant botanists E. M. Mattiske and Associates. Their reports form the basis of this document.

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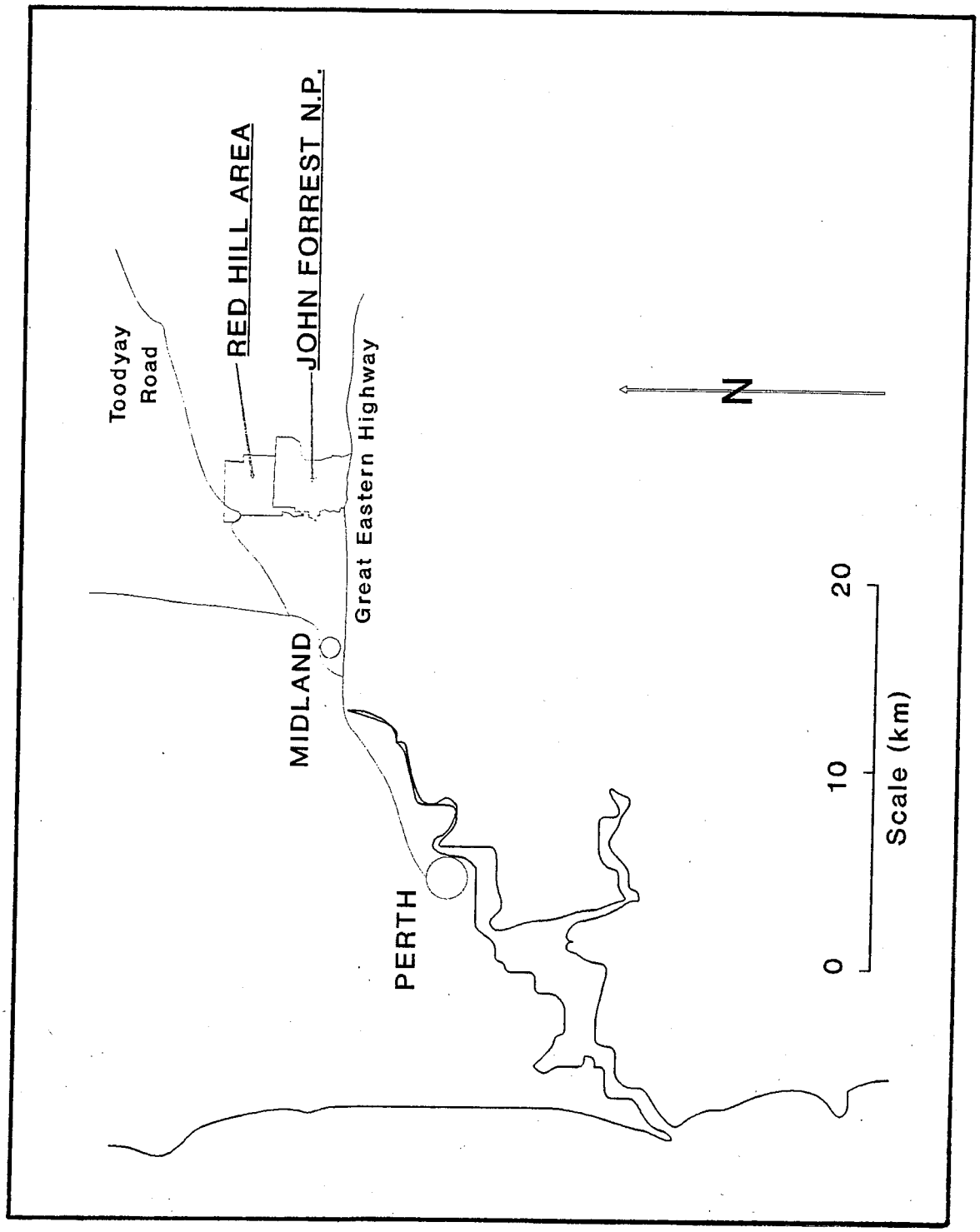
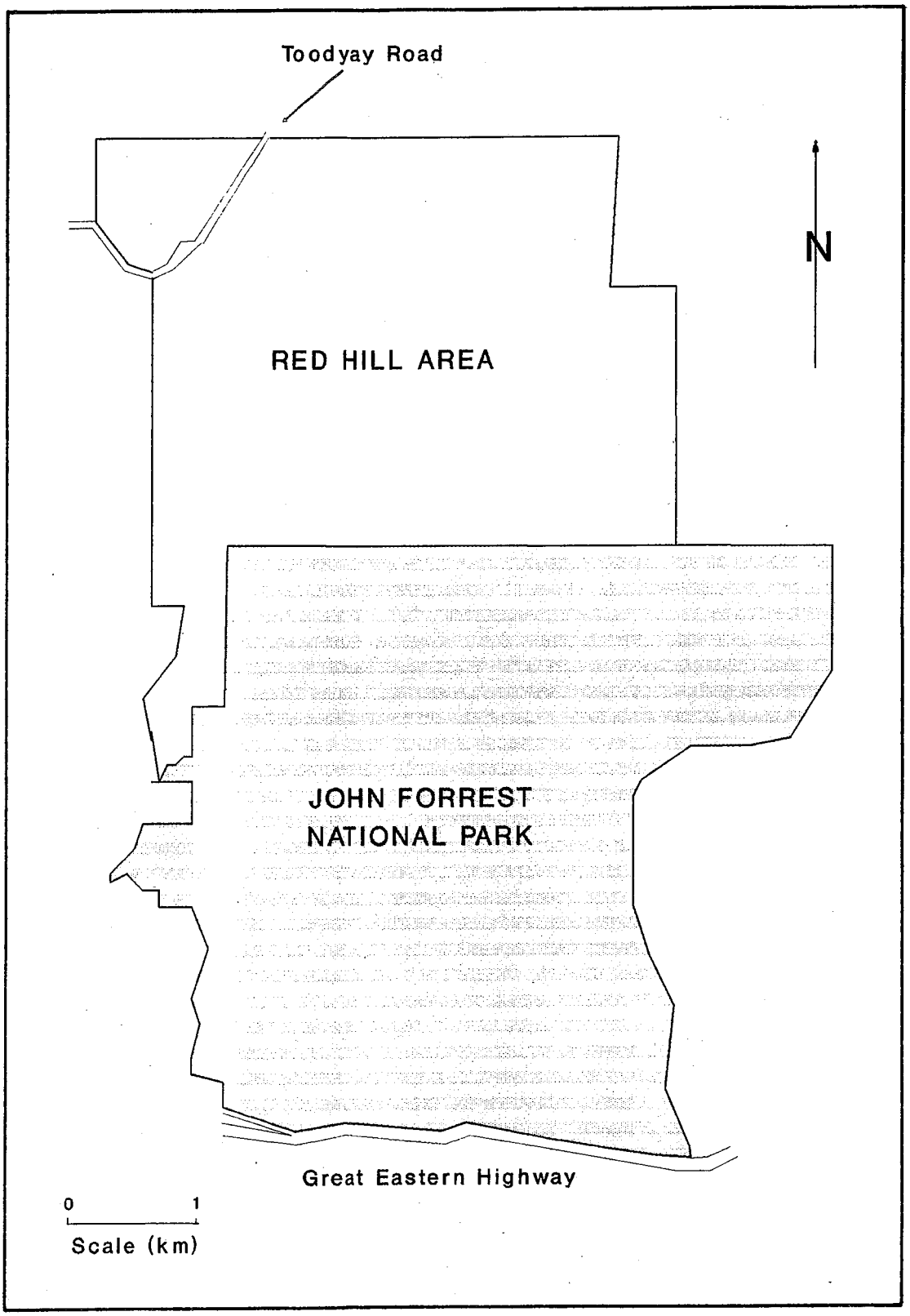


Map 1: Location of John Forrest National Park and the Red Hill area.



Map 2: Boundaries of John Forrest National Park and the Red Hill area.

FAUNA SURVEY

NINOX WILDLIFE CONSULTING

1.0 INTRODUCTION

A comprehensive management plan for John Forrest National Park (JFNP) is being prepared by the Department of Conservation and Land Management (CALM). An integral part of this management process is a review of the conservation status of vegetation types and their vertebrate fauna communities. To assist with this objective, Ninox Wildlife Consulting was contracted by CALM to carry out a vertebrate fauna survey centring upon a series of representative sampling sites within the park (Figure 1).

1.1 Project Description

The main objectives of this study as outlined in the scope of work were to:

- obtain exhaustive lists of all vertebrate fauna trapped or observed in unbounded four hectare quadrats;
- quantify sampling effort; and,
- make special note of any rare or unusual species encountered in the course of the work.

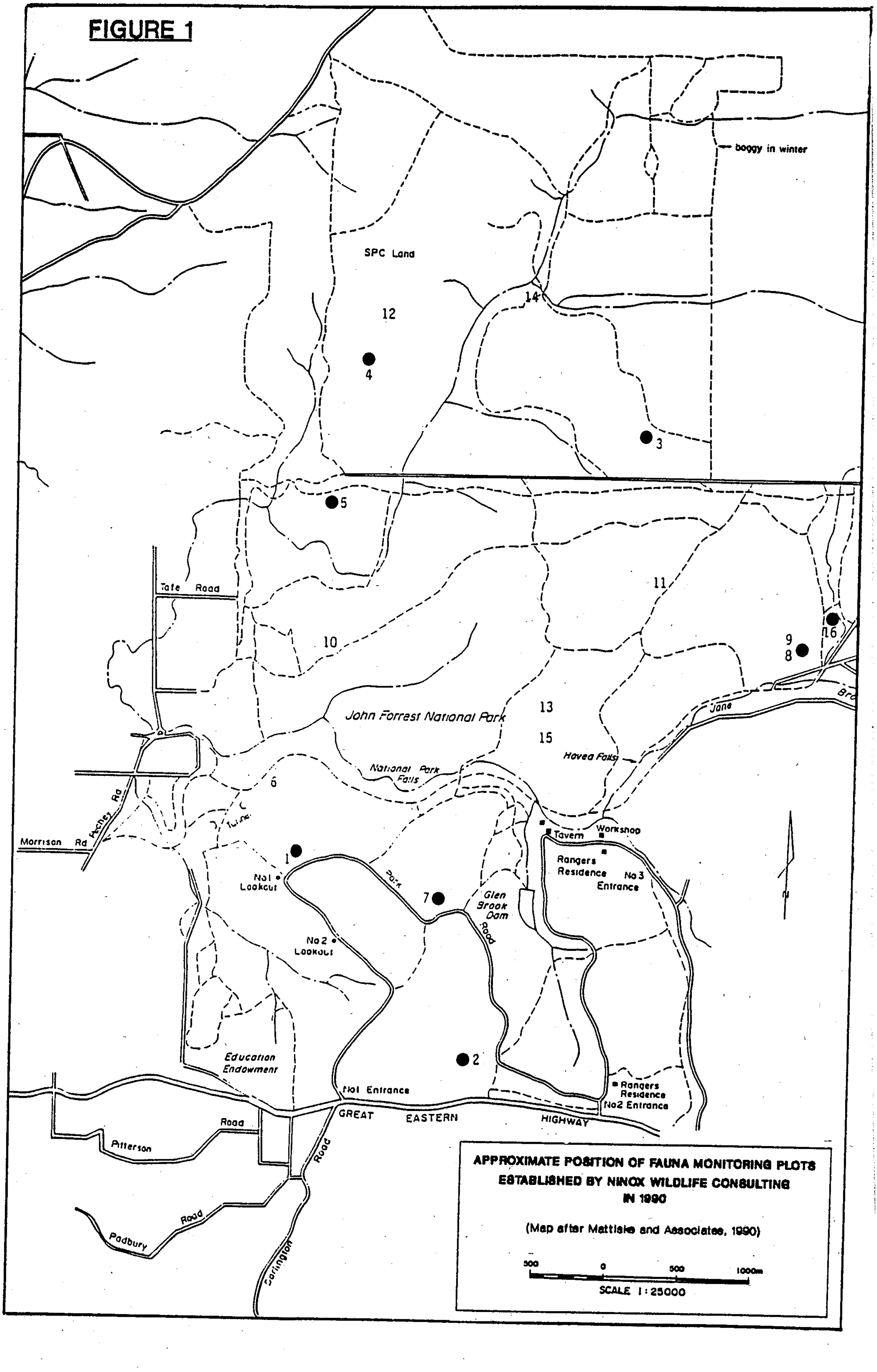
1.2 Regional Zoogeography

In any assessment of the significance of an area to fauna it is important that zoogeographic considerations are reviewed. A pioneer in this field was Baldwin Spencer (1896) who recognised three major, distinct, zoogeographic sub-regions in Australia. His concept took into account broad faunal distribution patterns which aligned fairly well with the wetter south-eastern zone of Australia (Bassian Sub-region), the northern, humid, coastal area (Torresian Sub-region), and inland, arid Australia (Eyrean Sub-region).

Birds: Spencer's concept was carefully considered by Serventy and Whittell (1976) who examined bird distributions in Western Australia and concluded that there was a need to define a fourth, and much smaller sub-region: the south-western corner of Western Australia where an intermingling of two faunas, the Eyrean and Bassian, occurred. John Forrest National Park is situated within this small south-west sub-region.

The south-west of Western Australia has a number of species of vertebrates identical to those found in southern Victoria but which no longer have a continuous distribution across the continent. More importantly, however, it supports several endemic species with no equivalent populations in eastern Australia. Examples recognised by Serventy and Whittell as being of special significance are: Western Rosella *Platycercus icterotis*, Red-capped Parrot *Purpureicephalus spurius*, Baudin's Cockatoo *Calyptorhynchus baudinii*, White-breasted Robin

FIGURE 1


boggy in winter
SPC Land
12
4
14
3
5
Tate Road
11
10
16
9
8
John Forrest National Park
13
15
Jane
Hovea Falls
National Park Falls
6
Hooley Rd
Morrison Rd
Tavern
Workshop
Rangers Residence
No 3 Entrance
1
No1 Lookout
Park Road
7
Glen Brook Dam
No2 Lookout
Education Endowment
2
Rangers Residence
No2 Entrance
No1 Entrance
GREAT EASTERN HIGHWAY
Road
Patterson
Road
Padbury Road
Coringion Road

APPROXIMATE POSITION OF FAUNA MONITORING PLOTS ESTABLISHED BY NINOX WILDLIFE CONSULTING IN 1990

(Map after Mattiske and Associates, 1990)

500 0 500 1000m
SCALE 1 : 25000

Eopsaltria georgiana, Red-winged Fairy-wren *Malurus elegans*, Western Thornbill *Acanthiza inornata* and the Western Spinebill *Acanthorhynchus superciliosus*. Most of these endemics have been recorded or are likely to be present in JFNP.

Amphibians and Reptiles: Storr (1964) confirmed that the distinctness of the south-west for reptiles paralleled the situation previously indicated for birds and believed that geographical influences, especially the presence of a large belt of forest-covered laterite, explained some of the speciation which had occurred in reptiles and frogs. The discontinuous distributions of some reptiles and birds from the Western Australian Wheatbelt to the east and the coastal plain to the west of the forested block can also be attributed to this feature.

In examining the distribution patterns of south-western reptiles Chapman and Dell (1985) drew attention to a small region within the south-west. This area has a number of mesio-temperate elements from south-eastern Australia as well as a significant number of endemic species. Some typical examples of the latter are *Leiolopisma trilineatum, Ctenotus labillardieri,* several snakes from the genera *Notechis* and *Rhinoplocephalus* and the frog genus *Crinia*. Representatives of all of these and several other endemics were recorded during the fauna surveys of JFNP and all have distribution patterns limited to the higher rainfall, southern portion of Western Australia.

Mammals: several mammals are endemic to the South-west Botanical Province defined by Beard (1980). In many cases they extend well beyond the South-west Forest Region and have a wider distribution defined by a line from Shark Bay to Israelite Bay. Examples of these are the Western Brush Wallaby *Macropus irma* and the Honey-possum *Tarsipes rostratus*, both of which were recorded during this study.

2.0 METHODS

Vertebrate fauna surveys took place in spring (October 29 - November 3, 1990) with a second field trip in autumn (April 8 - 13, 1991). Weather conditions during both surveys were generally poor, especially in spring when only one sunny day occurred. Rain, hail, high winds and cold nights typified the weather during this sampling period. During autumn, it rained on the first day and remained cold, rainy and windy for the next two days. Thereafter, weather conditions improved during the day although all nights were cold.

A reconnaissance and site choice took place in consultation with Dr A. H. Burbidge (CALM) and Dr E. Mattiske (Mattiske and Associates) in July 1990 with traplines being established in August. Brief descriptions of each location selected for fauna sampling are shown below with detailed vegetation community descriptions available in the Flora and Vegetation report (Mattiske and Associates 1991). Site numbers (fauna series "Q") correspond with those given in the above report.

TABLE 1 **Vegetation associations sampled at John Forrest National Park in spring 1990 and autumn 1991.**

Site 1	(Q1) Powderbark Wandoo, *Eucalyptus accedens*, - *Wandoo Eucalyptus wandoo* woodland over heath.
Site 2	(Q2) Jarrah, *Eucalyptus marginata* - Sheoak, *Allocasuarina fraseriana* forest.
Site 3	(Q3) Jarrah, *E. marginata* - Marri, *Eucalyptus calophylla* forest.
Site 4	(Q4) Wandoo, *E. wandoo* - Powderbark Wandoo, *E. accedens* woodland.
Site 5	(Q5) Mixed Proteaceae - Myrtaceae heath.
Site 7	(Q7) *Agonis linearifolia* creekline.
Site 8	(Q8) Granite outcrop.
Site 16	(Q16) Yarri, *Eucalyptus patens* woodland.

Survey effort is tabulated below and the location of sampling areas is shown in Figure 1. In the following description of sampling methods there are two categories of data collection: Quadrat Sampling and Inventory Sampling.

Quadrat sampling: refers to data which was systematically gathered in the unbounded four hectare plots required for this survey. Since approximately equal effort was applied in all plots, apart from the trapping methods used in Sites Q7 and Q8 (Table 2), the resulting data can be used as a standardised base for site comparisons within the study area in order to assess faunal affinities or dissimilarities. This type of sampling also allows for objective seasonal comparisons of sites. Providing the same methods are adhered to, future sampling can be carried out by any suitably experienced field personnel.

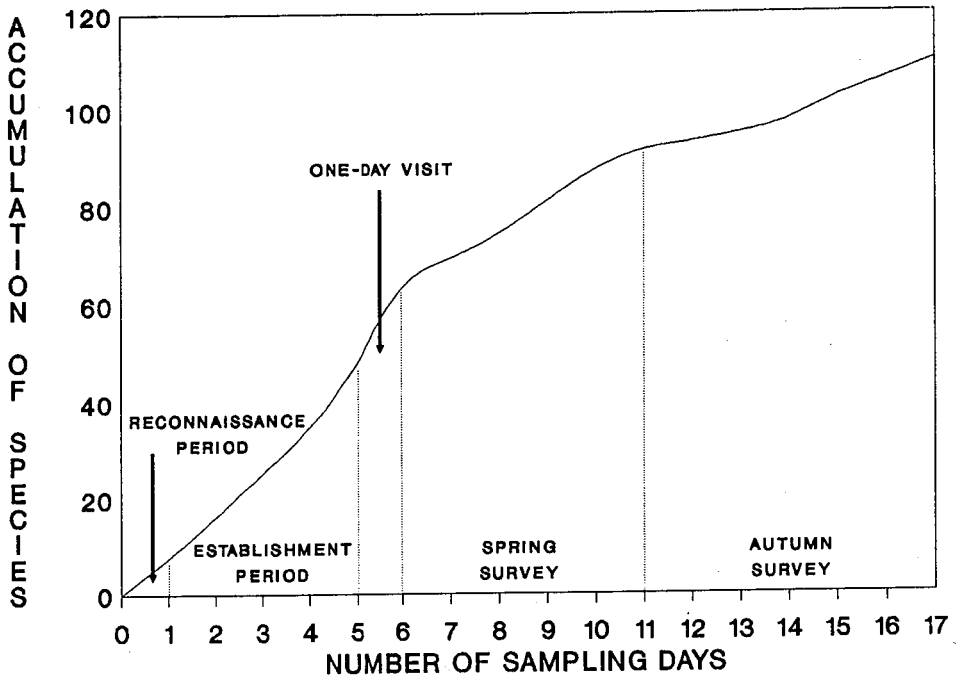
Inventory sampling: includes all opportunistically gathered, non-Quadrat data such as that recorded during the reconnaissance or while team members were traversing the study area.

Table 2 **Trap sampling effort within selected vegetation associations at John Forrest National Park in spring 1990 and autumn 1991.**

SITE NUMBER	Q1	Q2	Q3	Q4	Q5	Q7	Q8	Q16
No. of pit trap/nights	120	120	120	120	120	-	-	120
No. of Elliott trap/nights	-	-	-	-	-	250	250	-
No. of cage trap/nights	10	10	10	10	10	20	20	10

Figure 2 has been prepared from both inventory and quadrat data. It gives an indication of seasonal survey efficiency in that a well-surveyed location would show little or no accumulation of species after an adequate period of time. The JFNP study was still accumulating species by the end of the survey period suggesting that the potential species richness of the park has not been fully documented as yet.

FIGURE 2 Graph showing sampling efficiency of the John Forrest National Park survey.



2.1 Birds

Quadrat Sampling: each site was visited daily between 0700hrs and 1200hrs for five consecutive mornings during each sampling session. Approximately 40 minutes was spent at each site. In spring, one hour was spent in the afternoon at each location recording birds and any breeding activity. A single observer slowly moved within the unbounded four hectare area and identified all birds by sight or call.

Records from the winter site establishment period when approximately equal time was spent in each site have also been utilised since before commencement of work, all readily apparent birds were recorded. Sampling results were logged on to field data sheets for eventual transfer to a computer database.

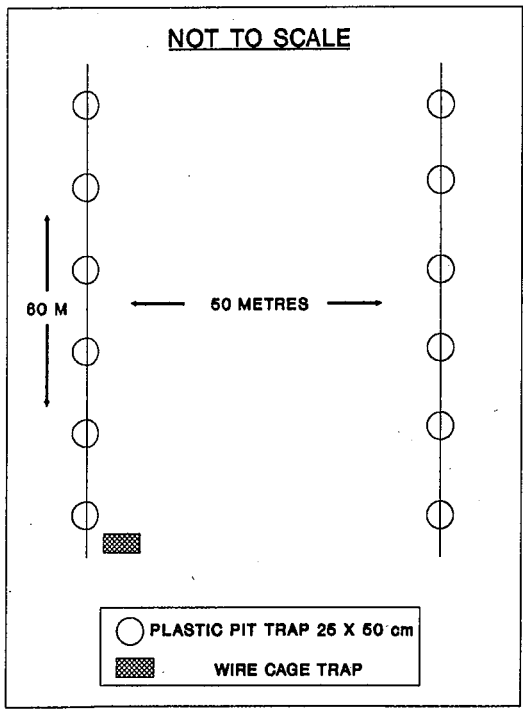
Inventory Sampling: data were gathered while travelling between sampling sites and in the course of nocturnal work. Each inventory record was allocated to a vegetation community where this corresponded to a sampling site. All other habitats, for example, the Jane Brook stream zone and Glen Brook Dam, were placed in an inventory category which represented opportunistically sampled locations, most of which were either minor vegetation communities or highly modified habitats.

2.2 Mammals, Amphibians and Reptiles

Quadrat Sampling: terrestrial vertebrate traplines were located in all of the vegetation associations listed in Section 2.0 and detailed in the Vegetation and Flora report. Pitfall traplines were established at six sites (Site Q1-Q5, Site Q16), each of which consisted of two lines of six pits (250mm x 500mm) 10 metres apart, connected and bisected across the top by 60 metres of aluminium flywire drift fence 12cm high. One cage trap was placed in proximity to one pitfall trap. (Figure 3).

Each individual trapline was permanently marked with one star picket at the first pit trap. At the conclusion of sampling, drift fences were rolled and removed and each pit trap was securely capped, covered with a small cairn of soil and rocks or logs.

FIGURE 3 Diagram showing layout of pit/fence lines used during the John Forrest National Park survey.



Two Elliott/cage traplines were established in Sites Q7 and Q8. These consisted of 25 Elliott traps and 2 cage traps.

All traplines were left in position for five nights, cleared each morning and all captured animals identified and released. Accessory information such as breeding, age and sex was logged on to field data sheets for subsequent transfer to a computer database. In addition to trapping, diurnal hand-foraging for vertebrates was conducted at each sampling site for a minimum of four personnel/hours. Techniques included identification of active animals, raking spoil heaps, abandoned ant nests and deep leaf litter, turning over rocks and logs, stripping bark from dead trees, investigating burrow systems and recording tracks or scats.

