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Notes on the distribution of *Ligularia kingiana* (W. W. Sm.) Hand.-Mazz. (Asteraceae): new records

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Summary. The Himalayan species *Ligularia kingiana* (W. W. Sm.) Hand.-Mazz., which for a long time was considered as endemic to the state of Sikkim (India), was first found during field work in the state of Nagaland, almost 700 km from the type locality. The study of herbarium materials and literature revealed that this rare species also occurs in eastern Nepal (Solukhumbu District) and northern Myanmar (Kachin State). For Nepal, *L. kingiana* is reported for the first time.

Заметки о распространении *Ligularia kingiana* (W. W. Sm.) Hand.-Mazz. (Asteraceae): новые находки

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Ключевые слова: таксономия растений, флора Гималаев, флористические находки, *Senecioneae*.

Аннотация. Гималайский вид *Ligularia kingiana* (W. W. Sm.) Hand.-Mazz., в течение длительного времени считавшийся эндемиком штата Сикким (Индия), в ходе полевых исследований был впервые найден в штате Нагаленд, почти в 700 км от типового местонахождения. Изучение гербарных материалов и литературных источников выявило, что этот редкий вид встречается также в восточном Непале и на севере Мьянмы (штат Качин). Для флоры Непала *L. kingiana* приводится впервые.

The genus *Ligularia* Cass. belongs to the tribe *Senecioneae* Cass. and includes about 140 species distributed in Eurasia (Liu, Illarionova, 2011), with the center of species diversity in the eastern Himalayas and the Hengduan Mountains region in southwestern China.

One of the eastern Himalayan species *L. kingiana* (W. W. Sm.) Hand.-Mazz. was described from Sikkim, India (Smith, 1911). This species belongs to Sect. *Corymbosae* (Franch.) Hand.-Mazz., which is characterized by a corymbose inflorescence. In India, this section is represented by 5 species. *Ligularia*

kingiana is well distinguished from the other 4 species of this section by having palmately veined reniform, ovate or suborbicular leaves and numerous small capitula with ray florets.

Ligularia kingiana was long considered as endemic of Sikkim (Rao et al., 1988; Naithani, 1990; Mathur, 1995; Grierson, Springate, 2001; Kandel et al., 2019). In 2021, during the expedition in East India, the specimens of one of the *Ligularia* species were collected near Mt. Saramati peak in the east of Nagaland state near the border with Myanmar. As it was found later, the collected specimens fully correspond to the description of *L. kingiana*. The population near Mt. Saramati peak counted more than 25 individuals, of which 3 were flowering. It grows on grassy slope at elevation 3789 m in association with *Rubus* sp., *Saxifraga* sp., *Thalictrum* sp., *Rhododendron macabeanum* Watt ex Balf. f., etc. (Figs. 1–2). This is the first find of *L. kingiana* for the Nagaland state of India.

In one of the recent publications (Singh et al., 2019), *L. kingiana* was specified for Sikkim and also for Arunachal Pradesh.

While studying herbarium materials in the Natural History Museum (BM), we found two specimens from Nepal with determination on labels as *Senecio kingianus* W. W. Sm. and later labeled by L. S. Springate in 2000 as *Ligularia kingiana* (BM000050153, BM000050154). Also one specimen of the same gathering is kept in Herbarium of Royal Botanic Garden Edinburgh (E00511218). The specimens were collected in Tangba [Solukhumbu District] in 1930 by Lall Dhwoj, one of the earliest Nepalese collectors and an officer in the Nepal Army. These specimens are fully consistent with the protologue of *L. kingiana*. However, this species has never been reported for Nepal. It is also absent in Annotated Checklist of Flowering Plants of Nepal (http://www.efloras.org/florataxon.aspx?flora_id=110&taxon_id=118542).

In the “A Checklist of the Trees, Shrubs, Herbs, and Climbers of Myanmar” (Kress et al., 2003) *L. kingiana* is accepted as *Senecio kingianus* W. W. Sm. and indicated for Kachin State. We have not seen herbarium specimens from Kachin State and, therefore, we cannot confirm the correctness of their identification, although we fully admit the presence of this species in this region.

