
A new subspecies of *Tibetoseris gracilipes* (Hook.f.) Sennikov (Compositae-Cichorieae) from the Himalayas

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A new subspecies of *Tibetoseris gracilipes* (Hook.f.) Sennikov subsp. *duthiei* D. Maity, Manasi Mandal & Maiti (Compositae - Cichorieae) is described from the Himalayas and illustrated. This new taxon differs from the typical one having well developed stem, presence of both radical and cauline leaves and the terminal or axillary capitula.

Key words : *Tibetoseris gracilipes* (Hook.f.) Sennikov subsp. *duthiei* D. Maity, Manasi Mandal and Maiti, new subspecies, Compositae Cichorieae

INTRODUCTION

Crepis gracilipes Hook.f. had established by J.D. Hooker (1881) based on some perennial tufted alpine specimens of Sikkim Himalaya. Hooker (1881) had diagnosed this taxon as "perennial dwarf, glabrous leaves all radical elongate obovate or spatulate sinuate-lobed or pinnatifid lobes obtuse entire, heads 1/2 in. long solitary on short slender 1-bracteate scapes, outer invol. bracts very small, inner linear subacute, achenes (unripe) much shorter than the soft silvery pappus" and had mentioned its closeness with that of another tufted alpine species *Crepis depressa* Hook.f. & Thomson [= *Youngia depressa* (Hook.f. & Thomson) Babc. & Stebbins or *Tibetoseris depressa* (Hook.f. & Thomson) Sennikov].

Babcock and Stebbins (1937) in their monographic study of the genus *Youngia* Cass. had treated this taxon as *Youngia gracilipes* (Hook.f.) Babc. & Stebbins under sect. *Desiphylum* Babc. & Stebbins with a detail description along with additional information of the ranges of characters based on several later collected specimens from throughout the Himalayas (Western Himalaya, Tibet, Nepal and Sikkim).

Later, Sennikov and Illarionova (2008) in a critical study have described a new genus *Tibetoseris* Sennikov based on the sect. *Desiphylum* Babc. & Stebbins and included all the tufted species of this section of *Youngia* including *Y. gracilipes* as *Tibetoseris gracilipes* (Hook.f.) Sennikov.

The elaboration of characters by Babcock & Stebbins (1937) finally results to a loose assemblage of characters and triggered them to segregate all specimens into two forms i.e. 'form 1' and 'form 2'. However, Sennikov & Illarionova (2008) did not made any comment regarding these two forms.

Mamgain and Rao (1995) in their revision of the tribe *Cichorieae* (Asteraceae) of India had described this taxon without mentioning the variability as indicated by Babcock & Stebbins (1937). Unfortunately they did not explain the fate of these two forms of Babcock & Stebbins though both the description and illustration approaches towards the form 2. The description "stem dwarf, 8-20 cm high, glabrous, with few, slender, flowering branches. Leaves mostly radical, spatulate..." produced by them certainly contradict with the protologue ('...leaves all radical...').

Although Babcock & Stebbins (1937) had mentioned the difficulties regarding the study of the type specimen in detail as "there were no achene in the type sheet and only one head with floret" (p. 42). Finally, they had grouped all the specimens known to them at that time into 'form 1' characterized by "but stem longer than in type; peduncles exceeding leaves" and indicated 'probably this is merely a more robust form of the species' and 'form 2' characterized by "plants 5 to 9 or even 15cm high; leaves 2 or 3 times as long as in type; branches 1-or 2-furcate, leafy, filiform; heads borne well above the leaves; achenes dark brown, less attenuate at summit; pappus 6 to 7 mm long" and indicated 'this form may eventually be recognized as a subspecies or even a species'.

During the study of herbarium specimens of the Himalayas deposited at Central National Herbarium (CAL) the authors came across a large number of gathering of *Crepis gracilipes* collected from throughout the Himalayas including few materials that had mentioned by Babcock & Stebbins in their monograph (eg. 'form1' *Duthie* 3090 and 'form 2' *Duthie* 5717). Simultaneously, it is very much unfortunate not to collect a single specimen from Sikkim Himalaya although first author (DM) had taken more than 15 collection trips to the different remote places in alpine meadows while studying the flora of Kanchenjunga Biosphere Reserve, Sikkim as well as Sikkim Himalaya since 1999 (Maity, 2005; Maity and Maiti, 2007).

