

A NEW SPECIES OF *BARLERIA* (*ACANTHACEAE*) FROM OMAN

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A new species of *Barleria* (*Acanthaceae*), *Barleria samhanensis* Knees, A.G.Mill. & A.Patzelt, is described from southern Oman and a provisional assessment of its conservation status is provided. Further support is given for the recognition of the summit of Jabal Samhan as a distinct floristic unit.

Keywords. *Acanthaceae*, *Barleria*, floristic unit, Jabal Samhan, new species, Oman, taxonomy.

INTRODUCTION

During fieldwork in Oman in September 2006 a distinctive new species of *Barleria* (*Acanthaceae*) was discovered on Jabal Samhan, an isolated mountain in the southern region of the country. Jabal Samhan is an important protected area, primarily as a stronghold for the Arabian leopard and ibex. Large parts are inaccessible by road and difficult to reach on foot because of a lack of available water. However, the western part of the plateau of Jabal Samhan is relatively well known. The new plant was found just a few kilometres further east where a new track had just been completed. We were fortunate to be directed to the area by Hadi Al Hakmani, a wildlife-ranger for the Arabian Leopard Programme, who told us that there had been good rain and that vegetation was more plentiful on the plateau this year than it had been for a number of years. Low cushions of the new plant were locally abundant and instantly spotted from the road. The attractive bright green of the leaves contrasted with the white of the spines, and the abundant, sweetly scented yellow flowers made a welcome splash of colour on the otherwise desertsic and bleak plateau. A further visit was made in November 2006 by two of the authors (S.L. and A.P.), who were able to carry out a vegetation survey of the area and collect fruiting material of the new *Barleria*.

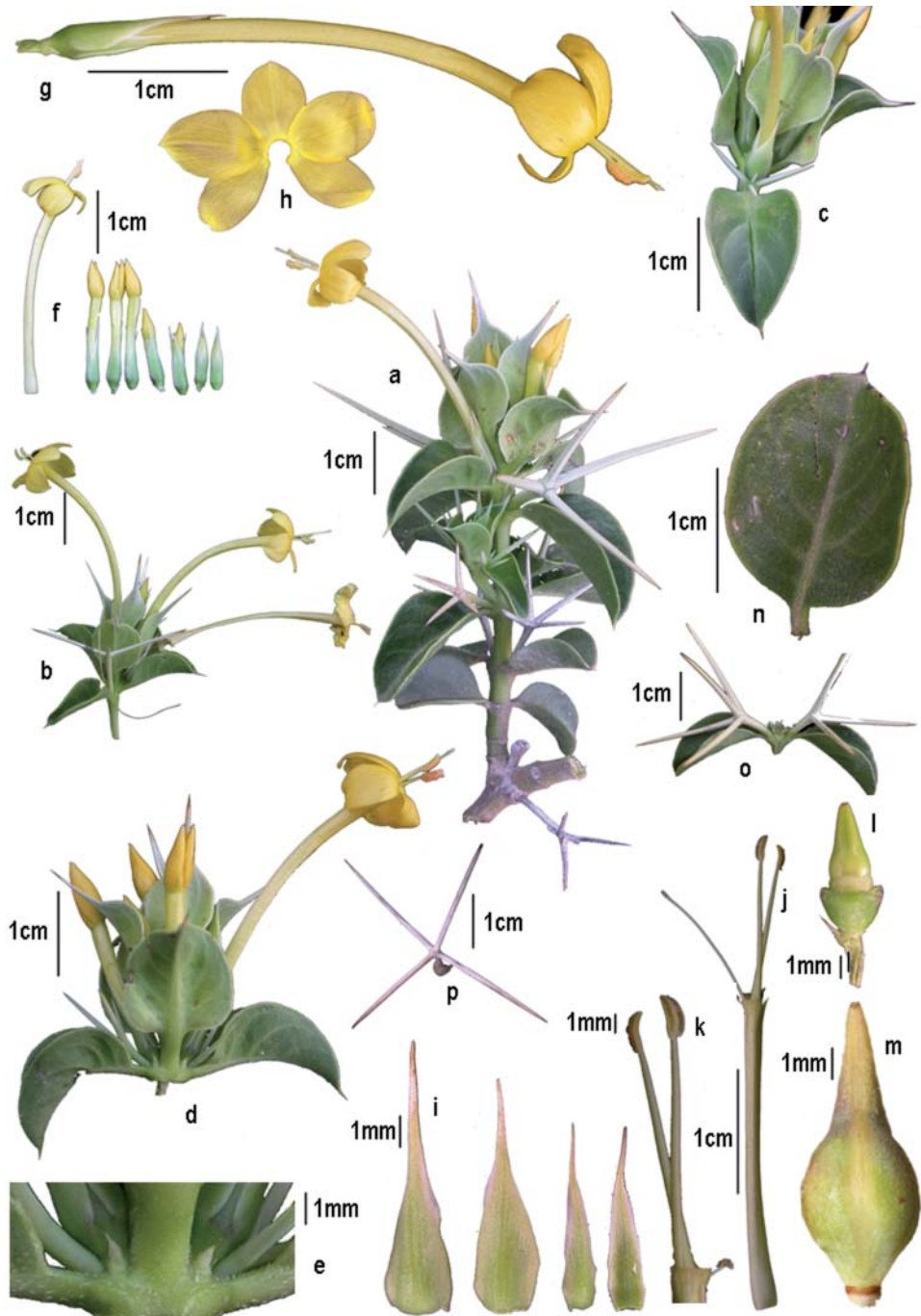
Barleria samhanensis Knees, A.G.Mill. & A.Patzelt, **sp. nov.** (Subgenus *Prionitis* (Nees) C.B.Clarke section *Prionitis* (Nees) Lindau). **Fig. 1.**