Inventory Sampling: bats were sampled using a collapsible bat trap left in position for four nights during each sampling period. This was checked each morning. The site chosen for the bat trap in spring was a stream zone near Site Q5. In autumn, Jane Brook adjacent to Site 8 was sampled. Thirty-six metres of mist net (3 x 12 metre nets) were also set for one night in autumn over the upper reaches of Glen Brook Dam. These nets were monitored for approximately two hours from dusk.

A vehicle transect was carried out along roads and tracks during the autumn survey following heavy rains in order to sample amphibians. All inventory data from beyond sampling sites was opportunistically collected as described for birds.

2.3 Nomenclature and Taxonomy

Nomenclature and taxonomy in this report follows: Blakers *et al.* (1984) - Birds; Strahan (1983) - Mammals; Storr *et al.* (1981, 1983, 1986, 1990) - Reptiles; and Tyler *et al.* (1984) - Amphibians. More recent taxonomic papers by various authors were used when applicable.

3.0 RESULTS AND DISCUSSION

3.1 Birds

A total of 63 species of bird were recorded during the study period (Appendix 1a). Fifty species of bird were recorded in the unbounded quadrats, with a further 13 observed in various other vegetation associations during inventory sampling. Eight of these were waterbirds from Glen Brook Dam or Jane Brook.

3.1.1 Species of Note

Regent Parrot *Polytelis anthopeplus* : this species does not usually occur in the Jarrah forest (Serventy and Whittell 1976), although an outlier colony separated from the main population in the Wheatbelt is present in Tuart country along the Southern Swan Coastal Plain (SSCP). The above

authors state that the species is a great wanderer compared to the Port Lincoln Ringneck *Barnardius zonarius* but is much more likely that the JFNP record is an aviary escapee. This is the first record noted by the authors in the Darling Range despite carrying out some 20 surveys of varying intensity within the Jarrah forest. All other records seen on the SSCP tended to be pairs, or larger groups of up to 17 individuals.

Diamond Dove ***Geopelia cuneata*** : there are records of this essentially northern species in the Darling Range from the late 1800's and early 1900's (Serventy and Whittell 1976), but the JFNP record is much more likely to be an aviary escapee in the absence of confirmatory observations from other observers. This bird is not listed in the report since it was passed on by an associate in May 1990 but was not recorded by the authors.

Red-capped Robin ***Petroica goodenovii*** : this species is a rare visitor to the south-west Jarrah forest, the stronghold of the Scarlet Robin *Petroica multicolor* although small numbers appear in most winters. The authors have encountered very few in the Darling Range.

Ground Cuckoo-shrike ***Coracina maxima*** : primarily a species of the inland interior although a sporadic visitor to the central Swan Coastal Plain where it visits open clay flats (Serventy and Whittell 1976). The successive poor seasons in the interior may account for this species appearing at JFNP. However, the record is of little relevance to the park itself, being more an interesting observation of a bird in passage from the arid zone to the wetter coastal plain.

Currawong ***Strepera versicolor*** : very uncommon in the vicinity of the metropolitan area.

3.1.2 Rare Species:

One species gazetted under Schedule 2 of the Wildlife Conservation Act 1950, Carnaby's Black-Cockatoo *Calyptorhynchus latirostris* was recorded. One large flock was observed feeding on the seeds of *Hakea trifurcata* near sampling site Q16, apparently a favoured location for this species since they were recorded here on several occasions in both field trips.

3.1.3 Introduced species

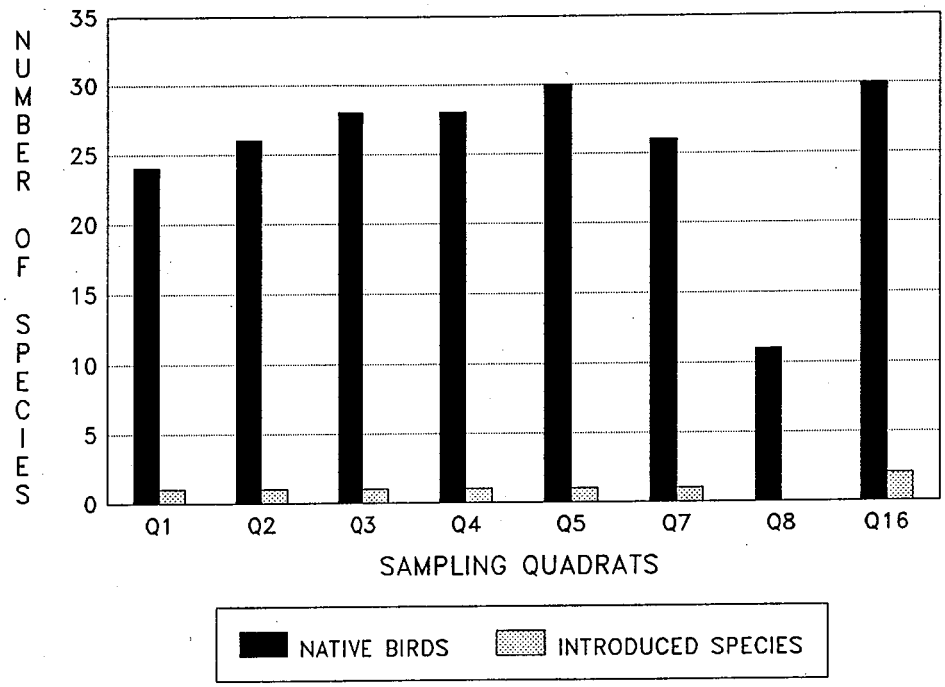
Two introduced species, the Laughing Kookaburra *Dacelo novaeguineae* and the Spotted Turtle Dove *Streptopelia chinensis* were noted. Neither species were observed in large numbers in any season.

3.1.4 Habitat Comparisons

The following graph shows the number of bird species recorded in each unbounded quadrat. Results for both seasons have been pooled to

produce an overview of species richness in habitat types; seasonal results are available in Appendix 1b-d. Introduced species have also been graphed.

FIGURE 4 Graph showing individual quadrat results for bird species recorded during the John Forrest National Park surveys. Introduced species included.



3.2 Mammals

Eight native and 6 introduced mammals were recorded during quadrat and inventory sampling in John Forrest National Park (Appendix 1a).

3.2.1 Species of Note

Honey-possum *Tarsipes rostratus* : one male Honey Possum was trapped in Heath Site Q5 and one in Wandoo/Heath Site Q1. This animal was not recorded during the most recent Darling Scarp study (Dell and How 1988) and the W.A. Museum has one record from February 1991, a cat kill in the vicinity of Swan View. Small isolated populations are known from the northern jarrah forest at Toodyay (Moore *et al.* 1985) and at Boddington (Ninox wildlife Consulting 1990). This animal is more common in the coastal, sandplain heaths of south-western Western Australia.

Common Dunnart ***Sminthopsis gilberti*** : trapped in Jarrah/Casuarina Site Q2 (two individuals) and Wandoo Site Q4 (one individual). Dell and How (1988) did not record this mammal during their Darling Scarp sampling.

Western Pygmy-possum ***Cercartetus concinnus*** : while generally common throughout much of its range, it was not recorded during the Darling Scarp study. It was captured in the JFNP survey in Wandoo Site Q4. This animal has been recorded further east at Bickley (Loaring 1954).

Yellow-footed Antechinus ***Antechinus flavipes*** : has been recorded during previous CALM studies in John Forrest National Park and was also recorded during this study in Granite Site Q8 and Jarrah Site Q3. All individuals trapped in spring were females with highly developed pouches but no young present, males and females were captured in autumn. The Darling Scarp study resulted in one female being captured and the W.A. Museum has one previous record from Darlington in 1979. This small marsupial is usually associated with swamps and stream zones within the main forest block and along the south-west coast. It is presumed to be extinct in the eastern part of its previous range, including the central Wheatbelt (Kitchener *et al.* 1980), the last recording being in 1843.

3.2.2 Rare Species:

Although no species gazetted as rare, or otherwise in need of special protection were recorded during this study, the Chuditch *Dasyurus geoffroii* has been recorded both within and in close proximity to the park. Two animals were recorded in 1985, one was reported by a Darling Range Naturalists Club member at Hovea, and the most recent specimen was a road casualty near park entrance number 3 (K.D. Morris pers. comm.).

The Darling Scarp study in 1988 (Dell and How 1988) found the Southern Brown Bandicoot *Isoodon obesulus* to be the most common animal trapped in their survey area near Lesmurdie (50 individuals in 2520 trap/nights). However, unlike the JFNP survey, sampling was carried out using cage and box traps only. Bandicoots were most frequently recorded in areas with a dense heath understorey. This type of habitat is limited in extent in JFNP and in combination with different survey objectives and trapping style, may explain the apparent scarcity of this animal in the park.

3.2.3 Introduced species

Six species of introduced mammal were recorded during this study. Only the House Mouse *Mus musculus* was widespread and common. Despite the proximity of the park to residential areas, cats *Felis catus* did not appear to be prevalent. Only one was captured (Appendix 1b).

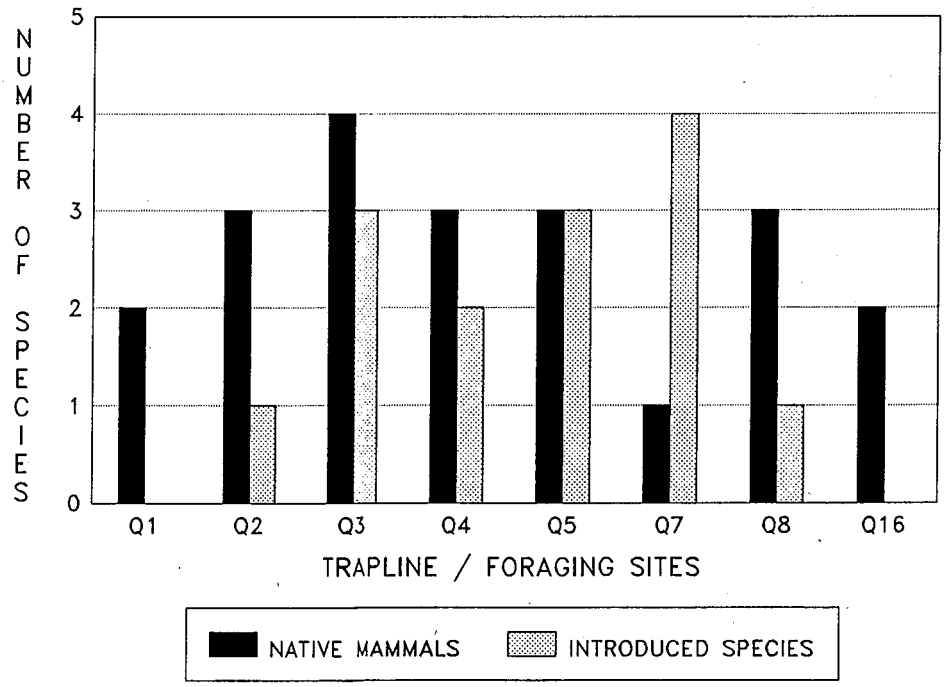
3.2.4 Other

No bats were trapped during the course of this survey. A bat trap was placed in a small creekline near Heath Site Q5 in spring where pools of water were present, potentially concentrating bats in this area. During the autumn sampling session, the bat trap was erected across Jane Brook, adjacent to Granite Site Q8 where a small pool was present. Mist nets were positioned and monitored across the upper reaches of Glen Brook Dam during the autumn survey. Although no bats were captured, two species were observed at dusk flying at tree canopy height over the mist nets.

3.2.5 Habitat Comparisons

The following graph shows the number of mammal species recorded in each unbounded quadrat. Results for both seasons have been pooled to produce an overview of species richness in habitat types; seasonal results are available in Appendix 1a. Introduced species have also been graphed.

FIGURE 5 **Graph showing individual quadrat results for mammal species recorded during the John Forrest National Park surveys. Introduced species included.**



3.3 Amphibians and Reptiles

Ten frogs and 23 reptiles were recorded during this survey (Appendix 1a).

3.3.1 Species of Note

Heleioporus barycragus : usually restricted to clear and turbulent, winter-flowing watercourses on granite or clay country. This type of habitat is well represented at JFNP along Jane and Glen Brooks and as a result this frog was fairly common; more so than most other Darling Range locations surveyed by the authors.

Diplodactylus spinigerus inornatus : an attractive and extremely uncommon gecko in the Darling Range where the species occurs as a population isolated from its more arid stronghold to the east.

Gehyra variegata : this gecko is almost entirely restricted to granite outcrops in the Darling Range. It is close to the south-western limits of its known range at JFNP

Aprasia repens : a rarely recorded but fairly widespread legless lizard.

Ctenotus delli : this skink was removed from the rare list in November 1990. The JFNP record represents an individual close to the northernmost limits of the species' range.

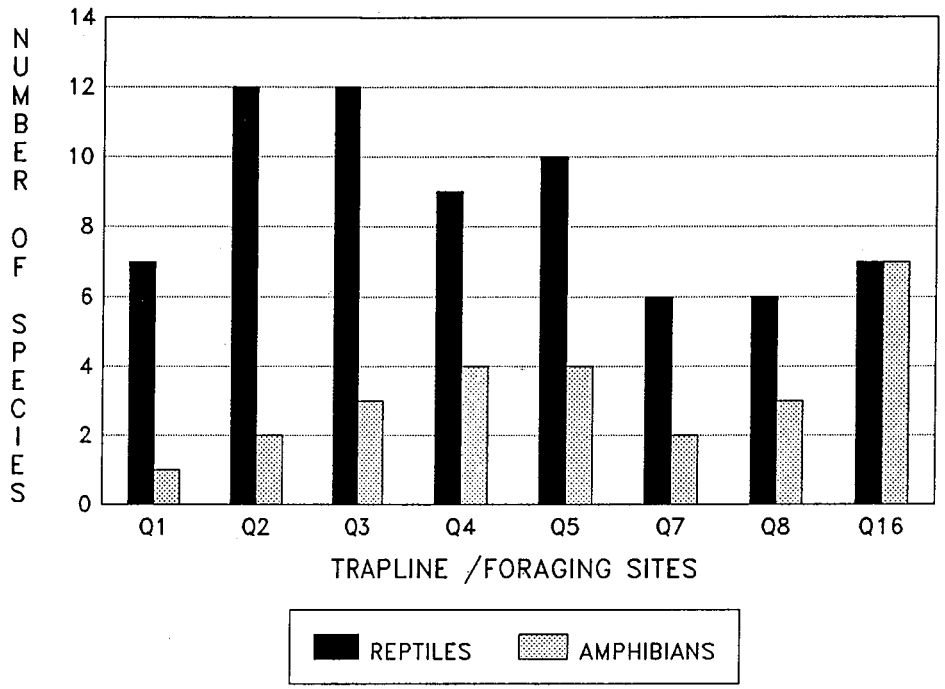
3.3.2 Rare Species

No gazetted species were captured although one rare species of snake, the Carpet Python *Morelia spilota imbricata,* is potentially present.

3.3.3 Habitat Comparisons

The following graph shows the number of amphibian and reptile species recorded in each unbounded quadrat. Results for both seasons have been pooled to produce an overview of species richness in habitat types; seasonal results are available in Appendix 1b-d.

FIGURE 6 **Graph showing individual quadrat results for reptile and amphibian species recorded during the John Forrest National Park surveys.**

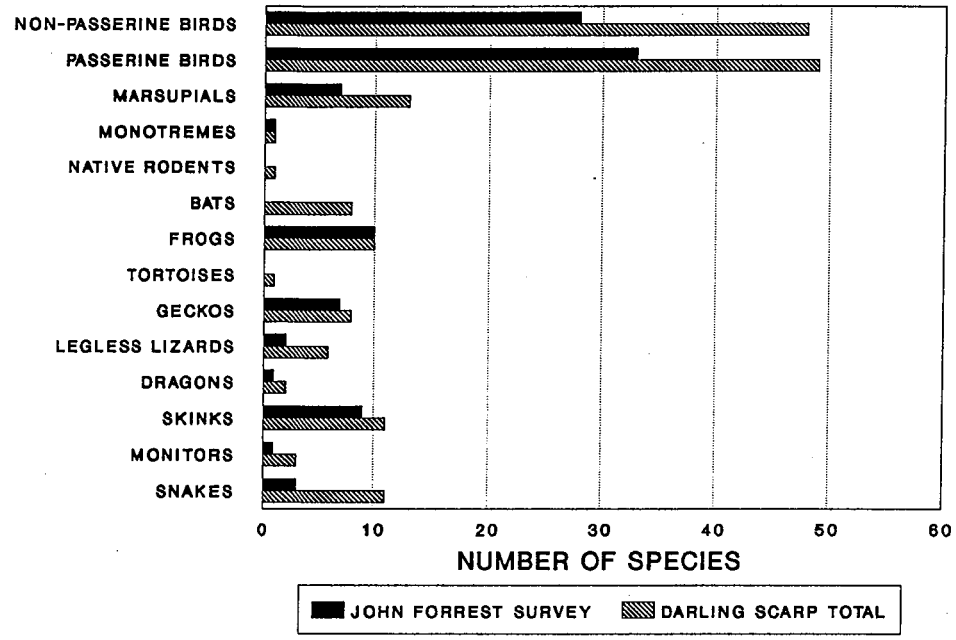


4.0 CONCLUSIONS

Drawing on W. A. Museum records and available literature, Dell (1983) considered that the Darling Scarp supported 97 species of native bird, 23 native mammals, 10 frogs and 41 reptiles. During the JFNP surveys, despite their short duration compared to the time-span which Dell's list covered, a large proportion of the Darling Scarp fauna was recorded, some 63% in all. Figure 7 compares the various faunal groups recorded in the JFNP surveys and those presented by Dell and it can be seen that certain groups were poorly represented. The absence of some species within groups does not indicate that these animals do not occur at JFNP, it is more a reflection of the vagaries of sampling, seasonality and the low numbers per unit area of larger predatory species such as raptors, dasyurids, pythons and monitors.

Given a series of sampling sessions spread over several years, it is highly likely that the number of species to be found in JFNP will be significantly higher (see Figure 2). This is already evident from casual records of species such as the Chuditch *Dasyurus geoffroii* and the extensive bird list compiled by Mr D. Briggs, one of the park rangers.

FIGURE 7 Graph comparing the John Forrest National Park survey results with the Darling Scarp species list compiled by Dell (1983).



All remaining areas of natural bushland in the Darling Range, and in particular those along the highly developed metropolitan portion of the Scarp, are of significance regardless of the type of country represented or its relative conservation value. This is a product of the amount of broad-scale clearing which has taken place since European settlement. However, two habitats in particular stand out as being of special significance at JFNP: the stream zones which traverse the park and the granite outcrop/heath complex.

Riparian habitats are considered to be important for the following reasons:

- stream zones are critical to the life cycles of several species of amphibians, fish and aquatic invertebrates;
- the deeper loamy soils favour species of reptiles which have burrowing rather than surface habits, or which are dependent on deep litter;

- the dense vegetation, higher humidity and overall productivity advantage specialised fauna such as the Yellow-footed Antechinus *Antechinus flavipes* and Southern Brown Bandicoot *Isoodon obesulus*;

- in comparison to other habitats, stream zones are poorly represented per unit area, vulnerable to silting and wildfires and have undergone more adverse changes than any other habitat in the Darling Range (Dell 1983).

Granite outcrops and the adjacent heath complex are important for the following reasons:

- granite is about the only location where the geckos *Gehyra variegata* and *Underwoodisaurus milii* can be found in the ranges and although not recorded during the survey, the Ornate Dragon *Ctenophorus ornatus* is specific to outcrops with large exfoliations;

- areas of heath adjacent to granite are important to many species of Honeyeater birds which rely on this floristically rich habitat, not only for feeding, but in some cases for nesting. In addition, it is most unlikely that the Honey Possum *Tarsipes rostratus* occurs outside these heaths.

Apart from a few species of bird which have benefited from European settlement of the Darling Range e.g. Australian Magpie *Gymnorhina tibicen*, Australian Magpie-lark *Grallina cyanoleuca*, Yellow-rumped Thornbill *Acanthiza chrysorrhoa*, most have been adversely affected. Habitat-specific passerine birds have in some instances declined dramatically. Typical examples are the White-breasted Robin *Eopsaltria georgiana*, White-browed Scrubwren *Sericornis frontalis*, Red-winged Fairy-wren *Malurus elegans*, Southern Emu-wren *Stipiturus malachurus*, Tawny-crowned Honeyeater *Phylidonyris melanops*, Rufous Tree-creeper *Climacteris rufa* and Red-eared Firetail *Emblema oculata*.

Mammals have also suffered a decline, among these being the rare and endangered Chuditch *Dasyurus geoffroii* and Southern Brown Bandicoot *Isoodon obesulus*. The Brush-tailed Phascogale *Phascogale tapoatafa* and Brushtail Possum *Trichosurus vulpecula* appear to have declined over much of their former range and in the Northern Jarrah Forest at least, are rarely seen (personal observation). Species such as the Quokka *Setonix brachyurus* have disappeared entirely from the northern portions of the Darling Range and the Numbat *Myrmecobius fasciatus* is close to local extinction. The gecko *Gehyra variegata* and the dragon *Ctenophorus ornatus* are restricted to surface granite and are dependent on exfoliate slabs. Both species have declined and some populations have been exterminated on granite outcrops by removal of rock for garden decoration (Dell 1983). The combination of too frequent burning (accidental or planned), pastoral activity, damming of streams, housing development, mining and the presence of many introduced predators has resulted in a greatly modified Darling Range environment and a marked decline in fauna populations.

The most important local significance of areas such as John Forrest National Park is that they have the capacity to act as refuges for species which have long since disappeared from the adjacent Swan Coastal Plain or are under localised or widespread pressure. Despite its close proximity to the Perth Metropolitan area, the high conservation value of John Forest National Park cannot be overstated, particularly when viewed in the perspective of the continuing attrition of fauna habitats not only on the coastal plain and the Darling Range, but throughout most of south-western Western Australia.

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KEY TO APPENDICES

Vegetation associations sampled at John Forrest National Park in spring 1990 and autumn 1991.

Site 1 (Q1) Powderbark Wandoo, *Eucalyptus accedens*, - *Wandoo Eucalyptus wandoo* woodland over heath.

Site 2 (Q2) Jarrah, *Eucalyptus marginata* - Sheoak, *Allocasuarina fraseriana* forest.

Site 3 (Q3) Jarrah, *E. marginata* - Marri, *Eucalyptus calophylla* forest.

Site 4 (Q4) Wandoo, *E. wandoo* - Powderbark Wandoo, *E. accedens* woodland.

Site 5 (Q5) Mixed Proteaceae - Myrtaceae heath.

Site 7 (Q7) *Agonis linearifolia* creekline.

Site 8 (Q8) Granite outcrop.

Site 16 (Q16) Yarri, *Eucalyptus patens* woodland.

* = Rare, or otherwise in need of special protection.

T = Birds listed by the Japan/Australia (JAMBA) and China/Australia (CAMBA) treaties for the protection of migratory species and their environment.

I = Introduced species.

X = Recorded.

APPENDIX 1a

List of vertebrate species recorded during winter (reconnaissance, trapline establishment), spring (sampling) and autumn (sampling) in John Forrest National Park, 1990/91.

