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Rediscovery of *Oreoweisia brevidens* Herzog (Dicranaceae; Bryophyta) an Indian endemic species from Western Ghats reported after 75 years

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Oreoweisia brevidens a rare Indian endemic moss described by Herzog in 1939 from Assam is reported after 75 years from the Karnataka part of Western Ghats. The species is described with photos and illustration.

Keywords: Dicranaceae, distribution, endemic, rare

The genus *Oreoweisia* has been given a subgenus status when it was established by Bruch and Schimper in 1846 as *Weissia* subgenus Oreoweisia Bruch & Schimp. and included under the family Pottiaceae. Later De Notaris (1869) raised the subgenus status from *Weissia* to *Oreoweisia* (Bruch & Schimp.) De Not. and kept *Oreoweisia serrulata* (Funck) De Not. as type. Now the genus includes 15 valid species under the family Dicranaceae. From India two species viz., *O. brevidens* Herzog and *O. laxifolia* (Hook.f.) Kindb. are reported. Among these *O. Laxifolia* (Hook.f.) Kindb. is reported from South India by Mueller (1853) from Neilgheri hills. Daniels (2010) listed this species based on Muller (1853). *O. brevidens* Herzog was established in 1939 by Herzog collected from Sikkim. This species is not reported from India and elsewhere after Herzog (1939). Gangulee (1971) also reported this species from Sikkim based on Herzog's collection and commented that it is an endemic species to Sikkim. The present collection of this species from Nandhi hills in Karnataka state extend its distribution to Western Ghats (Fig. 1). This rare species was found on stone wall along with *Fissidens viridulus* (Sw.) Wahlenb. and the present collection lacks sporophyte. This species is described as a new record for Western Ghats after a long gap of 75 years. This report includes detailed description with photos and illustration.

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Key to the species of *Oreoweisia* in India

1a. Plants small, 4–6 mm long, branching usually absent, leaf margin not serrated……*O. brevidens*
1b. Plants more than 1 cm, dichotomously branched, leaf margin serrulate at tip……*O. laxifolia*

Oreoweisia brevidens Herzog, Ann. Bryol. 12: 87.10a–c. 1939; Gangulee, Mosses E. India Vol. 1. Fasc. 2. pp. 359.1971.

Type: India, Sikkim Himalaya, Tsomgo lake, zwischen Gangtok und Natu la, humus, 3600–3900 m leg C. Troll. (Herb.Friedrich-Schiller-Universität Jena (JE), T. Herzog!)

Plants golden yellowish-green, caespitose in small patches on stone walls, unbranched, some plants shows dichotomous branching at middle of the main stem, vegetative plants 4–6 mm long, up to 20 leaves, small and large leaves intermingled, leaf base looks more opaque, cross section of stem rounded to ovate, 0.25–35 mm in diameter, central strand absent, epidermis not distinct, cortical cells thick walled with three–four row of cells, medullary cells thin walled, polygonal, 9.21–35.23 µm, leaves linear lanceolate, lower leaves small up to 1.15 mm long, 0.22 mm wide, leaf tip acuminate, upper leaves 2.25 mm long, 0.25 mm wide, ovate at tip, highly curled and contorted when dry, costa strong, thick, yellowish brown, basal portion with four cells wide, more than 30 cells long, costa vanishes below tip, leaf tip minutely denticulate at marginal cells of some leaves, cells of upper chlorophyllose leaf lamina quadrate to hexagonal, papillose, 12–35 µm, hyaline basal laminal cells elongate to rectangular, 40–60 µm long, 10–14 µm wide, in cross section lamina unistratose

