

BOTANY OF THE NINGBING RANGE

On 2 July 1997, Greg Keighery of the Department of Conservation and Land Management presented an illustrated talk on the botany of the Ningbing Range in the East Kimberley. The range rises abruptly from a black soil plain on Carlton Hill Station, north of Kununurra and north-east of Wyndham, and is actually an archipelago of limestone hills that become islands when isolated either by floodwater during the wet or by fire during the late dry season. It is part of the 340 million-year-old Devonian Reef system which ringed the Kimberley landmass; other remnants are the Napier and Oscar ranges. The reef was built by stromatolites and stromatoporoids with few corals, unlike modern reefs which are built by corals cemented together by coralline algae. The Ningbings are the best developed tropical limestone karst formations in Australia except for Chillagoe (Qld). They are very rugged, with pinnacles and towers separated by clefts up to 40 metres deep; the surface is pitted and rilled by rainwater erosion and undermined by caves, which makes it a difficult and dangerous area to explore.

The Ningbings are notable for their fauna of land snails, described by the late Alan Solem of the Field Museum of Natural History in Chicago. On two brief visits, totalling six days, his party collected over 3000 snails of the family Camaenidae, comprising 3 new genera and 18 new species, all believed to be confined to the range. The genera are separated in a sequence from north to south but there is some overlap of species, which are reproductively isolated. In contrast to the range, the black soil plains support a single Camaenid species. None are found on sandstone hills to the east. Rainbow Pittas have a similar distribution and prey on the snails. Earthworms too are believed to be endemic but most are undescribed.

The Ningbing Range has been recommended for inclusion in the Register of the National Estate because of its karst features and highly endemic fauna. Greg illustrated his talk with slides of the karst structures and habitats. Having set the scene, he then discussed the plants of the area. The plains are covered by Savannah woodland which in a few places extends over the top of the lower hills, the grass *Heteropogon contortus* dominates the plain while spinifex (*Triodia* spp) is found on the sandstone hills. Near the Ningbings, limestone extends below the surface for some distance and here the eucalypts are replaced by boab trees. In general eucalypts and Proteaceae do not grow on calcareous soils; a single tropical eucalypt is found on limestone. Kapok bush, which has a toxic latex, invades grazed areas near the range. Clefts and most gullies in the range, protected from fire and grazing, support vine forest, dominated by about five species of figs with 30–40 other species including the deciduous *Pouteria sericea* (a true rainforest tree), lianes, *Brachychiton* and the helicopter tree *Gyrocarpus americanus*. Most of the vine forest trees have fleshy fruits, the seeds of which are dispersed by Torres Strait pigeons.

During the wet season many understorey plants form a herb layer of 30–40 species which disappear in the dry season. The tops of the hills and towers are protected from fire but provide a very harsh environment; rock figs and some deciduous vine forest trees cling to the rock crevices. On the tops, where there is hardly any soil, a few succulent vines and the blue flowered *Trichodesma* manage to hang on. Overall more than 200 species of flowering plants have been recorded from the Ningbings although the rainforest flora is less diverse than that of the wetter West Kimberley. Greg completed the evening by answering many questions from the audience but unfortunately has not been available since to check this summary.

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