SEASON	WINTER	SPRING	AUTUMN
BIRD SPECIES			
PODICIPEDIDAE			
Tachybaptus novaehollandiae, Australasian Grebe	X	-	X
PHALACROCORACIDAE			
Phalacrocorax melanoleucos, Little Pied Cormorant	-	-	X
ARDEIDAE			
Ardea novaehollandiae, White-faced Heron	-	-	X
ANATIDAE			
Tadorna tadornoides, Australian Shelduck	X	X	-
Anas superciliosa, Pacific Black Duck	X	-	X
Chenonetta jubata, Maned Duck	-	X	X
ACCIPITRIDAE			
Accipiter fasciatus, Brown Goshawk	-	-	X
A. cirrhocephalus, Collared Sparrowhawk	X	-	-
Hieraaetus morphnoides, Little Eagle	X	-	-
TURNICIDAE			
Turnix varia, Painted Button-quail	-	-	X
RALLIDAE			
Fulica atra, Eurasian Coot	-	-	X
COLUMBIDAE			
Streptopelia chinensis, Spotted Turtle-Dove I	X	X	-
Phaps chalcoptera, Common Bronzewing	X	X	X
CACATUIDAE			
Calyptorhynchus magnificus, Red-tailed Black-Cockatoo	-	-	X
C. f. latirostris, White-tailed Black-Cockatoo *	X	X	X
Cacatua roseicapilla, Galah	X	X	X
POLYTELITIDAE			
Polytelis anthopeplus, Regent Parrot	-	X	-
PLATYCERCIDAE			
Purpureicephalus spurius, Red-capped Parrot	X	X	X
Platycercus icterotis, Western Rosella	-	X	X
Barnardius zonarius, Port Lincoln Ringneck	X	X	X
Neophema elegans, Elegant Parrot	X	X	-
CUCULIDAE			
Cuculus pallidus, Pallid Cuckoo	X	-	-
C. pyrrhophanus, Fan-tailed Cuckoo	X	X	-
Chrysococcyx basalis, Horsfield's Bronze-Cuckoo	X	X	-
C. lucidus, Shining Bronze-Cuckoo	X	X	-
STRIGIDAE			
Ninox novaeseelandiae, Southern Boobook	-	X	-
PODARGIDAE			
Podargus strigoides, Tawny Frogmouth	-	-	X
ALCEDINIDAE			
Dacelo novaeguineae, Laughing Kookaburra I	X	X	X
Halcyon sancta, Sacred Kingfisher	-	X	-
MEROPIDAE			
Merops ornatus, Rainbow Bee-eater T	-	X	-
HIRUNDINIDAE			
Cecropis nigricans, Tree Martin	X	X	X
CAMPEPHAGIDAE			
Coracina novaehollandiae, Black-faced Cuckoo-shrike	X	X	X
C. maxima, Ground Cuckoo-shrike	-	-	X

APPENDIX 1a - Continued

SEASON	WINTER	SPRING	AUTUMN
MUSCICAPIDAE			
Petroica multicolor, Scarlet Robin	X	X	X
P. goodenovii, Red-capped Robin	X	-	-
Pachycephala pectoralis, Golden Whistler	X	X	X
P. rufiventris, Rufous Whistler	X	X	X
Colluricincla harmonica, Grey Shrike-thrush	X	X	X
Rhipidura fuliginosa, Grey Fantail	X	X	X
MALURIDAE			
Malurus splendens, Splendid Fairy-wren	X	X	X
ACANTHIZIDAE			
Sericornis frontalis, White-browed Scrubwren	-	-	X
Smicrornis brevirostris, Weebill	X	X	X
Gerygone fusca, Western Gerygone	X	X	X
Acanthiza apicalis, Inland Thornbill	X	X	X
A. inornata, Western Thornbill	X	X	X
A. chrysorrhoa, Yellow-rumped Thornbill	-	X	X
NEOSITTIDAE			
Daphoenositta chrysoptera, Varied Sittella	-	X	X
CLIMACTERIDAE			
Climacteris rufa, Rufous Treecreeper	X	X	X
MELIPHAGIDAE			
Anthochaera carunculata, Red Wattlebird	X	X	X
Melithreptus lunatus, White-naped Honeyeater	X	X	X
Lichmera indistincta, Brown Honeyeater	X	X	X
Phylidonyris novaehollandiae, New Holland Honeyeater	X	X	X
Acanthorhynchus superciliosus, Western Spinebill	X	X	X
DICAEIDAE			
Dicaeum hirundinaceum, Mistletoebird	X	-	-
PARDALOTIDAE			
Pardalotus punctatus, Spotted Pardalote	X	-	-
P. striatus, Striated Pardalote	X	X	X
ZOSTEROPIDAE			
Zosterops lateralis, Silvereye	X	X	X
GRALLINIDAE			
Grallina cyanoleuca, Australian Magpie-lark	X	-	X
ARTAMIDAE			
Artamus cyanopterus, Dusky Woodswallow	-	-	X
CRACTICIDAE			
Cracticus torquatus, Grey Butcherbird	X	X	X
Gymnorhina tibicen, Australian Magpie	X	X	X
Strepera versicolor, Grey Currawong	X	-	-
CORVIDAE			
Corvus coronoides, Australian Raven	X	X	X
MAMMAL SPECIES			
TACHYGLOSSIDAE			
Tachyglossus aculeatus, Short-beaked Echidna	X	X	X
DASYURIDAE			
Antechinus flavipes, Yellow-footed Antechinus	-	X	X
Sminthopsis gilberti, Common Dunnart	-	-	X
PERAMELIDAE			
Isoodon obesulus, Southern Brown Bandicoot *	X	-	-
BURRAMYIDAE			
Cercartetus concinnus, Western Pygmy-possum	-	-	X
TARSIPEDIDAE			
Tarsipes rostratus, Honey-possum	-	X	X

APPENDIX 1a - Continued

SEASON		WINTER	SPRING	AUTUMN
MACROPODIDAE				
Macropus irma,	Western Brush Wallaby	-	X	-
M. fuliginosus,	Western Grey Kangaroo	X	X	X
MURIDAE				
Rattus rattus,	Black Rat I	-	-	X
Mus musculus,	House Mouse I	-	X	X
LEPORIDAE				
Oryctolagus cuniculus,	Rabbit I	X	X	X
CANIDAE				
Vulpes vulpes,	Fox I	X	X	X
FELIDAE				
Felis catus,	Feral Cat I	-	X	-
SUIDAE				
Sus scrofa,	Feral Pig I	X	-	-
AMPHIBIAN AND REPTILE SPECIES				
LEPTODACTYLIDAE	**Frogs**			
Crinia georgiana		X	X	X
C. glauerti		X	X	-
C. pseudinsignifera		X	X	X
Heleioporus barycragus		-	X	X
H. inornatus		-	-	X
H. psammophilus		-	-	X
Limnodynastes dorsalis		-	X	X
Pseudophryne guentheri		-	X	X
HYLIDAE	**Frogs**			
Litoria adelaidensis		X	X	X
L. moorei		-	X	X
GEKKONIDAE	**Geckos**			
Crenadactylus o. ocellatus		X	X	X
Diplodactylus g. granariensis		X	X	-
D. polyophthalmus		X	X	X
D. spinigerus		-	-	X
Gehyra variegata		-	X	X
Phyllodactylus m. marmoratus		X	-	-
Underwoodisaurus milii		-	X	-
PYGOPODIDAE	**Legless Lizards**			
Aprasia pulchella		-	X	-
A. repens		X	X	-
AGAMIDAE	**Dragon Lizards**			
Pogona m. minor		-	X	X
SCINCIDAE	**Skinks**			
Cryptoblepharus plagiocephalus		X	X	X
Ctenotus delli		-	X	-
C. labillardieri		-	-	X
Hemiergis i. initialis		X	X	X
Leiolopisma trilineatum		-	X	X
Lerista distinguenda		X	X	-
Menetia greyii		-	-	X
Morethia obscura		-	X	X
Tiliqua r. rugosa		X	X	X
VARANIDAE	**Monitors**			
Varanus gouldii		-	X	-
TYPHLOPIDAE	**Blind Snakes**			
Ramphotyphlops australis		X	X	X
ELAPIDAE	**Elapid Snakes**			
Pseudonaja a. affinis		-	X	-
Rhinoplocephalus gouldii		X	X	X

APPENDIX 1b

List of vertebrate species recorded in winter 1990 (reconnaissance, trapline establishment), in John Forrest National Park sampling sites.

OP = Opportunistic sampling in various habitats (see data printouts).

SITE NUMBER	1	2	3	4	5	7	8	16	OP
BIRD SPECIES									
PODICIPEDIDAE									
Tachybaptus novaehollandiae, Australasian Grebe	-	-	-	-	-	-	-	-	X
ANATIDAE									
Tadorna tadornoides, Australian Shelduck	-	-	-	-	-	-	-	-	X
Anas superciliosa, Pacific Black Duck	-	-	-	-	-	-	-	-	X
ACCIPITRIDAE									
Accipiter cirrhocephalus, Collared Sparrowhawk	-	X	-	-	-	-	-	-	-
Hieraaetus morphnoides, Little Eagle	X	-	-	-	-	-	-	-	-
COLUMBIDAE									
Streptopelia chinensis, Spotted Turtle-Dove I	-	-	-	-	-	-	-	-	X
Phaps chalcoptera, Common Bronzewing	-	-	-	-	-	-	-	X	X
CACATUIDAE									
Calyptorhynchus f. latirostris, White-tailed Black-Cockatoo *	-	-	-	-	-	X	X	-	X
Cacatua roseicapilla, Galah	X	-	-	X	-	-	-	X	-
PLATYCERCIDAE									
Purpureicephalus spurius, Red-capped Parrot	X	X	X	X	-	-	-	X	X
Barnardius zonarius, Port Lincoln Ringneck	X	X	X	X	X	-	-	X	X
Neophema elegans, Elegant Parrot	-	-	-	-	X	-	-	-	-
CUCULIDAE									
Cuculus pallidus, Pallid Cuckoo	X	-	-	X	X	-	-	-	-
C. pyrrhophanus, Fan-tailed Cuckoo	-	-	-	X	X	X	-	X	-
Chrysococcyx basalis, Horsfield's Bronze-Cuckoo	-	-	-	X	X	-	-	-	-
C. lucidus, Shining Bronze-Cuckoo	-	-	X	X	X	X	-	X	-
ALCEDINIDAE									
Dacelo novaeguineae, Laughing Kookaburra I	-	-	X	-	X	-	-	-	X
HIRUNDINIDAE									
Cecropis nigricans, Tree Martin	X	-	-	X	-	-	-	X	X
CAMPEPHAGIDAE									
Coracina novaehollandiae, Black-faced Cuckoo-shrike	X	-	-	-	X	-	-	-	-
MUSCICAPIDAE									
Petroica multicolor, Scarlet Robin	-	-	X	X	-	-	-	X	-
P. goodenovii, Red-capped Robin	-	X	-	-	-	-	-	-	-
Pachycephala pectoralis, Golden Whistler	-	X	-	X	-	-	-	X	X
P. rufiventris, Rufous Whistler	-	-	X	X	X	-	-	-	X
Colluricincla harmonica, Grey Shrike-thrush	-	X	X	-	-	-	-	X	X
Rhipidura fuliginosa, Grey Fantail	X	X	X	X	X	-	-	X	X
MALURIDAE									
Malurus splendens, Splendid Fairy-wren	-	X	X	-	X	-	-	X	-
ACANTHIZIDAE									
Smicrornis brevirostris, Weebill	X	-	-	X	X	-	-	-	X
Gerygone fusca, Western Gerygone	X	-	X	X	X	-	-	X	X
Acanthiza apicalis, Inland Thornbill	-	X	X	-	-	-	-	-	X
A. inornata, Western Thornbill	X	-	-	X	X	-	-	X	-
CLIMACTERIDAE									
Climacteris rufa, Rufous Treecreeper	X	-	X	-	-	-	-	-	X
MELIPHAGIDAE									
Anthochaera carunculata, Red Wattlebird	-	-	-	-	-	-	-	X	-
Melithreptus lunatus, White-naped Honeyeater	-	-	-	-	-	-	-	X	-
Lichmera indistincta, Brown Honeyeater	X	-	X	-	X	-	-	-	-

APPENDIX 1b - Continued

SITE NUMBER	1	2	3	4	5	7	8	16	OP
Phylidonyris novaehollandiae, New Holland Honeyeater	-	-	-	-	-	-	-	-	X
Acanthorhynchus superciliosus, Western Spinebill	X	X	X	X	X	-	-	X	X
DICAEIDAE									
Dicaeum hirundinaceum, Mistletoebird	-	-	-	-	X	-	-	-	-
PARDALOTIDAE									
Pardalotus punctatus, Spotted Pardalote	-	X	-	-	-	-	-	-	-
P. striatus, Striated Pardalote	X	-	-	X	X	-	-	X	-
ZOSTEROPIDAE									
Zosterops lateralis, Silvereye	X	X	-	-	X	-	-	X	X
GRALLINIDAE									
Grallina cyanoleuca, Australian Magpie-lark	-	-	-	-	-	-	-	-	X
CRACTICIDAE									
Cracticus torquatus, Grey Butcherbird	-	-	X	-	X	-	-	X	-
Gymnorhina tibicen, Australian Magpie	-	-	-	X	-	-	-	-	X
Strepera versicolor, Grey Currawong	-	-	-	X	-	-	-	-	-
CORVIDAE									
Corvus coronoides, Australian Raven	X	X	X	X	-	X	-	X	-
MAMMAL SPECIES									
TACHYGLOSSIDAE									
Tachyglossus aculeatus, Short-beaked Echidna	-	-	-	-	X	-	-	-	-
PERAMELIDAE									
Isoodon obesulus, Southern Brown Bandicoot *	-	-	-	-	-	-	X	-	-
MACROPODIDAE									
Macropus fuliginosus, Western Grey Kangaroo	X	-	X	X	X	-	-	-	X
LEPORIDAE									
Oryctolagus cuniculus, Rabbit I	-	-	-	-	-	-	-	-	X
CANIDAE									
Vulpes vulpes, Fox I	-	-	-	-	X	-	-	-	-
SUIDAE									
Sus scrofa, Feral Pig I	-	-	X	-	-	-	-	-	-
AMPHIBIAN AND REPTILE SPECIES									
LEPTODACTYLIDAE Frogs									
Crinia georgiana	-	-	-	-	-	X	-	X	X
C. glauerti	-	-	-	-	-	-	-	X	X
C. pseudinsignifera	-	-	-	-	-	-	-	-	X
HYLIDAE Frogs									
Litoria adelaidensis	-	-	-	-	-	-	X	X	X
GEKKONIDAE Geckos									
Crenadactylus o. ocellatus	-	-	-	X	-	-	-	-	-
Diplodactylus g. granariensis	-	-	-	X	-	-	-	-	-
D. polyophthalmus	-	-	-	-	X	-	-	-	-
Phyllodactylus m. marmoratus	-	X	-	-	-	-	-	-	-
PYGOPODIDAE Legless Lizards									
Aprasia repens	-	-	X	-	-	-	-	-	-
SCINCIDAE Skinks									
Cryptoblepharus plagiocephalus	-	X	X	-	-	-	-	-	-
Hemiergis i. initialis	-	-	X	X	-	-	-	X	-
Lerista distinguenda	-	-	X	-	-	-	-	-	-
Tiliqua r. rugosa	X	-	-	-	-	-	-	-	-
TYPHLOPIDAE Blind Snakes									
Ramphotyphlops australis	-	-	-	X	-	-	-	-	-
ELAPIDAE Elapid Snakes									
Rhinoplocephalus gouldii	-	-	-	-	-	-	X	-	-

APPENDIX 1c

List of vertebrate species recorded in the spring 1990 sampling session in John Forrest National Park, 1990.

OP = Opportunistic sampling in various habitats (see data printouts).

SITE NUMBER	1	2	3	4	5	7	8	16	OP
BIRD SPECIES									
ANATIDAE									
Tadorna tadornoides, Australian Shelduck	-	-	-	-	-	-	-	-	X
Chenonetta jubata, Maned Duck	-	-	-	-	-	-	-	-	X
COLUMBIDAE									
Streptopelia chinensis, Spotted Turtle-Dove I	-	-	-	-	-	-	-	X	-
Phaps chalcoptera, Common Bronzewing	-	X	-	-	X	-	-	-	-
CACATUIDAE									
Calyptorhynchus f. latirostris, White-tailed Black-Cockatoo *	-	X	X	X	-	-	-	-	-
Cacatua roseicapilla, Galah	X	-	X	X	X	X	-	X	X
POLYTELITIDAE									
Polytelis anthopeplus, Regent Parrot	-	-	-	-	-	-	-	-	X
PLATYCERCIDAE									
Purpureicephalus spurius, Red-capped Parrot	X	X	X	-	X	X	-	X	X
Platycercus icterotis, Western Rosella	-	-	-	-	-	-	-	-	X
Barnardius zonarius, Port Lincoln Ringneck	X	-	X	X	X	-	-	X	-
Neophema elegans, Elegant Parrot	-	-	-	-	X	-	-	-	-
CUCULIDAE									
Cuculus pyrrhophanus, Fan-tailed Cuckoo	X	-	-	-	-	-	-	-	-
Chrysococcyx basalis, Horsfield's Bronze-Cuckoo	-	-	-	X	-	-	-	-	-
C. lucidus, Shining Bronze-Cuckoo	-	-	X	X	-	-	-	X	X
STRIGIDAE									
Ninox novaeseelandiae, Southern Boobook	-	X	-	-	-	-	-	-	-
ALCEDINIDAE									
Dacelo novaeguineae, Laughing Kookaburra I	X	X	X	X	-	X	-	X	X
Halcyon sancta, Sacred Kingfisher	X	-	-	X	X	-	X	X	X
MEROPIDAE									
Merops ornatus, Rainbow Bee-eater T	X	X	X	-	X	-	-	X	-
HIRUNDINIDAE									
Cecropis nigricans, Tree Martin	X	-	-	X	X	X	-	X	-
CAMPEPHAGIDAE									
Coracina novaehollandiae, Black-faced Cuckoo-shrike	X	-	-	X	X	-	-	-	X
MUSCICAPIDAE									
Petroica multicolor, Scarlet Robin	-	-	X	X	-	X	-	-	X
Pachycephala pectoralis, Golden Whistler	X	-	X	-	-	X	-	X	-
P. rufiventris, Rufous Whistler	-	-	-	X	-	X	-	X	-
Colluricincla harmonica, Grey Shrike-thrush	X	X	X	X	X	X	-	X	-
Rhipidura fuliginosa, Grey Fantail	X	X	X	-	X	X	-	X	X
MALURIDAE									
Malurus splendens, Splendid Fairy-wren	X	-	X	-	X	X	X	X	-
ACANTHIZIDAE									
Smicrornis brevirostris, Weebill	X	X	-	X	X	X	-	-	X
Gerygone fusca, Western Gerygone	X	X	X	X	X	X	-	X	-
Acanthiza apicalis, Inland Thornbill	-	X	X	X	-	X	X	X	-
A. inornata, Western Thornbill	X	-	X	X	X	X	X	X	-
A. chrysorrhoa, Yellow-rumped Thornbill	-	-	X	-	-	X	-	-	X
NEOSITTIDAE									
Daphoenositta chrysoptera, Varied Sittella	-	X	-	X	-	-	-	-	-
CLIMACTERIDAE									
Climacteris rufa, Rufous Treecreeper	-	-	-	-	X	-	-	-	-

APPENDIX 1c - Continued

SITE NUMBER	1	2	3	4	5	7	8	16	OP
MELIPHAGIDAE									
Anthochaera carunculata, Red Wattlebird	-	X	-	-	-	X	-	-	X
Melithreptus lunatus, White-naped Honeyeater	-	-	X	-	-	X	-	-	-
Lichmera indistincta, Brown Honeyeater	X	X	X	-	X	X	-	X	X
Phylidonyris novaehollandiae, New Holland Honeyeater	-	-	-	-	-	-	-	X	-
Acanthorhynchus superciliosus, Western Spinebill	X	X	X	-	-	X	X	X	-
PARDALOTIDAE									
Pardalotus striatus, Striated Pardalote	X	X	X	X	X	X	-	X	X
ZOSTEROPIDAE									
Zosterops lateralis, Silvereye	X	X	X	-	X	X	X	X	X
CRACTICIDAE									
Cracticus torquatus, Grey Butcherbird	-	-	-	X	X	X	-	X	-
Gymnorhina tibicen, Australian Magpie	X	-	-	-	-	X	-	-	X
CORVIDAE									
Corvus coronoides, Australian Raven	X	X	X	X	X	-	-	X	X
MAMMAL SPECIES									
TACHYGLOSSIDAE									
Tachyglossus aculeatus, Short-beaked Echidna	-	X	X	-	X	-	-	-	-
DASYURIDAE									
Antechinus flavipes, Yellow-footed Antechinus	-	-	X	-	-	-	X	-	-
TARSIPEDIDAE									
Tarsipes rostratus, Honey-possum	-	-	-	-	X	-	-	-	-
MACROPODIDAE									
Macropus irma, Western Brush Wallaby	-	-	X	-	-	-	-	-	-
M. fuliginosus, Western Grey Kangaroo	-	-	X	-	X	X	X	-	X
MURIDAE									
Mus musculus, House Mouse I	-	X	-	-	X	X	X	-	-
LEPORIDAE									
Oryctolagus cuniculus, Rabbit I	-	-	-	X	-	X	-	-	-
CANIDAE									
Vulpes vulpes, Fox I	-	-	X	-	-	X	-	-	-
FELIDAE									
Felis catus, Feral Cat I	-	-	-	-	X	-	-	-	-
AMPHIBIAN AND REPTILE SPECIES									
LEPTODACTYLIDAE Frogs									
Crinia georgiana	-	X	X	X	X	X	-	X	-
C. glauerti	-	-	-	-	-	X	-	X	X
C. pseudinsignifera	-	-	X	X	X	-	-	X	-
Heleioporus barycragus	-	-	-	X	-	-	-	-	-
Limnodynastes dorsalis	-	-	-	-	-	-	X	-	-
Pseudophryne guentheri	-	-	-	-	X	-	-	-	-
HYLIDAE Frogs									
Litoria adelaidensis	-	-	-	-	-	-	-	X	-
L. moorei	-	-	-	X	-	-	-	X	-
GEKKONIDAE Geckos									
Crenadactylus o. ocellatus	-	-	-	-	X	X	-	-	-
Diplodactylus g. granariensis	-	-	-	X	X	-	-	-	-
D. polyophthalmus	X	X	X	X	-	-	-	-	-
Gehyra variegata	X	X	-	-	X	X	-	-	X
Underwoodisaurus milii	-	-	-	-	X	-	-	-	-
PYGOPODIDAE Legless Lizards									
Aprasia pulchella	-	-	X	-	-	-	-	-	-
A. repens	-	X	-	-	-	-	-	-	-
AGAMIDAE Dragon Lizards									
Pogona m. minor	-	-	X	-	X	-	-	-	-
SCINCIDAE Skinks									
Cryptoblepharus plagiocephalus	X	-	X	X	X	X	-	X	-
Ctenotus delli	-	-	X	-	-	-	-	-	-
Hemiergis i. initialis	X	X	X	X	-	-	X	X	-
Leiolopisma trilineatum	-	-	X	-	-	-	X	X	-
Lerista distinguenda	-	X	X	X	-	-	-	X	-
Morethia obscura	-	-	X	-	-	-	-	-	-

APPENDIX 1c - Continued

SITE NUMBER	1	2	3	4	5	7	8	16	OP
Tiliqua r. rugosa	X	X	X	-	-	X	-	-	X
VARANIDAE **Monitors**									
Varanus gouldii	-	-	-	-	-	X	-	-	-
TYPHLOPIDAE **Blind Snakes**									
Ramphotyphlops australis	-	-	-	X	-	-	-	X	-
ELAPIDAE **Elapid Snakes**									
Pseudonaja a. affinis	X	-	-	-	-	-	-	-	-
Rhinoplocephalus gouldii	X	-	X	X	X	-	X	X	-

APPENDIX 1d

List of vertebrate species recorded during the autumn sampling session in John Forrest National Park, 1991.

OP = Opportunistic sampling in various habitats (see data printouts).

