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Distribution maps of *Silene* (Caryophyllaceae) in Nepal (I)

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Abstract. To clarify regional distribution of *Silene* in Nepal the horizontal distribution of 21 species of this genus is presented with maps.

Key words : *Silene*, distribution, Nepal.

Introduction

The genus *Silene* L. (Caryophyllaceae), with about 700 species is distributed mainly in the northern temperate regions of the world (Mabberley, 1997). It is much diversified in the Himalayas and adjacent regions in China (Yunnan, Sichuan and Tibet). It has much variation in flower structure, especially shape and hairiness of calyx and petal parts such as claw and limb. The genus *Silene* of Nepal has been studied by Don (1825), Edgeworth and Hooker (1875), Bocquet (1967, 1969) and Bocquet and Chater (1979) and is now represented by 26 species. Although its taxonomy has been well worked out but its regional distributional pattern has not yet been studied. The regional distribution maps of plant groups allow study of distribution barriers at the population level (Noshiro, 1997). In this regard several reports have already been published on various plant genera of Nepal (Noshiro, 1997; Amano & Ohba 1998; Akiyama et al., 1999; Ikeda & Koba, 2000; Miyamoto & Koba, 2001; Ohba et al. 2003; Mouri et al., 2004; Amano & Noshiro, 2004, 2005). To clarify regional distribution of *Silene* in Nepal, we present here horizontal distribution maps of 21 species (Table 1, Figs. 1–21). The present report is an addition to the already published reports. The distribution maps are based on the specimens deposited in the Royal Botanic Garden Edinburgh, Edinburgh, Scotland, U.K. (E), Conservatoire et Jardin Botaniques, Geneva, Switzerland (G), Royal Botanic Gardens, Kew, London, U.K. (K), University of Kyoto, Kyoto, Japan (KYO), Institute of Botany, Chinese Academy of Sciences, Xiangshan, Beijing, China (PE), University Museum, University of Tokyo, Japan (TI), Botanical Gardens, Tohoku University, Sendai, Japan (TUS) and Smithsonian Institution, National Museum of Natural History, Washington, DC., U.S.A. (US). The list of the specimens used for the present study is presented in the Appendix 1. It contains some specimens listed in the Flora of Nepal database made by the Society of Himalayan Botany and is available on the University of Tokyo Herbarium page of the World Wide Web (<http://ti.um.u-tokyo.ac.jp>). To show horizontal distribution of *Silene* in Nepal we have followed Hara et al. (1978) for phytogeographical divisions of Nepal, such as west Nepal (western border to 83°E), central Nepal (83°E to 86°30'E) and east Nepal

(86°30'E to eastern border).

Recently, Yoshida (2006) has analyzed the horizontal distribution of Himalayan plants given in his book 'Himalayan Plants Illustrated' (Yoshida, 2005), and classified them into 24 distribution categories in five distribution types. This classification is useful to understand the horizontal distribution pattern of the Himalayan plants. According to this classification the distribution pattern of the Nepalese *Silene* shows the following six categories.

Ba. Plants of the temperate zone of western Eurasia, including at least a part of the Himalaya : *Silene baccifera*, *Silene conoidea*, *Silene vulgaris*.

Cb. Plants of the western and the central Himalaya, including Kashmir in the west and with the eastern end of their distribution lying between Garhwal and central Nepal : *Silene edgeworthii*, *Silene falconeriana*, *Silene kumaonensis*, *Silene laxantha*, *Silene moorcroftiana*.

Cc. Plants distributed nearly throughout the Himalaya, including Kashmir in the west and with the eastern end of their distribution lying between eastern Nepal and Myanmar : *Silene himalayensis*, *Silene indica*, *Silene nepalensis*.

Cd. Plants endemic to the central Himalaya from Himachal Pradesh to central Nepal : *Silene davidlongii*, *Silene greywilsonii*, *Silene helleboriflora*, *Silene hideakiohbae*, *Silene vautierae*.

Ce. Plants of the central and the eastern Himalaya with the western end of their distribution lying between Himachal Pradesh and central Nepal and the eastern end between eastern Nepal and Myanmar : *Silene caespitella*, *Silene holosteifolia*, *Silene stracheyi*.

Cf. Plants endemic to the eastern Himalaya from eastern Nepal to Myanmar, excluding plants in the next category (Cg) endemic to southeastern Tibet : *Silene khasiana*, *Silene nigrescens*.