Barleria eranthemoidi R.Br. ex C.B.Clarke similis sed foliis bracteisque latioribus

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versus basin truncatis vel obtusis haud attenuatis, spinorum axillarum stipitibus communibus longioribus (5–9 mm non c.1 mm) et bracteolis rudimentariis differt. – Type: Oman, Jabal Samhan, 17°09.146'N, 54°45.338'E, on cliffs and rocky outcrops on the headwaters of NW draining wadis, sparse dwarf shrubland on dissected limestone plateau, 1404 m, 25 ix 2006, A. Patzelt, I. Edwards, S.G. Knees, S. Laser, A.G. Miller, L. Morris & D. Rae 2688 (holo ON; iso E, K, Sultan Qaboos University).

Spiny low shrub, forming cushions up to 40 cm tall and 50 cm across; much-branched from base; branches light greyish brown, finely pubescent; hairs appressed or erect, c.0.1 mm long. *Leaf blades* sub-orbicular or broadly oblong to broadly ovate, 11–25 × 8–15 mm, the truncate or obtuse base abruptly narrowed into a short petiole, the margin entire and the tip obtuse or rounded with a spinose mucro 0.8–1.5 mm long, more or less glabrous with a few simple appressed hairs along the margins and main veins and scattered orange-brown glands towards the base, these glands rounded when fresh but cup-shaped in dry material. *Petiole* distinct, 1–3 mm long. *Axillary spines* white, 4-armed from a common stalk, the arms 0.5–3.5 cm long, the stalk 5–9 mm long. *Inflorescences* terminal, spiny and spike-like, comprising clustered single-flowered inflorescence units. *Flowers* scented, solitary in the axils of bracts and subtended by a pair of inconspicuous bracteoles, the flowers at the base of the inflorescence sometimes subtended by a sessile or shortly stalked, 1–4-armed spine. *Bracts* leaf-like but paler and somewhat reflexed, c.17 × 10 mm, triangular-ovate to oblong-ovate or orbicular, with a truncate or sub-cordate base, the margin entire, the apex acute with a short spiny mucro or abruptly acuminate into a longer (c.5 mm) spinose tip, abaxial surface with scattered orange-brown glands towards base; bracteoles rudimentary, 0.5–1 mm long, either ovate with a spinescent tip or reduced to a short spinule. *Calyx* lobes 4, whitish green becoming pale green towards the base and along the margins, lanceolate, gradually attenuate into a linear, spinescent tip; 2 outer lobes more or less equal, 8–12 × c.3 mm; 2 inner lobes more or less equal, 8–10 × 1.6–1.7 mm. *Corolla* clear straw-yellow, opening in the late afternoon or evening and fading the following day; corolla lips sub-equal, upper lip 4-lobed, the lobes somewhat reflexed, broadly ovate, 5–8 × 5–6 mm with rounded, apiculate or retuse tips; lower lip single-lobed, hardly reflexed, slightly smaller and partially fused to the upper lobes, forming a rather ill-defined lower lip; corolla tube narrow, 33–36 × 1.4–1.6 mm, delicately arching. *Stamens* 2, shortly (c.4 mm) exerted; anthers parallel, 2.2–2.3 mm long; filaments 14–16 mm long, inserted in the

