Calothamnus accedens T. J. Hawkeswood (Myrtaceae), a rare and endangered new species from Western Australia

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Abstract

Hawkeswood, T. J. *Calothamnus accedens* T. J. Hawkeswood (Myrtaceae), a rare and endangered new species from Western Australia. Nuytsia 5(2): 305-310 (1984). *Calothamnus accedens* is described as new from the Piawaning district of the Western Australian wheatbelt. Since it is presently known from only 14 plants growing on a road verge adjacent to cleared land, its survival is threatened unless efforts are made to conserve the species. *Calothamnus accedens* is closely related to another rare species in the Piawaning area, *Calothamnus brevifolius* T. J. Hawkeswood, and also has close affinities to *C. hirsutus* T. J. Hawkeswood.

Introduction

During a field trip on 16 February 1980, in search of a rare species of *Calothamnus* in the Piawaning area (i.e. *C. brevifolius* T. J. Hawkeswood, Hawkeswood 1984) the author discovered another taxon which at first appeared to be the species sought. Closer examination showed that this differed from *C. brevifolius* in a few characters, the most prominent being growth habit and the density of hairs on the leaves. The fruit in general was larger than that of *C. brevifolius*. On the basis of these differences, a new species is described below. The description conforms to the terminology and format of Hawkeswood (1984).

Calothamnus accedens T. J. Hawkeswood, sp. nov. (Figures 1,2,3)

Frutex usque ad 1.8 m altus. Folia linearia, teretia, (7)10-15(20) mm longa, 0.8-1 mm lata, breviter mucronata, pilosa. Flores (2)4-10 in fasciculis parvis. Calycis tubus 3-4(5) mm longus, hirsutus; calycis lobi 3.5-4 mm longi, 2.2-2.6 mm lati. Petala 6.5-7(8) mm longa. Unguis staminalis 20-25(28) mm longus, filamentis (15)16-19(21). Fructus sessilis, depresso-globularis, 5-6 mm longus, 6.2-8(9) mm latus. Semina 1.5-2 mm longa, atrobrunnea.

Typus: Between Wongan Hills and Piawaning, (c. 30°50'S, 116°30'E); in sandy soil over laterite; on road verge with *Melaleuca scabra, Acacia* sp. and grasses; uncommon; 16 February 1980, *T. J. Hawkeswood* 218 (holo: PERTH; iso: BRI, MEL, PERTH).

Erect, slender, usually single-stemmed, much-branched, slightly pubescent *shrubs* to 1.8 m high. Mature plants with thin, corky *bark* often splitting towards the base of the plant and on larger branches. *Young shoots* glabrous or shortly pubescent, becoming glabrous with age. *Older branches* with prominent leaf and bud scars. *Leaves* densely crowded at ends of branches, sessile, linear, terete, semi-erect to erect, rigid, (7)10-15(20) mm long, 0.8-1 mm wide, shortly mucronate, slightly pungent, clothed with long, spreading, whitish hairs; older leaves becoming glabrous with age; oil glands on leaves randomly distributed, conspicuous, especially on more or less glabrous leaves. *Flowers* (2)4-10 in short clusters, each cluster usually more or less unilateral but occasionally almost encircling the rhachis, usually on portions of stems from which the leaves have fallen. *Calyx tube* almost campanulate, 3-4(5) mm long, greenish-brown, densely pilose at base, the hairs becoming shorter and less dense at apex of calyx tube; *calyx lobes* more or less equal, 3.5-4 mm long, 2.2-2.6