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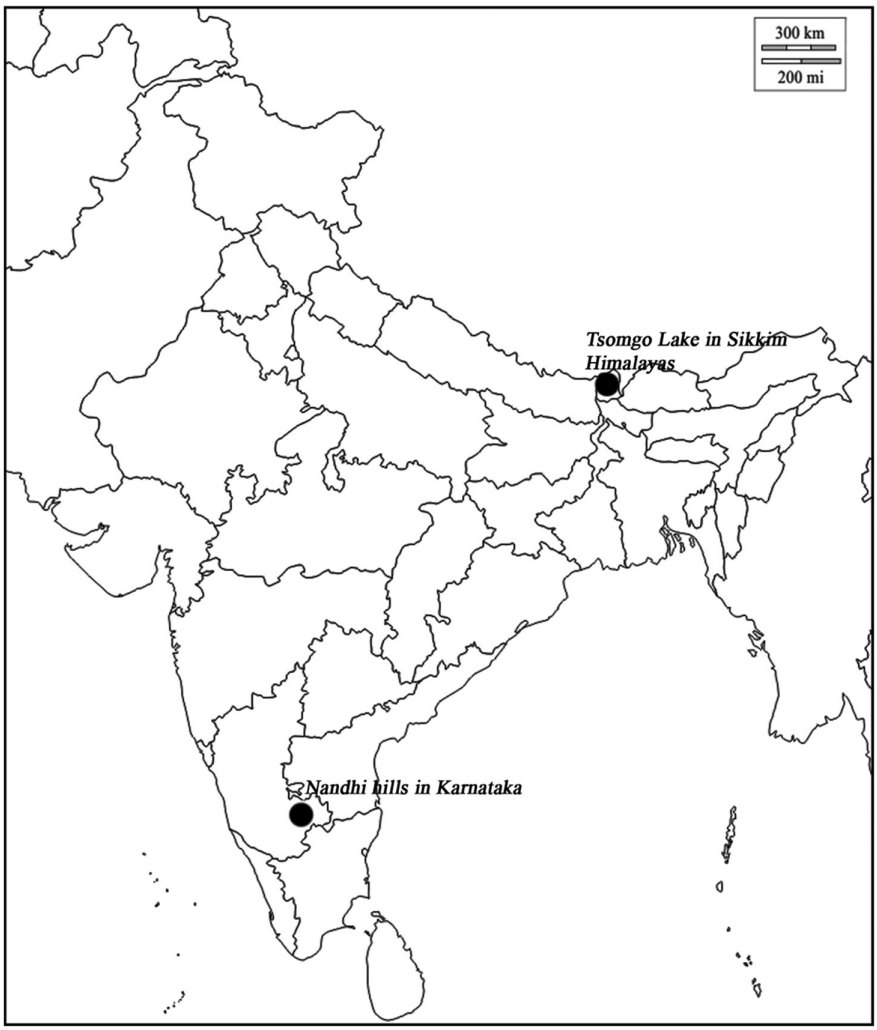


Figure 1. Map showing the distribution of *Oreoweisia brevidens* Herzog in India.

ending with a projected single cell, midrib with large four–five polygonal cells, adaxial stereidal band weak to absent, abaxial not developed (Fig. 2, 3).

Plants autoicous, perigonial leaves smaller, ovate-lanceolate with highly involuted sheathing base, broad, 0.50–0.68 mm long, antheridia liberated early June; perichaetial leaves erect, slightly differentiated from normal leaves, 0.95–1.98 mm long, base broad with 0.52–0.60 mm, archegonia seen in cluster, along with numerous long slender paraphysis at base of involuted perichaetial leaf, paraphysis 0.24–0.55 mm long. Seta erect, upto 8 mm long, slender, golden brown, capsule erect, regular, narrowly, ± 1 mm long and 0.5 mm wide, operculum convex, very shortly conic-rostrate, annulus rudimentary, formed of two rows of cells, peristome teeth reddish, transversely barred, 16 irregular teeth, broadly lanceolate from base, short, subulate, pale in the tip, sometimes split below middle, nodose-articulate. Spores 16–20 µm in diameter, reddish, opaque (sporophyte characters after type).

Note

The present species and the type procured from JE shows minute variation in the leaf tip characters. The leaf tip is acuminated and ends with single cell and tip margin serrated in the upper leaves in the type specimen, but the present collection shows ovate leaf tip in common and minutely serrated conditions in some of the specimens.

The sexuality of the species is stated as 'probably autoicous', in the protologue. Herzog (1939) mentioned the perigonial leaf and sporophyte. We could also locate the perigonial and perichaetial bract in the same plant. Hence the species is confirmed as autoicous.

Specimens examined

India, Karnataka, Nandhi hills (1450 m), on stone wall, (15 Jun 2018), Sabarish *9781*, (5 Aug 2018), *Sabarish 13109* (ZGC).

