

Avifauna of the Irwin Inlet-Broke Inlet-Mt Frankland region of south-west Western Australia, 1912-1913

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SUMMARY

The ornithologist and oologist S.W. Jackson spent 128 days from October 1912 to February 1913 in the Irwin Inlet-Broke Inlet-Mt Frankland region of south-west Western Australia searching (unsuccessfully) for the nest and eggs of the Noisy Scrub-bird. His unpublished field diaries contain valuable information about 68 bird species observed in a period when settlement was beginning to encroach. His notes on frequency of records of bird species, as well as their nesting and habitats, have been extracted from these diaries and presented by species rather than in chronological sequence. Comparison of the land bird species present in 1912-13 and 1972-87 indicates several genuine (not pseudoturnover) changes: two species (*Pezoporus wallicus*, *Hirundo ariel*) presumed extinct and 16 species that have colonized, following extensive agricultural development of the region since the 1920s.

Brief notes on other fauna and Aboriginal names of species recorded by Jackson are included.

INTRODUCTION

In 1912 the prominent grazier and egg collector H.L. White sent the curator of his collection, Sidney William Jackson, to Western Australia to collect the nest and eggs of *Atrichornis clamosus*, the Noisy Scrub-bird (Campbell 1928). This species had last been collected in 1889, but its nest and eggs were still unknown to science. In 1898 Jackson had discovered the nest and eggs of the other species of scrub-bird, *A. rufescens*, and so was an obvious candidate to remedy this deficiency in White's almost complete collection of the eggs of Australian bird species. Jackson was also an experienced bushman. One WA collector, F.B.L. Whitlock, resided at Tudor Siding near Wilson Inlet and from 1908 was employed by White to collect (Whittell 1954). Evidently he had been unable to locate the Noisy Scrub-bird.

Jackson's diaries are of supreme importance in documenting with unusual thoroughness the composition of the avifauna of a near-pristine forested part of Australia. These diaries provide a fundamental reference point with which to compare the avifauna at later times, when settlement resulted in clearing of parts of the forest for agriculture, utilization of natural resources such as timber, and other human-mediated impacts (the arrival of exotic animal species).

Although the diaries were perused by noted ornithologist H.M. Whittell in the early 1950s, he was content to publish excerpts affording 'interesting information' about nine species: *Dromaius novaehollandiae*, *Sterna bergii*, *Pezoporus wallicus*, *Hirundo ariel*, *Eopsaltria georgiana*, *Falcunculus frontatus*, *Psophodes nigrogularis*, *Pomastomus superciliosus*, and *Strepera versicolor* (Whittell 1952).

The aims of this paper are to collate all of Jackson's records (68 species) and make this information more readily accessible. Background information on the habitats present and examined by Jackson is also given.

THE DIARIES

Jackson left Sydney on 28 September 1912 by steamer for Albany via Melbourne and Adelaide. At Melbourne he visited A.J. Campbell who had collected the Noisy Scrub-bird in 1889 at Torbay (Jackson also visited him on his return, on 8 March 1913). Presumably the habitat and habits of this species were discussed. On 9 October Jackson arrived at Albany, and spent part of the day and all of the next with Whitlock, who assisted him in obtaining provisions and transport to Bow River. Whitlock was to have accompanied Jackson but was unable to do so. On 11 October both men travelled by train to Denmark, where about 250 people lived. October 12 was spent walking west, with stops at Nowhumbup Creek (?near Parry Inlet) and Kent River. The next morning Jackson reached H.T. Saw's farm on the Bow River and proceeded to set up camp in jarrah (*Eucalyptus marginata*) forest beside the river.

Jackson commenced his ornithological observations on 14 October, recording these in six diaries, two of which

are now missing [these covered the period from 18 November to 7 December]. Initially the weather tended to be cool, wet and windy, but by December it was warm with only occasional rain. Jackson departed from Bow River on 19 February.

HABITATS VISITED

According to Churchward *et al.* (1988) there are 13 broad landform/soil units present in the Irwin Inlet-Broke Inlet-Mt Frankland region. The daily itineraries described (often vaguely) in Jackson's diaries have been mapped in Figure 1; these indicate that Jackson worked extensively in about 7 of these units. In order of decreasing ubiquity the main units are as follows:

1. Marri (*Corymbia calophylla*) - karri (*Eucalyptus diversicolor*) - tingle (*E. guilfoylei/E. jacksoni*) forest. Jackson referred to whipstick wattle scrub, presumably dense thickets of karri wattle (*Acacia pentadenia*) and hazel (*Trymalium floribundum*). Chisholm (1958) included a photograph taken by Jackson.
2. Jarrah - marri low forest, with tea-tree scrub (*Agonis parviceps* and *A. linearifolia*) and sedgeland. Jackson's references to spearwood thickets presumably are to *A. parviceps*. Stunted jarrah grows around the edges of swamps.
3. Jarrah - bullich (*Eucalyptus megacarpa*) woodland.
4. Coastal dunes (heath, peppermint (*Agonis flexuosa*) woodland, banksia woodland, yate (*Eucalyptus cornuta*) woodland.
5. Marri - paperbark (*Melaleuca* sp.) - yarri (*Eucalyptus patens*) - wattie (*Agonis juniperina*) forest.
6. Wattie - paperbark thickets, with tea-tree heath and banksia - sheoak (*Allocasuarina fraseriana*) woodland.
7. Kangaroo grass (*Evandra aristata*) sedgelands.

A vegetation map for the Walpole-Nornalup National Park shows 14 vegetation types (CALM 1992).

ANNOTATED LIST OF BIRD SPECIES RECORDED

The names and sequence of species follow the Western Australian Museum list (Johnstone unpublished). For the convenience of readers, all distances, heights and other lengths have been metricated and generally rounded off.

Landbirds

Dromaius novaehollandiae

Although Emu droppings were frequently met with, birds (1-2) were recorded on only three occasions, in December and January (near coast or on kangaroo grass plains). Jackson remarked about the very dark, almost black plumage, darker than he had seen in New South Wales and Queensland. He speculated that this may have had adaptive value in that it made them hard to detect among the black (burned) trees. Fruits of *Podocarpus drouynianus* were recorded in their droppings. An old nest was discovered within c. 250 m of the ocean.

Haliastur sphenurus

The Whistling Kite was recorded once (31 December).

