

SHORT COMMUNICATION

***Cycas arenicola* (Cycadaceae), a new species from the Northern Territory of Australia**

The genus *Cycas* occurs sporadically across northern Australia, frequently in isolated and relictual populations. The genus has not been well understood, and recent studies have more than doubled the number of species recognised in this country (Hill 1992, Chirgwin in press). Even so, *Cycas* in the Northern Territory remains poorly known. One group of populations, however, is clearly specifically distinct, and is here described as a new species in order to provide a name for use in the forthcoming Volume 48 of the *Flora of Australia* series.

Cycas arenicola K. Hill, sp. nov.

Inter species australienses frondibus non-carinatis, pinnis anguste lanceolatis marginibus recurvatis tomento subter brunneo persistentique, pinnis non reductis ad basem, strobo microsporangiato parvo tenuique, distinguitur.

TYPE: NORTHERN TERRITORY: upper East Alligator River (12°48'S 133°21'E), J. Russell-Smith 8502 & J. Brock, 7 Sep 1991; holotype NSW; isotype DNA.

Stem to 1.5 m tall, rarely to 2 m, 15–20 cm diam. *Leaves* 90–160 cm long, flat in section (opposing pinnae inserted at 180 degrees on rhachis), with 180–200 pinnae, consistently terminated by a spine; petiole loosely brown-tomentose, 25–35 cm long; median pinnae at 60–90 degrees to rhachis, 90–190 mm long, 4.5–6.5 mm wide, narrowly lanceolate, falcate, glabrous above, glossy dark green (not glaucous), densely brown-tomentose below, flat or slightly keeled in section with margins recurved, decurrent on rhachis for 2–3 mm, narrowed to 3–5 mm at base (narrowed to 70–80% of maximum width), not crowded or overlapping, spaced at 9–14 mm on rhachis, apex very narrowly attenuate; midrib not or slightly raised above, prominent below. *New growth* densely tomentose with brown trichomes. *Cataphylls* densely orange-tomentose. *Microsporangiata cones* fusiform to elongate-ovoid, c. 25 cm long, c. 5–9 cm diam. *Microsporophyll lamina* 15–20 mm long, 6–9 mm wide; sterile apex c. 6 mm long, not recurved; apical spine short, sharply upturned, c. 5 mm long. *Megasporophylls* 15–20 cm long, grey- and orange-tomentose, with 4–6 ovules, sterile apex 30–40 mm long, 14–18 mm wide, narrowly triangular, regularly dentate, apical spine c. 8 mm long. *Seeds* flattened-ovoid, green becoming orange, pruinose, 28–32 mm long, 25–29 mm diam.; sarcotesta 1.5–3 mm thick. Figure 1.

Distinguished among Australian species by the non-keeled leaves, the fusiform to elongate-ovoid microsporangiata cones, the narrowly lanceolate, non-glaucous pinnae with recurved margins and persistent brown tomentum beneath, and the pinnae which do not progressively reduce to spines on the petiole (although the petioles may still be spinescent). Distinguishing characters separating the Australian species from non-Australian taxa have been discussed elsewhere (Hill 1992).

C. calcicola Maconochie, also from the Northern Territory, is most similar, sharing the small, narrow microsporangiata cone and the persistent tomentum on the undersurfaces of the pinnae, but differing in having more pinnae per leaf (210–410), and narrower pinnae (2.5–4.0 mm wide) which do not taper as gradually to the apex and are more crowded (spaced at 4–6 mm on the rhachis). *C. pruinosa* Maconochie from Western Australia has narrow pinnae with recurved margins and a narrow microspo-

rangiate cone, but the pinnae are glabrous at maturity and the cones are much longer (35–45 cm long). No other Australian species shares the persistent tomentum on the undersurfaces of the pinnae. In addition, all Australian species except *C. arenicola*, *C. calcicola* and *C. pruinosa* have ovoid microsporangiate cones.