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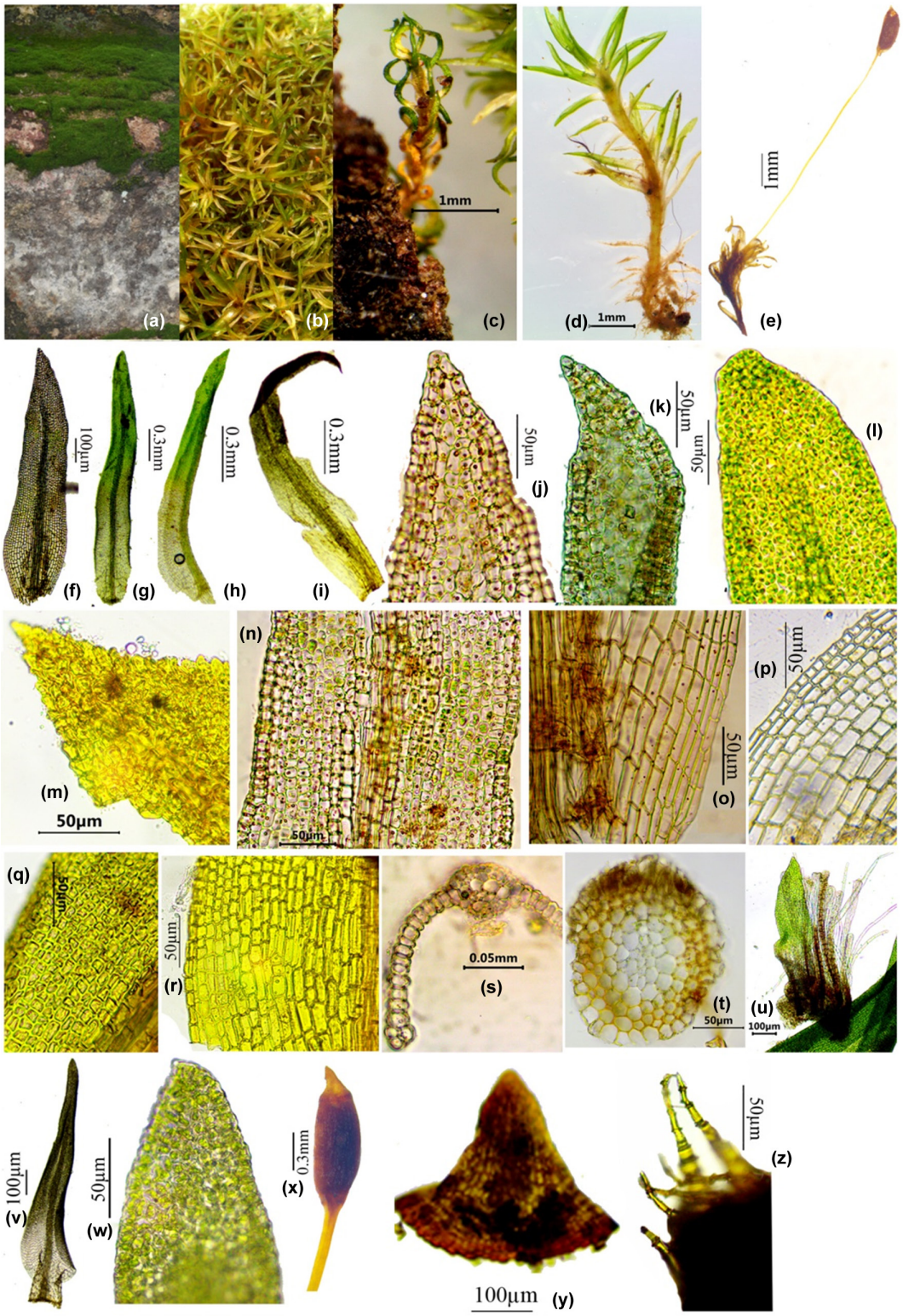


Figure 2. *Oreoweisia brevidens* Herzog, (a and b) habit, (c) dry plant, (d) wet plant, (e) plant with sporophyte, (f and i) basal leaf, (g and h) leaf at comal tuft, (j–m) leaf tip, (n and q) leaf middle cells, (o, p and r) leaf basal cells, (s) c.s. of leaf, (t) c.s. of stem, (u) archegonial cluster along with perichaetial leaf and small erect perigonial leaf without antheridia, (v) perichaetial leaf, (w) perichaetial leaf tip, (x) sporophyte, (y) operculum, (z) peristome (e, i, m, q, r, x, y and z from type).