Accipiter fasciatus

Brown Goshawks were recorded on 8 days (October, November, January, February), usually singly, near Bow River and Mt Frankland. Jackson noted that this species makes a great noise at dusk as it flies over the tops of the karri trees. One bird was recorded as being chased by two ravens.

Aquila morphnoides

Little Eagles were recorded on three days, in January and February (2 singles; 3 birds on one day). One bird was shot 5 km west of the entrance to Irwin Inlet.

Aquila audax

Wedge-tailed Eagles were recorded twice. In October and December (Bow River, Deep River). A nest was seen 28 m above ground in a red tingle tree 10 km west of Bow River.

Falco berigora

One Brown Falcon was recorded flying over Newdegate Island (18 December).

Phaps elegans

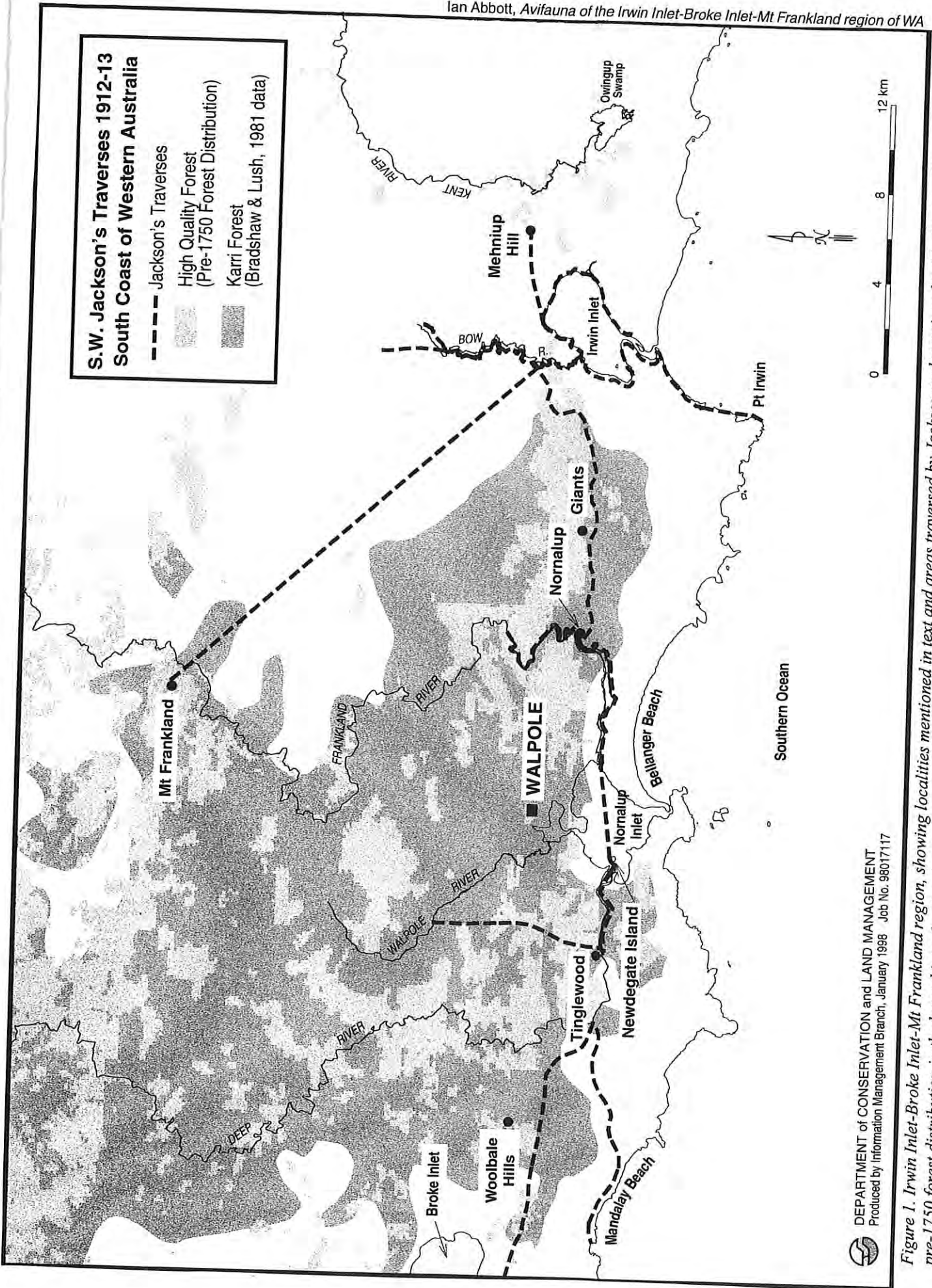
Brush Bronzings were recorded on four days, in October, November and February (2 aural records, 1 seen, 1 shot), in *Acacia pentadenia* scrub and jarrah forest. The crop of the shot bird was full of *A. pentadenia* seed.

Calyptorhynchus banksii

Two Red-tailed Black-cockatoos were recorded on 24 January at their nest, 18 m above ground in a marri tree.

Calyptorhynchus baudinii

White-tailed Black-cockatoos were recorded as plentiful and noted on 20 days, in all months (sometimes in flocks of c. 60 birds) at Bow River, Deep River and Mt Frankland. I have presumed that all records are referable to



DEPARTMENT of CONSERVATION and LAND MANAGEMENT
Produced by Information Management Branch, January 1998 Job No. 98017117

Figure 1. Irwin Inlet-Broke Inlet-Mt Frankland region, showing localities mentioned in text and areas traversed by Jackson and mentioned in his diaries. The reference to pre-1750 forest distribution in the legend is to the distribution of forest before European settlement, conventionally set at 1750 (Commonwealth of Australia 1997).

Baudin's Cockatoo. Jackson recorded several food items: bardi extracted from under the loose bark of dead karri and jarrah; *Xanthorrhoea preissii* flowers (?nectar); grubs from saplings of *Acacia pentadenia*; nectar from *Banksia grandis* flowers; and fruits of marri (green seed picked out, fruit left unbroken but detached from tree). Also recorded at Denmark on 2 February.

Glossopsitta porphyrocephala

Purple-crowned Lorikeets were recorded on two days, high up in flowering jarrah trees (29 October) and at Mt Frankland (14 February). This species was noted also at a swamp near Wilson Inlet and at Whitlock's farm (21-22 February).