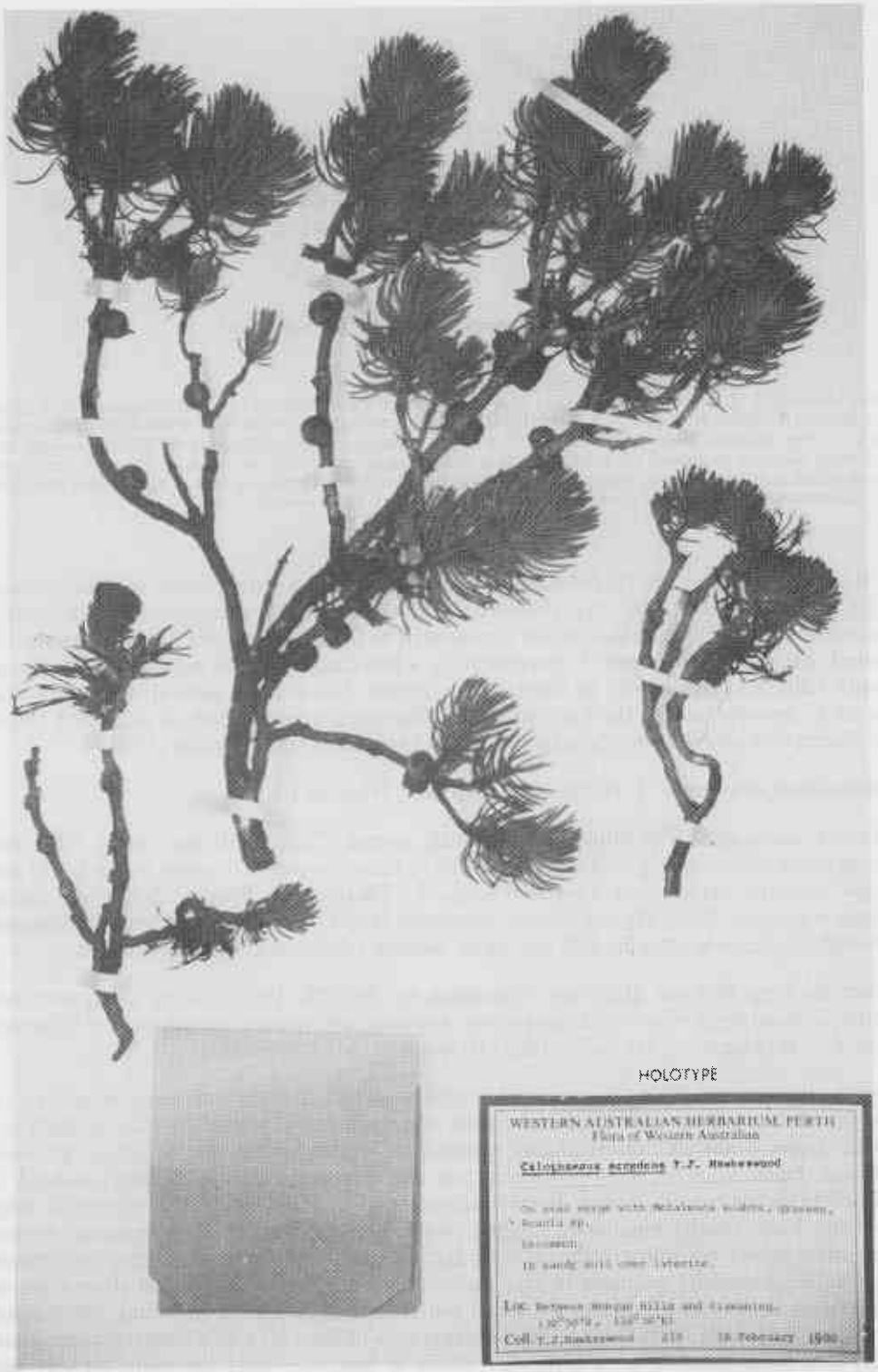


Figure 1. *Calothamnus accedens* T. J. Hawkeswood — Holotype (*Hawkeswood* 218).

mm wide, erect, narrowly deltoid, acute, concave, shortly pubescent outside and within; margins thinner than centre of lobes, slightly scarious, partially ciliate. *Petals* narrowly elliptic, more or less acute, concave, glabrous, 6.5-7(8) mm long, including a short claw 1-1.5 mm long, pale orange-brown to orange-brown; central vein prominent; oil glands prominent in centre and towards the apex, the largest glands in the centre. *Staminal claws* more or less equal, 20-25(28) mm long, 1-1.5 mm wide, glabrous, dark pinkish red to dark crimson; filaments per claw (15)16-19(21), all marginal; anthers linear to linear-oblong, 1-1.5 mm long, yellow to yellow-brown. *Style* 25-35 mm long, slender, uniform to slightly tapering, glabrous, not persistent in fruit; stigma small. Summit of *ovary* densely pubescent. *Fruit* sessile, depressed globular to almost cylindrical, more or less truncate, shortly 5-lobed at first but lobes wearing away with age, or young fruit with one or more lobes deflexed across the orifice but lobes usually wearing away during the first year, 5-6 mm long, 6.2-8(9) mm wide, smooth, young fruit densely pubescent but becoming glabrous with age; orifice 2.5-3 mm diameter. *Fertile seeds* few to many per capsule, 1.5-2 mm long, linear-cuneate, usually truncate at one end, angular, angles usually bluntly rounded; testa glabrous, dark brown to chocolate brown. *Ovulodes* numerous, 1.5-2.5 mm long, linear to linear-cuneate, shiny, glabrous, usually truncate at one end, angular with sharp angles, yellow buff to light yellow-brown.

Derivation of name. Accedens, Latin, meaning approximating or resembling. This name is provided since this species is so closely related to *C. brevifolius* and *C. hirsutus.*

Habitat. Fourteen plants were found growing on a road verge 1-2 m across in remnants of a heath community on pale sandy soil over laterite.