FIG. 1. *Barleria samhanensis* Knees, A.G.Mill. & A.Patzelt. a, flowering shoot; b, inflorescence; c, inflorescence with bract bent forward; d, inflorescence showing position of bract and bracteoles; e, bracteoles; f, corollas and buds; g, corolla; h, corolla lobes; i, sepals; j, stamens and style; k, stamens and staminode; l, ovary; m, fruit; n, leaf; o, shoot showing position of axillary spines; p, 4-armed spine (Patzelt et al. 2688; Patzelt et al. 2864; compiled by A. G. Miller).

top third of the corolla tube. *Staminodes* 2, included within the corolla tube, the antherodes much reduced, c.0.5 mm long, apparently sometimes producing a little pollen; filaments c.1.25 mm. *Ovary* glabrous, beaked; style greenish yellow, 33–36 mm long; stigma exserted, simple, smooth, narrowly oblong, truncate, equal in width to the style, pale orange. *Capsule* ellipsoidal with a conical apical beak, 12–14 mm long, light brown when mature; seeds 2, flattened, 4 × 6 mm, with long light brown appressed hairs. Flowering September–October. Fruit ripening November–December.

Distribution. Known only from the type locality.

Etymology. Named after Jabal Samhan where it was discovered.

Habitat and ecology. *Barleria samhanensis* is restricted to north-facing cliffs and steep wadi slopes on the summit plateau of Jabal Samhan where it is known only from a small area between 1300 and 1450 m. The site is at the fringe of the monsoon-affected area, distinctly drier than Jabal Qara and Jabal Qamar. It may benefit from occasional low clouds and cool winds, but does not experience regular precipitation. The flowers were observed to open in the late afternoon or evening but by the time they had faded the following day a new bud was on the point of opening.

Proposed IUCN conservation status. Using IUCN Red List Categories and Criteria, Version 3.1 (2001), a provisional threat assessment of CRB1B2ab(iii) has been assigned reflecting the limited extent of occurrence and area of occupancy of *Barleria samhanensis* and the recent extension of a motorable track into its range. This new accessibility is likely to lead to an increase in grazing pressure; already there are signs of change – between our visits in September and November an increase in the volume of litter was already evident. The known population contains a maximum of c.1000 plants. However, it is possible that it also occurs further east along the escarpment and perhaps also extends to lower altitudes along wadis to the north; if this proves to be the case the level of threat may be downgraded.

Additional specimens examined. SULTANATE OF OMAN. Dhofar, Jabal Samhan, 17°09.146'N, 54°45.338'E, North-exposed limestone slopes of wadis and runnels on dissected limestone plateau, 1404 m, 14 xi 2006, A. Patzelt, I. Al Harthi, I. Al Rashdi & S. Laser 2864 (Sultan Qaboos University); additional seed collection from same locality OBR 529.