SITE NUMBER	1	2	3	4	5	7	8	16	OP
BIRD SPECIES									
PODICIPEDIDAE									
Tachybaptus novaehollandiae, Australasian Grebe	-	-	-	-	-	-	-	-	X
PHALACROCORACIDAE									
Phalacrocorax melanoleucos, Little Pied Cormorant	-	-	-	-	-	-	-	-	X
ARDEIDAE									
Ardea novaehollandiae, White-faced Heron	-	-	-	-	-	-	-	-	X
ANATIDAE									
Anas superciliosa, Pacific Black Duck	-	-	-	-	-	-	-	-	X
ACCIPITRIDAE									
Accipiter fasciatus, Brown Goshawk	-	-	-	-	-	-	-	-	X
TURNICIDAE									
Turnix varia, Painted Button-quail	-	-	X	-	-	-	-	-	-
RALLIDAE									
Fulica atra, Eurasian Coot	-	-	-	-	-	-	-	-	X
COLUMBIDAE									
Phaps chalcoptera, Common Bronzewing	-	-	X	-	-	-	-	X	-
CACATUIDAE									
Calyptorhynchus magnificus, Red-tailed Black-Cockatoo	-	-	-	-	-	-	-	X	-
C. f. latirostris, White-tailed Black-Cockatoo *	-	-	-	-	-	-	X	X	-
Cacatua roseicapilla, Galah	-	-	-	X	-	-	-	-	-
PLATYCERCIDAE									
Purpureicephalus spurius, Red-capped Parrot	X	-	-	-	-	-	X	X	X
Platycercus icterotis, Western Rosella	-	-	-	-	-	-	-	-	X
Barnardius zonarius, Port Lincoln Ringneck	X	-	X	X	X	-	-	X	X
PODARGIDAE									
Podargus strigoides, Tawny Frogmouth	-	-	-	-	-	-	-	-	X
ALCEDINIDAE									
Dacelo novaeguineae, Laughing Kookaburra I	-	-	-	-	-	-	-	-	X
HIRUNDINIDAE									
Cecropis nigricans, Tree Martin	X	-	-	X	-	-	-	-	X
CAMPEPHAGIDAE									
Coracina novaehollandiae, Black-faced Cuckoo-shrike	-	-	-	-	-	-	-	X	-
C. maxima, Ground Cuckoo-shrike	-	-	X	-	-	-	-	-	-
MUSCICAPIDAE									
Petroica multicolor, Scarlet Robin	-	-	-	-	X	-	-	-	X
Pachycephala pectoralis, Golden Whistler	X	-	X	-	-	-	-	X	X
P. rufiventris, Rufous Whistler	-	X	-	X	X	-	-	-	X
Colluricincla harmonica, Grey Shrike-thrush	-	-	X	-	-	-	-	X	X
Rhipidura fuliginosa, Grey Fantail	X	-	X	X	X	-	X	X	X
MALURIDAE									
Malurus splendens, Splendid Fairy-wren	-	-	X	-	-	-	X	X	-
ACANTHIZIDAE									
Sericornis frontalis, White-browed Scrubwren	-	-	-	-	X	-	-	-	X
Smicrornis brevirostris, Weebill	X	-	-	X	X	-	-	-	X
Gerygone fusca, Western Gerygone	-	-	-	X	X	-	-	-	X
Acanthiza apicalis, Inland Thornbill	-	-	X	-	-	-	-	-	X
A. inornata, Western Thornbill	-	X	-	-	-	-	-	X	-
A. chrysorrhoa, Yellow-rumped Thornbill	-	-	X	-	-	-	X	-	X

APPENDIX 1d - Continued

SITE NUMBER	1	2	3	4	5	7	8	16	OP
NEOSITTIDAE									
Daphoenositta chrysoptera, Varied Sittella	-	-	-	-	-	-	X	-	X
CLIMACTERIDAE									
Climacteris rufa, Rufous Treecreeper	X	-	X	X	-	-	-	-	X
MELIPHAGIDAE									
Anthochaera carunculata, Red Wattlebird	-	X	X	-	-	X	-	-	-
Melithreptus lunatus, White-naped Honeyeater	-	-	-	-	-	-	-	-	X
Lichmera indistincta, Brown Honeyeater	-	-	X	-	X	-	-	-	X
Phylidonyris novaehollandiae, New Holland Honeyeater	-	-	-	-	-	-	-	-	X
Acanthorhynchus superciliosus, Western Spinebill	-	X	X	X	-	-	-	-	X
PARDALOTIDAE									
Pardalotus striatus, Striated Pardalote	X	-	-	X	X	-	-	-	X
ZOSTEROPIDAE									
Zosterops lateralis, Silvereye	-	-	X	-	-	-	X	-	X
GRALLINIDAE									
Grallina cyanoleuca, Australian Magpie-lark	-	-	-	-	-	-	-	-	X
ARTAMIDAE									
Artamus cyanopterus, Dusky Woodswallow	-	-	-	-	-	-	X	-	-
CRACTICIDAE									
Cracticus torquatus, Grey Butcherbird	-	X	X	X	-	-	-	X	
Gymnorhina tibicen, Australian Magpie	X	-	-	-	-	-	-	X	X
CORVIDAE									
Corvus coronoides, Australian Raven	-	-	X	X	X	-	-	-	X
MAMMAL SPECIES									
TACHYGLOSSIDAE									
Tachyglossus aculeatus, Short-beaked Echidna	-	-	-	-	-	-	-	X	-
DASYURIDAE									
Antechinus flavipes, Yellow-footed Antechinus	-	X	X	-	-	-	X	-	-
Sminthopsis gilberti, Common Dunnart	-	X	-	X	-	-	-	-	-
BURRAMYIDAE									
Cercartetus concinnus, Western Pygmy-possum	-	-	-	X	-	-	-	-	-
TARSIPEDIDAE									
Tarsipes rostratus, Honey-possum	X	-	-	-	-	-	-	-	-
MACROPODIDAE									
M. fuliginosus, Western Grey Kangaroo	X	-	-	X	X	-	X	X	X
MURIDAE									
Rattus rattus, Black Rat I	-	-	-	-	-	X	-	-	-
Mus musculus, House Mouse I	-	-	X	X	X	-	X	-	-
LEPORIDAE									
Oryctolagus cuniculus, Rabbit I	-	-	-	X	-	-	-	-	-
CANIDAE									
Vulpes vulpes, Fox I	-	-	-	-	X	-	-	-	-
AMPHIBIAN AND REPTILE SPECIES									
LEPTODACTYLIDAE Frogs									
Crinia georgiana	-	X	-	-	-	-	X	X	-
C. pseudinsignifera	-	-	-	-	X	-	-	-	-
Heleioporus barycragus	X	X	X	X	X	-	-	-	-
H. inornatus	-	-	-	-	-	-	-	-	X
H. psammophilus	-	-	-	-	-	-	-	X	X
Limnodynastes dorsalis	-	-	-	-	-	-	-	X	-
Pseudophryne guentheri	-	-	-	-	X	-	-	-	X
HYLIDAE Frogs									
Litoria adelaidensis	-	-	-	-	-	-	-	X	X
L. moorei	-	-	-	-	-	-	-	X	-
GEKKONIDAE Geckos									
Crenadactylus o. ocellatus	-	X	-	X	X	-	-	-	-
D. polyophthalmus	-	X	-	-	X	-	-	X	-
D. spinigerus	-	-	-	-	X	-	-	-	-

APPENDIX 1d - Continued

SITE NUMBER	1	2	3	4	5	7	8	16	OP
Gehyra variegata	-	-	-	-	-	-	X	-	-
AGAMIDAE **Dragon Lizards**									
Pogona m. minor	-	X	-	-	-	-	-	-	-
SCINCIDAE **Skinks**									
Cryptoblepharus plagiocephalus	-	X	-	X	-	X	X	-	X
C. labillardieri	-	-	-	-	-	-	X	-	-
Hemiergis i. initialis	-	X	-	-	-	X	X	-	-
Leiolopisma trilineatum	-	-	X	-	-	-	-	-	-
Menetia greyii	-	X	-	-	-	-	-	-	-
Morethia obscura	-	X	X	X	-	-	-	-	-
Tiliqua r. rugosa	-	X	-	-	-	X	-	-	-
TYPHLOPIDAE **Blind Snakes**									
Ramphotyphlops australis	-	-	-	-	X	-	-	-	-
ELAPIDAE **Elapid Snakes**									
Rhinoplocephalus gouldii	-	-	-	X	-	-	-	-	-

ADDENDUM TO FAUNA SURVEY

The following notes refer to additional records of mammals in and near John Forrest National Park.

Isoodon obesulus (Southern Brown Bandicoot) - a dead juvenile was found in nearby Greenmount National Park in June 1989 (K.D. Morris pers. comm.).

Macropus robustus (Euro) - recorded in John Forrest National Park by Morris and Bromilow (1991).

Canis familiaris (Domestic Dog) - sometimes seen in the Park during the early morning, presumably having wandered in from adjacent suburban areas (K.D. Morris pers. comm.).

Felis catus (Feral Cat) - although recorded rarely during the present survey, at some times they are more common, such as in June 1989 when K.D. Morris and R.N. Bromilow (pers. comm.) recorded up to three per night in the facilities area.

Capra hircus (Feral Goat) - patchily distributed in the Darling Range, but only one sighting on the scarp in John Forrest National Park in June 1989 (K.D. Morris and R.N. Bromilow pers. comm.).

REFERENCE:

Morris, K.D. and Bromilow, R.N. (1991). A record of the Euro, *Macropus robustus* in John Forrest National Park. *Western Australian Naturalist* 18: 166-167.

VEGETATION SURVEY

DATA COLLECTED BY
E.M. MATTISKE AND ASSOCIATES

VEGETATION SURVEY

E. M. Mattiske and Associates
and Allan H. Burbidge

INTRODUCTION

The work reported on herein forms part of an integrated survey of vascular plants and vertebrate animals of John Forrest National Park and the adjacent Red Hill area (see Burbidge, this report, and Ninox Wildlife Consulting, this report). The major aim of the botanical aspects of this project was to obtain base-line data on floristic composition and vegetation structure of the main site-vegetation types within the study area.

METHODS

Following a reconnaissance during which most tracks in the area were traversed, 16 sites were chosen to represent the diversity of the major site-vegetation types identified (Table 3, Figure 8). At each site, a 10 x 10 m plot was permanently marked and sub-divided into 25 quadrats each 2 x 2 m. Species presence was recorded for each quadrat. Observations were also made outside the plots to compile species inventory lists for each site. In addition, all trees within the 10 x 10 m plots were tagged and the following recordings made:

1) diameter at breast height (cm) of each stem,
2) condition and health of each stem (based on a scale applied in other Jarrah forest areas), and
3) comments on epicormic growth, insect infestations and possible causes of stress for each stem where appropriate.

For each site, a record of soil type/substrate was made, and the vegetation structure described according to the system of Muir (1977).

All data presented in this section were collected by E.M. Mattiske and Associates.

RESULTS AND DISCUSSION

The number of vascular plant species at each two hectare site varied from 24 to 92 (mean 65), with 21 to 81 (mean 54) being recorded within the 10 x 10 m plots (Table 4). The species richness in plots 3 and 12 was as rich as that recorded in the species rich northern and southern sand heaths (Hopkins and Griffin 1984). Tree data are presented in Appendix A, understorey data in Appendix B and vegetation, soil and topography descriptions in Appendix C.

Very few weeds were found in any of the sample sites except site 8, which, because of its open nature, had more weeds than other sites. Nevertheless, for such an open area, it was not badly affected by weeds. Most weeds in the study area occur in disturbed areas along the old railway line in the national park and in the regenerating areas in the Red Hill area. Weeds in the park have been the subject of separate investigations (G.J. Keighery, unpubl.).

REFERENCES

Hopkins, A.J.M. and Griffin, E.A. (1984). Floristic patterns. Ch. 4 (pp. 69-83) *in* J.S. Pate and J.S. Beard (eds). Kwongan. Plant Life of the Sandplain. Biology of a South-west Australian Shrubland Ecosystem. (University of Western Australia Press, Nedlands).

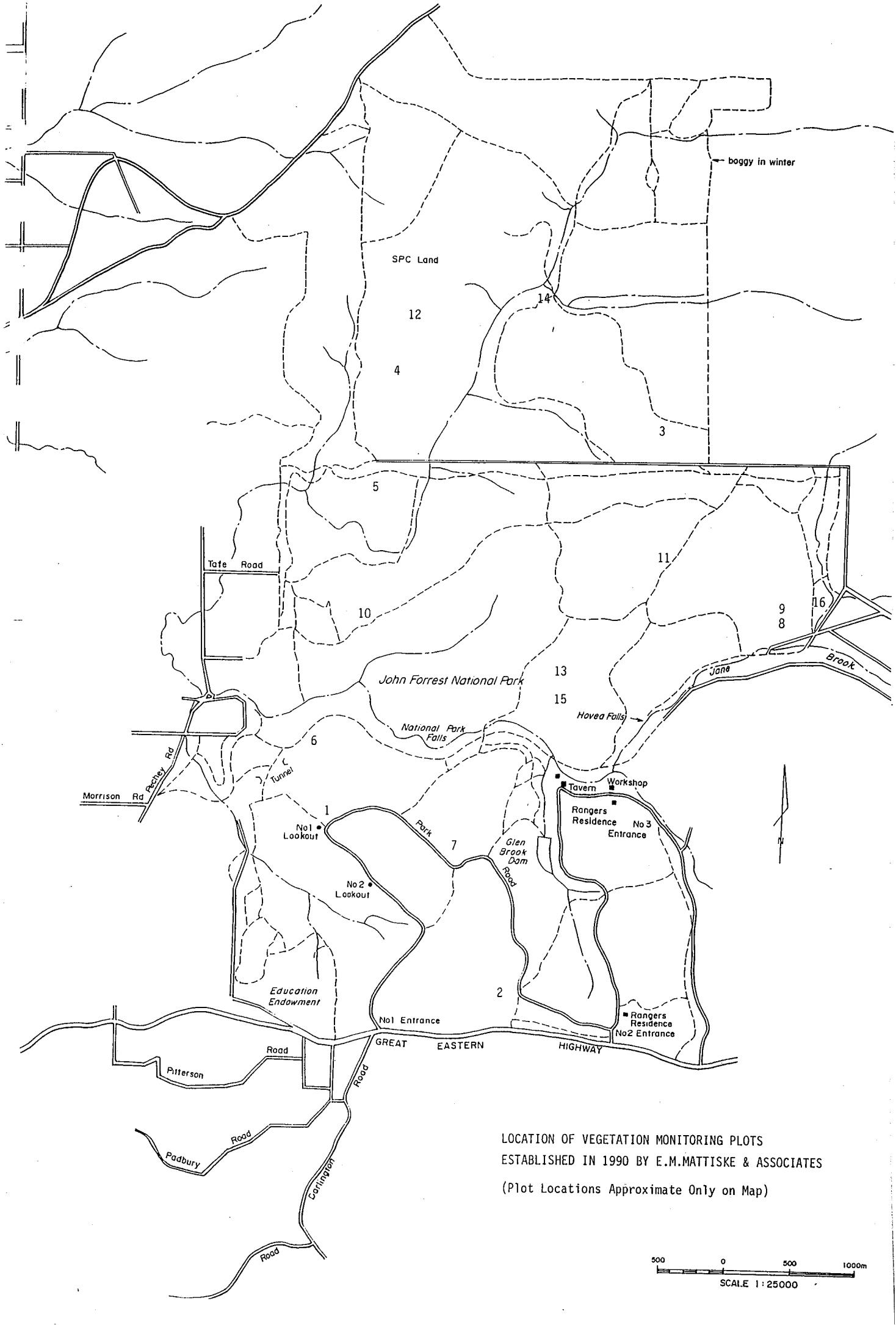
Muir, B.G. (1977). Biological survey of the Western Australian wheatbelt. Part 2. Vegetation and habitat of Bendering Reserve. *Records of the Western Australian Museum* Suppl. No. 3.

Table 3: Plant community and substrate of each of the 16 sites. For further detail see Appendix C. Plot numbers marked with an asterisk are sites where pit-fall traps were established for zoological sampling.

Plot	Plant community and substrate
1*	Woodland of *Eucalyptus accedens* - *Eucalyptus wandoo* on clay-loams
2*	Open forest of *Eucalyptus marginata* - *Allocasuarina fraseriana* on sandy gravels over shallow caprock
3*	Woodland of *Eucalyptus marginata* - *Eucalyptus calophylla* on sand-gravels
4*	Woodland of *Eucalyptus accedens* - *Eucalyptus wandoo* on clay-loams
5*	Closed heath of mixed Myrtaceae - Proteaceae species on Darling Scarp dolerites
6	Closed heath of mixed Myrtaceae - Proteaceae species on Darling Scarp dolerites
7	Tall shrubland of *Agonis linearifolia* on side upper gully and creek line
8	Herbfield on exposed granite outcrop
9	Open heath on exposed granite outcrop
10	Woodland of *Eucalyptus accedens* - *Eucalyptus wandoo* on clay-loams
11	Open forest of *Eucalyptus marginata* - *Eucalyptus calophylla* with dominant second storey layer of *Banksia grandis* on sandy gravels
12	Open forest of *Eucalyptus marginata* - *Allocasuarina fraseriana* on sandy gravels over shallow caprock
13	Woodland of *Eucalyptus calophylla* - *Eucalyptus marginata* on clay-loams over shallow secondary lateritization
14	Woodland of *Eucalyptus patens* - *Eucalyptus wandoo* on sandy loams in creek bed
15	Woodland of *Melaleuca preissiana* - *Banksia littoralis* on wet clay-loams
16*	Woodland of *Eucalyptus patens* on sandy loams on lower valley slopes

Table 4: The number of vascular plant species recorded in each of the plots and at each site (plot plus surrounding two hectares).

Plot No.	No. of species on plots			Other species at site	Total
	Trees	Understorey	Total		
1	3	62	65	5	70
2	3	55	58	8	66
3	2	70	72	20	92
4	2	62	64	26	90
5	0	54	54	14	68
6	0	56	56	17	73
7	1	20	21	3	24
8	0	24	24	6	30
9	0	63	63	0	63
10	1	52	53	11	64
11	3	59	62	11	73
12	2	79	81	7	88
13	1	61	62	9	71
14	2	55	57	6	63
15	3	29	32	15	47
16	1	43	44	11	55
Mean no. of species			54.3		64.8



LOCATION OF VEGETATION MONITORING PLOTS
ESTABLISHED IN 1990 BY E.M.MATTISKE & ASSOCIATES

(Plot Locations Approximate Only on Map)

KEY TO CODES USED IN APPENDICES

Appendix A: Tree and stem condition rating.

0 = healthy, no dead leaves
1 = occasional dead leaves
2 = epicormic shoots (therefore stressed)
3 = tips of branches stressed or dying
4 = entire or whole branches dying or dead (NB some lower branches excluded from this assessment)
5 = more than half tree dead
6 = tree dead

Additional comments add extra information and differentiate between recent and old deaths.

Appendix B: Characteristics of understorey components.

\+ = present in specified 2 x 2 m quadrat
\- = not recorded in specified 2 x 2 m quadrat
B = plant(s) in bud
D = plant(s) dead
F = plant(s) in flower
Ft = plant(s) in fruit
G = plant(s) grazed
P = pink flowers
S = plant(s) stressed
Se = seedling(s) present
VS = very sick/stressed
W = white flowers

APPENDIX A: SUMMARY OF TREE DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 1 Date: 24.8.90

Wandoo-Powderbark Wandoo Woodland.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. accedens	1-1	1	10.2	2	Insects
E. accedens	1-2	1	5.2	1	Insects
E. calophylla	1-3	1	20.8	2	Insects & Stem Canker
E. accedens	1-4	1	12.5	2	Insects, Cracked Stem Water stressed, Epicormic Growth
E. accedens	1-5	1	6.3	2	Insects, Epicormic Growth.
E. accedens	1-6	1	15.8	2	Epicormic Growth
E. marginata	1-7	1	4.1	2	Insects, Regrowth, Epicormic Growth
E. accedens	1-8	1	<1.0	1	
		2	1.9	2	
		3	13.0	1	
		4	5.9	1	Epicormic Growth
E. accedens	1-9	1	5.6	2	
		2	2.0	3	Branch Dead
		3	4.0	2	
		4	1.9	5	V. stressed
		5	3.5	1	
E. calophylla	1-10	1	7.5	6	Old Dead
		2	3.1	2	
E. accedens	1-11	1	8.5	2	Epicormic Growth
E. accedens	1-12	1	3.5	1	
		2	1.3	2	Insects
		3	1.8	2	Insects
E. accedens	1-13	1	5.1	1	
		2	1.8	6	Old Death
		3	1.0	6	Old Death
E. accedens	1-14	1	23.6	1	
E. accedens	1-15	1	4.6	1	
		2	<1.0	1	
E. accedens	1-16	1	6.2	1	
E. accedens	1-17	1	6.9	2	
E. accedens	1-18	1	5.7	1	
E. calophylla	1-19	1	26.1	0	

APPENDIX A: SUMMARY OF TREE DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 1 Date: 24.8.90

Wandoo-Powderbark Wandoo Woodland.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. accedens	1-20	1	3.8	2	
		2	2.1	1	
		3	2.5	1	
E. accedens	1-21	1	12.5	1	
E. accedens	1-22	1	12.7	1	
E. accedens	1-23	1	10.3	2	
E. accedens	1-24	1	4.7	2	Epicormic Growth
		2	4.0	2	Epicormic Growth
		3	<1.0	5	
E. accedens	1-25	1	13.8	1	
E. accedens	1-26	1	10.9	2	
E. accedens	1-27	1	7.0	2	

APPENDIX A: SUMMARY OF TREE DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 2 Date: 24.8.90

Jarrah - Sheoak Open Forest.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. marginata	2-1	1	<1.0	2	Insects
		2	1.8	2	Insects
		3	1.8	2	Insects
E. marginata	2-2	1	8.9	1	
E. marginata	2-3	1	9.2	1	
A. fraseriana	2-4	1	20.5	2	Fire Damage
B. grandis	2-5	1	1.0	1	
B. grandis	2-6	1	<1.0	1	
		2	<1.0	1	
E. marginata	2-7	1	30.3	1	
		2	29.3	1	
		3	32.7	1	
		4	9.3	6	Old Death
A. fraseriana	2-8	1	35.7	2	Burnt Heart of stems
		2	34.4	2	Burnt Heart of stems
A. fraseriana	2-9	1	<1.0	5	Regrowth at base
		2	4.6	5	"
		3	3.5	5	"
		4	<1.0	5	"
A. fraseriana	2-10	1	<1.0	5	Regrowth at base
		2	<1.0	5	"
		3	2.7	1	
		4	4.6	6	Old Death - Fire
		5	2.7	6	Old Death - Fire
A. fraseriana	2-11	1	23.8	2	Scolding of stem by fire
A. fraseriana	2-12	1	20.1	2	Scolding of stem by
		2	11.5	1	fire, burnt heart
A. fraseriana	2-13	1	<1.0	5	Fire affected stems
		2	5.0	4	"

APPENDIX A: SUMMARY OF TREE DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 3 Date: 7.9.90
Jarrah - Marri Open Forest.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. marginata	3-1	1	8.0	1	Insects
(2 regenerating stems below DBH)					
E. marginata	3-2	1	9.0	1	Insects
		2	<1.0	1	
(1 regenerating stem below DBH)					
E. calophylla	3-3	1	81.0	2	Some stress on outer branches
E. marginata	3-4	1	7.9	2	Insects
		2	<1.0	6	Old death
		3	9.0	2	Insects

Plot No.: 4 Date: 24.8.90
Powderbark Wandoo - Wandoo Woodland

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. accedens	4-1	1	16.6	2	Insects
		2	<1.0	2	Insects
E. wandoo	4-2	1	14.1	3	Insects, Br.dead
		2	23.0	3	Insects, Br.dead
E. accedens	4-3	1	88.6	3	Insects, Epicormic Growth

Plot No.: 5
Heath.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
No Trees					

APPENDIX A: SUMMARY OF TREE DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 6
Jarrah - Marri Open Forest.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
No Trees					

Plot No.: 7 Date: 24.8.90
Marri Woodland.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. calophylla	7-1	1	17.5	0	
E. calophylla	7-2	1	10.3	1	
E. calophylla	7-3	1	11.0	2	
E. calophylla	7-4	1	6.7	6	Old Death
		2	<1.0	2	
E. calophylla	7-5	1	14.2	1	

Plot No.: 8
Herb field

Species	Tree No.	Stem No.	DBH	Condition	Comments.
No Trees					

Plot No.: 9
Heath.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
No Trees.					

