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NOTES RELATING TO THE FLORA OF BHUTAN: VII
Notes on Hypericum L.

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ABSTRACT. Two new species of *Hypericum* are described, *H. sherriffii* N. Robson from SE Bhutan and *H. ludlowii* N. Robson from Bhutan and SE Tibet, and notes given on the distribution and ecology of *H. griffithii* Dyer in Bhutan and India.

Hypericum sherriffii N. Robson, **sp. nov.** Fig. 1.

H. podocarpoidei N. Robson affinis, sed foliis multo minoribus basi cuneatis, floribus omnino solitariis minoribus, sepalis angustioribus, capsulis minoribus, differt.

Shrub 0.6–1.2m, evergreen?, with branches spreading or pendent,± frondose? Stems 4-lined and ancipitous when young, eventually unlined and compressed; internodes 1–3.5mm, shorter than leaves; bark greyish-brown, exfoliating in scales. Leaves sessile or subsessile; lamina 10–14 × 3–5mm, elliptic to elliptic-oblong, acute to subacute-apiculate, margin plane, base cuneate, somewhat discolorous, glaucous on both sides, coriaceous; venation: 2–3 obscure pairs of ascending looping main lateral veins, without other visible midrib branches or tertiary reticulum; laminar glands short streaks and dots; intramarginal glands dense. Inflorescence 1-flowered; pedicels 5–6mm; bracts deciduous. Flowers not seen. Sepals 5–8 × 1.5–2mm, free, not imbricate?, subequal, spreading in fruit, linear-elliptic, acute, with margin entire or minutely denticulate below apex; midrib visible, veins not prominent; laminar glands 4–6 linear, punctiform and ± numerous distally; intramarginal glands rather dense. Petals, stamen fascicles and ovary not seen; styles (in fruit) 3.5–4mm long; stigmas small. Capsule 8–11 × 5.5–7mm, ellipsoid-ovoid. Seeds dark reddish-brown, c. 0.8mm long, narrowly cylindric, very narrowly carinate or not, very shallowly linear-foveolate.

S BHUTAN. Deothang district, Chungkar, 27° 03′N 91° 27′E, 2100m, 24 xi 1938, 'Shrub 2–4 feet. Flowers not seen. Seed collected. On cliff faces and steep rocky slopes'. *G. Sherriff* in *Ludlow & Sherriff* 6784 (**holotype BM**).

Despite the absence as yet of flowering specimens, it is possible to see *H. sherriffii* as a relative of *H. podocarpoides* N. Robson, smaller in all its parts and with cuneate leaf-bases, narrower sepals and solitary flowers. It could equally well, however, be a derivative of the Burmese *H. pachyphyllum* Collett & Hemsley, like *H. sherriffii* a relict species. The small leaves on apparently frondose shoots with very short internodes remind one of *H. uralum* [Ham. ex] D. Don. *H. sherriffii* is known only from a single locality in SE Bhutan (Fig. 3).

Hypericum ludlowii N. Robson, **sp. nov.** Fig 2.

H. himalaico N. Robson affinis, sed stylis ovario aequantibus vel longioribus, sepalis anguste oblongis vel anguste ellipticis, haud nigro-

