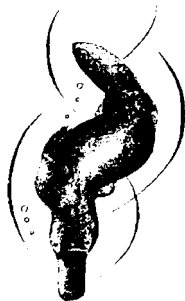


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A NOTE ON THE ANALYSIS OF A SERIES OF DASYURID SCATS

by Tom Mumbray

Communications Section, Department of Parks, Wildlife and Heritage

On 4 January 1991 a series of scats were collected along a track running through a moorland/low dense scrub ecotone near Donaghys Hill Lookout (approximately 1 km north-east of the junction of the Franklin and Collingwood Rivers). Mixed forest also occurs within a few hundred metres of the site.

Five of these scats were found at one latrine site while the sixth was approximately 50 metres away. The scats were 13mm to 21mm in diameter and consisted of three to four segments of varying lengths. They contained fur, feathers, bone and a small component of insect remains. The only plant material found was a few blades of grass twisted into the tapering end of one scat.

It was impossible to say with certainty what animal had deposited the scats. However, silhouettes and photographs of the scats were shown to a number of experts in scat identification who narrowed the possibilities down to either a Tasmanian devil (*Sarcophilus harrisi*) or a spotted-tailed quoll (*Dasyurus maculatus*).

Nevertheless, a detailed examination of the contents of the scats was undertaken and provided an unexpectedly rich variety of prey species. Table 1 lists the prey species found.

Two other scats of similar dimensions were also collected from this site on the 8th July, 1991, and were found to contain several prey items. These are listed in Table 2. The skeleton of a juvenile swamp rat (*Rattus lutreolus*) was also found nearby.

Species present	Number	Material Present
Mammals		
<i>Pseudocheirus peregrinus</i>	1	calcaneum, claws, metatarsals
<i>Rattus</i> sp. (<i>lutreolus</i> ?)	2	incisors, upper molars, mandible
<i>Pseudomys higginsii</i>	1	incisors, upper molars, mandible
<i>Nyctophilus gouldii</i>	1	mandibles
<i>Antechinus</i> sp.	1	mandibles, bullae
<i>Cercartetus lepidus</i>	1	mandibles, upper molars
Birds		
<i>Lathamus discolor</i>	1	feathers, bone fragments, entire foot

Table 1 Prey Species Present in a Series of Predator Scats at Donaghys Hill on 4 January 1991

The identification of mammals and birds was based on comparisons with reference material and previously recorded measurements and descriptions. Insect remains consisted of *Coleoptera elytra* and these fragments only constituted a very small proportion of the material present in the scats.

One scat contained the mandible of a long-tailed mouse (*Pseudomys higginsii*), the leg of a swift parrot (*Lathamus discolor*) and the mandibles of a Gould's long-eared bat (*Nyctophilus gouldii*). This is an interesting record as only feral cats have been recorded preying on the long-eared bats, *Nyctophilus geoffroii* (Maddock, 1983). However, its presence as a prey item should not be regarded as unusual as the Tasmanian *Nyctophilus* spp. are known to frequent the lower shrub layers, have a slow flight and occasionally land on foliage to take prey (O'Neill and Taylor, 1986) making them available to a range of predators.

It is unfortunate that the scats could not be positively identified as six of the species found here were not listed by Green and Scarborough (1990) as being

Species present	Number	Material Present
Mammals		
<i>Pseudomys higginsii</i>	1	incisors, molars, vertebrae, claws, calcaneum
<i>Rattus</i> sp. (<i>lutreolus</i> ?)	1	molars (from juvenile)
<i>Cercartetus nanus</i>	1	mandible, molars, premolars

Table 2 Prey Species Present in a Series of Predator Scats at Donaghys Hill on 8 July 1991

prey items of *D. maculatus* in Tasmania. These were, the long-tailed mouse (*P. higginsii*), *Antechinus* spp., eastern pygmy possum (*C. nanus*), little pygmy possum (*C. lepidus*), Gould's long-eared bat (*N. gouldii*) and the swift parrot (*L. discolor*). *C. lepidus* has been listed as a probable prey item by Green (1979), but never confirmed.

Similarly, the last three prey species mentioned above have not been listed in the diet of the Tasmanian devil by Green (1969), Guiler (1970) or Taylor (1986).

These records should not be regarded as unusual prey species for these predators, but simply indicate the lack of detailed knowledge that exists of the diet of *D. maculatus* and *S. harrisii*.