APPENDIX A: SUMMARY OF TREE DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 10 Date: 8.9.90
Powderbark Wandoo - Wandoo Woodland.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. accedens	10-1	1	13.9	2	Insects
		2	38.9	2	Insects, Broken Branches
E. accedens	10-2	1	9.4	1	Insects
		2	63.5	2	Insects, Epic.Growth, Broken Branches
		3	13.9	1	

Plot No.: 11 Date: 23.8.90
Jarrah - Banksia grandis

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
B. grandis	11-1	1	3.5	2	
		2	4.2	1	
B. grandis	11-2	1	15.0	1	
B. grandis	11-3	1	7.4	2	
B. grandis	11-4	1	9.4	1	
B. grandis	11-5	1	3.5	1	
E. marginata	11-6	1	26.2	1	
B. grandis	11-7	1	9.4	1	
B. grandis	11-8	1	3.6	1	
B. grandis	11-9	1	2.5	1	
		2	2.9	1	
B. grandis	11-10	1	7.6	1	
B. grandis	11-11	1	9.0	1	
B. grandis	11-12	1	7.8	1	
B. grandis	11-13	1	10.3	2	
B. grandis	11-14	1	11.0	2	
B. grandis	11-15	1	2.1	2	
B. grandis	11-16	1	7.2	2	
E. marginata	11-17	1	46.2	2	Stem Borers, Epicormic Growth
E. calophylla	11-18	1	25.5	1	
B. grandis	11-19	1	6.3	1	
		2	10.2	1	

APPENDIX A: SUMMARY OF TREE DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 12 Date: 23.8.90
Jarrah - Sheoak Open Forest.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
A. fraseriana	12-1	1	39.8	3	Burnt Heart, Branch tips dead.
E. marginata	12-2	1	12.4	2	Leaf Miner
A. fraseriana	12-3	1	3.5	0	
		2	4.8	0	
		3	3.5	0	
	(plus 1 broken stem)				
A. fraseriana	12-4	1	5.1	1	Lost bark
		2	5.0	1	
		3	3.7	0	
E. marginata	12-5	1	5.2	2	Leaf Miner
		2	1.5	2	Leaf Miner

Plot No.: 13 Date: 24.8.90
Marri Open Woodland.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. calophylla	13-1	1	13.2	0	

Plot No.: 14 Date: 23.8.90
Marri - Wandoo - Yarri Woodland.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. calophylla	14-1	1	21.1	2	
E. wandoo	14-2	1	14.0	1	
E. wandoo	14-3	1	11.0	2	Insects
E. calophylla	14-4	1	<1.0	0	

APPENDIX A: SUMMARY OF TREE DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 15 Date: 24.8.90

Paperbark - Banksia Woodland (and occasional Acacia saligna)

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. calophylla	15-1	1	47.8	1	
M. preissiana	15-2	1	18.2	2	Stem Borers
B. littoralis	15-3	1	12.9	1	
		2	6.2	1	
		3	16.9	1	Leaning Stem
B. littoralis	15-4	1	17.9	1	
		2	58.9	1	

Plot No.: 16 Date: 24.8.90

Yarri Woodland.

Species	Tree No.	Stem No.	DBH (cm)	Condition	Comments.
E. patens	16-1	1	22.0	1	
		2	11.7	2	
		3	11.6	1	
		4	12.1	1	
		5	<1.0	0	
E. patens	16-2	1	3.3	1	
		2	4.6	6	Old Death
		3	2.8	1	
E. patens	16-3	1	17.5	3	Burnt,Upper Brs.Dead
		2	11.2	1	"
		3	21.2	3	"
		4	16.8	1	"
		5	14.5	1	"
	(one dead old stump in middle of 16-3)				
E. patens	16-4	1	6.2	1	
E. patens	16-5	1	9.8	2	
		2	6.3	1	
		3	3.2	6	Old Death
	(one old stump at base)				

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 1 Date: 27.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia pulchella var. pulchella	-	-	+B	+	+	+	+	-	+	+	-	+	-	-	+	+	-	-	-	-	-	-	-	-	-
Astroloma pallidum	-	-	-	-	-	+B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Baeckea camphorosmae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Bossiaea eriocarpa	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Burchardia umbellata	-	-	-	-	-	-	-	+	+	-	-	+	-	-	+	-	+	+	+	-	-	-	-	-	+
Caladenia sp. JF17	-	-	-	-	-	+	-	+	+	+	-	+	+	+	-	-	-	-	-	+	-	-	-	-	-
Cassytha racemosa	-	+B	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conostylis setosa	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Craspedia sp. JF19	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Cyathochaeta avenacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Dampiera alata	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Dampiera linearis	-	-	+	+	+	+	+	+	-	-	-	-	+	+	-	-	-	-	-	-	+	-	+	+	+
Danthonia sp. JF6	+	-	-	+	+	+	-	-	-	+	-	-	+	-	-	-	-	-	+	-	+	-	-	-	-
Daviesia decurrens	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Daviesia ?preissii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+B	-	-	-	-	-	-	-	-
Dillwynia sp.A	-	-	-	-	+F	+	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-
Drosera ?erythrorhiza	-	+	+	+	+	+	-	+	+	-	+	-	+	+	-	-	-	-	+	+	+	-	-	-	-
Drosera ?menziesii	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Dryandra bipinnatifida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Dryandra nivea	+F	-	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	-	+	+	+
Gompholobium marginatum	+B	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gompholobium polymorphum	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-
Gonocarpus cordiger	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haemodorum sp. JF2	+	+	-	+	+	+	+	+	-	-	+	+	-	-	+	-	-	-	+	+	-	-	+	-	+
Hakea lissocarpha	+F	+F	+F	+	-	+	+	+	+	+	+	+	+	-	+	+	-	-	+	+	+	+	+	-	+

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 1 (Continued)

Date: 27.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Hibbertia ?commutata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Hibbertia ?huegelii	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hibbertia hypericoides	+B	+B	-	+	+	+	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	-
Hovea trisperma	+F	+F	-	-	+	+	-	+	-	+	+	+	+	-	+	+	+	+	+	+	+	-	+	-	-
Lagenifera huegelii	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lechenaultia biloba	+	-	-	-	+	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidosperma aff. angustatum	-	-	+F	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-
Lomandra pauciflora	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	+	+
Lomandra nigricans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-
Lomandra sericea	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+	-	-	-	+
Lomandra spartea	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loxocarya fasciculata	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemcia dilatata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Nemcia ?spathulata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-
Neurachne alopecuroidea	-	-	-	-	-	+	+	-	-	+	+	+	-	-	-	-	-	-	-	+	+	+	-	+	-
Opercularia vaginalis	-	-	-	+F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Orchidaceae sp.	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Papilionaceae sp.	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Patersonia ?occidentalis	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Petrophile striata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+B	-	-	-
Pimelea suaveolens	-	-	-	-	+F	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	+	-
Pterostylis vittata	-	-	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	+	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 1 (Continued) Date: 27.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Stylidium brunonianum	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Stylidium bulbiferum	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium piliferum	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Templetonia biloba	-	+	-	+	-	-	-	+	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-
Tetraria capillaris	-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-
Tetraria octandra	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+
Tetrarrhena laevis	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-
Thelymitra sp. JF14	-	-	-	+	+	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	+	-	-	-	-
Thysanotus patersonii	-	-	-	-	+B	+	-	-	-	-	-	-	-	+	-	-	+	-	+	-	-	+	+	-	-
Trichocline spathulata	+	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+	+	+	+	-	-	-
Trymalium angustifolium	+F	-	+	-	+	+	+	-	+	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Trymalium ledifolium	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea gracilis	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea preissii	-	+D	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+
Xanthosia candida	+	-	-	+	-	+	+	-	-	+	+	-	+	+	-	+	-	+	-	-	+	+	+	-	+

Additional Species on Plot 1

- Bossiaea ornata
- Conostylis setigera
- Grevillea pilulifera
- Sowerbaea laxiflora
- Stackhousia sp.

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 2

Date: 27.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Adenanthos barbigerus	+F	-	-	-	-	-	+	-	-	+	-	-	+	+	-	-	-	+	+	-	+	+	+	+	+
Allocasuarina fraseriana (seedlings)	-	-	+	+	+	+	-	-	-	+	+	-	-	+	+	-	-	-	-	-	-	-	-	+	+
Anigozanthos manglesii	-	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	-	-	-	-	+	+	+
Banksia grandis (seedlings)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Bossiaea ornata	+B	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Burchardia umbellata	+	-	-	-	+	+	-	+	+	+	+	+	+	+	+	+	-	-	+	+	-	+	+	+	-
Caladenia sp. JF17	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Conostylis setigera	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	+	+	-	-
Conostylis setosa	+B	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+
Cyathochaeta avenacea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Dampiera linearis	+	-	+	+	+	+	-	-	-	+	+	-	-	+	+	+	+	-	-	-	-	-	+	-	+
Dianella revoluta	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drosera ?erythrorhiza	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Drosera stolonifera	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Dryandra nivea	+	+D	+	+	-	-	-	-	+	-	-	+	-	-	+	-	+	-	-	+	-	-	-	+	-
Gompholobium preissii	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Gonocarpus cordiger	+	+	+	-	-	+	+	+	+	-	-	+	+	+	+	-	+	-	+	-	-	-	-	-	-
Grevillea synapheae	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	+	+	+	+	+	+	+	-	-	-
Grevillea wilsonii	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haemodorum sp. JF2	+	+	+	-	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	+	+	-	+	+
Hovea chorizemifolia	+	-	-	+	+	+	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+	-	+	-	-
Hybanthus debilissimus	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Kennedia coccinea	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 2 (Continued) Date: 27.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Lechenaultia biloba	+	+	-	-	+	+	+	-	+	+	+	-	+	-	-	-	-	-	-	+	-	-	+	-	-
Lepidosperma angustatum	-	+	+	+	-	+	+	-	+	+	-	+	+	-	-	-	-	-	-	-	-	-	-	+	-
Lepidosperma tenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-
Lomandra hermaphrodita	-	-	+	+	+	+	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	+
Lomandra pauciflora	-	-	+	-	-	+	+	+	+	+	+	+	-	-	+	+	-	+	-	-	-	+	+	-	-
Lomandra nigricans	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra sonderi	-	+	-	+	-	+	-	+	+	-	-	+	-	-	-	+	+	-	+	+	+	-	-	+	-
Lomandra sp.	+	+	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Mesomelaena graciliceps	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Neurachne alopecuroidea	-	+	-	+	+	-	-	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Patersonia babianoides	-	-	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Patersonia ?occidentalis	+	-	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Patersonia pygmaea	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+F	-	-	-	+	-	-	-	-	-
Pentapeltis peltigera	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Petrophile striata	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Phyllanthus calycinus	+	-	-	+	+	-	+	-	+	+	+	-	-	-	-	+	-	+	-	-	-	+	-	-	-
Pterostylis barbata	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-
Scaevola striata	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Stylidium lineatum	-	+	+	+	+	+	+	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-
Stylidium piliferum	+	+	+	+	+	-	+	+	-	-	+	-	+	+	+	+	-	-	-	-	-	-	-	+	+
Stylidium schoenoides	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styphelia tenuiflora	+B	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Templetonia drummondii	-	+F	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-
Tetraria capillaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+F	-	-	-	-	-	-	-	-	+
Tetraria octandra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Tetrarrhena laevis	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 2 (Continued)

Date: 27.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Thelymitra sp. JF14	-	-	-	+	-	+	+	-	-	-	-	-	+	+	-	+	-	+	-	-	-	-	-	-	-
Thysanotus multiflorus	-	+	-	-	-	+	-	+	+	-	+	+	+	-	-	+	+	+	+	+	+	+	+	+	-
Tricoryne elatior	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea gracilis	-	+	-	-	+	+	+	-	+	+	-	-	-	+	-	-	+	-	+	-	+	+	-	+	+
Xanthorrhoea preissii	+	-	+	-	-	+	+	-	+	+	+	+	+	+	+	+	+	+	-	+	-	+	+	-	+
Xanthosia candida	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	-	+	+	+

Additional Species in Plot 2

- Daviesia ?hakeoides
- Daviesia ?preissii
- Gompholobium knightianum
- Hakea stenocarpa
- Hibbertia ovata
- Platysace compressa
- Scaevola platyphylla
- Synaphea petiolaris

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 3

Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia barbinervis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Agrostocrinum scabrum	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Astroloma ciliatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Boronia ovata	-	-	+	-	-	-	-	+	-	-	+	-	-	-	+	-	-	+	+	+	-	-	-	+	-
Bossiaea ornata	+	+	+	+	+	+	+	+	+	+	+F	+	+	+	+	+	+	+	+	+	+	+	+	+	-
Burchardia umbellata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+B	-	-
Caesia parviflora	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cassytha racemosa	-	+	+	+	+	+	+	+	+	-	-	-	-	-	+	-	-	-	-	+	-	+	-	+	+
Chamaescilla corymbosa	-	+	+	+	+	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comesperma virgatum	+	+	-	-	-	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
Conostylis setigera	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conostylis setosa	+	+	+	+	+	+	+	+	-	-	+	-	+	+	+	-	+	+	+	-	+	+	+	+	+
Cyathochaeta avenacea	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
Dampiera linearis	+	+	+	+	-	-	+	-	+	-	+	-	+	+	+	-	+	+	+	+	+	+	+	+	+
Daviesia preissii	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Drosera ?erythrorhiza	+	+	-	+	-	-	+	+	-	+	+S	+	+	+	-	+	+	+	+	+	+	+	+	+	-
Drosera macrantha	-	+	+	+	-	+	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Drosera platystigma	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dryandra nivea	+S	+S	+	+	+S	+S	+	+	+S	+S	+F	-	+	+	+	+	+SF	+	+	+	+	+	+	+S	+
Eriochilus dilatatus	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eriostemon spicatus	+	-	-	+	+	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Gompholobium marginatum	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gonocarpus cordiger	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-
Grevillea synapheae	+	-	-	-	+	+	+	+F	+	-	-	+	+	+	+	-	+	+	+	+	-	+	+	+	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 3 (Continued)

Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Haemodorum sp. JF2	+	+	-	-	-	+	+	+	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-
Haemodorum simplex	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hakea lissocarpha	-	-	+	-	-	-	-	+	-	-	-	-	-	+	+	-	+F	+	-	-	-	-	-	-	-
Hibbertia commutata	+	-	-	-	+	-	-	+	-	+	+	-	+	+	-	+	+	+	-	-	-	+	+	+	+
Hibbertia ?huegelii	-	-	-	+	+	+	-	-	-	-	+	+	+	+	-	-	-	-	-	+	-	-	-	-	+
Hibbertia hypericoides	+F	+	+	+	+	+	+	+	+	+F	+F	-	+	+	+	+	+F	+	+	+	+	+	+	+	+
Hovea chorizemifolia	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	+	-	-	-
Isopogon sphaerocephalus	+S	+S	+S	+S	-	+S	+	+S	+S	+B	+S	-	+	+S	-	-	+	+S	+SB	+S	+	+	+	+S	+
Labichea punctata	+	+	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-
Lechenaultia biloba	-	+	+	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidosperma angustatum	+	-	+	-	-	-	-	-	+	-	-	+	-	-	-	+	+	+	-	-	-	-	-	-	-
Lepidosperma sp.	-	+	-	-	-	+	+	-	-	+	-	-	+	-	+	+	-	+	-	+	+	+	+	-	-
Leucopogon capitellatus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-
Leucopogon nutans	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leucopogon propinquus	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra hermaphrodita	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-
Lomandra sonderi	-	-	-	-	+	+	-	+	-	-	+	-	-	+	+	+	-	+	-	-	-	-	-	-	-
Lomandra sp.1	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Lomandra sp.2	-	-	-	-	+B	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loxocarya fasciculata	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemcia dilatata	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Neurachne alopecuroidea	+	-	+	-	-	-	+	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+	-
*Oleander sp.	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Olearia paucidentata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Patersonia occidentalis	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Patersonia pygmaea	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 3 (Continued) Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Pentapeltis peltigera	+	+	-	+	-	+	-	-	+	+	+	-	+	+	-	-	-	-	+	+	+	+	+	-	-
Petrophile striata	+	-	-	-	+	+	+	-	-	-	+	-	-	-	+	+	-	-	+	+	-	-	+	+	-
Pimelea angustifolia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Pterostylis nana	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Pterostylis vittata	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Scaevola striata	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	+	+	+	-	-	+	-	+	+
Schoenus ?latitans	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium amoenum	+	+	-	-	-	+	+	-	-	-	+	-	+	+	+	+	+	-	+	+	+	+	+	+	+
Stylidium ?carnosum	+	+	-	-	+	+	-	+	+	+	-	+	+	-	-	+	+	-	-	+	+	-	-	-	-
Stylidium junceum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
Stylidium piliferum	+	-	+	+	+	+	+	-	-	-	-	-	-	-	+	+	-	-	-	-	+	-	-	+	-
Styphelia tenuiflora	+	+	-	-	-	-	-	-	+F	-	-	+	-	-	+	-	-	-	-	+	+	+	-	-	+
Tetraria capillaris	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetraria octandra	-	-	+	+	+	-	-	+	-	-	-	-	-	+	-	-	+	+	-	+	-	+	+	+	-
Tetrarrhena laevis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-
Thelymitra sp.	+	+	+	-	-	-	+	+	-	-	-	-	-	-	-	+	+B	+	+	+	-	+	+	-	+
Trichocline sp.	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-
Tricoryne elatior	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea gracilis	+	+	+	+	+	-	+	+B	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+
Xanthorrhoea preissii	-	+	-	+	+	+	+	+	+	-	-	+	+	+	-	-	-	+	+	+	+	+	+	+	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 3 (Continued)

Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Additional Species in Plot 3																									
Acacia pulchella																									
Adenanthos barbigerus																									
Anigozanthos manglesii																									
Baeckea camphorosmae																									
Conostylis serrulata																									
Dryandra sessilis																									
Gonocarpus cordiger																									
Hakea amplexicaulis																									
Hakea trifurcata																									
Hakea undulata																									
Kennedia coccinea																									
Lechenaultia biloba																									
Leucopogon ?pulchellus																									
Lomandra nigricans																									
Lyperanthus ?nigricans																									
Macrozamia riedlei																									
Phyllanthus calycinus																									
Synaphea ?petiolaris																									
Tetratheca viminea																									
Tripterococcus brunonis																									

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 4

Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia nervosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Acacia pulchella var. pulchella	+	+	+F	-	+	-	+1D	+	+	-	-	+	+	-	-	-	-	-	+	+	-	-	+S	+S	-
Arthropodium capillipes	-	-	+	+	-	-	+	+	+	-	-	+	+	+	-	-	+	+	+	-	-	-	+	-	+
Billardiera bicolor var. bicolor	-	-	-	-	-	-	+	-	+	-	-	-	-	+	-	-	+G	-	-	-	-	-	-	+	-
Boronia ovata	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	+
*Briza maxima	-	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-
Burchardia umbellata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Caesia parviflora	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
Cassytha sp.	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Comesperma ?sp.	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+G	+	-	-	-	-	-	-
Conostylis setosa	+	+	-	-	-	-	-	-	+	+	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-
?Craspedia sp. JF19	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyathochaeta avenacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Dampiera alata	-	-	+	-	-	-	-	+	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-
Danthonia sp. JF6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-	-
Daviesia ?preissii	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-
Dillwynia sp.A	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drosera sp.(climbing)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Dryandra bipinnatifida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-
Dryandra nivea	+	+	+	+	+	+	+	+	+	-	+	-	-	+	+S	-	-	+	+	+	+	+	+	-	-
*Gladiolus sp.	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gompholobium marginatum	+	+	-	-	-	-	-	-	+	+	+	+	-	-	+	+	-	-	+	+	+	-	-	-	+
Gompholobium polymorphum	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gonocarpus cordiger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 4 (Continued)

Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Hakea lissocarpha	+F	+	+F	+F	+D	+S	+S	+S	+	+D	+S	+	-	+S	+	+	+D	+S	+S	+S	+D	+S	+	+S	+
Hibbertia commutata	+	+	+	-	+	-	+	-	+	+	+	+	-	+	-	-	-	+	+	-	+	-	-	-	-
Hibbertia ?huegelii	-	-	-	+	-	+	-	-	-	-	-	-	-	+	-	-	-	-	+	-	+	-	-	-	+
Hibbertia hypericoides	+F	+	-	+F	+	-	+	+	+	+	+	-	+	+	+	+	+	-	+	+	+	+	+	+	+
*Hypochaeris glabra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Kennedia coccinea	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Labichea punctata	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-
Lagenifera huegelii	+	+	-	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Lechenaultia biloba	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidosperma tenue	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leucopogon propinquus	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra ?purpurea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Lomandra sonderi	+	+	+	+	-	-	+	-	+	-	+	-	+	+	+	-	-	+	+	+	-	-	-	-	-
Lomandra spartea	-	-	+	+	+	-	+	+	+	+	-	+	+	+B	+	-	+	-	-	+	+	-	+	+	-
Lomandra sp. 1	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra sp. 2	-	+	-	-	-	-	-	-	-	-	-	+	-	-	+	+	+	-	-	-	-	-	-	-	-
Macrozamia riedlei	-	-	+	+	+S	-	+S	-	-	-	-	-	+S	-	-	-	-	+S	-	+D	-	-	+S	-	-
Neurachne alopecuroidea	+	+	+	-	+	-	+	+	-	+	+	+	+	+	+	+	-	+	+	-	+	+	+	-	+
Olearia paucidentata	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Opercularia hispidula	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Orthrosanthus laxus	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-	-
Petrophile seminuda	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Petrophile striata	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
*Romulea rosea	-	-	-	-	-	-	-	-	-	+	+	-	+	-	-	-	-	+	+	-	-	-	-	-	-
Stylidium affine	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-
Stylidium amoenum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 4 (Continued)

Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Stylidium brunonianum	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium hispidum	+	+	-	+	-	+	-	+	+	+	-	+	+	+	-	-	+	+	-	+	-	+	-	-	-
Stylidium schoenoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
Tetratheca viminea	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-
Thomasia foliosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Trachymene pilosa	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichocline spathulata	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-	+	+	+	+	+	-	+	-	-
Trymalium angustifolium	-	-	+F	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	+	-	-	+
*Ursinia anthemoides	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Xanthorrhoea gracilis	-	-	+	+	+S	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-
Xanthorrhoea preissii	-	-	+	-	-	+	+S	-	-	-	-	+	-	-	-	-	-	+S	+	-	-	-	-	-	+S
Xanthosia candida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-

Additional Species in Plot 4

- Agrostocrinum scabrum
- Baeckea camphorosmae
- Bossiaea ornata
- Calytrix variabilis
- Chamaexeros serra
- Darwinia thymoides
- Daviesia cordata
- Daviesia decurrens
- Dianella revoluta
- Grevillea bipinnatifida
- Grevillea synapheae
- Haemodorum sp. JF2
- Hakea stenocarpa
- Hakea undulata
- Hypocalymma angustifolium
- Isopogon asper
- Leucopogon ?pulchellus
- Nemcia dilatata
- Phyllanthus calycinus
- Pimelea angustifolia
- Pimelea suaveolens
- Stackhousia pubescens
- Stylidium ?carnosum
- Stylidium bulbiferum
- Styphelia tenuiflora
- Synaphea ?petiolaris

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 5

Date: 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia pulchella	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
Agrostocrinum scabrum	+	+	+	+	-	-	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
*Anagallis arvensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Arthropodium capillipes	-	-	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-
Asteraceae sp. JF71	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
*Avena fatua	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
*Briza maxima	+	+	+	+	+	-	+	+	+	+	-	-	+	+	-	-	+	+	-	+	+	+	-	+	+
Burchardia umbellata	-	+	-	+	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Caladenia sp. JF17	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calothamnus quadrifidus	+	+	+SF	+S	+S	-	+	+S	+	+	+	+	+	+	-	+S	+S	+S	+S	+S	+S	+S	+S	+	+
Cassytha sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Chamaescilla corymbosa	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	-	+	+	-	-
Cheilanthes austrotenuifolia	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Daviesia horrida	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+S	-	-	-	-	+Se	-	-
Dioscorea hastifolia	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Drosera macrantha	+	+	+	+	+	-	+	+	+	+	+	-	-	-	-	-	+P	+P	+P	+W	-	+	+	+	+
Dryandra nivea	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
*Gladiolus sp.	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Gompholobium marginatum	-	+	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grevillea bipinnatifida	+	+S	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Haemodorum simplex	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-
Haemodorum sp. JF2	+	+	+	+	-	-	-	+	+	-	-	-	-	-	-	-	+	+	+	-	+	+	+	-	+
Hakea erinacea	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	+S
Hakea lissocarpha	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+S	-	-	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 5 (Continued)

Date: 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Hibbertia commutata	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Hibbertia hypericoides	-	-	+	+	-	-	+	-	-	-	+	-	-	+	-	-	+	-	+	-	-	-	-	-	-
*Hypochaeris glabra	+	+	+	+	-	-	-	-	-	+	-	-	-	+	-	-	-	+	+	-	-	+	+	+	+
Isopogon asper	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Kennedia prostrata	-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidosperma squamatum	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-
Lepidosperma tenue	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Leucopogon ?pulchellus	+	+	+	+	-	-	-	+	+	+	+	-	+	-	-	-	-	-	-	+	+	-	-	-	+
Lomandra sp.	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loxocarya fasciculata	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Loxocarya ?flexuosa	+	+	+	-	+	-	-	-	+	+	+	+	-	-	-	+	+	+	+	-	-	+	+	+	+
Macrozamia riedlei	-	-	-	-	+S	+	-	-	-	-	-	+	+	-	-	+	-	-	-	+	+	-	-	-	-
Moss spp.	+	+	+	+	-	-	-	-	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	+	+
Nemcia spathulata	+	+	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neurachne alopecuroidea	+	+	+	+	+	-	+	-	+	+	-	+	-	+	-	+	+	+	+	-	-	-	+	+	+
Phyllanthus calycinus	+	+	+	-	-	-	-	+	+	+	-	+	-	+	-	+	-	-	-	-	-	-	-	+	+
Podolepis lessonii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+
*Sonchus sp.	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stackhousia pubescens	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	+	+	+	-	+	+	+	+	+	+
Stylidium schoenoides	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Synaphea petiolaris	+	+	+	-	-	-	-	-	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
Tetraria octandra	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thelymitra sp.	+	+	+	+	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trachymene pilosa	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-
Tricoryne elatior	+	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 5 (Continued)