Platycercus zonarius

Australian Ringnecks were recorded on eight days (October, December, January, February), being noted as plentiful and tame, at Bow River, Deep River and Mt Frankland. Feeding on the ground, at *Xanthorrhoea preissii* flowers, and on *Acacia pentadenia* seed (crop of shot bird) was noted.

Platycercus spurius

Red-capped Parrots were recorded once (3 November), in karri understorey.

Platycercus icterotis

Western Rosellas were recorded on three days: 3 November (1 male, 1 female); 13 January (many feeding on seed of *Allocasuarina decussata*), and 14 February (in karri near top of Mt Frankland).

Pezoporus wallicus

The following is quoted from Whittell's transcription from one of the now-missing diaries: 'Saw Grass parrakeet [Ground Parrot] (like *formosus*) in the long tassel top Kangaroo grass on a plain or swamp (bog). Failed to shoot it.'

Cacomantis flabelliformis

Fan-tailed Cuckoos were recorded on three days: 25 October (plentiful); 12 November (1 juvenile shot in karri forest); and 15 December (Deep River).

Chrysococcyx lucidus

On 16 November the egg of a Bronze Cuckoo was found in a nest of *Acanthiza apicalis*. I have presumed the species to be the Shining Bronze-cuckoo.

Ninox novaeseelandiae

Boobook Owls were recorded on nine occasions in October, November and January, usually calling at night near the Bow River camp. On 8 January, a bird was flushed from a dead and burnt *Allocasuarina decussata* in

tangle forest. A bird was heard calling on 14 January in trees near Irwin Inlet.

Podargus strigoides

Tawny Frogmouths were recorded six times from 29 October to 31 January, usually at the camp at Bow River, where one was shot. Four birds were flushed on 12 December from a *Casuarina* log near coastal sand hills west of the camp at Deep River.

Eurostopodus argus

One Spotted Nightjar was flushed off the ground in wattle scrub on 10 November. Jackson wondered how this species could fly through such dense undergrowth.

Todiramphus sanctus

Sacred Kingfishers were noted on three days in October, November and January in both jarrah and karri forest. A nest was seen in a hollow limb of a tall karri tree. This species was also recorded in February at Denmark River and in a swamp near Wilson Inlet.

Climacteris rufa

Rufous Treecreepers were recorded on four days in October, December and February. Jackson regarded them as common and tame, with a call similar to that of *C. picumnus* of NSW. A nest containing two eggs (one fresh, the other heavily incubated) was in a hollow in the top (8 m above ground) of a dead marri tree. The nest was placed 46 cm down the hollow.

Malurus splendens

Splendid Fairy-wrens were recorded four times (November and December) in coastal sand hills. The only forest record was from Mt Frankland.

Stipiturus malachurus

Southern Emu-wrens were noted in heath in coastal sand hills in December (three birds on west bank of Deep River; old nest with dead chick and egg fragments).

Pardalotus punctatus

Spotted Pardalotes were noted twice in February, in jarrah forest south-east of Mt Frankland and at Mt Frankland itself.

Pardalotus striatus

Striated Pardalotes were recorded as plentiful on 27 October and 4 November.

Sericornis frontalis

White-browed Scrubwrens were recorded nesting on 16 October close to the ground in *Gahnia* clumps in wattle scrub. The nest contained two young and one heavily incubated egg.

Gerygone fusca

Western Gerygones were recorded on six days in October, November, December and February. Jackson noted that in December it was not calling as frequently as in October and November. This species occurred more in the larger trees in jarrah forest than in the dense understorey in karri forest.

Acanthiza apicalis

Broad-tailed Thornbills were noted on five days in November, January and February. On 16 November a nest 1.8 m above ground and with one egg was found in wattle scrub. Subsequent records (in January and February) were from jarrah forest. Also recorded at Mt Frankland. Two birds were shot and Jackson recorded the red irides. On 21 February this species was noted in a swamp near Wilson Inlet.

Acanthiza inornata

Western Thornbills were collected on 20 January; their white irides were noted. This species was recorded as 'fairly plentiful', feeding in jarrah saplings and swamp banksia and present in undergrowth on a swamp edge.

Melithreptus chloropsis

Western White-naped Honeyeaters were recorded on five days between October and February. Birds fed on the foliage of *Allocasuarina decussata*, hazel, and kangaroo paw (*Anigozanthos bicolor*). Noted also at Mt Frankland.

Phylidonyris novaehollandiae

New Holland Honeyeaters were recorded on six days from October to January and were noted as common. Feeding at hazel blossom was noted. Nests were discovered close to ground (40 cm, 1.2 m) at the edge of karri forest. One nest had two young birds (30 October). Also noted at Deep River and at a swamp near Wilson Inlet (21 February).

Phylidonyris melanops

Tawny-crowned Honeyeaters were recorded six times in December, January and February, at Deep River, near Irwin Inlet, and near the coast.

Acanthorhynchus superciliosus

Western Spinebills were recorded six times in October, December, January and February. Noted picking at bark on the underside of jarrah limbs like a tree creeper, and also feeding at flowers of *Anigozanthos bicolor*. Recorded in jarrah forest, spearwood swamps, and at Deep River and Mt Frankland.

Anthochaera chrysoptera

Little Wattlebirds were recorded eleven times between October and January. They were noted as more plentiful in January than in November. A nest with one egg was found 2.7 m above ground in *Banksia grandis* on 20 October.

Recorded in wattle scrub, yellow tingle forest, and banksia. Birds were seen feeding on nectar of yellow tingle and banksia species.

Petroica multicolor

Scarlet Robins were recorded seven times in October, November, January and February only in jarrah forest. A nest was seen (bird sitting) 15 m above ground in a jarrah tree on 19 October. A nest 15 m above ground in a marri tree contained two young (25 October). By 12 November, young able to fly were seen. Full grown young were still being fed by parents on 20 January. Also recorded at Mt Frankland.

Eopsaltria australis

Yellow Robins were recorded eleven times, in all months. Several nests were located: 14 m above ground in jarrah tree (two young), 16 October; 7 m above ground in *Allocasuarina decussata* tree (two eggs), 23 October; 15 m above ground in jarrah tree (no details); old nest in swamp banksia. Jackson noted that its feeding behaviour, nest, eggs and call were similar to the Yellow Robin in NSW. Noted mainly in jarrah forest; also in wattle scrub. Seen capturing grubs on young jarrah saplings. Recorded at Mt Frankland.