Finally, even though other studies have shown that limitations exist with the use of predator scat analysis, when compared to the more conventional fauna survey techniques, it is recognised for its ability to provide uncommon, inconspicuous and untrappable species (Friend, 1978). The analysis of owl pellets has similar value as a fauna survey tool (Mooney, in press; Wakefield, 1960). This particular case provides further evidence of the value of scat analysis as a fauna survey technique and also of the need for further work in the area of Dasyurid diets.

ACKNOWLEDGEMENTS

I would like to thank Dave Rounsevell, Nick Mooney and Menna Jones for their constructive comments. Also, Peter Brown for confirming the identity of the swift parrot and Robert Taylor for the use of his collection of Tasmanian bat skulls.

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AN OBSERVATION OF APPARENT PLATYPUS NESTING BEHAVIOUR

by Louise Gilfedder*, Jennie Whinam** & Stephen Harris**

*Department of Geography & Environmental Studies, University Of Tasmania, G.P.O. Box 252C, Hobart 7001

**Department of Parks, Wildlife & Heritage, G.P.O. Box 44A, Hobart 7001

A platypus (*Ornithorhynchus anatinus*) was recently observed by the three authors carrying a swatch of grasses and sedges in its tail, a behaviour not known to us as having been recorded for this species in the wild. The platypus was initially spotted swimming on the surface in a small tarn, and its tail could be seen to be curled around something. After several minutes it emerged from the tarn carrying grasses etc. in its tail, and it crossed through open grassland to the bank of the Vale River, where it dived and was not seen again.

Captive animals have been observed to line their nesting burrows with leaves and grasses collected by the female in her bill from the water and carried to the burrow in the tail (Grant 1984). In Tasmania, platypus eggs are laid about September or October with young emerging about 4.5 months later (Green, 1973).

This observation took place mid-afternoon on 26 November 1991 in *Poa labillardieri* tussock grassland in karst at the Vale of Belvoir, approximately one kilometre north of the Cradle Mountain Link Road. It was an overcast and damp day. The platypus did not appear to notice us and we watched it from a distance of 3—5m for almost five minutes.

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BOOK REVIEWS

**Australian Orchid Research, Volume 2: New Taxa of
Australian Orchidaceae***by David Jones*

Australian Orchid Foundation, 208pp, RRP \$24.95

Orchids of South Australia*by R.J. Bates and J.Z. Weber*

Government Printer, South Australia, 182pp

Reviewed by Phil Collier

These two books on Australian orchids are very different. Jones' paper, which fills the second issue in the series *Australian Orchid Research*, describes 108 new species of terrestrial orchids. Meanwhile Bates and Weber is a flora of the orchids which occur in South Australia, similar in aims to Curtis volume 4A in Tasmania.

The taxonomy of terrestrial orchids in Australia, including Tasmania, is currently undergoing a revolution. This started with Jones' *Native Orchids of Australia* in 1988. This volume introduced few new species, but used the work of Mark Clements who had re-appraised early collections of Australian orchids. This process showed that we have been referring to several species by incorrect names over the years. Subsequently Clements published his complete findings in the *Catalogue of Australian Orchidaceae*, which appeared as volume 1 of *Australian Orchid Research* in 1989.

In this new volume Jones has dealt with new species in nine terrestrial orchid genera. All but one of the genera occur in mainland Tasmania. The style of the work is to provide a detailed description of each new species and a description of distribution, habitat, flowering period, conservation status and other notes. There are 64 photographs and numerous line drawings of the new species by Jones in 111 figures. No keys are provided.

Jones has described several new species for Tasmania. Some of these resolve problems which had been known in the amateur community. The December-flowering spider orchid from Fingal is now called *Caladenia helvina*. A mystery in my mind about *C. dilitata* flowering in September on Flinders Island and in December around Hobart is explained. The larger plant on Flinders Island is the true *C. dilitata* while around Hobart we should now use the name *C. corynepetala*.

Some of the issues raised by Jones require a wider view than seen from Tasmanian material. The hyacinth orchid *Dipodium punctatum* is split into several new species. I can relate to this having seen two of the species recently in Victoria. Jones describes a Tasmanian hyacinth orchid under the name *D. roseum*.

I believe that this is the name for all of our hyacinth orchids, but I am unsure because Jones has not re-described what is now left in the original *D. punctatum*. This is a problem throughout this work, which affects several other Tasmanian species.