Distribution. Only known from one locality between Piawaning and Wongan Hills (c. 30°50'S, 116°30'E) in the central wheatbelt area of Western Australia.

Table 1. Comparison of *Calothamnus hirsutus* T. J. Hawkeswood, *C. brevifolius* T. J. Hawkeswood and *C. accedens* T. J. Hawkeswood.

C. hirsutus	*C. brevifolius*	*C. accedens*
Shrub to 1 m high	Shrub to 0.5 m high	Shrub to 1.8 m high
Leaves (15)20-25(30) mm long, 0.5-0.8 mm wide	Leaves (7)8-12(15) mm long, 0.5-0.8 mm wide	Leaves (7)10-15(20) mm long, 0.8-1 mm wide
Flowers mostly 4-8 in short, dense clusters, usually encircling the stem, sometimes unilateral, amongst leaves on older stems	Flowers mostly 1-5 in short, dense clusters, usually encircling the stems, amongst leaves, usually on younger branches	Flowers (2)4-10 in short, dense clusters, usually unilateral but sometimes encircling the stem, usually on portions of stems without leaves
Filaments per staminal claw 20-25	Filaments per staminal claw 15-20	Filaments per staminal claw (15)16-19(21)
Anthers 0.7-1(1.2) mm long	Anthers 0.5-0.7(1) mm long	Anthers 1-1.5 mm long
Fruit 5-6 mm long, 5-6(7) mm wide	Fruit 4-5(6) mm long, 5-6 mm wide	Fruit 5-6 mm long, 6.2-8(9) mm wide
Fertile seeds 0.7-1 mm long, testa dark grey	Fertile seeds 0.7-1 mm long, testa dull dark brown	Fertile seeds 1.5-2 mm long, testa dark brown to chocolate brown

Comments. Calothamnus accedens is very closely related to *C. brevifolius* T. J. Hawkeswood with which it overlaps in range in the Piawaning-Wongan Hills area. These two species share the following features: short, erect to semi-erect, terete, pilose leaves with oil glands clearly observable on the older, less pilose leaves; flowers in short, dense clusters; depressed

globular to almost cylindrical fruits on which the styles do not persist as they do in some other *Calothamnus* species. *Calothamnus accedens* is also very closely related to *C. hirsutus* in gross morphology and these three species may be regarded as a species-group. The main differences and some similarities between the taxa are outlined in Table 1. There is marked variation between the taxa in plant height but this variation may be partly due to climatic or soil factors and not strictly genetic. Therefore plant height may not be a good taxonomic character. The leaves of all three species are similar morphologically, with those of *C. hirsutus* being distinctively longer than those of the other two (Table 1). There is little difference between the leaves of *C. brevifolius* and *C. accedens*, although those of the latter species are usually slightly thicker (Table 1) and often more pilose.

There is some intraspecific variation in the number of flowers per cluster, but *Calothamnus hirsutus* and *C. accedens* usually have a higher number of flowers of larger size than *C. brevifolius* (Table 1). The flowers of *C. accedens* are usually on portions of stems from which the leaves have fallen, while those of the other two species are usually amongst leaves (Table 1). While this may not be a major taxonomic feature, the position of flowers on stems is a readily observable and useful character in the field.

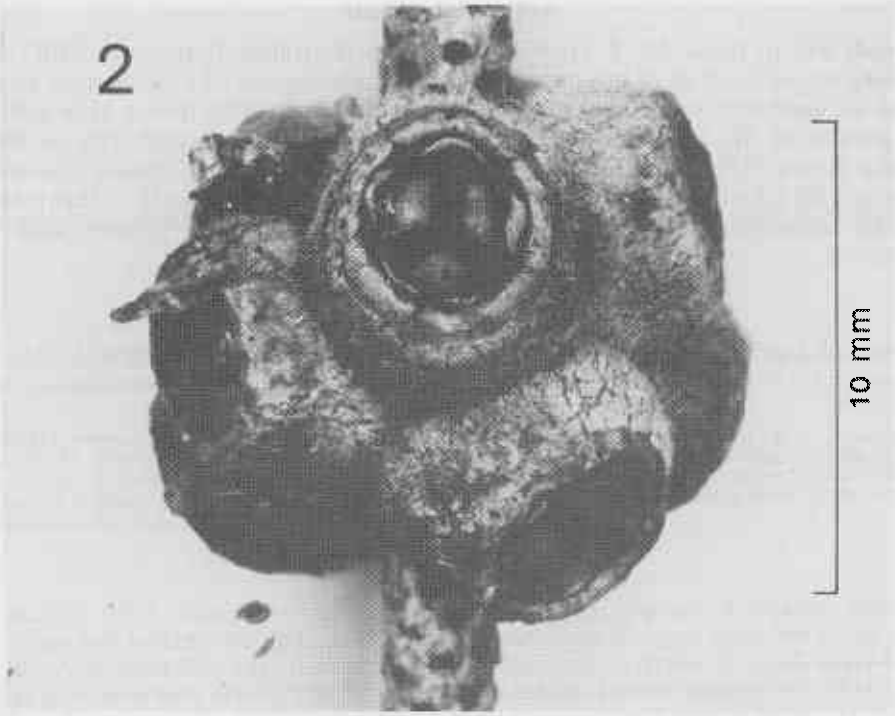
The hairs on the calyx tube of *Calothamnus accedens* resemble those of *C. hirsutus* in being very slender and spreading with the longer ones being over 1 mm long, while those of *C. brevifolius* are slightly thicker, less spreading and less than 1 mm in length.