Distribution of *Silene* in Nepal

Among the 21 species of *Silene* presented in this paper, four species (*Silene himalayensis*, *Silene indica*, *Silene kumaonensis* and *Silene nepalensis*) grow throughout Nepal. Five species (*Silene baccifera*, *Silene greywilsonii*, *Silene helleboriflora*, *Silene hideakiohbae* and *Silene holosteifolia*)

Table 1. Distribution of *Silene* in Nepal.

Species	Horizontal distribution			Altitudinal distribution
	West Nepal	Central Nepal	East Nepal	
<i>Silene baccifera</i>				1,800–2,200 m
<i>Silene caespitella</i>				3,750–4,400 m
<i>Silene conoidea</i>				1,350–2,300 m
<i>Silene davidlongii</i>				4,500 m
<i>Silene edgeworthii</i>				1,560–2,980 m
<i>Silene falconeriana</i>				2,400–2,700 m
<i>Silene greywilsonii</i>				5,300 m
<i>Silene helleboriflora</i>				3,150–4,800 m
<i>Silene hideakiohbae</i>				2,520 m
<i>Silene himalayensis</i>				3,100–5,000 m
<i>Silene holosteifolia</i>				2,600–3,900 m
<i>Silene indica</i>				1,500–4,500 m
<i>Silene khasiana</i>				1,800–3,200 m
<i>Silene kumaonensis</i>				2,500–4,500 m
<i>Silene laxantha</i>				3,200–4,100 m
<i>Silene moorcroftiana</i>				2,400–4,700 m
<i>Silene nepalensis</i>				2,700–4,800 m
<i>Silene nigrescens</i>				3,900–5,000 m
<i>Silene stracheyi</i>				3,300 m
<i>Silene vautierae</i>				3,500–5,000 m
<i>Silene vulgaris</i>				2,700 m

grow only in central Nepal. Seven species (*Silene conoidea*, *Silene davidlongii*, *Silene edgeworthii*, *Silene falconeriana*, *Silene laxantha*, *Silene stracheyi* and *Silene vulgaris*) grow only in west Nepal. Two species (*Silene khasiana* and *Silene nigrescens*) grow in east and central Nepal. Three species (*Silene caespitella*, *Silene moorcroftiana* and *Silene vautierae*) grow in central and west Nepal. Among the 21 species of *Silene* five species are endemic to Nepal of which one species (*Silene davidlongii*) grows in west Nepal and one (*Silene vautierae*) grows in west and central Nepal while three species (*Silene greywilsonii*, *S. helleboriflora* and *S. hideakiohbae*) grow only in central Nepal.

The genus *Silene* is more diversified in the alpine zone of Nepal and most of the species of *Silene* are found in the high altitude in Nepal. Only a few species have been recorded from the lower altitude. They have not been recorded from the tropical zone of Nepal. In Nepal they are found from the subtropical or temperate zone to subalpine or alpine zone. In the alpine zone above 3,800 m 11 species of *Silene* are found including two species (*Silene indica* and *Silene kumaonensis*) occurring up to 4,500 m and nine species (*Silene davidlongii*, *Silene greywilsonii*, *Silene helleboriflora*, *Silene himalayensis*, *Silene indica*, *Silene moorcroftiana*, *Silene nepalensis*, *Silene nigrescens* and *Silene vautierae*) occurring beyond 4,500 m. Among them *Silene indica* has a wide range of altitudinal distribution ranging from 1,500 m to 4,500 m and also shows wide range of variations in habit, leaf and flower structures. Some species of *Silene*, such as *Silene baccifera*, *Silene conoidea*, *Silene edgeworthii*, *Silene falconeriana*, *Silene hideakiohbae* and *Silene vulgaris* are

found in the subtropical and temperate zones only and do not extend to the subalpine or alpine zone. The two species found in the subalpine zone only of west Nepal at 3,000–3,800 m are *Silene laxantha* and *Silene stracheyi*, while one species, *Silene khasiana*, is found from the subtropical to subalpine zone of central and east Nepal at 1,800–3,200 m.

The horizontal distribution of *Silene* in Nepal shows that the number of species found in west Nepal is more than that found in east Nepal. In west Nepal 14 species of *Silene* are found including seven species distributed in west Nepal only, whereas from east Nepal only six species are reported (Table 1). Moreover, if we see the distribution of *Silene* in west Nepal and the arid zone of Nepal, such as Dolpo, Mustang and Manang areas, then the number of *Silene* species occurring in these areas would be 19 out of 21. Only two species, *Silene khasiana* and *Silene nigrescens*, do not occur there. This indicates that *Silene* more commonly occurs in drier condition than in moister condition as the climate in Nepal becomes drier from east to west (Amano & Noshiro, 2004). This is in contrast to the nature of genera *Juncus*, *Pedicularis* or *Rhododendron* studied before, which prefer moister condition and the number of species of these genera is more in east Nepal than in west (Amano & Noshiro 2004, 2005; Miyamoto & Koba, 2001; Noshiro, 1997).