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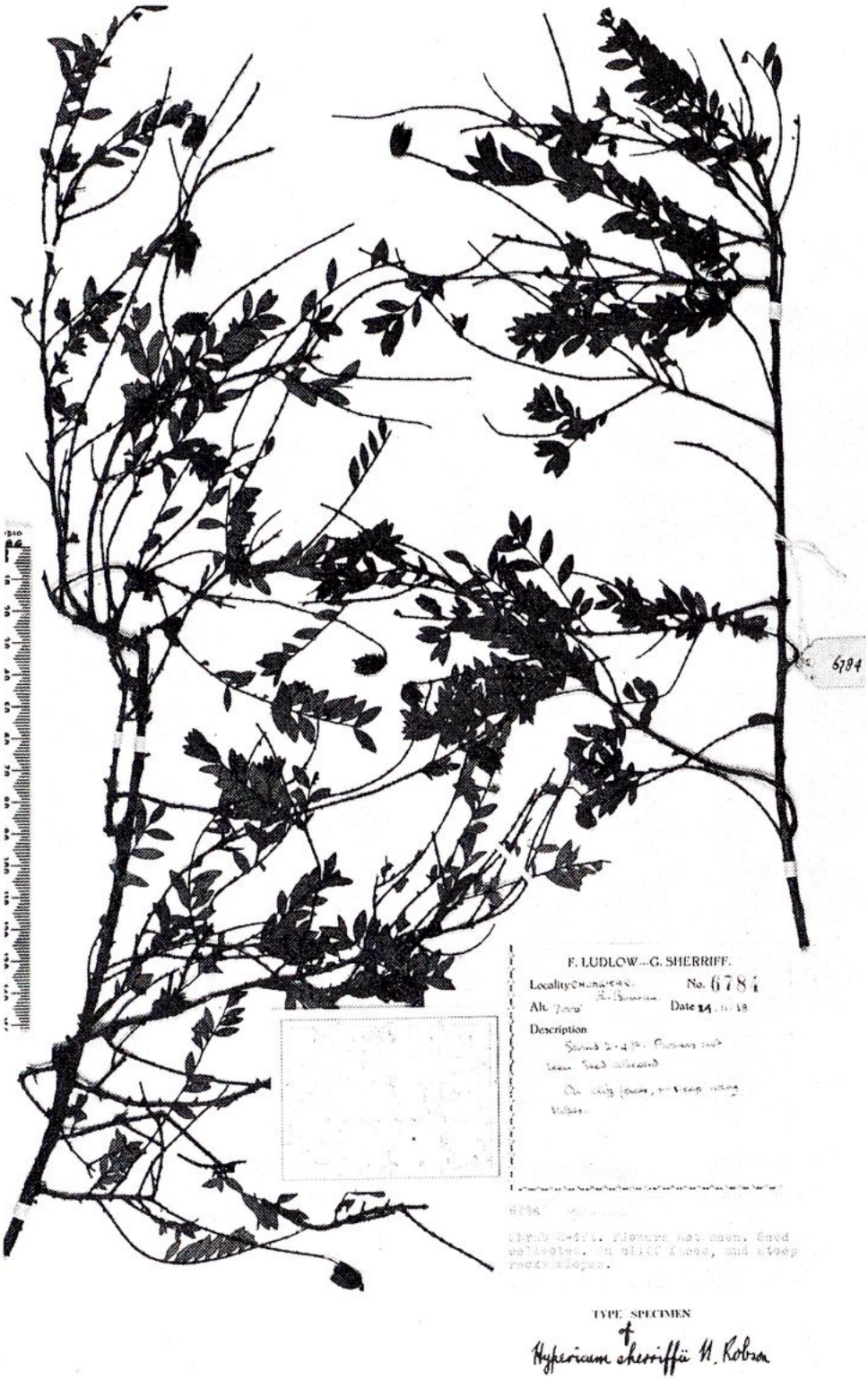

FIG. 1. *Hypericum sherriffii* N. Robson. *Ludlow & Sherriff* 6784 (holotype).

