

NEW DISTRIBUTIONAL RECORDS OF RHODODENDRONS FROM INDIA

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A plant survey and exploration tour conducted to Upper Siang district of Arunachal Pradesh during May 2011 under 'Ericaceae of Arunachal Pradesh' and 'Flora of West Siang' project by the authors. Many plant specimens were collected and processed. While identification and checking distributional status with literature found two *Rhododendron* taxa viz. *Rhododendron dekatanum* Cowan, *Rhododendron thomsonii* Hook.f. subsp. *lopsangianum* (Cowan) D.F. Chamb. not reported from India (Chamberlain, 1982, Cullen, 1982, Cox & Cox, 1997, Cox, 2004, 2006, Mingyuan et al., 2005, Sastry & Hajra 2010) and two taxa viz. *Rhododendron glischrum* Balf.f. & W. W. Sm. subsp. *rude* (Tagg & Forrest) D.F. Chamb., *Rhododendron pudrosum* Cowan (collected from Tawang district) made first time authentic record of collection from India as no specimens of this species are found in Indian herbaria. Other *Rhododendron* taxa collected during the tour are *Rhododendron arunachalense* D.F. Chamb. & Rae, *R. boothii* Nutt., *R. dendricola* Hutch., *R. edgeworthii* Hook.f., *R. exasperatum* Tagg, *R. flinckii* Davidian, *R. grande* Wight, *R. griffithianum* Hook.f., *R. hookeri* Nutt., *R. kendrickii* Nutt., *R. keysii* Nutt., *R. lindleyi* T. Moore, *R. megeratum* I. B. Balf. & Forrest, *R. neriifolium* Schlte., *R. nuttallii* Booth, *R. vaccinioides*, *R. xanthostephanum* Merr and three other specimens yet to be identified. Of the 22 *Rhododendron* taxa collected, 9 taxa viz. *R. boothii*, *R. dendricola*, *R. exasperatum*, *R. hookeri*, *R. glischrum* subsp. *rude*, *R. megeratum*, *R. nuttallii*, *R. pudrosum* and *R. thomsonii* subsp. *lopsangianum* comes under various red list categories of IUCN (Gibbs & al., 2011).

A brief description of the newly recorded four taxa along with photographs and ecological notes from our collections are given here for easy recognition of the species in the field.

Rhododendron dekatanum Cowan, Notes Royal Bot. Gard. Edinb. 19: 226. 1937.

Terrestrial, lithophytic shrubs, 1–1.7 m tall, bush forming, branchlet scaly, bark not peeling off. Leaves on terminal part of the branch; lamina coriaceous, dark green, broadly ovate, obovate, 3–6.5 × 3–3.5 cm, base rounded to cuneate, setose, apex rounded-mucronate, emarginated, adaxial surface glabrous olive green, matt, without scales except minute setae along midrib, nerves sunken, abaxial surface pale glaucous, scales contiguous, scales two types, dark brown and brown; petiole 6–8 mm long, terete; setose, with peltate scales; one peltate above surface others sunken on pit. Inflorescence terminal, 3-flowered. Flowers yellow, broadly campanulate; pedicel terete, ridged, c. 7 mm long, scales present, not setose. Calyx 5-lobed, lobes oblong to spatulate, 7–8 × 5–6 mm, rounded at apex, glabrous except few hairs at base. scales scattered all along. Corolla broadly campanulate, 2–2.5 cm long (including lobes) outer surface scaly, papillae absent on both side. Stamens 10, c. 1.8 cm long; filament 13–15 mm long, densely villous near base upto middle; anther lobes 2, oblong, 4–4.5 mm long dorsifixed, apically pored. Ovary obovate, 6–7 × 4–5 mm, covered with peltate scales; style 1–1.2 cm long, stout, terete, scales at base, glabrous; stigma capitate. Capsule hard, 5-chambered. Seeds not winged, not appendaged.

Fl. & Fr.: April – May.

Specimen examined: Zupuk to Tanjim La camp, West Siang, 3300 m, 08.5.2011. A.A.Mao & Bhaumik 25702 (ARUN).

Note: The plant found growing in subalpine rocky cliffs along with *R. megeratum*, *Vaccinium* spp., *Clintonia udensis* Trautv. & Mey, *Cassiope selaginoides* Hook. f. & Thoms. Three patches with 10–15 individuals in each patch have been seen. There are no immediate threats for survival of the species.

Rhododendron glischrum Balf. f. & W. W. Sm. subsp. **rude** (Tagg & Forrest) D. F. Chamb., Notes Roy. Bot. Gard. Edinburgh 36: 117. 1978.