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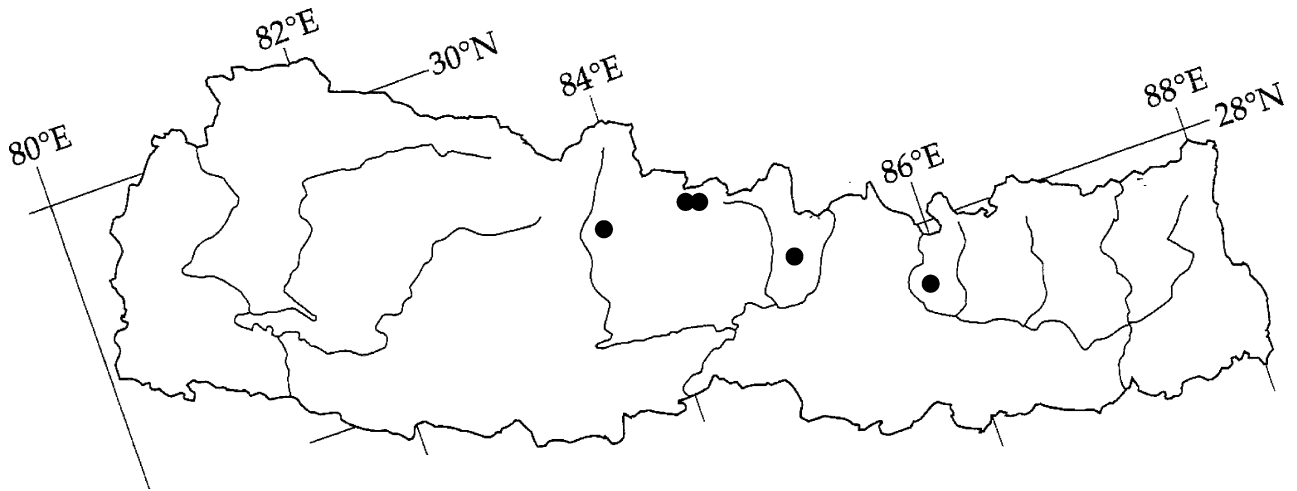