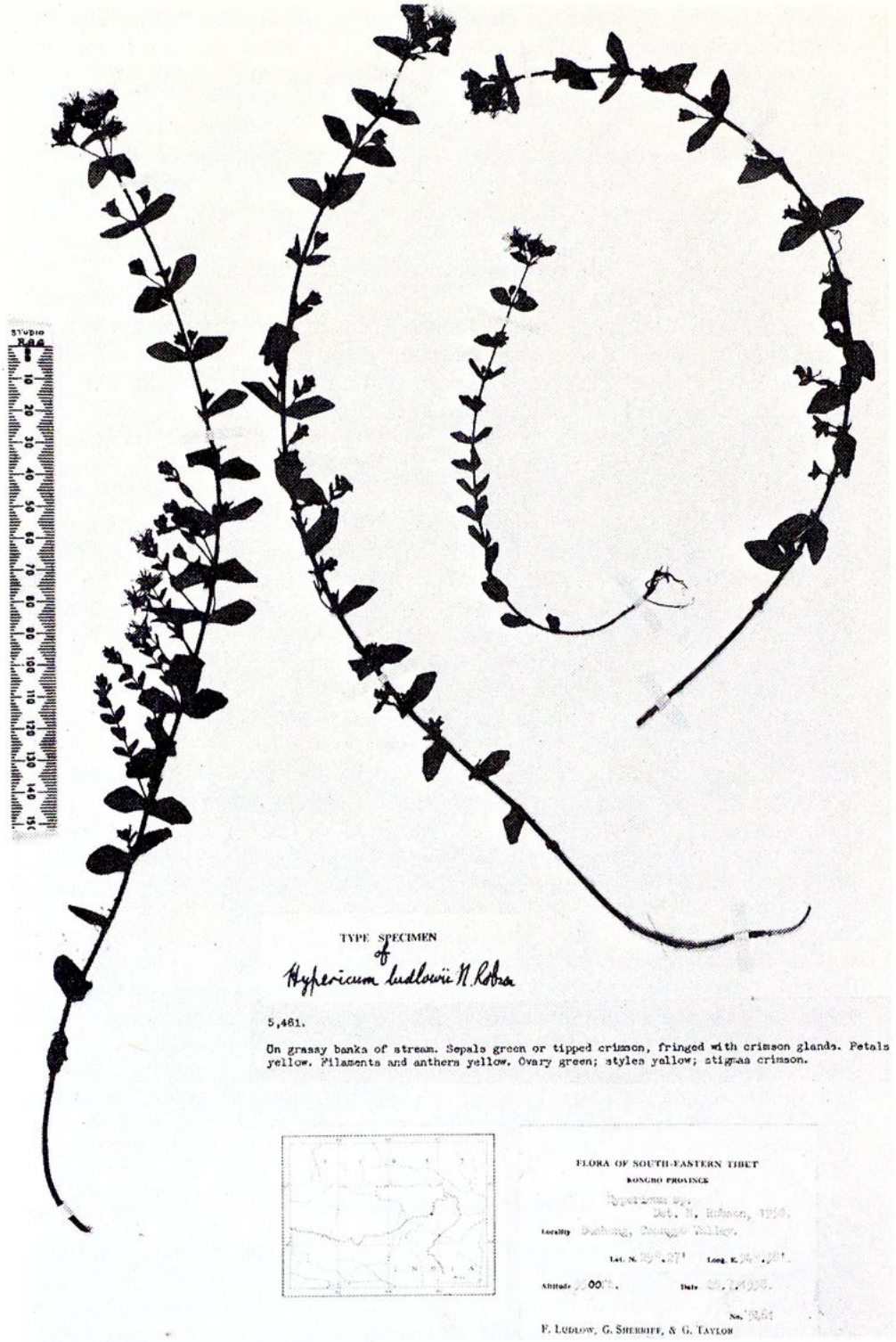

FIG. 2. *Hypericum ludlowii* N. Robson. *Ludlow, Sherriff & Taylor* 5461 (holotype).

striatis, floribus plerumque minoribus, ramis brevibus ascendentibus, in uliginosis habitantibus, differt.

Herb with stems slender, up to 40 cm, erect or ascending from a creeping and rooting base; internodes 2–4-lined. Leaves petiolate, with petiole 0.5–1mm; lamina 3–20 × 1.5–10mm, ovate or elliptic to oblong-oblanceolate, apex rounded, margin entire without glandular auricles, with main lateral veins incurved, not prominent; laminar glands pale, ± numerous; submarginal glands dense or irregular, all black, or black and pale, or reddish. Inflorescence 1–9-flowered, from 1–2 nodes, sometimes with accessory (i.e. flower-bearing) branches from the lower nodes, monochasial after first branching; bracts narrowly oblong to reduced-foliar, acute to rounded, glandular-ciliate to entire apart from black- or red-glandular auricles, with pale laminar glands and sometimes black submarginal glands. Flowers (6–)9–11(–15)mm in diam. Sepals 1.5–5 × 0.5–1.5mm, narrowly oblong or narrowly elliptic to lanceolate, obtuse to acute, margin denticulate to entire, with or without black or reddish glandular cilia or sessile to submarginal glands; laminar glands pale, streaks and/or dots. Petals golden yellow, 4–7 × 1–2.5mm, oblong-oblanceolate, each with apical black or reddish gland and sometimes a few subapical marginal black glands, rarely with 1–2 laminar black streaks. Stamens c. 20, 3-fascicled, 4–5mm; anthers each with a black gland. Ovary 1.6–2.5 × 1–2mm, ellipsoid to subglobose; styles 3, 2–2.5mm, 1–1.4 × ovary, slender. Capsule 4.5–6 × 2.5–3.5mm, ellipsoid. Seeds c. 0.7mm, cylindric, not winged or carinate; testa scalariform-reticulate.

Habitat: Grassy swamps and bogs, 2850–3150m.

C BHUTAN. Bumthang district: Dhur, 27° 37′N 90° 41′E, 3000m, 23 vii 1949, *Ludlow, Sherriff & Hicks* 19502 (BM).