Notes. The new species, with its 4-armed spines, yellow flowers and 2-seeded capsule with solid apical beak, is clearly referable to *Barleria* section *Prionitis* (Nees) Lindau (Balkwill & Balkwill, 1997). Within section *Prionitis* it is similar in facies and corolla shape to the tropical African species *Barleria eranthemoides* R.Br. ex C.B. Clarke (found from Somalia and Eritrea west to Cameroon). However, *Barleria samhanensis* differs from this species in its broader leaves and bracts, rudimentary bracteoles, longer thorns and thorn stalks and longer corolla. In flower it is unlikely to be confused with any other species in Oman but, without flowers, the spiny cushions somewhat resemble those of *Barleria proxima* Lindau. However, close examination reveals that the leaves of *Barleria proxima* are narrower and that the thorns possess a

much shorter stalk than those of *B. samhanensis*. In flower the strongly zygomorphic orange flowers of *Barleria proxima* are quite unmistakable.

The summit area of Jabal Samhan is an exposed and sun-baked limestone plateau dissected by steep-sided wadis. It is subjected to high summer temperatures and receives little, spasmodic rainfall or, in some years, none at all. In contrast, the seaward-facing escarpments of the plateau are affected by the winds of the SW monsoon, which from June until September bring fog and drizzle and support a thin band of woodland on the upper slopes. The fog and drizzle of the monsoon often spill over the crest of the escarpment and support, in a narrow zone behind the crest, a depauperate version of the grassland and succulent shrubland, dominated by *Euphorbia balsamifera* Aiton, which is characteristic of the plateau and upper dip-slopes of Jabal Qara and Jabal Qamar which receive the full benefit of the monsoon. The new species grows in a zone somewhat back from the escarpment – maybe 1 km. In aspect this area is rather desertic and clearly receives less benefit from the monsoon than the zone immediately behind the crest. The area is covered by a sparse low shrubland and grassland with several endemic species and apparently several undescribed species which will be published in subsequent papers.

One runnel with *Barleria samhanensis* was closely examined by carrying out a vegetation survey using the Braun-Blanquet method. This revealed that in an area of 20 m² a total of 35 plant species were found (total cover 10%). Out of the 35 species, 12 species (33%) are endemics, all except one endemic to the Dhofar mountain chain. Apart from *Barleria samhanensis*, the local endemics *Pulicaria nobilis* Gamal-Eldin, *Salvia hillcoatiae* Hedge, *Lavandula hasikensis* A.G.Mill., *Ochradenus* sp. nov., and *Maytenus* sp. nov. are also restricted to a very small area on Jabal Samhan. This new evidence supports the hypothesis of Kilian & Hein (1999) that the summit area of Jabal Samhan forms a distinct floristic unit containing a number of very restricted plant species. With 33% endemism, this area has the highest proportion of endemics of all vegetation units within the country. As the area is very small, and currently being made accessible by car, even small-scale disturbance could threaten the survival of this unique vegetation. Other notable plants growing in association with the new species include: *Campylanthus pungens* O.Schwartz, *Caralluma hexagona* Lavranos, *Cocculus balfourii* Schweinf. ex Balf.f., *Coptosperma graveolens* (S.Moore) Degreef subsp. *arabicum* (Cuf.) Degreef (new for Oman), *Cordia* sp. nov., *Craterostigma pumilum* Hochst., *Dhofaria macleishii* A.G.Mill., *Jaubertia* sp. nov., *Ochradenus* sp. nov., *Pseudolithos dodsonianus* (Lavranos) Bruyns & Meve, *Pseudolithos mccoyi* Lavranos & Mies, *Salvia* sp. nov. and *Trichodesma* sp. nov.

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