Date: 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Tripterococcus brunonis	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-
Trymalium ledifolium	+	+	+	+	+	+	+	+	+	+	+	+S	+	+	+	+S	+S	+	+S	+	+	+	+	+S	+
*Ursinia anthemoides	+	+	+	+	+	-	+	+	-	+	-	+	+	-	-	+	+	-	-	-	-	-	+	-	-
Xanthorrhoea gracilis	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea preissii	-	+	+	-	-	-	+	+	-	-	-	-	+	-	-	-	+	-	-	-	-	-	+	-	-
Xanthosia candida	-	-	+	+	+	-	+	+	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-

Additional Species in Plot 5

- Baeckea camphorosmae
- Boronia cymosa
- Borya sphaerocephala
- Chamaexeros serra
- Drosera pallida
- Dryandra armata
- Hakea incrassata
- Hakea undulata
- Hypocalymma angustifolium
- Jacksonia alata
- Orchidaceae sp.
- Orthrosanthus laxus
- Stypandra glauca
- Verticordia huegelii

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 6

Date: 14.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia pulchella	-	+F	+	+	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	+	-	+F	+	+
*Aira caryophyllea	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+	+	-	+	-	-	+	-	+	+
Agrostocrinum scabrum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-
*Anagallis arvensis	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
Astroloma pallidum	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
*Avena fatua	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-+
Baeckea camphorosmae	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-	+	-	-
Boronia ?sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Borya sphaerocephala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	+	+	-	-	-
*Briza maxima	+	-	-	-	+	-	-	-	+	-	+	-	+	+	+	+	+	+	+	+	-	+	+	-	+
Burchardia umbellata	+	+	+	+	-	+	-	+	+	+	+	+	+	+	-	-	-	+	-	+	-	+	-	+	+
Caesia ?parviflora	-	-	+	+	+	+	+	-	+	+	-	-	+	+	+	-	+	-	-	-	-	-	-	+	+
Caladenia sp. JF17	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calothamnus quadrifidus	+F	-	-	-	-	-	-	+	+	+	-	+	-	-	-	-	-	+	+	-	+	+	-	+	+
Cassytha sp.	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	+	+	-	-	-	-	-
Cheilanthes austrotenuifolia	-	-	-	+	+	+	+	-	-	-	-	-	-	+	+	+	+	+	+	-	+	+	+	+	+
Conostylis androstemma	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Drosera ?erythrorhiza	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Drosera menziesii	+	+	+	-	+	+	+	+	+	+	+	-	-	-	+	+	-	-	-	-	+	+	-	+	+
Dryandra nivea	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-
*Ehrharta ?calycina	+	+	-	+	+	-	+	+	-	+	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
Gompholobium marginatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Gonocarpus cordiger	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grevillea bipinnatifida	-	-	-	-	-	-	+D	-	-	-	-	-	-	+D	-	-	-	-	-	-	-	-	-	-	-
Grevillea endlicheriana	-	+F	+	+	+	-	-	+	-	+	-	-	+	+	+	+	-	+	+	+	-	+	-	+	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 6 (Continued)

Date: 14.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Haemodorum ?laxum	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Haemodorum simplex	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-
Hakea erinacea	+F	+	-	-	+	-	+	-	+	+	-	-	-	+	+	-	+	+	-	-	+	+	+	+	-
Hibbertia commutata	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Hibbertia hypericoides	-	+F	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
Hypocalymma angustifolium	+	-	-	-	-	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
*Hypochaeris glabra	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Lagenifera huegelii	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidosperma angustatum	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidosperma ?gracilis	-	-	+F	-	-	-	-	-	+	-	+	-	-	-	-	-	-	+	-	-	+	+	+	+	-
Leucopogon propinquus	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Levenhookia pusilla	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loxocarya ?flexuosa	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	-	+	-	+	+	+	-	-	-	-
Melaleuca radula	-	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	-	-	-	-	+	+	+	+
Moss spp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	+	-	-	-
Nemcia dilitata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Neurachne alopecuroidea	+F	+	+	+	-	+	+	+	-	-	-	+	+	+	+	-	+	+	+	-	+	+	+	+	+
Phyllanthus calycinus	-	+	+	-	-	-	+	+	+	-	-	+	+	-	-	-	+	-	-	-	-	-	-	+	-
*Romulea rosea	-	-	-	-	+	+	+	+	-	-	-	-	-	+	+	+	-	-	-	-	-	+	-	-	-
Santalum acuminatum	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Schoenus ?latitans	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium bulbiferum	-	-	-	-	-	+	+	+	+	-	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+
Stypandra glauca	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Stypandra imbricata	-	+F	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	+	+	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 6 (Continued) Date: 14.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Synaphea pinnata	-	-	-	+	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Tetraria capillaris	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thysanotus patersonii	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Tricoryne elatior	+	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Tripterococcus brunonis	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Trymalium ledifolium	-	+F	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	-	+	-	-	+	+	+	+
*Ursinia anthemoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+
Xanthorrhoea preissii	+	+	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	+	-	-	+	-	-

Additional Species in Plot 6.

Acacia saligna
Darwinia citriodora
Dioscorea hastifolia
Daviesia horrida
Diplopeltis huegelii
Dryandra armata
Dryandra sessilis
Hakea lissocarpha
Helichrysum lindleyi
Hibbertia subvaginata
Isopogon dubius
Melaleuca scabra
Nemcia spathulata
Petrophile seminuda
Sowerbaea laxiflora
Stackhousia pubescens
Verticordia pennigera

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 7 Date: 13.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia pulchella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+F	+F	+F	+F	-	+F	+F	+F	+F	-
*Acacia pycnantha	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Agonis linearifolia	+S	+S	+D	+	+SD	+	+	+	+SD	+S	+S	+	+	+	+S	+	+	+S	+S	+S	+	+	+S	+S	+
Bossiaea ornata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+F
Caesia parviflora	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+B
Dampiera alata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+
Dicotyledon seedlings	-	-	-	-	-	-	-	-	-	+	+	+	+	+	+	+	+	+	-	+	-	-	-	-	-
Gonocarpus cordiger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-
Hakea lissocarpha	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Hovea trisperma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+F	-	-	-	-
Lepidosperma tetraquetrum	+S	+S	+S	+S	+S	+S	+	+	+S	+S	+S	+S	+S	+S	+S	+S	+	+S	+S	+S	+S	+S	+S	+S	+S
Lomandra sp.	-	-	-	-	-	-	-	-	-	-	+	-	-	+											
Moss spp.	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	+	-	-	-	+	+	-	-
Neurachne alopecuroidea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Opercularia echinocephala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	-
Pentapeltis peltigera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Scaevola platyphylla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-	+	+
Scaevola striata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	+
Stipa sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+
Trichocline spathulata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Xanthosia huegelii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+

Additional Species in Plot 7

Chorizema ilicifolium
Macrozamia riedlei
Xanthorrhoea preissii

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 8 Date: 13.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
*Aira cupaniana	-	+	-	-	+	+	+	-	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Aphelia brizula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+	+	+	+	+	-	-	+
Arthropodium capillipes	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	-	-	-	-
Borya sphaerocephala	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-	-	+	-
Brachycome iberidifolia	+F	+	-	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+F	+	+	+	+	+	+
Caladenia sp. JF17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Centrolepis aristata	-	+	-	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Chamaescilla corymbosa	+Ft	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-
Cheilanthes austrotenuifolia	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	+	-	+	+	-	-	-	+	+
*Cicendia filiformis	-	-	-	-	+	+	+	-	+	+	+	+	-	+	+	+	+	-	+	+	+	+	-	-	-
Crassula exserta	+	+	-	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Drosera glanduligera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Hydrocotyle ?alata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-
*Hypochaeris glabra	-	-	-	-	+	+	-	-	-	-	+	-	-	-	+	+	+	+	+	+	+	+	-	+	-
Isolepis marginata	-	-	-	-	+	+	-	-	-	-	-	+	-	+	+	+	-	+	-	+	-	+	-	+	+
Lichen sp. JF87	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lichen sp. JF94	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moss sp. JF90	+	+	+	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Orchidaceae sp. 1	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	+	-	-	+	+	+	-	-	-	-
Orchidaceae sp. 2	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
*Parentucellia latifolia	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	+	-
*Quinetia urvillei	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	+	+	+	-	-	-
*Romulea rosea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+F	+F	+	+	-	-	-
Tribonanthes longipetala	-	-	-	-	-	+	-	-	-	-	+	-	-	+	+	+	+	+	-	+	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 8 (Continued)

Date: 13.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
*Ursinia anthemoides	-	-	-	-	+	+	-	-	-	-	+	-	-	-	+	-	-	+	+	+	-	+	-	+	+
*Vulpia myuros	-	+	-	-	+	+	+	-	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Xanthoparmelia sp. JF89	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+D	+	+	+	+	+	+	+	+	+	+

Additional Species in Plot 8

*Dittrichia graveolens
Drosera ?erythrorhiza
Grevillea bipinnatifida
Liverwort sp. JF104
Scaevola fasciculata
Stypandra sp.
Verticordia plumosa

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 9

Date: 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia pulchella var. pulchella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
Allocasuarina humilis	+	-	+	+	+	-	+	-	-	+	-	+	-	+	-	-	+	+	+	+	+	+	+	+	+
Andersonia lehmanniana	-	-	-	-	-	-	-	-	-	-	-	+	+S	+F	-	-	+	+	+	-	-	-	-	+	+
Anigozanthos sp.	+	-	-	-	-	-	-	+	+	+	+	+	-	-	-	-	-	-	-	-	+	+	+	-	-
Arthropodium capillipes	-	-	+	-	+	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	+	-	+	-	-
Asteraceae sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-
Baeckea camphorosmae	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Borya sphaerocephala	+F	+F	+F	+	+	+	+	+	+	+	+	+	+	+	-	-	+	-	+	+	-	-	-	+	+
Bossiaea eriocarpa	-	-	-	-	-	+	+F	-	-	-	-	-	-	+	+	+	+	+F	-	-	+	+	+	+	+
Caladenia flava	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Caladenia sp.JF17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Cassytha sp.	+	+	+	+S	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+D	+
Centrolepis aristata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Conostylis setigera	+F	+F	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	-
Dampiera alata	-	-	-	-	-	-	-	-	-	-	+D	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Danthonia sp. JF6	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dillwynia sp.A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-
Drosera sp.(climbing)	+	+	+	+	+	+	+	+	+	-	+	+	-	-	+	+	-	+	+	+	+	+	+	+	+
Drosera erythrorhiza	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	+	+	-	+	-
Drosera ?glanduligera	+	-	-	-	+	-	-	-	-	-	-	+	-	+	+	-	-	-	-	-	-	-	+	+	-
Gastrolobium villosum	-	-	+B	+	+	-	+	-	-	-	-	+	-	+	-	-	-	+	+	+	+D	-	+	+	-
Gonocarpus cordiger	-	-	-	-	+	+	+	-	-	-	-	-	-	+	-	-	-	+	-	-	+	+	+	-	+
Grevillea bipinnatifida	-	-	-	-	-	+S	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
Grevillea pilulifera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
Haemodorum sp.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 9 (Continued)

Date: 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Hakea cristata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Hakea undulata	+F	+F	+F	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+	+	-	-	-	-	-	-
Hibbertia ?huegelii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Hibbertia hypericoides	-	-	-	+	-	+	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-
Hydrocotyle sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-
Hypocalymma angustifolium	-	+	+	+	+	+	+	+	-	+	+	+	+	-	+	+	+	-	+	+	+	+	+	+	+
*Hypochaeris glabra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-
Lechenaultia biloba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	+
Lepidosperma angustatum	+	-	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lepidosperma tuberculatum	+	+	+	-	+	+	+	+	+	+	+	+	+	-	+	+	-	+	+	-	+S	+	+	+	+
Lepidosperma tenue	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	-	-	+	+	-
Leucopogon ?pulchellus	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	+	-	+	-	-	-	-
Lichen sp. JF94	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lichen sp. 2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Lomandra hermaphrodita	-	-	-	-	+	+	-	+	+	-	-	-	-	+	+	+	+	-	-	-	-	+	+	-	+
Lomandra sp.	+	-	-	-	-	+	-	-	-	+	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-
Melaleuca scabra	+	+	+	+	+	+	+	+	+	+	+	+	+S	+	+	+	-	+	+	+	+	+	+	+	+
Moss spp.	+	+	-	-	+	-	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+
Neurachne alopecuroidea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	-	+	+	+	-	+
Opercularia echinocephala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
Patersonia pygmaea	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+	-	+	+	-	-
Petrophile biloba	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-
Petrophile seminuda	-	-	-	-	-	-	-	-	-	-	-	-	-	+D	-	-	+	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 9 (Continued)

Date: 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Pimelea ciliata	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Pimelia imbricata var. piligera	+F	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prasophyllum sp.	-	-	+	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stackhousia sp.	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium brunonianum	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	+	-	+	-	+	+
Stylidium bulbiferum	+	+	+	-	-	-	-	+	+	+	+	+	+	+	-	-	-	-	-	+	+	+	-	-	+
Synaphea petiolaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Templetonia biloba	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Tetraria octandra	-	-	+	+	+	+	+	+	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	-	+
Thysanotus patersonii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
Trachymene pilosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Tricoryne elatior	-	-	-	-	+	-	+	-	-	-	+	-	+	+	+	+	-	-	+	-	-	-	+	-	-
Tripterococcus brunonis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	+	-	-	-	-	-	-
Trymalium ledifolium	-	-	-	-	-	-	-	-	-	-	-	-	-	+D	-	-	-	-	-	-	-	-	-	-	+D
Verticordia huegelii	+B	+B	+B	+B	-	+	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	-	-
Xanthorrhoea gracilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	-
Xanthorrhoea preissii	-	-	+	+S	+	-	+	-	-	-	-	+	-	+	+	+	-	+	+	+	+S	+	+	+	+
Xanthosia huegelii	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	+	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 10

Date: 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia pulchella	+	-	-	+S	-	-	+	+	-	+	-	+	-	-	+	-	+	-	+	+	-	-	-	-	+
Acacia nervosa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Astroloma ciliatum	-	-	-	-	-	+	-	-	-	-	-	-	-	-											
Boronia ovata	-	-	+	-	+B	-	-	-	-	+F	-	-	-	+	+F	+	-	-	+	-	-	+	-	+	+B
Bossiaea ornata	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-	-	-	-
Burchardis umbellata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Caladenia sp. JF17	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cassytha sp.	-	-	+	-	+	+	-	-	+	-	-	-	+	-	-	+	+	-	-	+	-	+	-	-	+S
Conostylis setosa	-	+	-	+	+	-	-	-	-	-	+	-	+	-	-	-	-	+	-	-	+	-	-	-	-
Dampiera alata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	+	+	-	-
Dampiera linearis	-	+	-	-	-	-	-	+	-	+	-	+	+	+	-	+	+	-	+	+	+	-	+	+	+
Dianella revoluta	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Drosera sp.(climbing)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Dryandra bipinnatifida	+S	+S	-	-	-	+S	+S	+	+S	+S	+S	+S	+S	+S	-	+S	+S	+S	-	-	-	-	+	+	-
Dryandra nivea	+S	+	+	+	+S	+S	-	+	+S	+S	+S	+	+	-	+S	+	-	+	+	+S	+	+	+	+	+
Gompholobium marginatum	-	+	+	+	+	+	+	-	-	-	-	-	-	+	-	-	-	-	+	+	-	-	+	-	-
Grevillea synapheae	-	-	+	-	-	-	+	+	-	-	-	+	-	+	+	+	-	-	+	+	+	-	+	-	-
Haemodorum simplex	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hakea lissocarpha	+	-	+	+S	-	+S	+S	-	+	+S	+	+S	+S	-	+S	+	-	-	+	+	-	+	-	+S	+
Hakea stenocarpa	+	+S	-	-	-	-	+	+	+S	+S	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Hibbertia commutata	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	-	-	-	-	-	+	-	-	-	-
Hibbertia ?huegelii	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+	-	-	+	+	-	-	+	+	-	-
Hibbertia hypericoides	+	+	+	+	+F	+	+	+	+	+F	-	+	+	+	+	+	+	+	+	+	+	+	+	+F	+F
Hovea trisperma	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-	-	-	-	-	-
Isopogon asper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 10 (Continued)

Date: 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Labichea punctata	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+
Lechenaultia biloba	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	+	-
Lepidosperma angustatum	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
Lepidosperma tenue	-	+	+	+	+	+	+	+	-	-	-	+	-	+	+	+	+	+	-	+	+	+	+	+	-
Lichen spp.	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra sonderi	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Lomandra spartea	+	-	+	-	-	+	-	-	-	+	+	+	-	+	+	+	+	+	+	-	+	-	+	+	+
Lomandra sp.	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	+
Macrozamia riedlei	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Moss spp.	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nemcia dilatata	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Neurachne alopecuroidea	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-
Patersonia occidentalis	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Patersonia pygmaea	-	-	-	+	-	-	-	-	-	+B	-	-	+	+	+	+	-	+	+	-	-	-	+	-	+
Petrophile striata	+B	+B	+	+	+S	+	+B	+S	+S	+S	+	+S	-	-	+S	+	-	-	+S	-	+S	+	+S	-	+S
Pimelea suaveolens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	+	-
Stipa sp.	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Stylidium brunonianum	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium hispidum	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium piliferum	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium schoenoides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-
Synaphea petiolaris	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Templetonia biloba	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+
Tetraria octandra	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thelymitra sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 10 (Continued)

Date: 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Trichocline spathulata	-	+	+	-	+	-	+	-	+	-	-	+	+	+	-	+	-	+	+	-	-	+	+	-	+
Tricoryne elatior	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
Trymalium angustifolium	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-
Xanthorrhoea gracilis	-	+	+	+	-	+	+	+	+	-	+	+	+	+	-	-	-	-	+	-	+	+	-	-	-

Additional Species in Plot 10.

- Chamaescilla corymbosa
- Daviesia ?preissii
- Dillwynia sp.A
- Drosera pallida
- Dryandra armata
- Haemodorum sp. JF2
- Hakea amplexicaulis
- Melaleuca scabra
- Stylidium brunonianum
- Stylidium calcaratum
- Xanthorrhoea preissii

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 11

Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia barbinervis	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	-	-	-	-	+	-	-
Acacia willdenowiana	-	+F	+	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
Adenanthus barbigerus	+	-	+	+	+	+	+	+	+	-	-	-	-	+	+	+	+	-	+	+	-	-	+	+	+
Agrostocrinum scabrum	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Billardiera sp.	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bossiaea ornata	+	+	+	+	+	+	+S	+	+	+	+	+	+	+B	+	+	+	+	+	+	+	+S	+	+F	+S
Burchardia umbellata	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	+	-	-	-	-	-	+	-
Caladenia flava	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
?Chamaescilla corymbosa	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calytrix variabilis	-	+B	+	+S	-	-	+	+	+	-	-	-	+	+	-	+	+	-	-	-	+	+	-	-	-
Comesperma virgatum	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Conostylis setosa	-	-	-	+	-	+	-	-	-	-	-	+	+	-	-	+	-	+	-	+	+	+	-	-	+
Cyathochaeta avenacea	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	+	+	+	+	+	+	+	+	+
Dampiera linearis	-	+	-	-	-	-	-	+	+	-	+	+	-	-	-	-	-	+	-	-	-	-	-	-	-
Danthonia sp. JF6	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Daviesia decurrens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Drosera sp.(climbing)	+	+	-	-	-	+	+	+	-	-	-	-	+	+	-	-	+	+	+	+	+	-	-	-	-
Drosera ?erythrorhiza	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+	-	+	+	-	+	+	+	+
Dryandra nivea	-	+S	-	-	-	+	+	+S	+	-	-	-	+	+	-	+	-	+	-	-	+	-	-	+	+
Eriochilus dilatatus	-	-	+	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Gompholobium polymorphum	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grevillea synapheae	-	-	-	-	-	+	+	-	-	-	-	+F	-	-	-	+	-	-	-	-	-	-	-	-	-
Haemodorum simplex	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haemodorum sp.	-	-	+	+	-	+	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	+
Hakea amplexicaulis	-	-	+	-	-	-	-	+S	-	-	-	+S	-	-	+	+S	+	-	+	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 11 (Continued)

Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Hibbertia commutata	-	-	+	-	+F	+	-	-	-	+	-	+	-	-	+	+	-	-	-	-	+	+	-	+	+
Hibbertia ?huegelii	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
Hibbertia hypericoides	-	-	+	+	+	+	+	+	-	+	+	-	+	+	+	+	+S	+	-	+	+	+	+	+	+S
Hovea chorizemifolia	-	-	-	-	-	-	-	+	-	+	+	+	+	-	-	-	+	-	+	-	+	+	-	-	-
Hypocalymma robustum	-	+B	+	+	+	+D	+	+	+	+	+	+B	+	+	+	+S	+	+	+F	+	+	+	+	+	+
Isopogon sphaerocephalus	+	+	+	+	+	+	+S	+	+S	-	+	+S	+S	+S	+SB	-	+	+SB	+S	+S	+	+S	+S	+S	+S
Lepidosperma tenue	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidosperma sp.	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	+	-	+	-	-	+	-	+
Lomandra hermaphrodita	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+
Lomandra purpurea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-
Labichea punctata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-
Lomandra sonderi	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Loxocarya cinerea	+	+	+	+	+	+S	+	-	+	+	+	-	+	+	+S	+S	+S	-	+	-	+	+	+	-	+S
Mesomelaena graciliceps	-	-	-	-	-	+	+	-	-	-	-	-	-	+	+	+	-	-	-	-	+	-	-	-	-
Neurachne alopecuroidea	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	+	+	-	+	+	-	-	-	+	+
Patersonia occidentalis	-	-	-	-	-	-	-	+	-	+	-	-	-	-	+D	+S	+	-	+	-	-	+	+	-	-
Pentapeltis peltigera	-	-	-	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	-	+	+	+	+	+	+
Petrophile striata	-	-	-	+	-	-	+	-	-	-	+	+	-	+S	+S	-	+	-	-	-	-	+	+	+S	+
Pimelea suaveolens	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-
Pterostylis vittata	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	+	-
Pterostylis ?nana	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Scaevola striata	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	+	-	-
?Sowerbaea laxiflora	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium amoenum	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 11 (Continued) Date: 7.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Stylidium ?carnosum	-	+	+	+	-	+	-	+	-	-	-	+	+	+	+	+	+	+	+	-	-	-	-	+	+
Stylidium junceum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Styphelia tenuiflora	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-
Tetraria octandra	+	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	+	+	-	-	+	-	-
Tetratheca viminea	+F	-	+	+	+	+	+	+	+	+	+	+	-	+	+	+	-	+	-	-	+	-	+	-	-
Thelymitra sp.	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	-	-	-	-	+	-	-	+
Trichocline spathulata	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tricoryne elatior	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea gracilis	+	+	+	+	+	+	+	-	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	+

Additional species in Plot 11

- Dianella revoluta
- Dryandra bipinnatifida
- Grevillea wilsonii
- Hakea lissocarpha
- Hakea ruscifolia
- Lechenaultia biloba
- Lepidosperma angustatum
- Nemcia dilatata
- Opercularia echinocephala
- Stylidium brunonianum
- Stylidium schoenoides