Eopsaltria georgiana

White-breasted Robins were noted 16 times, mainly in October and November. On 21 January noted as 'not so plentiful now'. Confined to wattle scrub in or near karri forest, in contrast to that of the Yellow Robin. Recorded at Mt Frankland. The sharp and shrill note of this species was thought by Jackson to resemble the single alarm note of *Orthonyx temmincki* and *Atrichornis rufescens* of NSW. The actions and call were thought comparable to those of the Yellow Robin in NSW. They were noted as shy. Several nests were recorded: 4 m above ground in wattle scrub, two eggs (10 October); 3.4 m above ground in *Acacia pentadenia* (10 November); one nest 4.3 m up and three others 3.7 m up on fallen karri branches; nest without eggs (16 November). Nest smaller than that of Yellow Robin and not decorated with lichen.

Pomatostomus superciliosus

White-browed Babblers were recorded six times in October and November, always in wattle scrub. All nests found were in *Allocasuarina decussata* trees, 7-9 m above ground level. Three birds were shot; their crops contained ants. Jackson thought that the call was unlike any other babbler species. This species was absent from the Deep River area.

Psophodes nigrogularis

A Western Whipbird was recorded on 23 October: 'Saw bird-like Black throated Coachwhip at dense entangled part of whipstick scrub. Note was loud "chop chop"'. This species does not vocalize in this way. Jackson may have misidentified a Golden Whistler.

Daphoenositta chrysoptera

Varied Sittellas were recorded six times, in all months, usually high up in jarrah forest, and therefore hard to shoot. Nonetheless three birds (including one flying young) were secured on 2 January and one other was shot on 24 January. On 26 December, one pair was observed feeding three young near the northern end of Irwin Inlet. Also recorded at a swamp near Wilson Inlet on 21 February. Call and flight were considered similar to those in NSW.

Falcunculus frontatus

Crested Shrike-tits were recorded six times, in October, November, January and February. Mostly observed in tall karri trees, but recorded once in jarrah tree. Jackson considered this species to be rare and difficult to detect (its call was similar to that in NSW but very feeble).

Pachycephala pectoralis

Golden Whistlers were recorded eleven times, mostly confined to dense wattle scrub and not in open jarrah forest. Although noted each month, Jackson stated that they became less plentiful (or just less vocal?) in January. Noted at Mt Frankland.

Colluricincla harmonica

Grey Shrike-thrushes were recorded nine times in October, November, December and February. One bird was seen entering a hollow in a tingle tree, but no nest was there. Recorded also at Deep River and Mt Frankland.

Rhipidura fuliginosa

Grey Fantails were recorded 13 times, in all months. Nest building was first noted on 5 November. Nests were recorded 4.3 or 4.6 m above ground in *Acacia pentadenia* or on fallen limbs caught in standing trees. Feeding of young in the nest was last recorded on 12 December. This species was noted as plentiful, particularly in burned areas and occurring almost anywhere. By 24 January, most had vacated the dense wattle scrub. Recorded as feeding on march flies. Also noted at Mt Frankland and at swamp near Wilson Inlet.

Coracina novaehollandiae

Black-faced Cuckoo-shrikes were recorded four times (October, December and January). They were usually noted as plentiful. At Deep River noted as feeding in tall hazel trees in scrub.

Artamus cyanopterus

Dusky Woodswallows were recorded three times (October, December and January), in jarrah and karri forest.

Strepera versicolor

Grey Currawongs were recorded 16 times, in all months, as plentiful. Nesting was noted as: 21 m above ground in

jarrah tree (30 October) and 18 m above ground in a yellow tingle tree (16 January). Fledged young were seen on 4 November (being fed) and 26 December. Seen feeding on the ground and also eating *Bothriembryon* snails picked off the trunk of hazel and karri. Regarded as 'good eating'. Also recorded at Mt Frankland and at swamp near Denmark.

Corvus coronoides

Australian Ravens were noted on eight occasions in all months, in jarrah and karri forest. Particularly noted as rare (2-4), though about 30 were seen on 30 January ('a most unusual sight here'). On 3 February, many were noted as 'now about'. Also recorded at swamp near Wilson Inlet and as destroying much fruit in an orchard.

Anthus novaeseelandiae

Richard's Pipits were recorded three times (November-January) on damp flats near Irwin Inlet, on open ground in coastal sandhills, and on the ground on plains.

Stagonopleura oculata

Red-eared Firetails were recorded once, on 27 October: Jackson saw 'finches' nesting in *Allocasuarina decussata*.

Hirundo neoxena

Welcome Swallows were recorded twice, in January and February ('over the plains' and at Mt Frankland). Also noted at Denmark River (predated by cat).

Hirundo ariel

Fairy Martins were noted once. On 22 December, their nests were seen in a cave of hardened sand on the western bank of Frankland River.

Zosterops lateralis

Grey-breasted White-eyes were recorded ten times, in all months. A nest containing three eggs was found 2.4 m above ground in a paperbark tree on 7 November. Old nests were also found in vines in wattle scrub. Noted at Bow River, Deep River and Mt Frankland. On 31 December observed eating fruits of *Leucopogon verticillatus*. This species was recorded on 31 December as 'now plentiful'.

Waterbirds

Cygnus atratus

Black Swans were noted on five occasions from November to January: Irwin Inlet ('hundreds'); Deep River ('many') and Frankland River (28 birds, 3.2 km from mouth).

Tadorna tadornoides

Australian Shelducks were recorded on Irwin Inlet on 3 February.

Anas superciliosa

Pacific Black Ducks were recorded six times from November to February: Deep River; Frankland River ('many'); Bow River (7); and Irwin Inlet ('numerous'). This species was also noted on a swamp near Wilson Inlet.

Phalacrocorax varius

Pied Cormorants were recorded on 18 December at Deep River.

Phalacrocorax sulcirostris

Little Black Cormorants were seen on 26 December on rocks on the northern side of Irwin Inlet.

Phalacrocorax melanoleucos

Little Pied Cormorants were noted three times (December, February): Deep River; Frankland River ('many'); and entrance to Irwin Inlet. Also on swamp near Wilson Inlet.