After the analysis of all these described characters and the study of all the available specimens at CAL (all together 17 specimens) it is seen that the forms recognized by Babcock & Stebbins (1937) creates some confusion regarding the diagnostic features. The characters like 'peduncles exceeding leaves' or 'heads borne well above the leaves' is not a static feature. The only diagnostic character based on which it can be classified this species as either with leaves radical, or both radical and cauline. The type specimens produced by Babcock & Stebbins (1937, fig. 6 a-c) show both peduncles shorter and longer than leaves. Many specimens at CAL also show the similar features. Leaf forms are also variable as mentioned by Hooker (1881) and do not show any correlation with the other features. Again; *Duthie* 3090 ('form 1' of Babcock & Stebbins) has three specimens of which two are with only radical

leaves and another has both radical and cauline leaves (Fig.1.B). The later has two capitula borne on a slender peduncle. Similarly, there are few specimens having much tufted habit, with *ca* 2 cm long spatulate, denticulate leaves, but the capitula always borne on leafy filiform stem, which never exceeding the leaves. Cypselas also vary in shape, though size is more or less same (*ca* 5 mm lg.). In *Duthie* 3090 - CAL the mature cypselas are narrow, cylindrical to columnar (Fig.1.D) while Babcock & Stebbins (1937) mentioned fusiform cypselas in the same specimen (*Duthie* 3090-BM, fig. h&h', p.41).

Therefore, based on diagnosis in the protologue provided by Hooker (1881) and type specimens by Babcock & Stebbins (1937, fig.6. a-c, p.41) it is justified to describe the typical plant with only radical leaves and capitula borne amongst the crown of leaves and those are with both radical as well as cauline leaves and capitula (solitary or two), terminal or axillary, borne on leafy stem which needs to recognize and to segregate as a new subspecies.

Key to the subspecies

1. Leaves radical; capitula borne amongst the crown.....**subsp. gracilipes**
1. Leaves both radical and cauline; capitula borne on leafy stem.....**subsp. duthiei**

The diagnosis of new subspecies along with illustration is provided.

***Tibetoseris gracilipes* (Hook.f.) Sennikov subsp. duthiei** D. Maity, Manasi Mandal & Maiti, **subsp. nov.** [Fig.1]

Very close to typical one but differs by having well developed stem, leaves both radical and cauline; capitula terminal or axillary.

Subspecies nova hanc *Tibetoseris gracilipes* (Hook.f.) Sennikov typica affinis, sed caulis; folia radicalia et caulina; capitula terminalis vel axillaribus.

Typus : Western Nepal, 10,000 - 11,000 ft (3000 - 3300 m), 26.7. 1886, *Duthie* 5717, acc. no. 255156 (holo. *Duthie* 5717A - CAL); iso. *Duthie* 5717B, C - CAL).