A more worrying issue became apparent in Jones' work after I tried to establish the status of new species in the genera *Chiloglottis* and *Gastrodia*. Jones has split up *C. gunnii* and *G. sesamoides* and described new species for Tasmania. On referring to material at the Tasmanian Herbarium I was surprised to find these species split up, but not into the species described by Jones. Work by G. Carr, also published in 1991, had established different new species!

In summary I can support Jones in some of his findings through my amateur knowledge of Tasmania's orchids. Some other aspects of the work will require the passage of time to be fully appreciated in Tasmania.

Bates and Weber, in contrast, is a work which I enjoy and recommend unreservedly. It contains keys, descriptions, distribution maps and photographs for all of South Australia's orchids. The photographs are of a very high quality. Many have been taken with assistance from flash, and most are crisp, bright and clear. The orchid species present in South Australia overlap significantly with those in Tasmania, so this book is also useful for Tasmanian orchid enthusiasts.

Bates and Weber was published before the work of Jones which is reviewed here. For this reason it does not help with the very latest name changes, even though there are instances where the new names would have been useful. For example photographs 95 and 96 show two 'forms' of *Dipodium punctatum*, using the old species definition. A few interesting insights are provided on the earlier works of Jones and Clements, where some 'new' names which they introduce are only mentioned in notes and not adopted. Possibly this was due to the timing of the publication rather than a rejection of the new work, although some of the new work has been used.

In summary Bates and Weber is a high-quality flora for many orchids of south-east Australia, bravely produced during a period of turmoil in orchid taxonomy. Its excellent quality makes it an essential addition for any serious student of orchids, even in Tasmania.

The current revolution surrounding orchid taxonomy is possibly only just starting. We have been promised the orchid volume in the *Flora of Australia* in the near future. At least this should include keys which deal with the recent new species. However, in *New Taxa of Australian Orchidaceae*, Jones promises new taxa in *Pterostylis*, a genus not treated in the present work. He also mentions the possibility of 'full taxonomic revisions of many Australian orchid genera after their treatment in the Flora'. Anyone hoping for definitive answers about the taxonomy of orchids will probably have a long wait.

The Nature of Hidden Worlds

by Mary E White

Reed Books, 256pp, RRP \$39.95

Reviewed by D.G. Hird.

As an undergraduate and voracious consumer of often extra-curricular biology some two decades ago, accounts of the fossil history of Australia were, I recall, sketchy. Marsupials were generally supposed to have rafted into Australia from the north having somehow been filtered in space and time from placental mammals. Texts were principally anatomical and somewhat heavy going, although exceptions such as Simpson's evocative account of the evolution of the horse were enough to inspire interest in keenly anticipated future developments.

This book amply illustrates that the story of antipodean prehistory was, and is, well worth waiting for. Subtitled *Animals and Plants in Prehistoric Australia*, it complements the author's earlier volume *The Greening of Gondwana* which largely concerned itself with fossil plants and floras. While both are in large format and abound in the clear photography of Jim Frazier, any impression of the superficiality of many coffee-table books is soon dispelled. The varied and often technical evidence which provides the cohesion for the modern theory is presented by the use of clear diagrams, often as sequences through history. These are supplemented by artistic impressions of fossil environments together with photographs of fossils and 'living fossils' providing evidence for them.

This book tackles a large subject encompassing hundreds of millions of years and a wide geographic spread. The development of many ideas is presented along with the theory itself, e.g. the natural distribution of some plant groups, notably the genus *Nothofagus* in southern continents, inspired serious consideration of the notion that modern land masses may have spread from a common ancestral one, i.e. by continental drift. While necessarily restricting itself to a series of snapshots through history, a coherent account of current knowledge is presented.

Followers of the most recent discoveries of new Australian fossils, e.g. the extraordinarily rich Riversleigh marsupials, Kimberley dinosaurs and South American monotremes will, however, have to wait for a full account. A dilemma for a book such as this must be to judge when to go to press, knowing that more finds are imminently available for publication. On the Tasmanian front, local specimens mentioned include the marsupial *Wynyardia* and the Lune River plant deposits now unfortunately pillaged by over-zealous collectors.

This book can be thoroughly recommended to a range of potential readers.

Young children fascinated with the notion of fossilisation of long-dead animals and plants will appreciate the illustrations while more advanced readers will find the text and abundant diagrammatic content illuminating. Fossils stimulate curiosity in most people, yet important fossil sites are often found largely by chance and by non-experts. Books like this reinforce the importance of reporting specimens as well as giving the reader a perspective through time on the vast spectrum of life on Earth.