Shrubs or small trees, 2.4 - 7 m tall; older branches glabrous, shoots ca. 8 mm in diam. below inflorescence; young shoots with glutinous glandular setae. Leaf blade subcoriaceous, oblong to oblanceolate, 13 - 18 × 4 - 6 cm, base cuneate or narrowly rounded, apex acute, margin ciliate, setose or glandular-setose on both surface; petiole stout, 1.3 - 2.2 cm long, densely glandular-setose. Inflorescence 8 - 12-flowered; rachis c. 1.5 cm long, densely glandular, tomentose. Flowers pink with purple flecks and basal blotch; pedicel 3 - 4 cm long, glandular-setose; calyx lobes 5, c. 1 cm, unequal, densely glandular-setose, ciliate; corolla campanulate, 3 - 5 cm long, lobes 5, emarginated. Stamens 10, c. 1.2 cm long; filaments pubescent at base. Ovary conoid, c. 5 mm, densely glandular-hairy; style c. 3.5 cm long, glabrous or glandular at base. Capsule c. 1.5 cm long, base enclosed by persistent calyx.

Fl.: May - June, *Fr.*: September.

Specimens examined: Tankarla to Zupuk camp, West Siang, 2800 m, 7.5.2011. *A.A.Mao* 20329 & *Bhaumik* 25690 (ARUN).

Note: Growing in semi dense temperate forest in association with *Rhododendron kendrickii*, *Quercus* spp., *Sorbus* spp., *Viburnum* sp. and others. The present collection confirms the occurrence of this subspecies in Arunachal Pradesh, India. Sastry & Hajra (2010) has recorded this taxa in their book based on personal communication by Peter Cox.

Rhododendron pudorosum Cowan, Notes Roy. Bot. Gard. Edinburgh 19: 239. 1937.

Trees 6 - 8 m tall; shoots stout, sparsely tomentose. Leaf blade coriaceous, ob-lanceolate to oblong, 15 - 20 × 4 - 5 cm, base rounded or broadly cuneate, apex obtuse or rounded, mucronate, margin slightly revolute, lower surface with glands, upper surface glabrous; petiole stout, 2.5 - 3 cm long, sparsely tomentose. Inflorescence umbellate raceme, 15 - 22-flowered; rachis 2.5 - 3 cm long. Flower rose-pink with basal blotch; pedicel c. 3 cm long, floccose-tomentose. Calyx lobes 8, c. 1 mm long, sparsely floccose. Corolla campanulate, 3.5 - 4 × 4.5 - 5 cm, lobes 6, emarginated. Stamens 16, unequal, 13 - 23 mm long; filaments 12 - 20 cm long, glabrous. Ovary 7 - 10 × 3 - 5 mm, densely white-tomentose, eglandular; style 2 - 2.5 cm long, glabrous; stigma large and discoid.

Fl.: May.

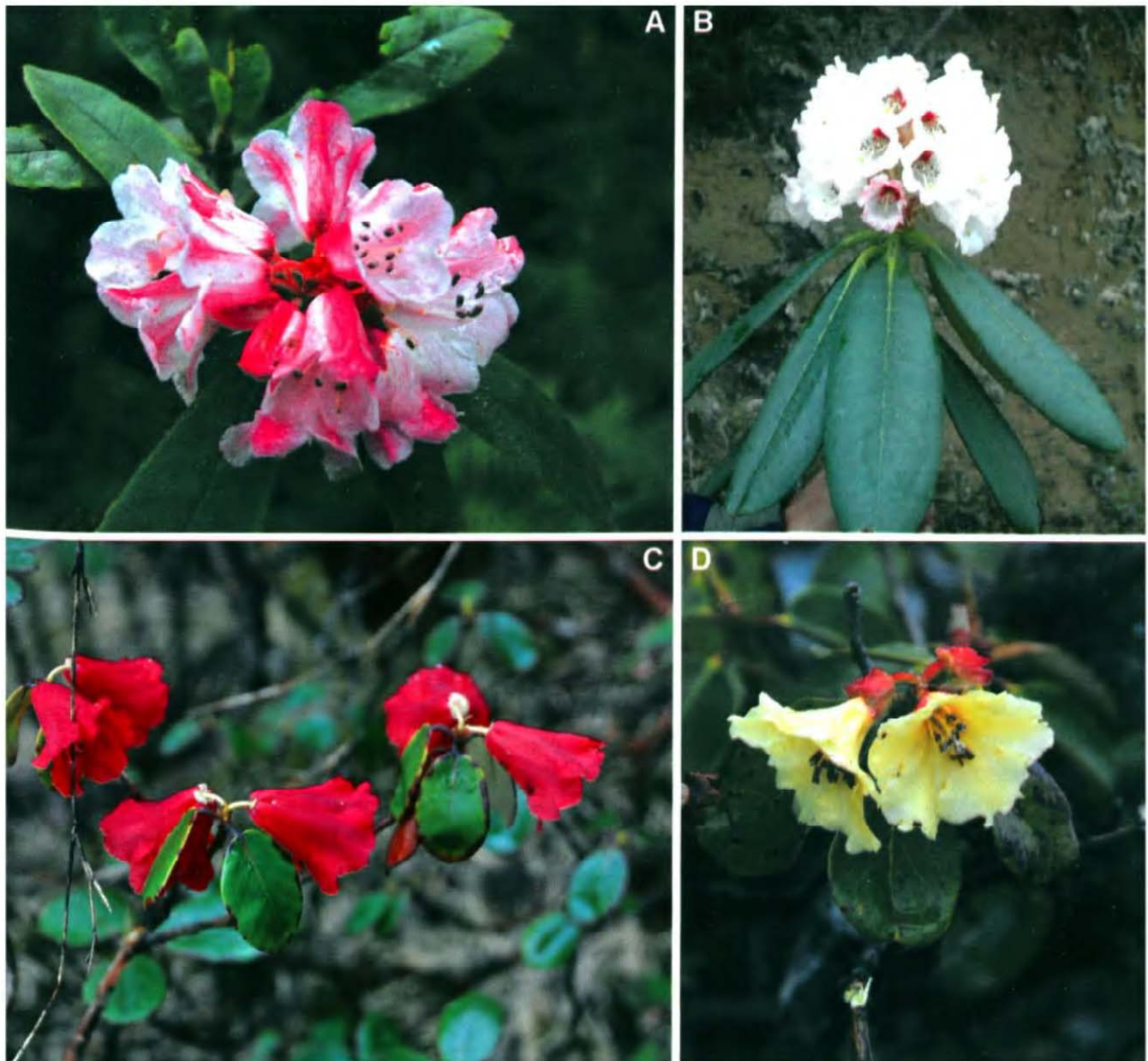
Specimen examined: Between Maratha army ground and Ptso Lake, Tawang, alt. 3700 m, 13.05.2009, *A.A.Mao* 23027 (ARUN).