Fig. 1. Distribution of *Silene baccifera* in Nepal

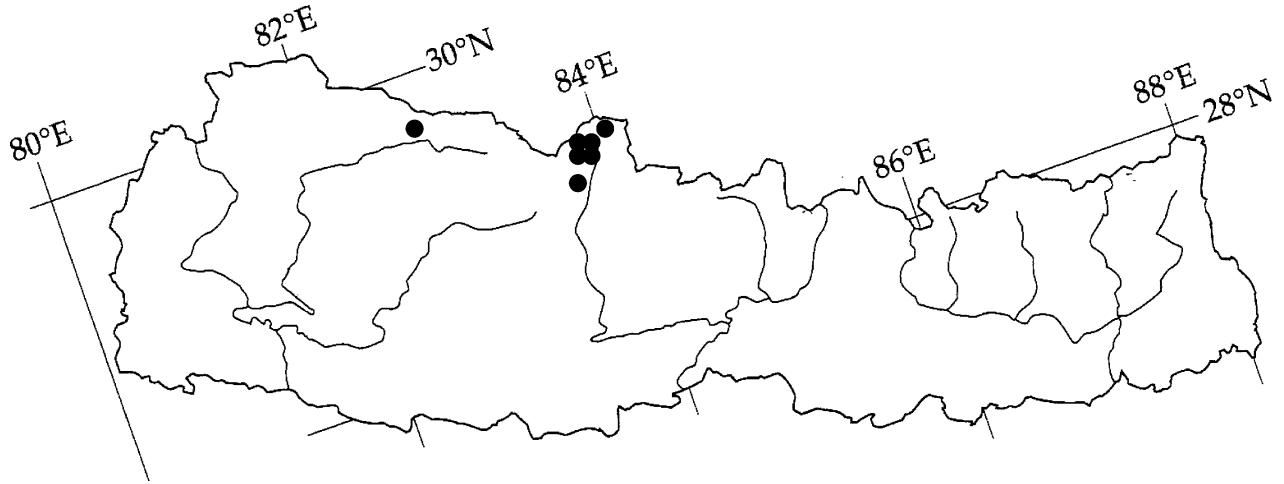


Fig. 2. Distribution of *Silene caespitella* in Nepal

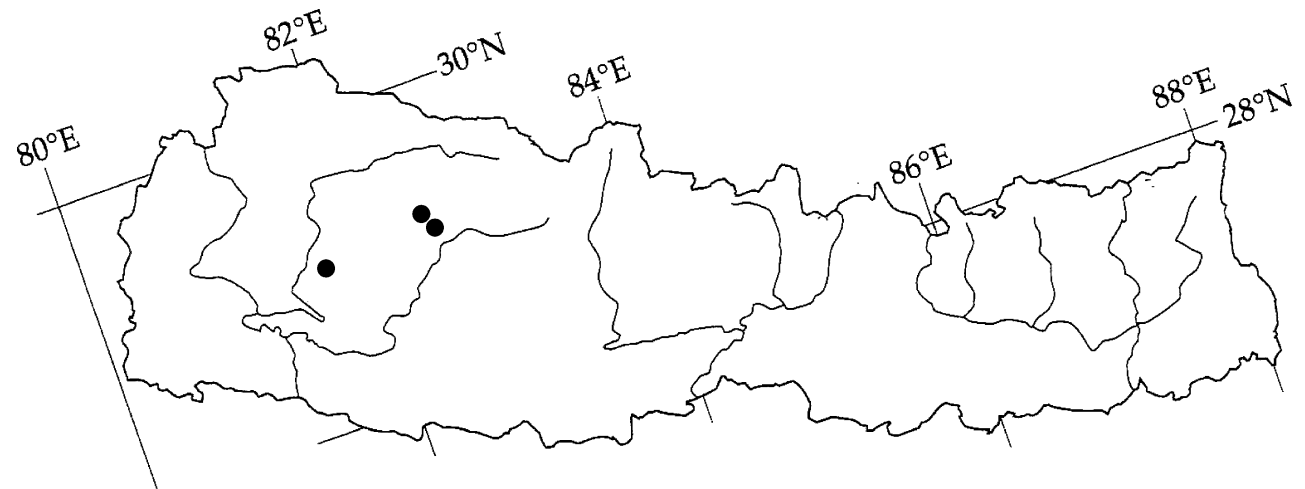


Fig. 3. Distribution of *Silene conoidea* in Nepal