Ardea novaehollandiae

The White-faced Heron was noted on 15 December on Deep River.

Ardea sacra

A Reef Heron was seen on Newdegate Island on 18 December.

Nycticorax caledonicus

Rufous Night Herons were recorded four times at Bow River in January and February. One was seen in a jarrah tree, and was noted to be very tame.

Porphyrio porphyrio

Purple Swamphens were recorded twice in December at Deep River (in reeds on the northern bank inland from its mouth) and at Frankland River (also in reeds along bank).

Charadrius rubricollis

Hooded Plovers were recorded twice in December: single birds on sandbar at mouth of Deep River and on Mandalay beach.

Larus pacificus

The Pacific Gull was seen on Newdegate Island on 18 December.

Larus novaehollandiae

Silver Gulls were recorded three times, in December and February: Gull Rock [a granite rock of diameter c. 27 m beside Newdegate Island] (eggs noted 8 and 18 December); Newdegate Island; and the entrance to Irwin Inlet.

Sterna bergii

Crested Terns were recorded three times in December: nesting on Gull Rock; Newdegate Island; and on rocks on the northern side of Irwin Inlet.

Sterna nereis

Fairy Terns were recorded (misidentified as Little Terns '*S. sinensis*') on Newdegate Island on 12 December.

SPECIES NOT RECORDED

Some of the species listed below are considered likely to have occurred in the region in 1912-13. It is possible, though improbable, that one or two of these species may have been recorded in the diaries that are now missing. Whittell (1952) stated that the six diaries read by him mentioned 'over 60 species'.

Landbirds

***Leipoa ocellata* Malleefowl**

Jackson's failure to record this species may be taken validly to indicate that it did not occur east of Broke Inlet.

***Coturnix ypsilophora* Brown Quail**

A surprising omission. Ashby and Le Soeuf (1928) provisionally recorded this species in coastal hills near Deep River in October 1927.

***Circus approximans* Swamp Harrier**

A surprising omission. Ashby and Le Soeuf (1928) recorded this species at Deep River in October 1927.

***Cacatua pastinator* Western Long-billed Corella**

Probably indicates that this species did not occur near the coast east of Broke Inlet.

***Cuculus pallidus* Pallid Cuckoo**

Ashby and Le Soeuf (1928) recorded this species at Deep River in October 1927.

***Atrichornis clamosus* Noisy Scrub-bird**

After two days of searching unsuccessfully for this species, Jackson linked their absence with frequent burning of hazel and wattle scrub. Subsequent close examination of the few areas of long-unburned hazel/wattle scrub, and of other habitats, including paperbark, tea-tree, banksia and tall (3.7 m high) sword grass on flats, yielded no indication that Noisy Scrub-birds persisted in the region. On 28 October Jackson received a telegram (in reply to his letter) from A.J. Campbell, advising that the dense undergrowth in karri forest in which Jackson had

been searching is where Campbell had secured his specimen near Torbay in 1889. In January Jackson mentioned feral cats as more of a possible cause of their extinction than bushfires. It is worth noting that Jackson would have been too late to record nesting, as most eggs are laid in June-July (A.H. Burbidge¹, personal communication).

***Malurus elegans* Red-winged Wren**

A surprising omission.

***Acanthiza chrysorrhoa* Yellow-rumped Thornbill**

Recorded in small karri and jarrah suckers on the bank of Denmark River. Pollard (1928) recorded this species on a farm near Deep River.

***Lichmera indistincta* Brown Honeyeater**

Ashby and Le Soeuf (1928) recorded this species at Deep River in October 1927.

***Myiagra inquieta* Restless Flycatcher**

Ashby and Le Soeuf (1928) recorded this species nesting near Deep River in October 1927.

***Rhipidura leucophrys* Willie Wagtail**

Noted only at Denmark (21 February). Ashby and Le Soeuf (1928) recorded this species in a clearing at Tinglewood, Deep River in October 1927.

***Hirundo nigricans* Tree Martin**

A surprising omission. Ashby and Le Soeuf (1928) recorded this species at Deep River in October 1927.

***Megalurus gramineus* Little Grassbird**

Recorded only at swamp near Wilson Inlet (21 February).

Waterbirds

Jackson's failure to record any of these species may simply indicate the lack of permanent freshwater swamps in the country traversed (Owingup swamp to the east of Irwin Inlet was apparently not examined by him, nor was Crystal Lake south of Deep River).

***Ixobrychus minutus* Little Bittern**

***Ixobrychus flavicollis* Black Bittern**

***Botaurus poiciloptilus* Australasian Bittern**

***Rallus pectoralis* Lewin's Rail**

***Porzana pusilla* Baillon's Crake**

***Porzana fluminea* Australian Spotted Crake**

***Porzana tabuensis* Spotless Crake**

***Biziura lobata* Musk Duck**

***Phalacrocorax carbo* Great Cormorant**

***Sterna caspia* Caspian Tern**

These three last species were recorded in October 1927 near Normalup Inlet by Ashby and Le Soeuf (1928).

CHANGES IN THE LANDBIRD AVIFAUNA SINCE 1912-13

Parts of the area surveyed by Jackson were re-examined by ornithologists in 1927, 1972, 1981 and 1985-87 (Table 1). Before these bird lists can be used as a legitimate basis for examining changes in the landbird fauna 14-74 years after Jackson's visit, it is essential to eliminate errors, decide which records represent vagrants, and evaluate whether non listing of species indicates genuine absence or failure to record. If this protocol is not followed, many spurious instances of local extinction or local establishment ('pseudoturnover') will be detected.

Three species appear to have been misidentified and are treated here as having been listed invalidly: *Manorina flavigula*, *Microeca fascinans* (?error for *Eopsaltria georgiana*), and *Psophodes nigrogularis*.

Two species appear to have become locally extinct: *Pezoporus wallicus* and *Hirundo ariel*. *P. wallicus* is susceptible to frequent burning (Burbidge *et al.* 1997) and has not been recorded in the region since 1952 (Baggs 1953), though there is an unsubstantiated record for 1978 (Watkins 1985). The nesting site recorded by Jackson for *H. ariel* needs to be relocated to confirm whether this species still breeds there.