Note: The plants are found to grow on open hill slopes in association with *R. arboreum*, *R. hodgsonii*, *R. keysii*, *R. wightii*, *Abies* sp. Only few individual trees observed. Gibbs & al. (2011) has recorded occurrence of this species in Arunachal Pradesh based on personal communication by Peter Cox. The present collection confirms the occurrence of this species in Arunachal Pradesh, India.

Rhododendron thomsonii Hook. f. subsp. **lopsangianum** (Cowan) D. F. Chamb. Notes Roy. Bot. Gard. Edinburgh 39: 420. 1982. *Rhododendron lopsangianum* Cowan, Notes Roy. Bot. Gard. Edinburgh 19: 250. 1937; *R. thomsonii* var. *lopsangianum* (Cowan) T. L. Ming.

Shrubs or small trees, upto 2.5 m tall. Leaf blade leathery, oblong-elliptic to ovate or orbicular to obovate, c. 3.7 × 2.6 cm; base rounded to cordate, apex rounded, apiculate, margin reflexed, abaxial surface glaucous, papillate, with some red glandular hairs, sometimes sparsely hairy; adaxial surface dark green, smooth, glabrous; petiole slender, 1 - 3 cm long, glabrous. Inflorescence umbellate raceme, 4 - 8-flowered; rachis 5 - 12 mm long, glabrous. Flower deep crimson; pedicel c. 1.2 cm long, usually glabrous. Calyx cupular to irregularly split, lobes 5, 5 - 12 mm long, rounded, glabrous. Corolla campanulate, c. 4.5 cm, fleshy, lobes 5, suborbicular, c. 1 × 1.5 cm, emarginated. Stamens 10, unequal, 2 - 3 cm long. Ovary cylindric, 5 - 7 mm long, glabrous or glandular-hairy; style 3 - 3.5 cm long, glabrous or densely glandular-hairy; stigma slightly swollen. Capsule oblong, 12 - 15 mm long, glabrous, calyx persistent.

Fl.: May.



Figs A. *Rhododendron glischrum* Ball f & W W Sm subsp. *rude* (Tagg & Forrest) D. F. Chamb ; B. *Rhododendron pudorosum* Cowan, C. *Rhododendron thomsonii* Hook f subsp. *lopsangianum* (Cowan) D. F. Chamb. D. *Rhododendron dekatanum* Cowan.

Specimen examined: Zupuk to Tanjim La camp, West Siang, 3300 m, 08.5.2011. A.A.Mao 20332 & Bhaumik 25700 (ARUN).

Note: This subspecies is well populated in subalpine to alpine open cliffs along with *Rhododendron dekatanum*, *R. megeratum*, *Vaccinium* spp. and many herbaceous elements.

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