

**Holmes, W.B.K.** (2003). The Middle Triassic megafossil flora of the Basin Creek Formation, Nymboida Coal Measures, New South Wales, Australia. Part 3. Fern-like foliage. *Proceedings of the Linnean Society of New South Wales* **124**, 53-108.

Two quarries in the Basin Creek Formation of the Middle Triassic Nymboida Coal Measures have yielded numerous examples of fern-like foliage. No affiliated fertile material is available to place the fronds in a natural classification. Twenty three species in twelve genera are described as morpho-taxa in Order and Family Incertae Sedis. Plants described in this paper are:- *Cladophlebis conferta* sp. nov., *C. octonerva* sp. nov., *C. paucinerva* sp. nov., *C. retallackii* sp. nov., *C. sinuata* sp. nov., *C. tenuipinnula* sp. nov., *Dictyonymba sparnosa* gen. et sp. nov., *Gouldianum alethopteroides* gen. et sp. nov., *Leconama stachyophylla* gen. et sp. nov., *Micronymbopteris repens* gen. et sp. nov., *Nymbiella lacerata* gen. et sp. nov., *Nymboidiantum glossophyllum* (Tenison-Woods) gen. et comb. nov., *N. multilobatum* gen. et sp. nov., *N. elegans* gen. et sp. nov., *N. fractiflexum* gen. et sp. nov., *N. robustum* gen. et sp. nov., *Nymbophlebis polymorpha* gen. et sp. nov., *Nymbopterion dejerseyi* (Retallack) gen. et comb. nov., *N. foleyi* gen. et sp. nov., *N. uncinatum* gen. et sp. nov., *Nymborhipteris radiata* gen. et sp. nov., *Ptilotonymba curvinervia* gen. et sp. nov. and *Sphenopteris speciosa* sp. nov. The diversity of this new material demonstrates the remarkable recovery of Gondwana vegetation following the end-Permian extinction event.

**Lindley, I.D.** (2003). Echinoids of the Kairuku Formation (Lower Pliocene), Yule Island, Papua New Guinea: Clypeasteroidea. *Proceedings of the Linnean Society of New South Wales* **124**, 125-136.

The Kairuku Formation (Lower Pliocene), Yule Island, Papua New Guinea, contains a rich and diverse echinoid fauna. Clypeasteroid (sand dollar) echinoids are an important component of this fauna and seven taxa are recognised. A seagrass community included the clypeasterids *Clypeaster reticulatus* (Linné), *Clypeaster latissimus* (Lamarck) and *Clypeaster humilis* (Leske) and the laganid *Laganum depressum* Lesson in L. Agassiz, 1841. A current-swept, shallow water, sand-dwelling community included *Laganum decagonale* (de Blainville, 1827), *Laganum depressum delicatum* Mazzetti, 1894 and *Laganum depressum sinaiticum* Fraas, 1867. Bathymetric ranges of extant forms of these clypeasteroids suggest water depths from littoral to about 40 m. This diverse fauna has much in common with modern communities of the tropical Indo-Pacific, as well as fossil Plio-Pleistocene faunas of the Indonesian archipelago and the western Indian Ocean region.

**Lindley, I.D.** (2003). Echinoids of the Kairuku Formation (Lower Pliocene), Yule Island, Papua New Guinea: Regularia. *Proceedings of the Linnean Society of New South Wales* **124**, 137-151.

Regular sea urchins are an important component of the rich and diverse echinoid fauna of the Lower Pliocene Kairuku Formation, Yule Island, Papua New Guinea. Seven taxa are recognised, including the cidaroids *Phyllacanthus imperialis* var. *javana* K.

Martin, 1885, *Phyllacanthus* sp. and *Prionocidaris verticillata* (Lamarck, 1816), the toxopneustids *Cyrtechinus verruculatus* (Lütken) and *Schizechinus* cf. *tuberculatus* (Pomel), a temnopleurid *Temnotrema macleayana* (Tenison-Woods) and a parasaleniid *Parasalenia poehli* Pfeffer, 1887. The cidaroids, parasaleniid and temnopleurid occupied shallow-water reef habitats. The toxopneustids were dominant herbivores in adjacent seagrass meadows. The strong affinities evident between the seagrass meadow- and shallow-water sand-dwelling echinoid faunas of Yule Island and fossil and extant faunas of the Red Sea region, parallel the geographic patterns of species diversity of Indo-Pacific seagrasses, corals and mangroves.