Sixteen species are open country (woodland, pasture) species which were probably not present in the region in 1912-13, as settlement had scarcely encroached: *Elanus caeruleus*, *Falco cenchroides*, *F. longipennis*, *Neophema elegans*, *Chrysococcyx basalis*, *Smicrornis brevirostris*, *Acanthiza chrysorrhoa*, *Lichmera indistincta*, *Anthochaera carunculata*, *Epthianura albifrons*, *Pachycephala rufiventris*, *Rhipidura leucophrys*, *Grallina cyanoleuca*, *Lalage tricolor*, *Cracticus torquatus* and *C. tibicen*. One species, *Dacelo novaeguineae*, was introduced to Western Australia but did not reach the Walpole area until after Jackson's visit.

The remaining species not listed by Jackson probably represent vagrants, irregular visitors, rare species, highly localized species, cryptic species, or simply species missed.

It is difficult to interpret the list of waterbird species in Table 1. However, *Chenonetta jubata* and *Vanellus tricolor* are genuine new arrivals favoured by clearing of forest for pasture, and *Phalacrocorax fuscescens* is undoubtedly an error for *P. varius*.

¹ A.H. Burbidge, Wildlife Research Centre, CALM, Woodvale.

TABLE 1

Bird species recorded in the Walpole-Nornalup region at various times since 1912

SPECIES	1912-13	1927	1972	1981	1986-87	1985-87
	(1)	(2)	WOOLBALES (3)	GIANTS (4)	COAST (5)	FOREST (6)
LANDBIRDS						
<i>Dromaius novaehollandiae</i>	•		•	•	•	
<i>Coturnix ypsilophora</i>		•			•	•
<i>Pandion haliaetus</i>					•	•
<i>Elanus caeruleus</i>				•	•	
<i>Hamirostra isura</i>						•
<i>Haliastur sphenurus</i>	•		•			
<i>Accipiter fasciatus</i>	•		•		•	•
<i>A. cirrocephalus</i>						•
<i>Aquila morphnoides</i>	•				•	•
<i>Aquila audax</i>	•	•	•	•	•	•
<i>Haliaeetus leucogaster</i>					•	
<i>Circus assimilis</i>			•		•	
<i>C. approximans</i>		•		•	•	•
<i>Falco berigora</i>	•	•	•	•	•	•
<i>F. cenchroides</i>			•	•	•	•
<i>F. longipennis</i>			•			•
<i>F. peregrinus</i>			•		•	•
<i>Phaps chalcoptera</i>			•		•	•
<i>P. elegans</i>	•		•	•	•	•
<i>Calyptorhynchus banksii</i>	•		•			•
<i>C. baudinii</i>	•	•	•	•	•	•
<i>Glossopsitta porphyrocephala</i>	•	•	•	•	•	•
<i>Platycercus zonarius</i>	•	•	•	•	•	•
<i>P. spurius</i>	•		•		•	•
<i>P. icterotis</i>	•	•	•	•	•	•
<i>Neophema elegans</i>			•		•	
<i>N. petrophila</i>			•		•	
<i>Pezoporus wallicus</i>	•					
<i>Cuculus pallidus</i>		•	•	•		•
<i>Cacomantis flabelliformis</i>	•	•	•	•	•	•
<i>Chrysococcyx basalis</i>			•		•	•
<i>C. lucidus</i>	•			•	•	•
<i>Ninox novaeseelandiae</i>	•	•	•			
<i>Tyto novaehollandiae</i>						•
<i>T. alba</i>						•
<i>Podargus strigoides</i>	•		•			•
<i>Eurostopodus argus</i>	•					•
<i>Aegotheles cristatus</i>						•
<i>Dacelo novaeguineae</i>			•	•	•	•

TABLE 1 (continued)

SPECIES	1912-13	1927	1972	1981	1986-87	1985-87
	(1)	(2)	WOOLBALES (3)	GIANTS (4)	COAST (5)	FOREST (6)
<i>Todiramphus sanctus</i>	•			•		•
<i>Climacteris rufa</i>	•	•	•	•		•
<i>Malurus splendens</i>	•	•	•	•	•	•
<i>M. elegans</i>					•	•
<i>Stipiturus malachurus</i>	•		•	•	•	•
<i>Pardalotus punctatus</i>	•	•	•		•	•
<i>P. striatus</i>	•	•	•	•	•	•
<i>Sericornis frontalis</i>	•	•	•	•	•	•
<i>Smicronis brevirostris</i>						•
<i>Gerygone fusca</i>	•	•	•	•	•	•
<i>Acanthiza apicalis</i>	•	•	•	•	•	•
<i>A. inornata</i>	•		•	•	•	•
<i>A. chrysorrhoa</i>		•	•			•
<i>Lichmera indistincta</i>		•	•		•	•
<i>Melithreptus chloropsis</i>	•	•	•	•	•	•
<i>Phylidonyris novaehollandiae</i>	•	•	•	•	•	•
<i>P. nigra</i>			•		•	•
<i>P. melanops</i>	•	•	•		•	•
<i>Acanthorhynchus superciliosus</i>	•	•	•	•	•	•
<i>Manorina flavigula</i>			•			
<i>Anthochaera chrysoptera</i>	•	•	•		•	•
<i>A. carunculata</i>			•	•	•	•
<i>Epthianura albifrons</i>						•
<i>Microeca fascinans</i>		•				•
<i>Petroica multicolor</i>	•	•	•	•	•	•
<i>Eopsaltria australis</i>	•	•	•			•
<i>E. georgiana</i>	•		•	•	•	•
<i>Pomatostomus superciliosus</i>	•		•	•	•	•
<i>Psophodes nigrogularis</i>	?					
<i>Daphoenositta chrysoptera</i>	•		•	•	•	•
<i>Falcunculus frontatus</i>	•		•			•
<i>Pachycephala pectoralis</i>	•	•	•	•	•	•
<i>P. rufiventris</i>						•
<i>Colluricincla harmonica</i>	•	•	•	•	•	•
<i>Myiagra inquieta</i>		•	•			•
<i>Rhipidura fuliginosa</i>	•	•	•	•	•	•
<i>R. leucophrys</i>		•	•			•
<i>Grallina cyanoleuca</i>			•	•		•
<i>Coracina novaehollandiae</i>	•		•	•	•	•
<i>Lalage tricolor</i>						•
<i>Artamus cyanopterus</i>	•	•	•	•	•	•
<i>Cracticus torquatus</i>			•		•	