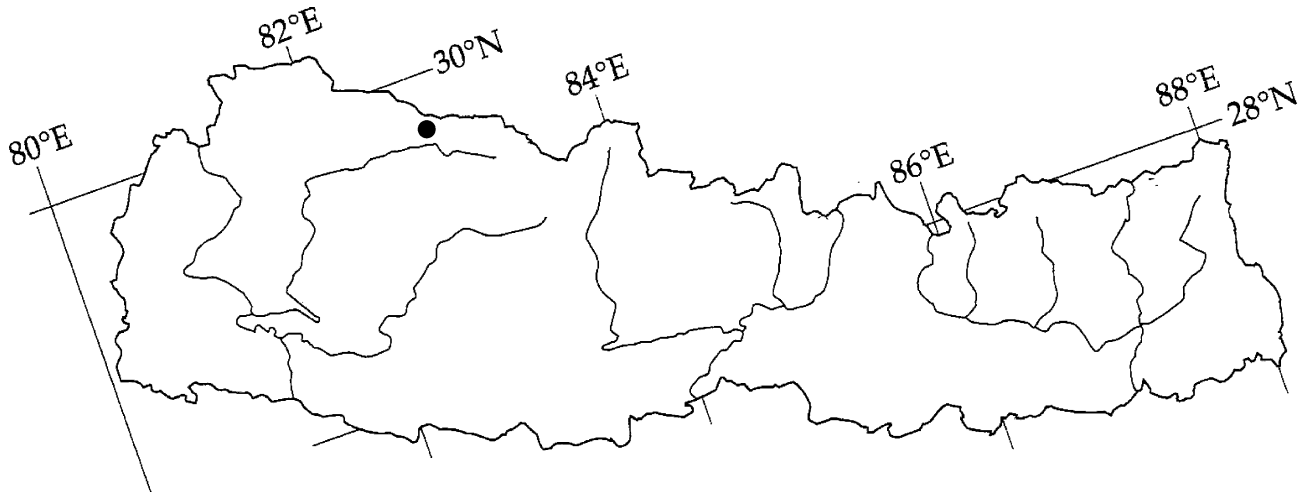


Fig. 4. Distribution of *Silene davidlongii* in Nepal

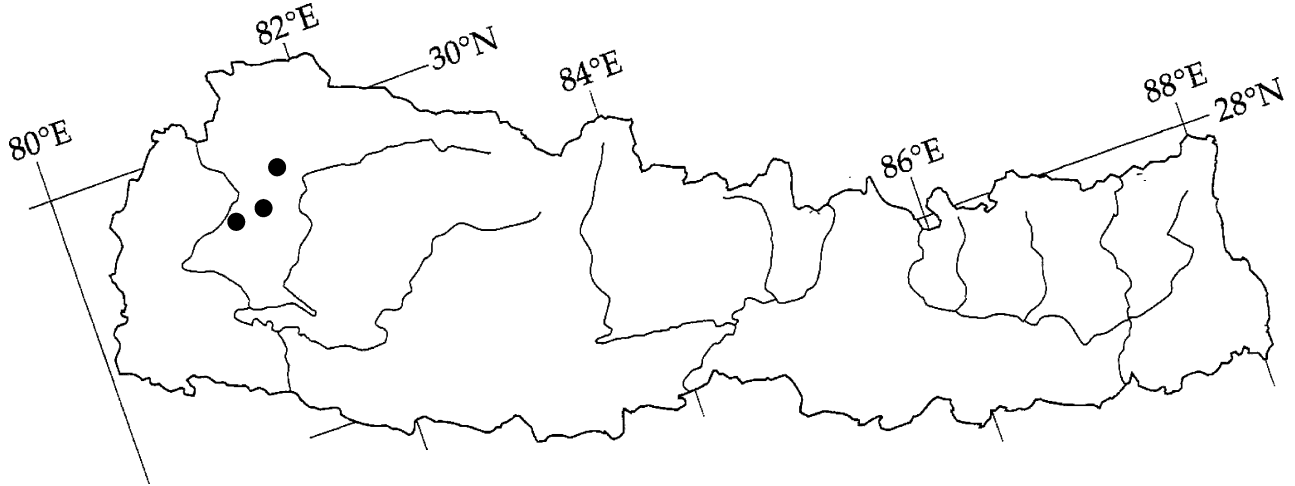


Fig. 5. Distribution of *Silene edgeworthii* in Nepal

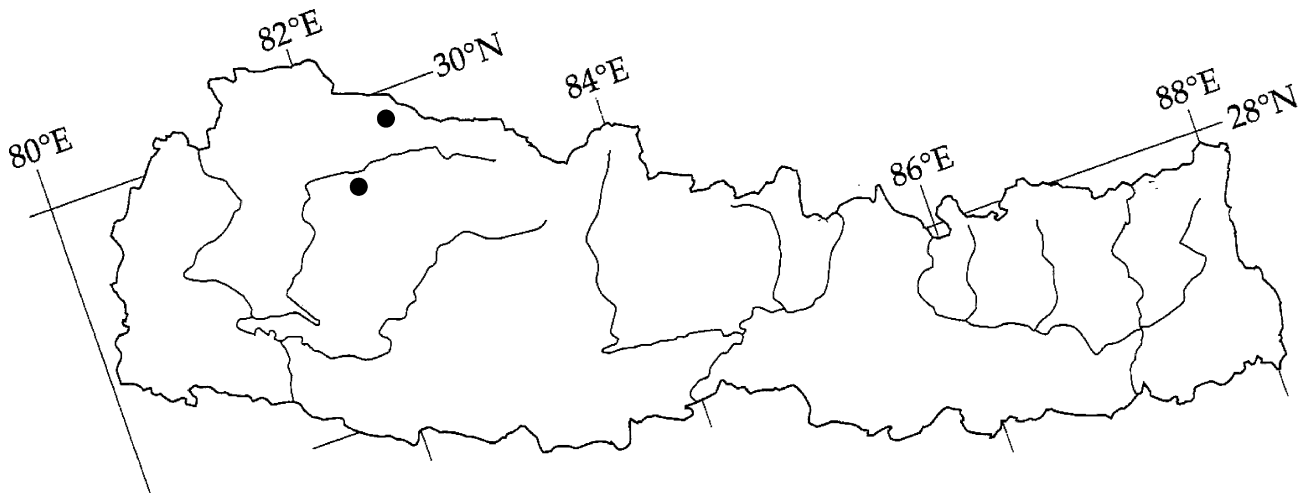