**Lindley, I.D.** (2003). Echinoids of the Kairuku Formation (Lower Pliocene), Yule Island, Papua New Guinea: Spatangoida. *Proceedings of the Linnean Society of New South Wales* **124**, 153-162.

Spatangoid echinoids are well represented in the rich and diverse echinoid fauna of the Lower Pliocene Kairuku Formation, Yule Island, Papua New Guinea. Five taxa are recognised, including the schizasterid *Schizaster* (*Schizaster*) *alphonsei* sp. nov., the palaeostomatid *Palaeostoma kairukuensis* sp. nov., the brissid *Eupatagus* (*Eupatagus*) *pulchellus* (Herklots) and the spatangids *Maretia planulata* (Lamarck) and *Maretia cordata* Mortensen, 1948. The spatangoids, by comparison with the clypeasteroids and regularia, exhibit a high degree of endemism.

**Mound, L. and Williams, G.** (2003). Host-plant disjunction in a new species of *Neohoodiella* (Insecta, Thysanoptera, Phlaeothripinae), with notes on leaf-frequenting thrips in New South Wales subtropical rainforests. *Proceedings of the Linnean Society of New South Wales* **124**, 17-28.

*Neohoodiella jennibeardae* sp.n. is described breeding on the leaves of two unrelated plants in the rainforests of eastern Australia, the dicotyledonous tree *Ficus coronata* (Moraceae) and the monocotyledonous vine *Ripogonum elseyanum* (Smilacaceae). To confirm this remarkably disparate pair of host associations many other plants in these rainforests were examined. This new species was not found on any other plant, although about 40 thrips species were taken from the leaves of 40 plant species in 22 families, and these records are tabulated. *Neohoodiella* is known previously only from a single species in New Caledonia. The genus is characterised by the two character states: abdominal tube one third of body length; dorsal setae elongate but broadly capitate. The head of *N. jennibeardae* bears a bifurcate tubercle that is unique amongst Phlaeothripidae.

**Pinder, A.M.** (2003). First Australian records of three species and two genera of aquatic Oligochaetes (Clitellata: Annelida). *Proceedings of the Linnean Society of New South Wales* **124**, 109-114.

Recent collections of aquatic oligochaetes in New South Wales and South Australia included three species not previously reported from Australia. These are *Nais barbata* Müller 1774 and *Haemonais waldvogeli* Bretscher, 1900 (Naididae) and

*Monopylephorus limosus* (Hatai, 1898) (Tubificidae). The last two of these represent the first Australian records of their genera. Brief descriptions and locality details of Australian specimens are provided.

**Smith, B., Augee, M. and Rose, S.** (2003). Radio-tracking studies of Common Ringtail Possums, *Pseudocheirus peregrinus*, in Manly Dam Reserve, Sydney. *Proceedings of the Linnean Society of New South Wales* **124**, 183-194.

In radio-tracking studies in Manly Dam War Memorial Reserve, Common Ringtail Possums were found to survive an average of 319 days, with 80% of known deaths being due to predation by foxes and cats. The study area contained few large trees with hollows and 88% of the nest sites used were dreys. Any drey might be used by several possums, although rarely simultaneously. Ringtails were found to be sedentary, usually occupying dreys and foraging within a *Banksia ericifolia* thicket. Only 37% of the radio-tracked possums moved more than 50 m from their point of capture, and such movements often resulted in the establishment of a new foraging range. Males were more likely to make such shifts than females.

**Smith, K.A.** (2003). Larval distributions of some commercially valuable fish species over the Sydney continental shelf. *Proceedings of the Linnean Society of New South Wales* **124**, 1-11.

The cross-shelf and vertical distributions of larvae of 12 species of commercially valuable marine fish are described from continental shelf waters off Sydney, south-eastern Australia. Depth stratified sampling was conducted along a shore-normal transect on 3 and 4 consecutive nights in January and April, respectively, 1994. Larvae of the commercially valuable species *Hyperlophus vittatus*, *Sardinops sagax*, *Engraulis australis*, *Argyrosomus japonicus*, *Pseudocaranx dentex*, *Trachurus novaezelandiae*, *Liza argentea*, *Sillago flindersi*, *Acanthopagrus australis*, *Pagrus auratus*, *Rhabdosargus sarba* and *Gerres subfasciatus* together represented 11947 of the 50781 total fish larvae in samples. Species distributions extended to the outer shelf or slope, although the majority of larvae occurred in subsurface waters of the nearshore mixed layer. The majority of larvae were at a preflexion stage of development. Where present, later stage larvae tended to exhibit a different distribution to that of earlier stage larvae, although trends were variable among species. Results are discussed in relation to existing information on the larval distributions and spawning times of each species.