TABLE 1 (continued)

SPECIES	1912-13	1927	1972 WOOLBALES	1981 GIANTS	1986-87 COAST	1985-87 FOREST
	(1)	(2)	(3)	(4)	(5)	(6)
<i>C. tibicen</i>			•	•	•	•
<i>Strepera versicolor</i>	•		•	•	•	•
<i>Corvus coronoides</i>	•		•	•	•	•
<i>Anthus novaeseelandiae</i>	•		•	•	•	•
<i>Stagonopleura oculata</i>	•		•	•	•	•
<i>Hirundo neoxena</i>	•	•			•	•
<i>H. nigricans</i>		•	•	•	•	•
<i>H. ariel</i>	•					
<i>Zosterops lateralis</i>	•	•	•	•	•	•
WATERBIRDS						
<i>Biziura lobata</i>		•				
<i>Cygnus atratus</i>	•	•				
<i>Tadorna tadornoides</i>	•					
<i>Chenonetta jubata</i>				•		
<i>Anas superciliosa</i>	•	•	•	•	•	
<i>Anhinga melanogaster</i>			•	•		
<i>Phalacrocorax carbo</i>		•		•		
<i>P. varius</i>	•					
<i>P. sulcirostris</i>	•					
<i>P. fuscescens</i>		•				
<i>P. melanoleucos</i>	•	•		•		
<i>Pelecanus conspicillatus</i>		•		•		
<i>Ardea pacifica</i>				•		
<i>A. novaehollandiae</i>	•		•	•		
<i>A. alba</i>			•			
<i>A. sacra</i>	•					
<i>Nycticorax caledonicus</i>	•					
<i>Porphyrio porphyrio</i>	•	•				
<i>Vanellus tricolor</i>			•			
<i>Charadrius ruficapillus</i>			•			
<i>C. rubricollis</i>	•					
<i>Larus pacificus</i>	•	•				
<i>L. novaehollandiae</i>	•	•	•		•	
<i>Sterna caspia</i>		•				
<i>S. bergii</i>	•	•				
<i>S. nereis</i>	•					

(1) October 1912 – February 1913, coastal and forest. This paper, Whittell (1952).

(2) October 1927, coastal and forest. Ashby and Le Soeuf (1928), Pollard (1928).

(3) Autumn 1972, coastal and forest. Christensen *et al.* (1985).

(4) Summer 1981, forest. Christensen *et al.* (1985).

(5) October 1986, January 1987, April 1987, July 1987, coastal. Wardell-Johnson (unpublished).

(6) December 1985, February 1986, April/May 1986, August 1986, October/November 1986, February 1987, March/April 1987, December 1987, forest. Wardell-Johnson (unpublished).

FIRE

Jackson was quick to observe the past ravages of fire, evidenced by the trunks of large jarrah and tingle trees burnt up to a height of 20-27 m. He first mentioned bushfires on 20 December, when near Deep River he 'passed between two big bush fires & huge volumes of smoke were issuing from them & travelling to the east'. His next mention (near Bow River) was on 8 January and from mid January there are frequent references to raging fires. He noted that every tree on Mt Frankland showed 'signs of where fire has been on it, and the greater proportion of them have their trunks jet black for [18 or 21 m] up, and this was more noticeable lower down the mountain and for about [300 m] up from the river base'.

ACKNOWLEDGEMENTS

I thank: Lea Buchanan (State Library of NSW) and Jim Brazier (Australian Museum) for help in locating Jackson's diaries; Lisa Wright (CALM library, Woodvale) for liaison with the National Library of Australia and arranging for the purchase of a photocopy of the diaries; Andrew Burbidge and Matt Williams for advice on the identity of the mammals and Lepidoptera respectively mentioned in the diaries; Neville Marchant for advice on the list of Aboriginal names of plant species; Ian Wheeler and Matt Williams for retrieving and putting into utilizable form the unpublished data of Grant Wardell-Johnson; Sandy Ingleby for information about Jackson's mammal specimens held in the Australian Museum; and Allan Burbidge for commenting on a draft of this paper.

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APPENDIX

Other fauna recorded

Jackson provided incidental notes on other fauna encountered. Where necessary, I have quoted from his diaries. ? indicates uncertainty.

Mammals

Grey-bellied Dunnart (*Sminthopsis griseoventer*) ('small marsupial smaller than a rat and with small teeth. Tail like rat... Nose long & pointed, ears rather large & lovely brown fur'). Two specimens (one with pouched young) preserved in spirit were purchased in 1934 by the Australian Museum (S. Ingleby², personal communication).

Western Ringtail Possum (*Pseudocheirus occidentalis*) ('saw 2 nests of scrub opossum built up in top of [whipstick] wattle sapling in [whipstick wattle] scrub, and another in some suckers on the side of a Tingle Tingle').

Common Brushtail Possum (*Trichosurus vulpecula*) ('opossum', 'fairly common'). Bellanger (1980), who lived at Nornalup after 1910, published a photograph of an albino of this species.

?Tamar Wallaby (*Macropus eugenii*) ('scrub wallaby...stands less than 2 ft [0.6 m] high. Colour of fur brown & reddish on back of neck'). Bellanger (1980) mentions 'wallabies' ringbarking fruit trees and states that they 'generally disappeared' during the 1930s.

Western Grey Kangaroo (*Macropus fuliginosus*). Seven recorded near coast. Jackson (1913) noted that this species was 'fairly plentiful on the sandhills and small grass plains'. Bellanger (1980) mentioned that this species seems to favour the open coastal plains and hills.

Quokka (*Setonix brachyurus*) ('caught a wallaby in trap. The usual very small animal about 2 ft [0.6 m] high'; 'wallabies sleep under [sword grass]...The wallabies are exceedingly small here [Deep River] & weigh up to 14 lbs [6 kg] or more, & about 2 ft 6 [0.75 m] long from nose to tip of tail, the latter being about 9 inches [20 cm] long and covered with short bristly hairs'). Many 'wallabies' were observed in bracken on Newdegate Island. Peden (1992), who lived in the Walpole area from 1921, mentions this species.

Water-rat (*Hydromys chrysogaster*). One caught in a lobster trap in Bow River, 10 January. Photograph published in Jackson (1913).

?Black Rat (*Rattus rattus*). Rats seen on the barque Mandalay, which was stranded between Long Point and Clifty Head in May 1911.