Herbarium of Queen Sirikit Botanic Garden (QBG) keeps one specimen identified as *Ligularia kingiana*, which was collected in Chin State of Myanmar (<http://www.qsbg.org/Database/plantdb/herbarium/herbarium-specimen.asp?id=73351>). Upon close examination, it can be seen that this

specimen belongs to *Ligularia stenoglossa* (Franch.) Hand.-Mazz., which is different from *L. kingiana* by ray florets with lamina 3–5-divided, bigger capitula with 10–15 florets, 7–10 phyllaries and brown pappus. *Ligularia kingiana* has 5–7(9)-flowered capitula, 5 phyllaries, undivided lamina of ray florets and white pappus. *Ligularia stenoglossa* is distributed in China (NW and W Yunnan) and Myanmar (Kress et al., 2003; Liu, Illarionova, 2011). The species grows in forest understories, grassland slopes, and can be found at the lower elevation (2100–4000 m) than *L. kingiana*.

Thus, the range of *L. kingiana* extends from Nepal, through Sikkim, Arunachal Pradesh and Nagaland to Myanmar.

In some literary sources (Naithani, 1990; Mathur, 1995; Kandel et al., 2019; etc.), R. Mathur (Rao et al., 1988) is indicated as the author of the combination *Ligularia kingiana*. However, the combination made by H. Handel-Mazzetti (1938) has the priority.

Ligularia kingiana (W. W. Sm.) Hand.-Mazz. 1938, J. Bot. 76: 289. ≡ *Ligularia kingiana* (W. W. Sm.) R. Mathur, 1988, in R. R. Rao et al., Fl. Ind. Enumerat. – Asterac.: 53, comb. superfl. ≡ *Senecio kingianus* W. W. Sm. 1911, J. Proc. Asiat. Soc. Bengal (n. s.) 7(3): 71.

Lectotype (Illarionova et al., 2012: 358): [India] “Sikkim, Changu, 12–13000 ft., 12 July 1910, W. W. Smith 3401” (CAL! [CAL000023565]; iso – CAL! [CAL000023566], K! [K00010231]).

Distribution. India: Arunachal Pradesh, Nagaland (east), Sikkim (Gnatong, Lingtu, Sherrathang, Changu (= Tsomgo), Patang La); E Nepal: Solukhumbu District (Tangba); Myanmar: Kachin State.

Ecology and phenology. In streams, on turf, gravel and grassy hillsides and scree, at elevation of 3350–4570 m. Flowers in July – August, fruits in September – October.

Conservation. The small number of specimens in the herbaria is apparently a consequence of the rare occurrence of this species in nature. Only one collection of this species, made in 1930, is known from Nepal. In India, *L. kingiana* is distributed in a limited area within 100–120 km² in the east of Sikkim. Only one population of 25–30 individuals of this species has been discovered in Nagaland. We did not find an information on the population size of this species in the Arunachal Pradesh, as well as its localities. Same for Myanmar, there is only an indication that this species is found in Kachin State. Thus, the areal of *L. kingiana* extends over 1000–



Fig. 1. Population of *Ligularia kingiana* in Nagaland.



Fig. 2. Blooming plant of *Ligularia kingiana* in Nagaland.

1200 km, but its locations are fragmented and the number of individuals in the population is not high. However, due to insufficient data, it is difficult to accurately estimate the status of this species according to IUCN classification criteria (2012), tentatively *L. kingiana* can be assessed as Vulnerable VU B2a,b (ii, iii), B2a,b (ii, iii). Further study of the flora of the Himalayas and the search for new localities of this rare species, as well as the study of the state of populations of already known localities, is necessary. It is possible that *L. kingiana* will be found in the Sagaing Region of Myanmar at the peak of Mt. Saramati.

Specimens examined. **India.** Nagaland: “near Mt. Saramati peak, alt. 3789 m. 4 VIII 2021. S. Dey” (ASSAM), Sikkim: “Changu, 12–13000 ft. 12 VII 1910. W. W. Smith 3401” (CAL, lectotype, CAL, K, isolectotypes); “Changu, 12–13000 ft. IX–X 1910. Ribu & Rhomoo 4556” (CAL, K, syntypes); “Changu, 12–13000 ft. 13 VIII 1910. W. W. Smith 4292” (CAL, E, P, syntypes); “Changu, 11–13000 ft. 6 VII 1910. W. W. Smith 3131” (CAL, syntype); “Kapup, Changu, 12–13000 ft. 19 VIII 1913. R. E. Cooper 552” (E); “Gymopchi, 15000 ft. 3 X 1913. R. E. Co-

per 1013” (E); “Lingtu, 12000 ft. 1 VIII 1912. Rohmoo Lepcha 48” (E, K); “Sherathang, 14000 ft. 5 IX 1913. R. E. Cooper 800” (E); “Patang la. 18 VII 1877. G. King 4410” (CAL, syntypes). **Nepal.** Tangba [Solukhumbu District], 14000–15000 ft. 1930. Lall Dhwoj 217 (BM, E).

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