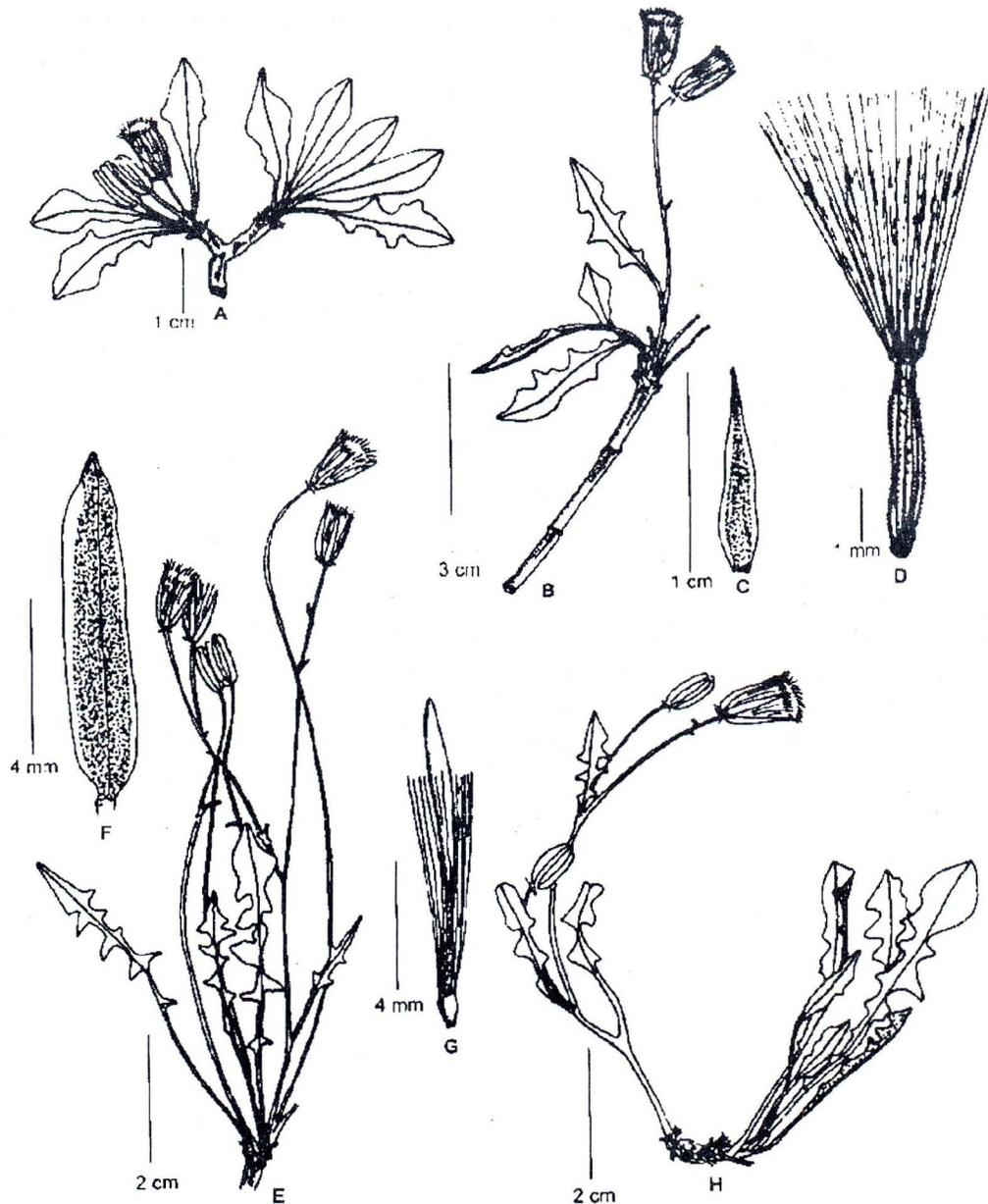


Fig. 1. A: *Tibetoseris gracilipes* subsp. *gracilipes* - Habit (Smith & Cave 1892); B-H: *Tibetoseris gracilipes* subsp. *duthiei*; B - Habit; C - Inner involucre bract (dorsal face); D - Cypsela (Duthie 3090); E - Habit; F - Inner involucre bract (dorsal face); G - Floret (Duthie 5717A - holotype); H - Habit (Duthie 5717B-isotype) - all at CAL (Drawing by D. Maity)

Flowering & fruting : July - October

Distribution : INDIA : Sikkim; NEPAL ; CHINA (Tibet).

Ecology : Grows on open grassy alpine slopes in between 3000 - 4200 m altitudes.

Specimens examined : *Tibetoseris gracilipes* subsp. *duthiei* D. Maity, Manasi Mandal & Maiti

India : Uttaranchal : Kumaon, Nipchang valley, 12-14000 ft (3600 - 4200 m), 31.08.1884, *Duthie* 3090, acc. no. 255155. **Nepal** : Western Nepal, 10,000 - 11,000 ft (3000-3300 m), 26.07.1886, *Duthie* 5717. **China** : Tibet : Without any precise locality, without collector's name, 281, acc.no. 255165 ; Without any precise locality, 1882, *King's collector* 193, acc. no. 255164; Without any precise locality, 1882, *King's collector* s.n., acc. nos. 255163, 255157, 255158, 255159; Jamphook, 4th Aug. 1882, *King's collector*

(*Lamma Ujyen Gyatsko*), 143 B&C; Without any precise locality, 1882, *King's collector*, acc. no. 25531; Gyangtse, July-Sept. 1904, *Walton s.n.*, acc. no. 255304 (all paratypes at CAL).

Tibetoseris gracilipes subsp. *gracilipes*

India : Sikkim : Geagong, Sept. 1902, *Prain s.n.*; Lhonak, 15,500 ft (4650 m), 03.08.1909, *Smith & Cave* 1892; Naku Chu, 04.08.1909, 16-17,000 ft (4800-5100 m), *Smith & Cave* 1982; Geagong, 16,000 ft (4800 m), 14.08.1909, *Smith & Cave* 2454. **China** : Without any precise locality, 1882, *King's collector* 143; Gyangtse, July-Sept. 1904, *Walton* 123 (all at CAL).

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