**Strotz, L.** (2003). Holocene Foraminifera from Tuross Estuary and Coila Lake, south coast, New South Wales: A preliminary study. *Proceedings of the Linnean Society of New South Wales* **124**, 163-182.

Two estuaries on the New South Wales south coast, Tuross Estuary and Coila Lake, were sampled for Foraminifera. Thirty-seven taxa were identified from surface samples but only those requiring extensive taxonomic revision are discussed. The species composition of the total assemblage at each of the sample sites was analysed

and the reasons for species distribution explored. A new species, *Fissurina breviductus* sp. nov., is described.

**Warburton, K. and Madden, C.** (2003). Behavioural responses of two native Australian fish species (*Melanotaenia duboulayi* and *Pseudomugil signifer*) to introduced Poeciliids (*Gambusia holbrooki* and *Xiphophorus helleri*) in controlled conditions. *Proceedings of the Linnean Society of New South Wales* **124**, 115-123.

Experimental treatments to compare behavioural responses included native fish species only, natives plus one exotic species and natives plus both exotic species. The mosquitofish, *Gambusia holbrooki* frequently attacked both native species, but tended to nip *Melanotaenia duboulayi* (especially small individuals) and chase *Pseudomugil signifer*. The frequency of attacks by *G. holbrooki* on *M. duboulayi* rose when all four fish species were present. When food was added, all four species showed a strong increase in aggression, especially in the four-species treatment, where there were significant increases in the frequency of attacks by the swordtail *Xiphophorus helleri* on *M. duboulayi* and by *M. duboulayi* on *G. holbrooki*, and of conspecific attacks by *M. duboulayi*. Increased attack frequency was associated with aggregation closer to the water's surface, regardless of the presence of food. The results support the hypothesis that introduced poeciliids can have deleterious competitive effects on native species. However, while juvenile *M. duboulayi* were particularly vulnerable to the secondary effects of fin-nipping, *P. signifer* appeared to be more susceptible to physical displacement and reduced food capture success.

**Williams, G.** (2003). New distribution and biological records for native dung beetles, in the tribe Scarabaeini, from northern New South Wales. *Proceedings of the Linnean Society of New South Wales* **124**, 13-16.

New coastal and inland distribution records, and behavioural observations, are given for Scarabaeini dung beetles collected from northern New South Wales.

**Zhen, Y.Y., Percival, I.G. and Farrell, J.R.** (2003). Late Ordovician allochthonous limestones in Late Silurian Barnby Hills Shale, central western New South Wales. *Proceedings of the Linnean Society of New South Wales* **124**, 29-51.

Allochthonous limestone blocks exposed in the Eurimbla area, west of the Mitchell Highway between Molong and Wellington, are substantially older than the enclosing Barnby Hills Shale of Late Silurian age. Nine of the blocks yielded a diverse Late Ordovician conodont fauna, dominated by *Panderodus gracilis*, *Belodina confluens*, *Periodon grandis*, *Paroistodus? nowlani* and *Yaoxianognathus? tunguskaensis*. Occurrence of *Taoqupognathus blandus* in seven sampled blocks indicates an early Eastonian (Ea2) age, although rare *Taoqupognathus tumidus* in one suggests an extension into the late Eastonian (Ea3). These age determinations are confirmed by the presence of a silicified brachiopod fauna with typical elements (predominantly *Mabella halis* and *Doleroides mixticus*) of the previously defined fauna B of Eastonian 2 age. The conodont and articulate brachiopod faunas from the Eurimbla

blocks are comparable with those from autochthonous limestones of Eastonian age elsewhere in the Molong Volcanic Belt, in particular the Bowan Park Group, except for occurrence of the conodont *Webbygnathus munusculum* and brachiopod *Sowerbyella billabongensis* which, in the Lachlan Orogen, are otherwise known only from the Junee-Narromine Volcanic Belt to the west. The allochthonous blocks may have been subject to one or more episodes of erosion and redeposition, prior to final emplacement in the Barnby Hills Shale.