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 12

Date: 7.9.90, 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia pulchella	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-
Adenanthos barbigerus	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Anigozanthos manglesii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Arthropodium capillipes	+	+	+	+	+	+	-	-	+	+	-	+	+	-	+	+	+	+	+	-	+	+	+	+	+
Astroloma ciliatum	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bossiaea ornata	+	+S	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	+	+
Burchardia umbellata	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calytrix variabilis	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-
Cassytha sp.	+	-	-	-	-	+	-	+	+	-	+	-	-	-	-	+	-	-	-	+	-	+	-	+	+
Chamaescilla corymbosa	+	+	-	-	-	-	-	+	-	+	+	-	-	-	-	+	+	-	-	+	-	-	-	+	+
Comesperma virgatum	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Conostylis setosa	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cyathochaeta avenacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Dampiera linearis	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	+
Daviesia decurrens	+S	+S	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+S	-	-	-	-
Daviesia ?preissii	-	-	+	-	+	-	-	-	+	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
Drosera ?erythrorhiza	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drosera sp.(climbing)	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	+	-	+	-	-	-	+
Dryandra bipinnatifida	-	-	-	-	+D	-	-																		
Dryandra nivea	-	+	+	+	-	+	+	-	+	+	+S	+S	+	-	+	+S	-	+	+	-	+S	-	+	-	-
Dryandra sessilis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Eriochilus dilatatus	-	+	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Gompholobium marginatum	-	+	-	-	-	-	-																		
Gompholobium preissii	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	+	+
Gonocarpus cordiger	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Grevillea synapheae	+	+	+	-	-	+	+	+	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 12 (Continued)

Date: 7.9.90, 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Haemodorum simplex	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Haemodorum sp.	-	-	-	-	+	-	-	-	-	-	-	-	+	+	-	+	-	-	-	+	-	-	-	+	+
Hakea cyclocarpa	+F	+S	+	+S	+S	+S	+S	+	+S	-	-	-	-	+S	+S	+S	-	-	+S	-	-	-	-	-	-
Hakea lissocarpha	+	-	+	+S	+	-	-	-	-	+	+	+	+	-	-	+	+	-	+S	+	+S	+	+S	+S	-
Hakea trifurcata	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Hibbertia commutata (seedlings)	-	-	-	+	-	-	+	+	-	-	+	+	-	-	-	-	+	-	+	-	+?	+	-	+	-
Hibbertia ?huegelii	-	-	+	-	-	-	-	-	+	+	+	-	-	-	-	+	+	-	+	-	+	+	-	+	+
Hibbertia hypericoides	+F	+	+	+	+	+	+	+	+	+	+	+	+F	+	+	+	+	+	+	+	+	+	+	+	+
Hovea trisperma	-	-	-	+	-	-	-	+	+	+	+	+	-	-	-	-	-	+	-	+	-	-	+	+	-
Hypocalymma robustum	-	+	+	+	+	-	+	+	-	-	+S	+	+	+	-	-	-	+	-	+	-	+	+	-	+
Isopogon sphaerocephalus	-	+S	+	+	+S	+S	+	-	+	-	-	+	-	+	+S	-	+	-	-	+	+	+	-	-	+S
Kennedia coccinea	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Lagenifera huegelii	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Lechenaultia biloba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	+	+	-
Lepidosperma ?angustatum	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	-	-	-	-	-	-	-	-	-
Lepidosperma tenue	+	+	+	+	+	+	+	+	-	+	+	+	+	+	-	-	+	-	+	+	+	+	+	+	+
Lepidosperma sp.	+	+	+	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leptomeria cunninghamii	-	-	-	+	+	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	+VS	-	-	-	-
Leucopogon capitellatus	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Leucopogon conostephioides	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Lomandra integra	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra nigricans	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-
Lomandra purpurea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Lomandra sonderi	+	-	+	+	-	+	+	+	+	-	+	-	+	+	-	+	+	-	+	+	+	+	-	-	+

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 12 (Continued)

Date: 7.9.90, 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Lomandra sp.?	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	+	-	+	+	+B	+	+	-	-	+
Loxocarya fasciculata	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+
Macrozamia riedlei	-	-	+	-	-	-	-	+	-	-	-	-	-	+S	+S	-	-	-	-	-	-	+S	-	-	-
Neurachne alopecuroidea	+	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+	+	+	+
Opercularia echinocephala	+	+	+	+	-	+	+	+	-	+	+	+	+	+	-	-	+	-	-	+	-	+	+	-	+
Patersonia babianoides	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Patersonia occidentalis	+	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Patersonia pygmaea	+	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Pentapeltis peltigera	-	-	+	-	-	-	+	+	+	+	+	+	-	-	-	-	-	-	+	+	-	-	-	-	-
Petrophile striata	-	-	-	-	-	-	-	-	-	+S	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Phyllanthus calycinus	+	+	+	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	+	+	+	+	+	-	-
Pimelea suaveolens	-	-	+	+	-	-	-	-	-	+	+	-	-	+	-	+	-	-	-	-	-	+	-	-	-
Pterostylis vittata	-	-	-	-	-	-	-	-	-	-	-	+	+F	+F	-	-	-	-	-	-	-	-	-	-	-
*Romulea rosea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
Scaevola platyphylla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Scaevola striata	+	+	+	+	+	-	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	-
Stylidium amoenum	-	-	-	+	+	-	+	+	+	-	+	+	+	-	-	+	+	-	-	+	-	+	+	-	-
Stylidium hispidum	-	-	+	+	+	-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-	-	+	+
Stylidium piliferum	+	+	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	+	+	-	+	-	-
Stylidium ?rupestris	-	-	-	+	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium schoenoides	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Styphelia tenuiflora	+	-	+	-	-	-	-	-	+S	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-
Synaphea petiolaris	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Tetratheca viminea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Thelymitra sp.	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 12 (Continued)

Date: 7.9.90, 8.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Trichocline spathulata	+	-	-	+	-	-	-	+	-	-	+	+	+	-	-	-	+	+	-	-	+	-	+	-	-
Tricoryne elatior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
Xanthorrhoea preissii	-	-	-	+	+	-	+	+S	+	-	+	+S	+S	+	-	-	+	+	-	+	-	-	+	+	-
Xanthosia huegelii	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-

Additional Species in Plot 12

- Banksia grandis
- Chamaexeros serra
- Drosera pallida
- Hakea undulata
- Hovea chorizemifolia
- Orthrosanthus laxus
- Xanthorrhoea gracilis

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 13

Date: ?7.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Asteraceae sp.	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Baeckea camphorosmae	+	+	+	-	+	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Burchardia umbellata	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
?Burtonia sp.	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Caladenia sp. JF17	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Calothamnus sanguineus	-	-	-	-	-	-	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+S	+	+
Cassytha racemosa	-	+	+	+	+	+S	+	-	-	-	+	-	+D	-	-	-	+	+	+	+S	-	+D	+D	+D	-
Comesperma polygaloides	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Conostylis setigera	+F	-	-	-	-	-	-	+	+	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+
Dampiera linearis	-	-	+	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Danthonia sp. JF6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-
Daviesia decurrens	-	-	+	-	+S	-	-	+D	-	-	-	-	-	-	-	-	-	-	+S	-	+S	-	-	-	-
Dillwynia sp.A	-	-	-	+F	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Drosera ?erythrorhiza	+	-	+	-	-	+	-	+	+	-	-	+	-	-	+	+	-	-	-	-	-	-	-	-	-
Drosera platystigma	-	-	-	-	-	-	-	+	+	-	+	-	-	+	-	-	+	+	-	+	-	+	-	-	-
Drosera sp.(climbing)	+	-	-	-	+	-	+	-	-	-	-	+	-	+	+	-	+	-	+	+	+	+	+	+	-
Dryandra bipinnatifida	-	+	-	-	-	+	+	+	+S	-	+	+	+	+	+	+	+S	+S	+	-	+	+	-	+	+S
Dryandra nivea	+	+	-	+	+	+	+	+	+S	+S	+S	+	-	+S	+S	-	-	-	+	+	+S	-	-	+S	-
Eriostemon spicatus	-	-	-	-	-	-	-	-	-	+	-	-	-	+	+	+	-	-	+	-	-	+	-	-	+
Gompholobium marginatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Haemodorum simplex	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haemodorum sp.	+	+	+	+	-	-	-	+	-	+	+	+	+	+	+	+	+	+	-	-	+	+	+	-	+
Hakea amplexicaulis	-	-	-	+F	+	+	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
Hakea lissocarpha	+F	+	+	+	+D	-	-	-	-	-	-	-	-	-	-	+	+D	-	-	-	-	-	-	-	+
Hakea ruscifolia	+B	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hakea stenocarpa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 13 (Continued)

Date: ?7.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Hibbertia commutata	+D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hibbertia ?huegelii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Hibbertia hypericoides	+D	+D	+D	+D	+S	+S	+	+FD	+D	+D	+D	-	+D	+S	+S	+D	+S	+D	+S	+D	-	+S	+D	+S	+D
Hypocalymma angustifolium	+F	+F	+	+	-	+	-	+	+	+	-	+	-	-	-	-	-	-	-	-	-				
Hypocalymma robustum	-	-	-	-	-	-	+	-	+	+	-	-	-	+	-	+	-	-	-	-	-	-	-	+	+
Hypoxis occidentalis var. quadriloba	-	-	-	+F	-	+	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-
Isopogon asper	+F	-	-	-	-	-	-	-	-	-	+	-	+	-	+	+	-	+	+	-	-	+S	+	-	+
Laxmannia sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Lechenaultia biloba	-	+	-	-	-	-	-	+	+	-	-	-	-	-	+	+	-	+	-	-	-	-	+	-	+
Lepidosperma angustatum	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lepidosperma aff. angustatum	-	-	-	-	-	-	-	-	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lichen spp.	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loxocarya fasciculata	+	+	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-
Lyperanthus ?nigricans	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melaleuca ?scabra	+F	+	-	+	+	-	+	+	-	+	+S	-	-	-	+	+	-	-	-	-	+	+	+	-	+
Mesomelaena tetragona	+	+	+	+	+	+	+	+S	+	+	+	+	+	-	+	+	+	-	+	+	-	+	+	+	+
Moss spp.	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Nemcia dilatata	-	-	+	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neurachne alopecuroidea	-	-	-	-	-	-	-	-	+	-	+	+	+	-	+	-	+	+	+	-	+	+	+	+	-
Patersonia occidentalis	+D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+S	-	-	-	-
Patersonia pygmaea	-	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-	-	-	-	+	-	-	-	-
Pimelea suaveolens	-	-	-	-	-	-	+	+	+	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
Poaceae sp.	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 13 (Continued)

Date: ?7.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Scaevola striata	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Schoenus ?latitans	+F	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium brunonianum	+	+	-	-	-	+	+	+	+	+	+	-	+	+	-	-	-	+	-	-	+	+	+	+	-
Stylidium ?carnosum	-	+	-	-	+	+	+	+	+	+	+	-	+	-	-	-	+	+	+	+	+	-	+	-	-
Stylidium ?pycnostachyum	+	-	+	-	-	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+
Stylidium piliferum	-	-	-	-	-	-	-	-	+	+	+	+	-	+	-	+	-	-	+	+	+	+	-	-	-
Styphelia tenuiflora	-	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Synaphea petiolaris	-	-	+	-	-	+	+	-	-	+D	-	+	-	-	+	-	-	-	-	-	-	+S	-	-	-
Tetraria octandra	+	+	+	+	+	+	+	+	-	-	-	-	-	-	+	+	-	-	-	+	+	+	+	+	+
Thelymitra sp.	-	+	+	+	-	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
?Tricoryne elatior	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea gracilis	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-
Xanthorrhoea preissii	-	+	+	+	+	+	+	+	-	-	+	-	-	-	-	+	-	-	+	+	-	-	+	-	-
Xanthosia huegelii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-

Additional Species in Plot 13.

Andersonia lehmanniana
Borya sphaerocephala
*Gladiolus sp.
Grevillea bipinnatifida
Grevillea synapheae
Isopogon dubius
Isopogon sphaerocephalus
Leucopogon pulchellus
Petrophile striata

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 14

Date: 14.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia pulchella	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	+F	+	+	+	+	-	+
*Acaena echinata	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Agrostocrinum scabrum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
*Aira caryophyllea	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
*Anagallis arvensis	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	+	+	-	+	-	+	-	-	+	+
Andersonia lehmanniana	-	-	-	+D	-	+	-	-	-	-	-	-	-	-	+D	-	-	-	-	-	-	-	-	-	-
*Arctotheca calendula	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	+	-	-	-	-	-	+	-	-
Astartea fascicularis	+	-	-	-	-	-	-	-	+	+	-	-	+	+	-	+	+	-	-	-	-	-	-	+	+
Astroloma pallidum	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Baeckea camphorosmae	-	-	-	-	+	-	+	-	-	+	+	+	-	-	+	-	-	-	+	-	-	-	-	-	-
Borya sphaerocephala	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
*Briza maxima	+	-	-	+	+	+	+	+	-	+	+	-	-	+	+	+	+	-	+	+	+	+	+	+	+
*Briza minor	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Burchardia umbellata	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+	-	-	-	-	-	-	+	-
Caesia parviflora	+	-	-	+	+	-	+	+	-	+	-	+	+	-	-	+	-	-	-	-	-	-	-	-	-
Calandrinia sp.	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Centrolepis aristata	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Chamaexeros serra	-	-	-	-	+	+	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-
Chamaescilla corymbosa var. latifolia	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chorizandra enodis	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	+	+	-	+
?Cyathochaeta sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Dianella revoluta	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cassytha sp.	+	+	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Drosera sp.(climbing)	-	-	-	-	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 14 (Continued) Date: 14.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Gompholobium marginatum	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Gonocarpus cordiger	-	-	-	+	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Grevillea bipinnatifida	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	+	-	-
Haemodorum sp.	-	-	-	+	+	+	+	-	-	+	+	+	-	+	+	-	-	-	-	+	+	-	-	-	-
Hakea erinacea	-	-	-	+D	+D	+	+	-	-	-	+D	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Hakea trifurcata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+D	-	-
Hibbertia hypericoides	-	-	-	+D	+	+	-	-	+	+	+D	+	-	+D	+	-	-	-	+D	-	-	-	-	-	-
Hibbertia subvaginata	-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Hypocalymma angustifolium	-	-	-	+F	-	+	+	-	+	-	+	+	-	+	+	+	-	-	+	-	-	-	-	-	-
Lepidosperma ?angustatum	+	+	+	-	-	-	-	-	+	+	+	+	-	+	+	-	-	-	-	+	+	+	+	-	-
Lepidosperma longitudinale	-	-	-	-	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Lepidosperma tenue	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leptocarpus coangustatus	-	+	-	-	-	-	-	+	+	-	-	+	+	-	-	+	+	+	+	-	-	-	-	+	-
Lomandra sp.	+	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Melaleuca ?scabra	-	-	-	-	+	+	-	-	+	+	-	+	-	-	+	-	-	-	-	+	-	-	-	-	-
Moss spp.	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-				
Neurachne alopecuroidea	+	-	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	-	+	+	+	+	+	-	+
Patersonia occidentalis	-	-	+	-	-	-	-	-	-	-	-	-	+	+	+	-	+	-	-	+	+	+	-	-	-
Petrophile biloba	-	-	+	+	+	-	-	+	-	-	-	+	-	-	-	+D	+	-	-	+	-	+	+	-	-
*Romulea rosea	+F	-	+	+	-	-	+	-	-	-	-	+	-	+	-	-	+	-	-	-	-	-	-	-	+
Stylidium ?carnosum	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stylidium repens	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetraria octandra	-	-	-	-	-	+	+	-	-	+	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-
Thomasia foliosa	-	-	-	+	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 14 (Continued)

Date: 14.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
*Trifolium sp.	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	+	+
Trymalium ledifolium	-	-	+	+	+	-	+	-	-	+	-	-	-	+	-	-	-	-	+	+	-	-	-	-	-
*Ursinia anthemoides	-	-	-	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Verticordia huegelii	-	-	+	-	+	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Viminaria juncea	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea gracilis	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea preissii	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xanthosia candida	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Additional Species in Plot 14

- Chorizema ?dicksonii
- Dampiera alata
- Drosera glanduligera
- Dryandra nivea
- Hakea undulata
- Phyllanthus calycinus

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 15

Date: ?7.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Astroloma pallidum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Burchardia umbellata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Caesia parviflora	-	-	+	-	-	-	+	+	+	+	-	-	+	+	-	-	-	+	-	-	-	+	-	-	-
Cassytha racemosa	-	-	-	-	-	+F	+	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	+	+
Cyathochaeta avenacea	+	-	-	-	+	-	-	-	-	+	-	+	+	+	+	+	+	-	+	+	-	+	-	+	-
Danthonia sp. JF6	-	-	-	-	-	+	-	-	-	-	-	-	+	+	+	+	+	-	-	-	+	-	+	+	+
Gompholobium marginatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Gompholobium polymorphum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Haemodorum simplex	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Haemodorum sp. JF2	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hakea lissocarpha	-	-	+F	-	-	-	+	-	-	-	-	-	-	+	-	+	+	-	-	-	-	-	-	+	+
Hibbertia ovata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+F	-	-	-	-	-	-	-	-	-	+
Hibbertia hypericoides	+F	+	-	-	-	+	+	-	-	+	+	+	-	+	+	+	-	+	+	+	+	+	+	+	+
Hovea trisperma	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kennedia coccinea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
Lepidosperma tenue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-
Lepidosperma sp.	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	-	+	+	-	+	+	+	+	+	-
Leucopogon capitellatus	+	+F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra hermaphrodita	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra sonderi	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-	-	-	-
Nemcia dilatata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Scaevola striata	+	-	-	+	-	-	-	-	-	+	+	+	+	-	-	+	-	-	+	+	+	-	-	+	+
Stylidium amoenum	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-
Synaphea petiolaris	-	-	-	-	-	-	-	-	-	-	-	-	-	+F	-	-	-	-	-	-	-	-	-	-	-
Tetrarrhena laevis	+	+	-	-	-	+	-	-	+	-	+	+	-	+	+	+	-	+	+	-	-	-	-	+	+

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 15 (Continued)

Date: ?7.8.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Thelymitra sp. JF14	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
Velleia ?trinervis	+	-	-	-	+	+	-	-	-	+	+	-	+	-	+	-	-	-	-	-	-	-	-	-	-
Xanthorrhoea gracilis	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	-	+	-	-	-	+	-
Xanthorrhoea preissii	+	+	-	+	+	+	+	+	+	-	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+

Additional Species in Plot 15.

- Acacia nervosa
- Acacia saligna
- Acacia willdenowiana
- Chorizandra enodis
- Dampiera alata
- Dillwynia sp.A
- Drosera ?erythrorhiza
- Dryandra nivea
- Hakea crinacea
- Hypocalymma angustifolium
- Hypocalymma robustum
- Leucopogon pulchellus
- Petrophile seminuda
- Phyllanthus calycinus
- Tetraria octandra

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 16 Date: 3.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Acacia pulchella var. pulchella	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
Acacia willdenowiana	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anigozanthos manglesii	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Baeckea camphrosmae	+S	+	+	+	+S	+S	-	+	+	+	-	+	-	+	+	+	+	+	-	-	+	+	+	+	+
Billardiera sp.	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-
Caesia parviflora	-	+	-	-	-	+	+	-	-	+	+	+	+	-	-	+	+	-	+	+	-	+	-	-	-
Caladenia sp. JF17	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cassytha racemosa	+S	+S	+S	+S	+S	-	-	+	-	-	-	-	-	+S	+S	+S	+	+D	-	-	+D	-	+D	+	-
Conostylis setigera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Dampiera alata	+	-	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dampiera linearis	+	+	-	+	+	-	-	-	+	+	+	+	+	-	+	+	+	+	+	-	-	+	-	-	+
Danthonia sp. JF6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
Dillwynia sp.A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+
Drosera sp. (climbing)	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Drosera ?erythrorhiza	+	+	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+
Dryandra nivea	-	-	-	-	-	-	+S	+	+	-	-	-	+	+	-	-	-	+	-	-	-	+	-	-	-
Gompholobium marginatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	+	+	-	-
?Gonocarpus cordiger	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+D	-	-	-	-	-	-	-	-
Grevillea pilulifera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
Hakea lissocarpha	-	+	-	-	+	-	+S	-	-	-	+	-	+	+	+	+	-	-	-	+	+	-	+	-	-
Hakea undulata	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haemodorum simplex	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
Haemodorum sp. JF2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+
Hibbertia ?commutata	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+S	-	-	-	-
Hibbertia ?huegelii	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-

APPENDIX B: SUMMARY OF UNDERSTOREY DATA ON PERMANENT VEGETATION MONITORING PLOTS, JOHN FORREST NATIONAL PARK, AUGUST-SEPTEMBER, 1990.

Plot No.: 16 (Continued) Date: 3.9.90

Species	Quadrat No. 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Hypocalymma angustifolium	+	-	+S	+	+	+	+	+S	+	-	+	+	+	+	+	+	+	+	-	-	+	+	+	+	+
Lepidosperma ?tenue	-	-	-	+	+	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lomandra hermaphrodita	+	+	-	-	-	-	-	-	-	-	+	-	-	-	-	+	+	+	-	+	-	-	-	+	-
Lomandra integra	+	-	-	-	-	-	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+F
Lomandra ?pauciflora	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loxocarya fascicularis	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	-	+	-	+	+	+	+	-	+
Melaleuca ?scabra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
Mesomelaena tetragona	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Neurachne alopecuroidea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
Petrophile seminuda	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	+	+	+	+	+	+	+	+	+
Stylidium brunonianum	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
Stylidium ?carnosum	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	+	+	+
Stylidium piliferum	+	+	+	+	+	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+
Synaphea petiolaris	+	-	+D	-	-	-	-	-	+D	+D	+S	+	-	+D	+	-	-	-	+	-	-	+S	-	-	-
Templetonia biloba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
Tetraria octandra	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Thelymitra sp.	-	-	-	-	-	-	-	+	-	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
Xanthorrhoea preissii	+	+	-	+	+	+	-	-	-	-	+	+	-	-	+	+	-	-	-	+	+	+	+	+	-

Additional Species in Plot 16

- Acacia extensa
- Acacia nervosa
- Gastrolobium calycinum
- Hakea cristata
- Lechenaultia biloba
- Oxylobium capitatum
- Petrophile striata
- Pimelea suaveolens
- Trymalium floribundum
- Trymalium ledifolium
- Verticordia sp.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 1

Key Description:

Low Woodland A over Open Low Scrub B over Open Dwarf Scrub C over Low Heath D over Very Open Herbs.

Code:

eLAi. xSBr. xSCr. xSDc. xJr.

Location Details:

Stratum 1. *Eucalyptus accedens, Eucalyptus wandoo, Eucalyptus marginata* and *Eucalyptus calophylla*, 6-14m tall, 10-35% canopy cover. Average foliage density 25%.

Stratum 2. *Hakea lissocarpha, Xanthorrhoea preissii*, 1-1.5m tall, 8-10% canopy cover. Average foliage density 10%.

Stratum 3. *Hakea lissocarpha, Hibbertia hypericoides* and *Xanthorrhoea preissii*, 0.5-1m tall, 5-10% canopy cover. Average foliage density 8%.

Stratum 4. *Dryandra nivea, Dryandra bipinnatifida, Gompholobium polymorphum, Baeckea camphorosmae* and *Bossiaea eriocarpa*, less than 0.5m tall, 35-40% canopy cover. Average foliage density 35%.

Stratum 5. Mixed Herbaceous species, less than 0.2m tall, 2-4% canopy cover. Average foliage density 2%.

Comments: Litter mainly around shrubs and trees, varying from 1 to 2 cm.

Soils & Topography: Red to caramel-red clays with occasional outcropping on upper slopes and ridges.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 2.

Key Description:
Open Woodland over Low Forest A over Dwarf Scrub C over Open Dwarf Scrub D over Open Low Sedges over Very Open Herbs.

Code:
eMr. xLAc. xSCi. xSDr. cVLi. xJr.

Location Details:

Stratum 1. *Eucalyptus marginata and Eucalyptus calophylla*, 15-18m tall, 1-2% canopy cover. Average foliage density 2%.

Stratum 2. *Allocasuarina fraseriana, Eucalyptus marginata, Eucalyptus calophylla* and *Banksia grandis*, 5-12m tall, 30-35% canopy cover. Average foliage density 30%.

Stratum 3. *Grevillea wilsonii, Xanthorrhoea preissii* and *Xanthorrhoea gracilis*, 0.5-1m tall, 10-12% canopy cover. Averanage foliage density 12%.

Stratum 4. *Dryandra nivea, Bossiaea ornata, Adenanthos barbigerus, Grevillea wilsonii* and *Gompholobium preissii*, less than 0.5m tall, 2-5% canopy cover. Average foliage density 4%.

Stratum 5. Mixed sedge species, *Mesomelaena graciliceps* and *Lepidosperma spp.*, less than 0.5m tall, 20-30% canopy cover. Average foliage density 25%.

Stratum 6. Mixed Herbaceous species, less than 0.2m tall, 1-2% canopy cover. Average foliage density 2%.