TIBET. Kongbo: Tsangpo Valley, Doshong, 29° 32′N 94° 51′E, 2850m, 28 vii 1938, *Ludlow, Sherriff & Taylor* 5461 (**holotype BM**); Cha, Gyamda Chu (left bank), 29° 34′N 94° 18′E, 2850m, 31 vii 1947, *Ludlow & Sherriff* 14214 (BM); Nayu Chu, 29° 12′N 94° 06′E, 3150m, 7 vii 1938, *Ludlow, Sherriff & Taylor* 5767 (BM); ibid., 10 vii 1938, *Ludlow, Sherriff & Taylor* 5807 (BM).

The distribution of *H. ludlowii* is illustrated in Fig. 3. The Bhutan specimen shows the most reduced form of those cited, having the smallest leaves and flowers, and all the 'dark' glands are reddish except those in the anthers. *H. ludlowii* is closely related to *H. himalaicum* N. Robson, which has shorter styles, usually larger flowers, ovate-lanceolate to linear-lanceolate sepals, usually broader leaves, and long, widely spreading branches, and grows in drier habitats.

Hypericum griffithii Dyer

In recent years two short papers, by Biswas (1973) and Sahni & Naithani (1981) have appeared, providing a more complete description of *Hypericum griffithii* Dyer than given by Dyer (1874) and adding new information on its distribution. Study of collections in British herbaria has revealed some inaccuracies in these papers and brought to light additional material from Bhutan. It is therefore now possible to give a more complete picture of its

known range and ecology, especially since Sahni & Naithani (1981) described it as an endangered species.

History of collection. The type specimen of *H. griffithii,* cited by Dyer (1874) in the protologue as 'Bhotan, Dimree-nuddee, alt. 6400ft., Griffith', was collected in E Bhutan in 1838 by William Griffith (not in 1861–62, long after his death, as stated by both Biswas (1973) and Sahni & Naithani (1981)). This specimen is preserved at Kew labelled 'Descent to Dimree nuddee alt. 6400ft'., whilst a duplicate is labelled 'herb. E.I.C. [East India Company] 1820'. From our knowledge of Griffith's travels (Long, 1979), it is probable that he collected the specimen on 1 ii 1838 in the Bamri Chu valley S of Tashigang, approximately 27° 17′N 91° 26′E. It has not been re-collected in the type locality.

The next reported collection was by G. L. Searight in 1905, first published by Biswas (1973) as 'Tibet, Chumbi Valley road (Tona), April 1905, alt. 900m–1200m, *G. L. Searight* 108 (CAL)'. Study of a number of Searight specimens in E suggests that he probably did not in fact collect in the Chumbi Valley itself, but in the border areas of Sikkim and Bhutan to the south of Chumbi between December 1904 and April 1905. These specimens are labelled 'Chumbi Valley Road Survey 1904–5' perhaps implying a survey seeking a new route into the Chumbi Valley from the south. A specimen of *Youngia* (*Searight* 88, E) bears an original label 'Torsa, 3 to 4000 feet, April 1905', as well as a second label, probably added at Calcutta herbarium, where the locality 'Torsa' has been wrongly transcribed as 'Tona'. Thus Searight almost certainly collected *Hypericum griffithii* in the Torsa Valley, SW Bhutan, at between 3000 and 4000 feet. The Torsa valley itself is restricted to W Bhutan, and considering the altitude given and the known ecology of the plant it is extremely unlikely that the specimen could have originated from the more temperate Chumbi Valley.

Since 1905 the plant has been collected a further four times in Bhutan: by R. E. Cooper in August 1915, in the Kuru Chu valley near Mongar; by F. Ludlow & G. Sherriff in March 1936 in the Gamri Chu valley, E of Tashigang; by Ludlow, Sherriff & H. Elliot in May 1947 at Ghunkara near Tashigang; and recently by A. J. C. Grierson & D. G. Long in June 1979 in Cooper's locality near Mongar. In addition Sahni & Naithani (1981) reported the discovery of the plant in April and October 1977 in the Kameng District of Arunachal Pradesh, India, the first record of the species outside Bhutan.

Specimens and literature reports

BHUTAN: S–Samchi district, Torsa valley, 900–1200m, iv 1905, *Searight* 108 (CAL fide Biswas 1973); C–Mongar district, Kuru Chu valley, 1500m, viii 1915, *Cooper* 4700 (BM,E); hillside below Mongar, 1700m, vi 1979, *Grierson & Long* 1990 (BM,E); Tashigang district, Bamri Chu ['Dimree nuddee'], 2000m, 1838, *Griffith* EIC 1820 **(holotype K; iso. BM)**; Rungzyung, Gamri Chu, 1060m, iii 1936, *Ludlow & Sherriff* 1198 (BM,E); Ghunkara, Tashigong Chu, 1220m, v 1947, *Ludlow, Sherriff & Elliot* 12576 (BM).