The number of filaments per staminal claw has proved to be an important character in *Calothamnus* taxonomy (Hawkeswood 1980 and in prep.). However, the three species are not clearly separated on the basis of this feature (Table 1) indicating their very close relationship. Anther length is also an important taxonomic character, but again, *C. accedens* is not clearly separated from its two relatives on the length of anthers since some anthers of *C. hirsutus* and *C. brevifolius* are c. 1 mm or more in length, which overlaps the range in anther size for *C. accedens* (Table 1).

The fruit of all three species are also generally similar, being depressed globular to almost cylindrical in shape, although the size varies. In some cases, one calyx lobe (or rarely two or three) is deflexed over the orifice and remains on the young fruit during the first year (Figure 3) in all three species, but usually the lobe(s) break or erode away with age so that the capsule becomes truncate or almost so.

Calothamnus exhibits little variation in gross seed morphology, but the size and testa colour of the fertile seeds have proved to be of taxonomic significance (Hawkeswood in prep.). These two characters combined appear to be the most important in separating *C. accedens* from the other two taxa presently under consideration (Table 1).

Despite field work in the Piawaning area I failed to find further populations of *Calothamnus accedens*. Only 14 plants were counted growing at or near the entrance of a property between Piawaning and Wongan Hills. Cleared paddocks were present on both sides of the road and only remnants of a heath community grew on the narrow road verge. There appears little chance of the *Calothamnus* surviving in the event of further disturbance to these road verges. It is imperative that this population of *C. accedens* be conserved as this species must be considered rare and endangered on the basis of present knowledge of its distribution. A more detailed search for other populations should also be undertaken by interested botanists in Western Australia.



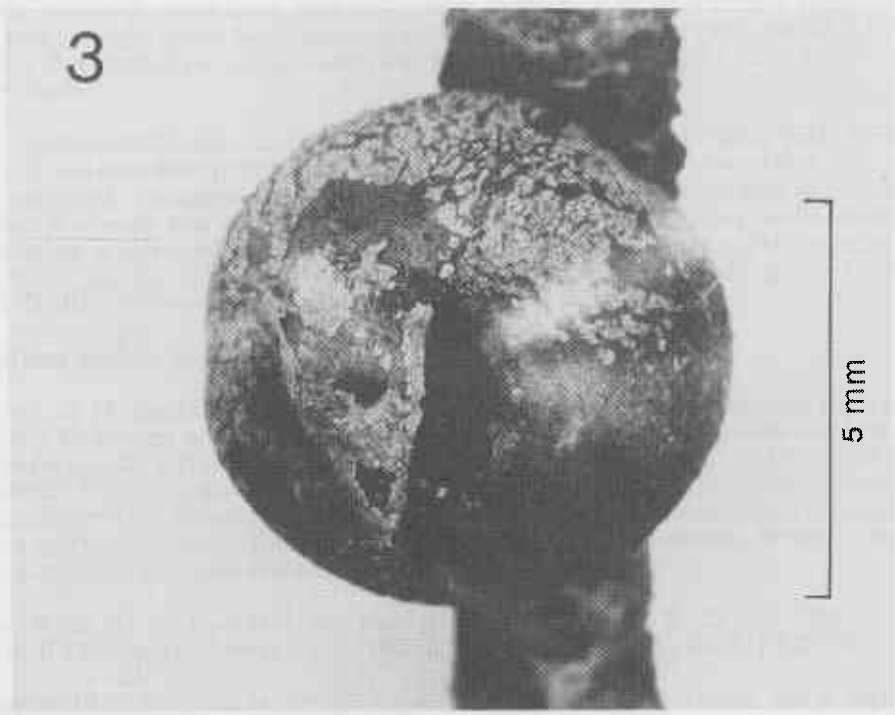


Figure 2. Close-up of a cluster of young fruits of *C. accedens* (from isotype at PERTH).

Figure 3. Close-up of a young fruit of *C. accedens* showing one persistent calyx lobe deflexed over the orifice (from holotype).

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