Comments: Bare ground less than 10%, most of soil covered by 1-5cm thick litter of Sheoak needles and Banksia grandis leaves.

Soils & Topography: Sandy gravels over shallow lateritic outcrops on mid to upper slopes.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 3.

Key Description:
Open Woodland over Low Forest A over Open Low Scrub A over Open Low Scrub B over Open Low Heath C over Dwarf Scrub D over Very Open Herbs.

Code:
eMr. eLAc. xSAr. xSBr. xSCc. xSDi. xJr.

Location Details:

Stratum 1. *Eucalyptus calophylla*, 20-25m tall, 3-5% canopy cover. Average foliage density 5%.

Stratum 2. *Eucalyptus marginata* and *Eucalyptus calophylla* 5-15m tall, 30-35% canopy cover. Average foliage density 30%.

Stratum 3. *Xanthorrhoea preissii* 1.5-2m tall, 1-2% canopy cover. Average foliage density 1%.

Stratum 4. *Xanthorrhoea preissii* and *Isopogon sphaerocephalus*, 1-1.5m tall, 3-5% canopy cover. Average foliage density 5%.

Stratum 5. *Xanthorrhoea preissii, Leucopogon nutans, Isopogon sphaerocephalus* and *Hibbertia hypericoides*, 0.5-1m tall, 30-40% canopy cover. Average foliage density 35%.

Stratum 6. *Dryandra nivea, Eriostemon spicatus, Bossiaea ornata, Gompholobium marginatum* and *Hibbertia commutata*, less than 0.5m tall, 10-20% canopy cover. Average foliage density 15%.

Stratum 7. Mixed Herbaceous species, *Conostylis spp.* and *Stylidium spp.*, less than 0.2m tall, 1-2% canopy cover. Average foliage density 2%.

Comments: Bare ground patchy. Litter largely around bases of shrubs and trees. Litter depth variable from 1cm to 6cm.

Soils & Topography: Sandy-gravels associated with lateritic outcropping on slopes and ridges.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 4.

Key Description:
Open Woodland over Low Woodland A over Open Low Woodland B over Open Low Scrub B over Open Drawf Scrub C over Dwarf Scrub D over Very Open Herbs.

Code:
eMr. eLAi. eLBr. xSBr. xSCr. xSDi. xJr.

Location Details:

Stratum 1. *Eucalyptus accedens* and *Eucalyptus wandoo*, 15-20m tall, 2-10% canopy cover. Average foliage density 10%.

Stratum 2. *Eucalyptus accedens* and *Eucalyptus wandoo*, 8-14m tall, 5-25% canopy cover. Average foliage density 15%.

Stratum 3. *Eucalyptus accedens* and *Eucalyptus wandoo*, 3-8m tall, 5-30% canopy cover. Average foliage density 10%.

Stratum 4. *Hakea lissocarpha*, *Acacia pulchella* var. *pulchella*, *Macrozamia riedlei* and *Xanthorrhoea preissii* 1-1.5m tall, 2-8% canopy cover. Average foliage density 4%.

Stratum 5. *Hakea lissocarpha*, *Acacia pulchella* var. *pulchella*, *Macrozamia riedlei* and *Xanthorrhoea preissii*, 0.5-1m tall, 5-10% canopy cover. Average foliage density 5%.

Stratum 6. *Dryandra nivea*, *Hypocalymma angustifolium*, *Hakea lissocarpha* and *Hibbertia hypericoides*, less than 0.5m tall, 10-30% canopy cover. Average foliage density 15%.

Stratum 7. *Conostylis spp.*, *Borya sphaerocephala* and mixed Herbaceous species, less than 0.2m tall, 1-2% canopy cover. Average foliage density 2%.

Comments: Bare ground patchy, litter to 2-3cm around shrubs and trees.

Soils & Topography: Shallow red to pink-caramel clay soils on breakaway areas on upper slopes.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 5. (Fauna Plot near Vegetation Plot)

Key Description:
Open Woodland over Open Low Woodland A over Open Low Woodland B over Heath B over Dwarf Scrub C over Open Dwarf Scrub D over Very Open Herbs.

Code:
eMr. eLAr. eLBr. xSBc. xSCi. xSDr. xJr.

Location Details:

Stratum 1. *Eucalyptus wandoo*, 15m tall, 1-2% canopy cover. Average foliage density 1%.

Stratum 2. *Eucalyptus wandoo* and *Eucalyptus calophylla*, 5-8m tall, 3-5% canopy cover. Average foliage density 5%.

Stratum 3. *Eucalyptus wandoo* and *Eucalyptus calophylla*, 2-5m tall, 1-2% canopy cover. Average foliage density 2%.

Stratum 4. *Hakea lissocarpha, Acacia pulchella, Hypocalymma angustifolium* and *Xanthorrhoea preissii* 1-1.5m tall, 2-40% canopy cover. Average foliage density 40%.

Stratum 5. *Calothamnus quadrifidus, Hibbertia hypericoides, Hakea incrassata, Hakea lissocarpha* and *Grevillea bipinnatifida*, 0.5-1m tall, 20-60% canopy cover. Average foliage density 30%.

Stratum 6. *Dryandra nivea* and other *Proteaceae spp.*, less than 0.5m tall, 2-10% canopy cover. Average foliage density 8%.

Stratum 7. *Borya sphaerocephala* and other Herbaceous species, less than 0.2m tall, 1-4% canopy cover. Average foliage density 3%.

Comments: Bare ground patchy. Litter largely around shrubs.

Soils & Topography: Dolerite dykes, exposed outcrops, red clay soils.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 5. (Vegetation Plot)

Key Description:
Open Low Scrub A over Heath B over Dwarf Scrub C over Very Open Herbs.

Code:
xSAr. xSBc. xSCi. xJr.

Location Details:

Stratum 1. *Calothamnus quadrifidus*, 1.5-2m tall, 10% canopy cover. Average foliage density 10%.

Stratum 2. *Acacia pulchella, Calothamnus quadrifidus, Trymalium ledifolium, Hibbertia hypericoides, Xanthorrhoea preissii* and *Macrozamia riedlei*, 1-1.5m tall, 65-70% canopy cover. Average foliage density 68%.

Stratum 3. *Calothamnus quadrifidus, Grevillea bipinnatifida* and *Trymalium ledifolium*, 0.5-1m tall, 30% canopy cover. Average foliage density 30%.

Stratum 4. *Borya sphaerocephala* and other Herbaceous species, less than 0.2m tall, 10% canopy cover. Average foliage density 10%.

Comments: Differs from Fauna traplines due to absence of Tree and Saplings in Vegetation Plot.

Soils & Topography: Dolerite dykes, exposed rock, red clay soils.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 6.

Key Description:
Open Low Woodland A over Heath A over Low Scrub B over Open Dwarf Scrub C over Open Dwarf Scrub D over Very Open Low Sedges over Very Open Herbs.

Code:
eLAr. xSAc. xSBi. xSCr. xSDr. cVLr. xJr.

Location Details:

Stratum 1. *Eucalyptus calophylla* and *Eucalyptus marginata*, 8-15m tall, 1-2% canopy cover. Average foliage density 1%.

Stratum 2. *Santalum acuminatum, Calothamnus quadrifidus, Hakea erinacea* and *Grevillea endicheriana*, 1.5-2m tall, 40-45% canopy cover. Average foliage density 40%.

Stratum 3. *Trymalium ledifolium, Calothamnus quadrifidus, Xanthorrhoea preissii* and *Hakea erinacea*, 1-1.5m tall, 25-30% canopy cover. Average foliage density 25%.

Stratum 4. *Calothamnus quadrifidus, Hibbertia hypericoides, Leucopogon propinquus* and *Grevillea bipinnatifida*, 0.5-1m tall, 4-5% canopy cover. Average foliage density 5%.

Stratum 5. *Dryandra nivea, Hibbertia commutata, Gompholobium marginatum, Astroloma pallidum* and *Baeckea comphorosmae*, less than 0.5m tall, 2-3% canopy cover. Average foliage density 2%.

Stratum 6. *Lepidosperma spp.*, less than 0.5m tall, 1-2% canopy cover. Average foliage density 1%.

Stratum 7. Mixed Herbaceous species, less than 0.2m tall, 1-2% canopy cover. Average foliage density 1%.

Comments: Bare ground and bare rock - 10%, litter largely around bases of shrubs and trees, 1-2cm deep.

Soils & Topography: Clays associated with outcrops on mid to upper slopes.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 7.

Key Description:
Low Forest A over Dense Thicket over Tall Sedges over Open Dwarf Scrub B over Dwarf Scrub C over Low Heath D over Very Open Herbs.

Code:
eLAc. aSd. cVTc. xSBr. xSCr. xSDc. xJr.

Location Details:

Stratum 1. *Eucalyptus marginata* and *Eucalyptus calophylla*, 5-10m tall, 30-40% canopy cover. Average foliage density 35%.

Stratum 2. *Agonis linearifolia*, 2-6m tall, 70-80% canopy cover. Average foliage density 75%.

Stratum 3. *Lepidosperma tetraquetrum*, 1.5-2m tall, 25-80% canopy cover. Average foliage density 60%.

Stratum 4. *Macrozamia riedlei*, *Xanthorrhoea preissii* and *Agonis linearifolia*, 0.5-1m tall, 1-2% canopy cover. Average foliage density 2%.

Stratum 5. *Agonis linearifolia* and *Acacia pulchella*, 1-1.5m tall, 4-5% canopy cover. Average foliage density 5%.

Stratum 6. *Bossiaea ornata*, *Hakea lissocarpha*, *Hovea trisperma* and *Chorizema ilicifolium*, less than 0.5m tall, 35-40% canopy cover. Average foliage density 37%.

Stratum 7. Mixed Herbaceous species, less than 0.2m tall, 1-2% canopy cover. Average foliage density 1%.

Comments: Litter variable from 1cm to 4cm.

Soils & Topography: Side gully, swampy, seasonally wet.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 8.

Key Description:
Open Herbs over Mosses and Liverworts.

Code:
xJi. xXc

Location Details:

Stratum 1. Mixed Herbaceous Species dominated by members of Asteraceae family, less than 0.05m tall, 10-30% canopy cover. Average foliage density 20%.

Stratum 2. Mixed Moss and Lichen Species, less than 0.02m tall, 30-40% canopy cover. Average foliage density 35%.

Comments: Granite rock covers most of plot, litter only minor, less than 0.1cm in depth.

Soils & Topography: Localized patches of sand in small pockets over exposed granite rock.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 9.

Key Description:
Open Low Scrub A over Open Low Scrub B over Dwarf Scrub C over Dwarf Scrub D over Open Low Sedges over Very Open Herbs.

Code:
xSAr. xSBr. xSCi. xSDi. cVLi. xJr.

Location Details:

Stratum 1. *Hakea undulata, Hakea cristata* and *Grevillea pilulifera*, 1.5-2m tall, 2-3% canopy cover. Average foliage density 3%.

Stratum 2. *Xanthorrhoea preissii, Allocasuarina humilis, Hakea undulata* and *Grevillea bipinnatifida*, 1-1.5m tall, 4-5% canopy cover. Average foliage density 5%.

Stratum 3. *Hakea undulata, Allocasuarina humilis, Acacia pulchella* var. *pulchella* and *Grevillea bipinnatifida*, 0.5-1m tall, 20-30% canopy cover. Average foliage density 25%.

Stratum 4. *Hibbertia hypericoides, Bossiaea eriocarpa, Baeckea camphorosmae, Leucopogon ?pulchellus* and *Melaleuca scabra*, less than 0.5m tall, 20-30% canopy cover. Average foliage density 25%.

Stratum 5. Mixed sedge species, *Lepidosperma spp.* less than 0.3m tall, 15-25% canopy cover. Average foliage density 20%.

Stratum 6. Mixed Herbaceous species less than 0.2m tall, less than 10% canopy cover. Average foliage density 8%.

Comments: Bare ground 10-25%, patchy. Litter largely around base of plants.

Soils & Topography: Shallow grittty sandy soils associated with granite outcrops, located on lower and mid slopes.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 10.

Key Description:
Open Low Woodland A over Open Low Woodland B over Open Low Scrub A over Open Low Scrub B over Open Dwarf Scrub C over Low Heath D over Very Open Low Sedges over Very Open Herbs.

Code:
eLAr. eLBr. xSAr. xSBr. xSCr. xSDc. VLr. xJr.

Location Details:

Stratum 1. *Eucalyptus asccedens*, 10-15m tall, 8-10% canopy cover. Average foliage density 10%.

Stratum 2. *Eucalyptus accedens*, 4-5m tall, 4-5% canopy cover. Average foliage density 5%.

Stratum 3. *Xanthorrhoea preissii*, 1.5-2m tall, 1-2% canopy cover. Average foliage density 1%.

Stratum 4. *Xanthorrhoea preissii* and *Xanthorrhoea gracilis*, 1-1.5m tall, 1-2% canopy cover. Average foliage density 1%.

Stratum 5. *Macrozamia riedlei*, *Pimelea suaveolens*, *Hakea lissocarpha* and *Hakea stenocarpa*, 0.5-1m tall, 8-10% canopy cover. Average foliage density 10%.

Stratum 6. *Dryandra nivea*, *Hakea stenocarpa* and *Hibbertia spp.*, less than 0.5m tall, 30-35% canopy cover. Average foliage density 35%.

Stratum 7. Mixed Sedge species, *Lepidosperma spp.*, less than 0.5m tall, 1-2% canopy cover. Average foliage density 2%.

Stratum 8. Mixed Herbaceous species, less than 0.2m tall, 1-2% canopy cover. Average foliage density 1%.

Comments: Bare ground 20-25%, litter patchy around bases of shrubs and trees.

Soils & Topography: Red to caramel-red Clays on upper slopes and breakaways. Some outcropping nearby.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 11.

Key Description:
Woodland over Low Woodland A over Open Low Scrub B over Dwarf Scrub C over Dwarf Scrub D over Very Open Low Sedges over Very Open Herbs.

Code:
eMi. bLAi. xSBr. xSCi. xSDi. cVLr. xJr.

Location Details:

Stratum 1. *Eucalyptus marginata* and *Eucalyptus calophylla*, 15-18m tall, 10-15% canopy cover. Average foliage density 12%.

Stratum 2. *Banksia grandis*, 6-7m tall, 10-40% canopy cover. Average foliage density 25%.

Stratum 3. *Isopogon sphaerocephalus* 1-1.5m tall, 1% canopy cover. Average foliage density 1%.

Stratum 4. *Hibbertia hypericoides, Isopogon sphaerocephalus* and *Bossiaea ornata*, 0.5-1m tall, 10-20% canopy cover. Average foliage density 15%.

Stratum 5. *Pimelea suaveolens, Adenanthos barbigerus, Bossiaea ornata* and *Grevillea synapheae*, less than 0.5m tall, 20-30% canopy cover. Average foliage density 25%.

Stratum 6. *Mesomelaena graciliceps, Lepidosperma spp.* and *Cyatochaeta avenacea*, less than 0.5m tall, 8-10% canopy cover. Average foliage density 10%.

Stratum 7. Mixed Herbaceous species, less than 0.2m tall, 8-10% canopy cover. Average foliage density 10%.

Comments: Bare ground less than 5% as covered largely by leaf litter, particularly of Banksia grandis. Litter depth 1-5cm in depth.

Soils & Topography: Sandy-loams with large proportion of gravel in matrix on mid to upper slopes.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 12.

Key Description:
Open Woodland over Low Woodland A over Open Low Woodland B over Open Scrub over Open Low Scrub A over Open Low Scrub B over Open Dwarf Scrub C over Low Heath D over Very Open Herbs.

Code:
eMr. eLAi. eLBr. xSr. xSAr. xSBr. xSCr. xSDc. xJr.

Location Details:

Stratum 1. *Eucalyptus marginata* and *Eucalyptus calophylla*, 18-20m tall, 5% canopy cover. Average foliage density 5%.

Stratum 2. *Allocasuarina fraseriana*, *Eucalyptus marginata* and *Eucalyptus calophylla*, 10-14m tall, 25-30% canopy cover. Average foliage density 25%.

Stratum 3. *Allocasuarina fraseriana*, *Eucalyptus marginata* and *Eucalyptus calophylla*, 3-6m tall, 5% canopy cover. Average foliage density 5%.

Stratum 4. *Hakea cyclocarpa*, more than 2m tall, 3% canopy cover. Average foliage density 3%.

Stratum 5. *Hakea cyclocarpa*, 1.5-2m tall, 2% canopy cover. Average foliage density 2%.

Stratum 6. *Xanthorrhoea preissii*, *Hakea undulata* and *Hakea cyclocarpa*, 1-1.5m tall, 10% canopy cover. Average foliage density 8%.

Stratum 7. *Leucopogon capitellatus*, *Hakea lissocarpha*, *Isopogon sphaerocephalus* and *Hibbertia hypericoides*, 0.5-1m tall, 10% canopy cover. Average foliage density 10%.

Stratum 8. *Hibbertia hypericoides*, *Dryandra nivea* and *Styphelia tenuiflora*, less than 0.5m tall, 50% canopy cover. Average foliage density 45%.

Stratum 9. Mixed Herbaceous species, including grasses and Conostylis, less than 0.2m tall, 2-4% canopy cover. Average foliage density 3%.

Comments: Bare ground patchy. Litter largely around shrubs and trees, up to 3cm near Sheoak tree bases.

Soils & Topography: Sandy-gravels on mid to upper slopes.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 13.

Key Description:
Open Woodland over Open Low Woodland B over Open Low Scrub A over Open Low Scrub B over Open Dwarf Scrub C over Dwarf Scrub D over Very Open Low Sedges over Very Open Herbs.

Code:
eMr. eLBr. xSAr. xSBr. xSCi. xSDi. cVLr. xJr.

Location Details:

Stratum 1. *Eucalyptus calophylla*, 20m tall, less than 1% canopy cover. Average foliage density 1%.

Stratum 2. *Eucalyptus calophylla* and *Eucalyptus marginata*, 3-5m tall, 2-3% canopy cover. Average foliage density 3%.

Stratum 3. *Xanthorrhoea preissii*, 1.5-2m tall, 2-3% canopy cover. Average foliage density 3%.

Stratum 4. *Hakea ruscifolia*, *Xanthorrhoea preissii* and *Hakea amplexicaulis*, 1-1.5m tall, 1-2% canopy cover. Average foliage density 1%.

Stratum 5. *Hakea stenocarpa*, *Hakea lissocarpha*, *Calothamnus sanguineus* and *Daviesia decurrens*, 0.5-1m tall, 15-20% canopy cover. Average foliage density 15%.

Stratum 6. *Dryandra nivea*, *Baeckea camphorosmae*, *Comesperma polygaloides*, *Eriostemon spicatus* and *Hibbertia commutata*, less than 0.5m tall, 15-20% canopy cover. Average foliage density 15%.

Stratum 7. *Mesomelaena tetragona* and *Lepidosperma spp.*, less than 0.5m tall, 1-2% canopy cover. Average foliage density 2%.

Stratum 8. Mixed Herbaceous species, less than 0.2m tall, 1-2% canopy cover. Average foliage density 1%.

Comments: Bare ground 25%, litter patchy around base of shrubs and trees.

Soils & Topography: Clay-loams with some gravel over shallow lateritic outcropping on lower to mid slopes.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 14.

Key Description:
Open Woodland over Open Low Woodland A over Open Low Scrub A over Open Low Scrub B over Open Dwarf Scrub C over Open Dwarf Scrub D over Very Open Herbs.

Code:
eMr. eLAr. xSAr. xSBr. xSCr. xSDr. xJr.

Location Details:

Stratum 1. *Eucalyptus calophylla*, 15m tall, 1% canopy cover. Average foliage density 1%.

Stratum 2. *Eucalyptus wandoo*, *Eucalyptus calophylla* and *Eucalyptus patens*, 5-8m tall, 5-10% canopy cover. Average foliage density 8%.

Stratum 3. *Viminaria juncea*, *Hakea trifurcata*, *Hakea erinacea*, *Petrophile biloba*, *Xanthorrhoea preissii* and *Trymalium ledifolium*, 1.5-2m tall, 5% canopy cover. Average foliage density 5%.

Stratum 4. *Petrophile biloba*, *Xanthorrhoea preissii* and *Trymalium ledifolium* 1-1.5m tall, 5-10% canopy cover. Average foliage density 8%.

Stratum 5. *Hypocalymma angustifolium*, *Baeckea camphorosmae* and *Astartea fascicularis*, 0.5-1m tall, 5% canopy cover. Average foliage density 5%.

Stratum 6. *Hypocalymma angustifolium*, less than 0.5m tall, 10% canopy cover. Average foliage density 10%.

Stratum 7. Mixed Herbaceous species and grasses, less than 0.3m tall, 2% canopy cover. Average foliage density 2%.

Comments: Seasonal creek dissects area. Dry creek in summer months. Litter variable but up to 5cm in some areas.

Soils & Topography: Mixed alluvial and sands associated with creek bed, valley floor.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 15.

Key Description:
Open Low Woodland A over Open Low Woodland B over Open Scrub over Open Low Scrub A over Open Low Scrub B over Dwarf Scrub C over Open Dwarf Scrub D over Very Open Low Sedges over Very Open Herbs.

Code:
xLAr. bLBr. a_2Sr. xSAr. xSBr. xSCi. xSDr. xVLr. xJr.

Location Details:

Stratum 1. *Eucalyptus calophylla*, *Melaleuca preissiana* and *Eucalyptus wandoo*, 5-14m tall, 5-10% canopy cover. Average foliage density 6%.

Stratum 2. *Banksia littoralis*, 3-8m tall, 1-10% canopy cover. Average foliage density 5%.

Stratum 3. *Acacia saligna*, 3-4m tall, 2-10% canopy cover. Average foliage density 5%.

Stratum 4. *Xanthorrhoea preissii* and *Acacia saligna*, 1.5-2m tall, 2-3% canopy cover. Average foliage density 2%.

Stratum 5. *Xanthorrhoea preissii* and *Acacia saligna*, 1-1.5m tall, 5-10% canopy cover. Average foliage density 8%.

Stratum 6. *Hakea lissocarpha* and *Hibbertia hypericoides*, 0.5-1m tall, 15-20% canopy cover. Average foliage density 20%.

Stratum 7. *Kennedia coccinea*, *Hakea lissocarpha*, *Hibbertia hypericoides* and *Gompholobium polymorphum*, less than 0.5m tall, 4-5% canopy cover. Average foliage density 5%.

Stratum 8. *Leptosperma spp.* and *Cyatochaeta avenacea*, less than 0.5m tall, 2-3% canopy cover. Average foliage density 3%.

Stratum 9. Mixed Herbaceous species, less than 0.2m tall, 1-2% canopy cover. Average foliage density 1%.

Comments: Bare ground 20%, litter deeper at bases of shrubs and trees, varies from 1 to 5cm.

Soils & Topography: Clay-loams in valley floors.

APPENDIX C: JOHN FORREST NATIONAL PARK MUIR DESCRIPTIONS

PLOT NO.: 16.

Key Description:
Low Woodland A over Open Low Scrub A over Open Low Scrub B over Dwarf Scrub C over Dense Low Sedges over Very Open Herbs.

Code:
eLAi. xSAr. xSBr. xSCi. cVLd. xJr.

Location Details:

Stratum 1. *Eucalyptus patens*, *Eucalyptus calophylla* and *Eucalyptus wandoo*, 5-14m tall, 5-12% canopy cover. Average foliage density 12%.

Stratum 2. *Hakea lissocarpha*, *Grevillea pilulifera*, *Xanthorrhoea preissii* and *Hakea undulata*, 1.5-2m tall, 1-2% canopy cover. Average foliage density 1%.

Stratum 3. *Hakea lissocarpha*, *Grevillea pilulifera*, *Xanthorrhoea preissii* and *Hakea undulata*, 1-1.5m tall, 1-2% canopy cover. Average foliage density 1%.

Stratum 4. *Xanthorrhoea preissii*, *Hypocalymma angustifolium*, *Acacia willdenowiana*, *Baeckea camphorosmae* and *Pimelea suaveolens*, 0.5-1m tall, 10-15% canopy cover. Average foliage density 12%.

Stratum 5. *Mesomelaena tetragona*, less than 0.4m tall, 70-80% canopy cover. Average foliage density 75%.

Stratum 6. Mixed Herbaceous species, less than 0.3m tall, 2-10% canopy cover. Average foliage density 5%.

Comments: Litter scattered amongst sedges, less than 2cm thick. Bare ground less than 15%.

Soils & Topography: Clay-loams on lower valley slopes.