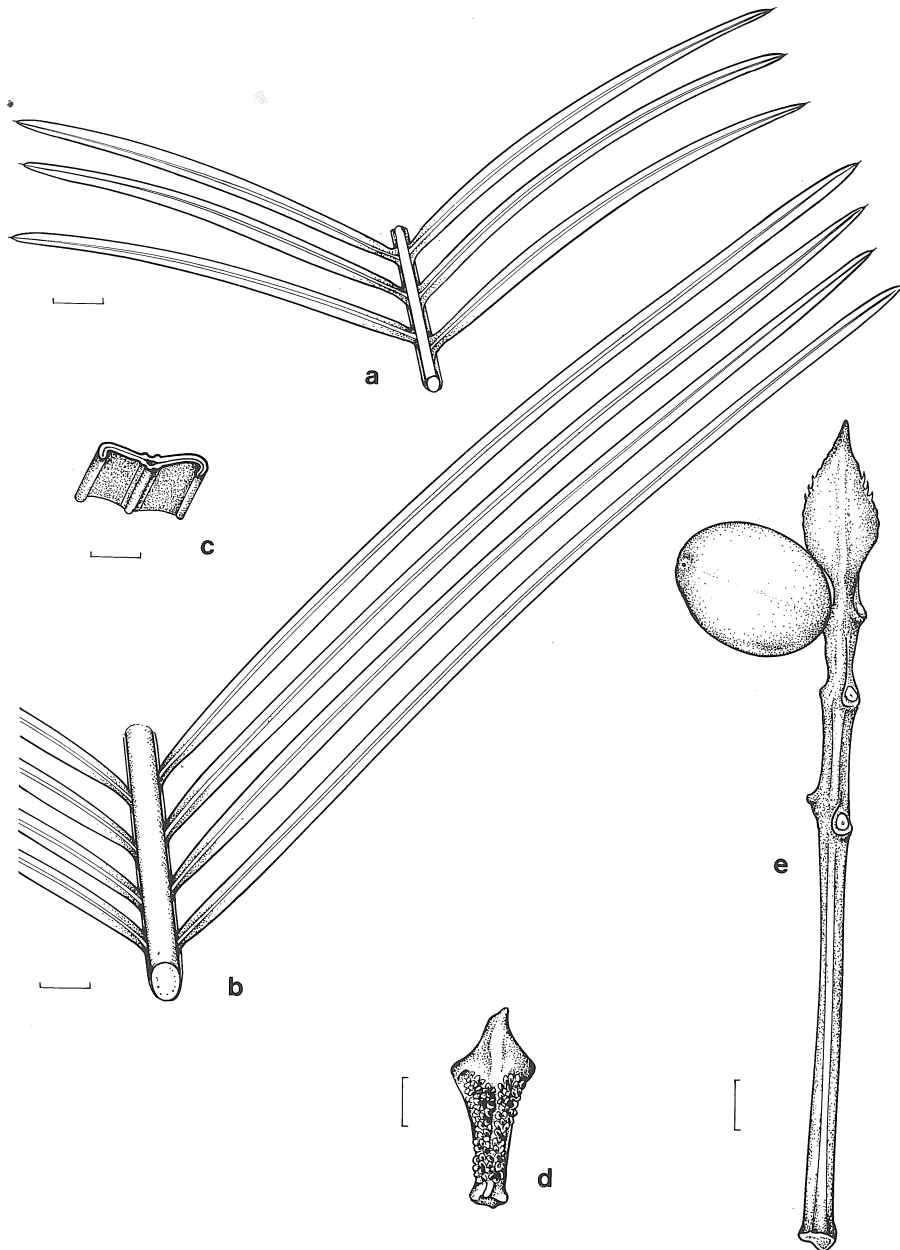


Figure 1. *Cycas arenicola*. **a, b**, parts of fronds showing differences in size and spacing of pinnae; **c**, section of pinna; **d**, microsporophyll; **e**, megasporophyll with seed and stipe (**b, c, e** from Russell-Smith 8502; **a, d**, from Lazarides 7650). Scale bar: **a, b, e** = 1 cm; **c** = 2 mm; **d** = 5 mm

C. arenicola occurs on sandy soils on screes derived from siliceous sandstone in rugged and broken country of the upper reaches of the East Alligator and Liverpool Rivers (Figure 2). This species has rarely been collected, and is likely to be more widely distributed.

Conservation status: apparently locally abundant in remote and inaccessible areas, not considered to be at risk.

The epithet is from the Latin *arenarius*, pertaining to sand, with the suffix *-cola*, a dweller or inhabitant, in reference to the occurrence in broken sandstone country.

- SPECIMENS EXAMINED: NORTHERN TERRITORY: East Alligator River (12°47'S 133°21'E), *Lazarides* 7650, 18 July 1972 (CANB, DNA, also recorded as distributed to BRI, K, L, NSW, US; the NSW duplicate cannot be found); headwaters of the East Alligator River (12°48'S 133°21'E), *Craven* 8334 & *Wightman*, 31 Mar 1984 (CANB).

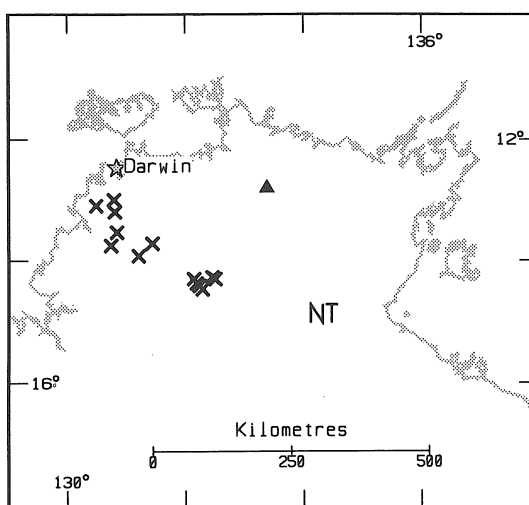


Figure 2. Distribution of *C. arenicola* (▲) and *C. calcicola* (×).

Acknowledgements

Kym Brennan, John Brock and Jeremy Russell-Smith are acknowledged for searching out this taxon and making the type collection. Peter Wilson assisted with the Latin diagnosis, and Marion Westmacott prepared the illustration.

References

- Chirgwin, S. (in press) *Cycas conferta*. *J. Adelaide Bot. Gard.*
 Hill, K.D. (1992) A preliminary account of *Cycas* (Cycadaceae) in Queensland. *Telopea* 5(1): 177–206.

Manuscript received 5 May 1992

Manuscript accepted 1 December 1992

K.D. Hill
Royal Botanic Gardens Sydney
Mrs Macquaries Road
Sydney NSW 2000
Australia