

PODOCARPACEAE

NOTES ON *PODOCARPUS* IN SOUTHERN AFRICA AND MADAGASCAR

In a recent reconsideration of the taxonomic status of various genera of Coniferae in the Podocarpaceae, Page (1988) elevated *Podocarpus* sect. *Afrocarpus* J. Buchholz & N.E. Gray to generic rank. Following the interpretation of Page (1988), *Afrocarpus* (J. Buchholz & N.E. Gray) C.N. Page is a small genus discontinuously distributed from equatorial Africa (Zaire, Ethiopia and Uganda) southward to south and southeast Africa and the Cape Province of South Africa. This group of tall, evergreen trees has been variously included at sectional level in the genera *Decussocarpus* de Laub. and *Nageia* Gaertn. by de Laubenfels (1969, 1987). Of the species of *Podocarpus* L' Hér. ex Pers. transferred to *Afrocarpus* by Page (1988) only one, *A. falcatus* (Thunb.) C.N. Page, the national tree of South Africa, occurs in southern Africa (Figure 1). The other species of *Afrocarpus* have a more northerly distribution. *P. latifolius* (Thunb.) R. Br. ex Mirb., *P. elongatus* (Aiton) L'Hér. ex Pers. and *P. henkelii* Stapf ex Dallim. & A.B. Jacks. were retained in *Podocarpus*.

In this contribution the infrageneric taxonomy of African and Madagascan *Podocarpus* is discussed with special reference to the new genus *Afrocarpus*. It is argued

that the reproductive morphological variability encountered in *Podocarpus* could best be accommodated at infrageneric level and that little purpose would be served by elevating *Podocarpus* sect. *Afrocarpus* to generic rank (Leistner 1966, 1988, 1991; Von Breitenbach 1991).

TAXONOMIC CONSIDERATIONS

Podocarpus L'Hér. ex Pers. *sens. lat.* is represented in Africa and Madagascar by three groups of species which can be briefly characterized as follows:

Group 1 (section *Podocarpus sensu* de Laub. 1985)

Female cones with 1 or 2 fertile scales fused with the cone axis to form a swollen, fleshy, often brightly coloured receptacle or podocarpium when mature. This receptacle is borne on a thin, naked stalk (Figure 2A, B). The leaves are mostly hypostomatic and have 3 or 5 resin canals. Representatives: *P. latifolius* (Thunb.) R. Br. ex Mirb. (synonym: *P. milanjanus* Rendle), *P. elongatus* (Aiton) L'Hér. ex Pers.

Group 2 (section *Scytododium* de Laub. 1985)

Female cones with 1 fertile scale fused with the cone axis to form a clavate, glaucous, leathery receptacle not always clearly demarcated from its short, stout, naked stalk (Figure 2C). Leaves always hypostomatic and with 5 resin canals. Representatives: *P. henkelii* Stapf ex Dalim. & A.B. Jacks. (synonym: *P. ensiculus* Melville), *P. madagascariensis* Baker.

Group 3 (section *Afrocarpus* J. Buchholz & N.E. Gray 1948)

Female cones with 1 fertile scale fused with the cone axis into a very slightly swollen woody receptacle at the apex of a stout, scaly to leafy stalk (Figure 2D). The leaves are amphistomatic and have only 1 resin canal. Representatives: *P. falcatus* (Thunb.) R. Br. ex Mirb. (synonyms: *P. gracilior* Pilg., *P. gracillimus* Pilg., *P. gausseii* Woltz), *P. mannii* Hook. f. (synonyms: *P. usambarensis* Pilg., *P. dawei* Stapf).

A comparison of the listed characters shows that there are few differences between groups 1 and 2 but that group 3 differs in several characters from both 1 and 2.

How should the differences between the three groups be reflected in a taxonomic system? We consider the differences between groups 1 and 2 to be satisfactorily reflected by placing them in separate sections of the same genus. We therefore accept the scheme proposed by de Laubenfels (1985) who retained groups 1 and 2 in *Podocarpus* and placed group 1 in section *Podocarpus* and group 2 in section *Scytocarpus* de Laub. Page (1988, 1990) does not take account of group 2. In his key to the genera of Podocarpaceae (Page 1990) group 2 runs to *Afrocarpus* (J. Buchholz & N.E. Gray) C.N. Page but it does not match his description of that genus. It does, however, fit his description of *Podocarpus* except for the receptacle of the female cone which he describes as conspicuous, multiscaled and becoming swollen and fleshy and often highly coloured at maturity.

Although the differences between groups 1 and 2 on the one hand and group 3 on the other are considered more basic than those between groups 1 and 2, these differences are regarded as insufficient for separating them at either subgenus or genus level. As Page (1988) points out, botanists principally concerned with African trees or vegetation, such as Lind & Morrison (1974), Coates Palgrave (1977) and Hilliard (1985) have not recognized the



FIGURE 1.—Distinctive growth form of *Podocarpus falcatus*. The Big Tree near Knysna, southern Cape, as it appeared in 1938. Photo: N. Glen.



FIGURE 2.—*Podocarpus*, portion of branch with seed. A, B, showing collapsed but distinctly swollen receptacle (arrowed). A, *P. latifolius*, H. P. van der Schijff 5446 (PRE), collected in December 1960 at Nqanduli near Koffiebaai in the Transkei; B, *P. elongatus*, fresh material collected in Kirstenbosch National Botanical Garden; C, *P. henkelii*, showing clavate leathery receptacle (arrowed); D, *P. falcatus*, showing woody receptacle at apex of stout, scaly stalk. C, D, fresh material collected in Pretoria National Botanical Garden. Scale bars: 7.5 mm.

splitting off of group 3 from *Podocarpus*. One reason for this attitude, Page (1988) speculates, may be the similarity in general tree form and vegetative appearance of the African members of *Podocarpus sens. lat.* He also mentions that the species of his genus *Afrocarpus* (group 3) are in some respects intermediate in taxonomic position between the African members of *Podocarpus sens. str.* and certain Asian genera. Group 2 (section *Scytopodium*) which extends the circumscription of *Podocarpus* beyond the description given by Page (1990), further narrows the gap between group 3 on the one hand and groups 1 and 2 on the other, at least in respect of the female cones.

This note is based on a very limited number of characters. However, until a thorough investigation into generic relationships within the Podocarpaceae shows that our conclusions are not acceptable, we support the view that group 3 is still best accommodated as a section within *Podocarpus*.

The correct name of South Africa's national tree remains, therefore, *Podocarpus falcatus* Thunb. (Eng. Outeniqua Yel-

lowwood, Afr. Outenickwageelhout; National List of Indigenous Trees No. 16; Von Breitenbach 1990).

Finally, mention should be made of the fact that Page (1988) has assigned the incorrect gender to *Afrocarpus* when making the combination of the type species, *A. falcata* (Thunb.) C.N. Page. He has given the specific epithet a feminine ending in spite of Article 62.2, Example 2 of the *International Code of Botanical Nomenclature* (Greuter *et al.* 1994) which states quite clearly that 'all modern generic compounds ending in the Greek masculine *-carpos* (or *-carpus*) are masculine'. Under *Afrocarpus* the specific epithet should therefore be *falcatus*.

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