INDIA: ARUNACHAL PRADESH: Kameng District, near Jamiri, 1200m, iv & x 1977, *Sahni & Naithani* Ser. II, 546 (DD), *Bennet & Naithani* 3244 (DD), fide Sahni & Naithani (1981).

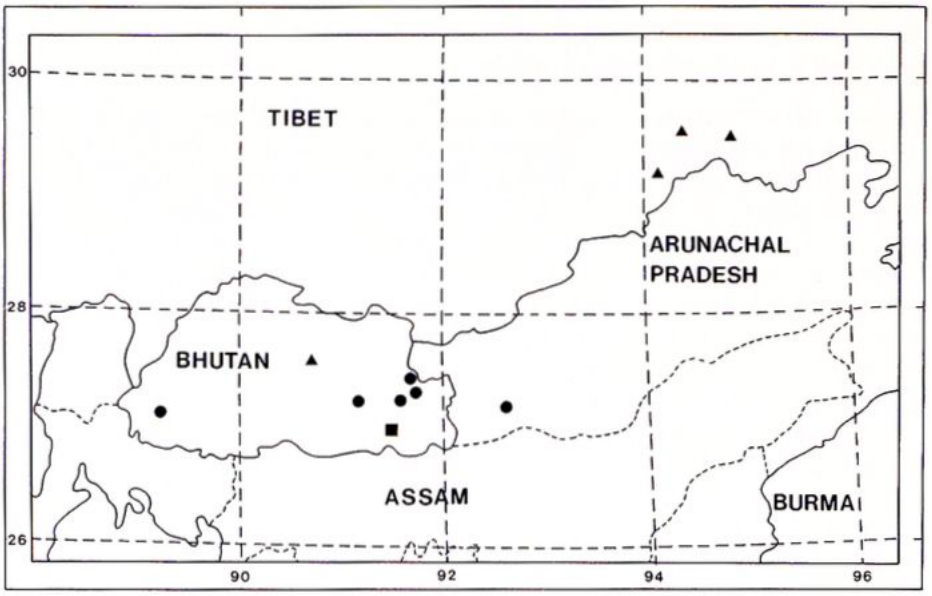

FIG. 3. Distribution of *Hypericum griffithii* Dyer (●), *H. ludlowii* N. Robson (▲), and *H. sherriffii* N. Robson (■).

Distribution and status. The restricted distribution of *Hypericum griffithii* is shown in Fig. 3. It is remarkably similar to that of the recently described *Pinus bhutanica* Grierson, Long & Page (Grierson, Long & Page, 1980) in being restricted to Bhutan and adjacent Arunachal Pradesh. Sahni & Naithani (1981) suggested that it should be considered as an endangered species, but although it is of considerable rarity there is no good evidence that it is endangered at present. In its Bhutanese localities burning to promote grazing is probably the main threat to its survival.

Ecology. No published information exists on the ecological preferences of *Hypericum griffithii.* The known altitudinal range is 900 to 2000m, a range occupied in Bhutan mostly by warm broad-leaved forest, and in drier valleys by Chir Pine forest. All the localities in Bhutan are in major deep dry valleys—the Torsa, Kuru Chu and Manas River systems. At Mongar the plant was found in close association with Chir Pine, *Pinus roxburghii* Sargent, but on a hillside with a fairly well-developed shrub layer including *Ampelocissus divaricata* (Laws.) Planch., *Cissampelos pareira* L., *Clerodendrum bracteatum* Walp., *Ficus oligodon* Miq., *Indigofera dosua* D.Don var. *tomentosa* Baker, *Millettia cinerea* Benth., *Rhus hookeri* Sahni & Bahadur and *R. paniculata* Hook. f. In the Gamri Chu valley, Ludlow & Sherriff described the habitat as 'open scrub jungle along river bank', and they collected *Caesalpinia decapetala* (Roth) Alston, *Elaeagnus parvifolia* Royle and *Melastoma normale* D.Don nearby. This suggests a habitat similar to that at Mongar but perhaps without Chir Pine. At Ghunkara near Tashigang they noted that the plant grew on an 'open rather dry hillside' where they collected *Cassia fistula* L., *Grewia sapida* Roxb., *Millettia cinerea* Benth., *Osyris lanceolata* Hochst. & Steud., *Pavetta assamica* Bremek. and *Vitex negundo* L. nearby. Further ecological data are highly desirable, especially regarding the tolerance of *H. griffithii* to burning.

Acknowledgement

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