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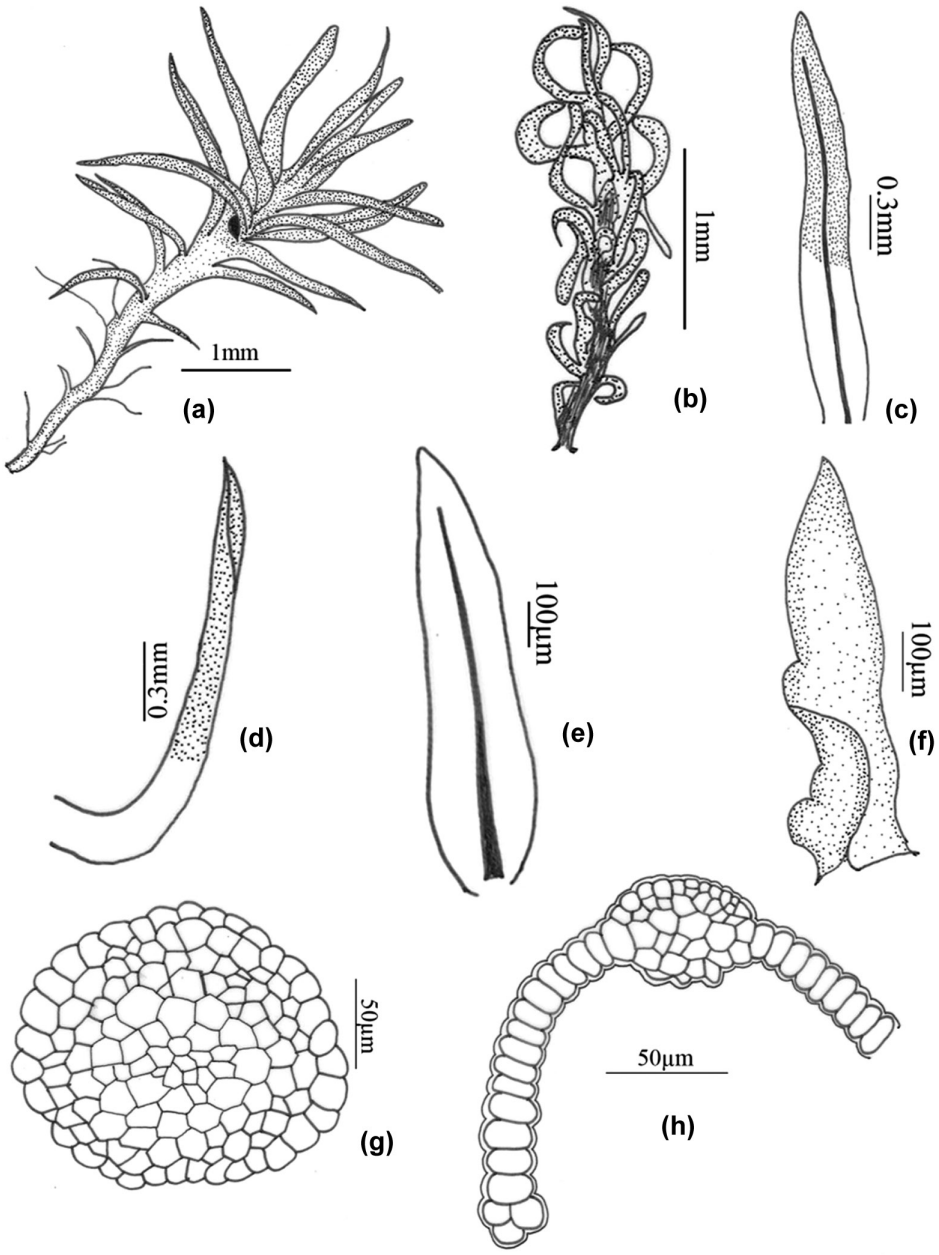


Figure 3. *Oreoweisia brevidens* Herzog; (a) habit, (b) dry plant, (c–e) leaf, (f) perichaetial leaf, (g) c.s. of stem, (h) c.s. of leaf.

Habitat and distribution

Found on acidic stone wall along with *Fissidens viridulus* (Sw.) Wahlenb. This species is earlier reported only from Tsomgo Lake in Sikkim Himalayas, the type locality. Hence the present collection from Nandi hills is a new record for Western Ghats and the species is endemic to India.

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