Dingo (*Canis lupus*). Frequently heard; their scats contained bones and fur of 'scrub wallaby'. Two were trapped at Bow River, one of which had head, legs, belly, sides and tail brown and back nearly black. Jackson in 1931 presented a skull to the Australian Museum (S. Ingleby, personal communication).

Cat (*Felis catus*). Tracks first recorded on 13 December, near Deep River. Two cats were on board the Mandalay when she wrecked (see above).

Cattle (*Bos taurus*). On 28 December Jackson met Mr Moriarty who had earlier brought over 300 head from inland for grazing on the coastal country on the west side of Irwin Inlet. He was accompanied by four Aborigines and had taken ten days to bring the cattle down. 'These men set fire to a lot of country about here'.

Reptiles

Tiger Snake (*Notechis scutatus*) ('The species chiefly met with was a black one measuring up to [1.5 m] long'; 'brown snake with black coloured belly...blackish on back & shiney, copper...for 2 rows of scale all along side just above belly scales. Belly scales yellowish with black across joints of each segment'; 'black snakes plentiful', Bow River).

?Dugite (*Pseudonaja affinis*) ('brown snake with pink belly [43 cm] long'; 'brown or copper head snake').

Tiliqua rugosa ('scaly back lizard' on sandy ground near coast).

Invertebrates

Tree snails (*Bothriembryon jacksoni*, *B. fuscus* and *B. revectus*) (green; striped (zebra) species in karri forest; Deep and Bow Rivers; see Iredale 1939).

Marron (*Cherax tenuimanus*). Almost black; to 25 cm in length, in Bow River.

Koonac (*Cherax preissi*) in black bog, Bow River.

Gilgie (*Cherax quinquecarinatus*) in very small freshwater creeks in the bush away from rivers; about 5-7 cm in length.

Tick-tock (*Cicadetta quadricincta*), 10 December. Small black cicada making a thin peculiar tapping call all day. Notes resemble a jeweller's small hammer tapping some solid object quickly.

March flies (*Scaptia gemina*, *S. georgii*, *S. bicolorata* and *Mesomyia norrisi*) feeding on yellow tingle nectar and human blood.

Golden-haired Skipper (*Hesperilla chrysotricha*) 20 December, near coast.

² Dr S. Ingleby, Collection Manager, Mammal Section, Australian Museum, College St, Sydney

Gum Moth Caterpillar (*Opodiphthera helena*)
31 December, feeding on foliage of jarrah suckers.

Whistling Moth (*Hecatesia thyridion*) 30 October. Termed 'singing moth' and noted as settling chiefly on *Xanthorrhoea* leaves.

Black Sawfly (*Perga*) larvae, 24 and 31 December, feeding on foliage of jarrah saplings.

Bull Ant (*Myrmecia ?vindex*) 13 December.

Sticknest Ant (*Iridomyrmex ?purpureus*). Nests noted.

Feral Bee (*Apis mellifera*), swarm near Bow River.

Plants

Jackson collected and dried 8545 plant specimens. These were donated by H.L. White to the New South Wales Herbarium.

Aboriginal Names

These names were provided to Jackson at Deep River by A.G. Muir of Mordalup on 21 December. They do not, however, necessarily pertain to the Walpole region.

Plants

Marry (*Corymbia calophylla*)
Karri (*Eucalyptus diversicolor*)
Cherrela (*E. marginata*)
Bullegit 'Blue gum' (*E. megacarpa*)
Condorun 'Emu berry or plum' (*Podocarpus drouynianus*)
Barluck (*Xanthorrhoea preissii*)
Bonga 'Swamp banksia' (*Banksia littoralis*)
Pidnidge 'Big river banksia' (*B. seminuda*)
Mungitch or Mungite (*B. grandis*)
Pint or Pent 'Yellow waratah flower banksia with prickly leaf' (*B. ilicifolia*)
Byon (*Macrozamia riedlei*)
Gnettuck 'whipstick wattle or hazel'. Netic is the accepted name for *Bossiaea aquifolium* and *B. webbia*; whipstick wattle is probably *Acacia pentadenia*; and hazel is *Trymalium spathulatum*.
Queel 'Sheoak' (*Allocasuarina fraseriana*)

Cudditch 'Kangaroo Paw' (*Anigozanthos flavidus*)
Budgegegeth 'Swamp Swordgrass' (*Anarthria scabra*)
Kiber 'Square nail rush' (*Lepidosperma tetraquetrum*)
Monduc 'bracken fern' (*Pteridium aquilinum*)

Animals

Quocker 'Small scrub wallaby' (*Setonix brachyurus*)
Quaint 'Bandicoot' (*Isodon obesulus*)
Yerkine 'Dingo' (*Canis lupus*)
Uren 'Pineapple scale lizard' (*Tiliqua rugosa*)
Wetch 'Emu' (*Dromaius novaehollandiae*)
Yonger 'Kangaroo' (*Macropus fuliginosus*)

The Man

Judged by the material in his diaries, Jackson was dedicated and assiduous in searching for the Noisy Scrub-bird, but fortunately was not focused solely on that species. Nearly every day (including Saturdays and Sundays) was spent in the bush and it was not unusual for him to spend 7-12 hours traversing 16-30 km. Frequently he records the nuisance and inconvenience caused by large numbers of blood-sucking march flies. At his Bow River camp he was also discomfited by sandflies, mosquitoes, fleas, snakes and prowling dingoes. He subsisted on tinned meat with little fresh food, though he does record eating 'opossum', 'scrub wallaby' and marron.

Throughout his time in Western Australia, he remained cheerful, although he did note on 16 December 'another disappointing day'. His only reference to illness was towards the end of his sojourn, when on 27 January, 6, 7 and 16 February he mentions dizziness and a 'touch of the sun'. This was probably an indication of overwork, as Jackson frequently did not retire until after midnight because he was busy developing photographic plates, pressing plant specimens and packing up his specimens. His two day dash to Mt Frankland in February across waterless country 'all in the interests of science' could have cost him his life. Later, on 5 March, Jackson noted 'get medicine in Port Adelaide for the pains in my insides'.

Jackson seems to have bonded in spirit with this part of Australia. On 11 February he recorded 'The calmness and silence here often at night (as tonight) I have never noticed anywhere else in my life. It is beyond description'.