Fig. 6. Distribution of *Silene falconeriana* in Nepal

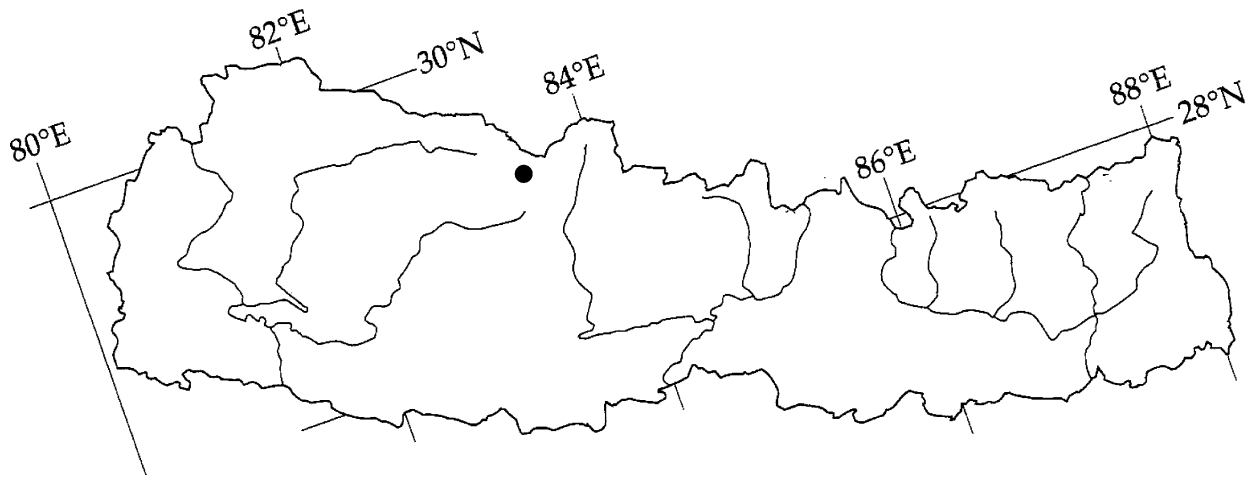


Fig. 7. Distribution of *Silene greywilsonii* in Nepal

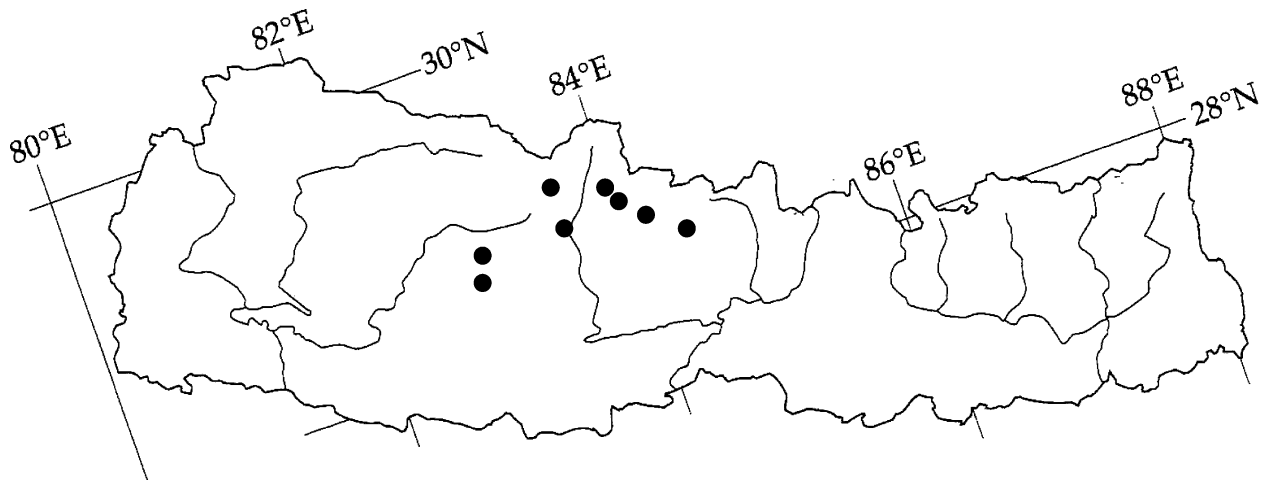


Fig. 8. Distribution of *Silene helleboriflora* in Nepal

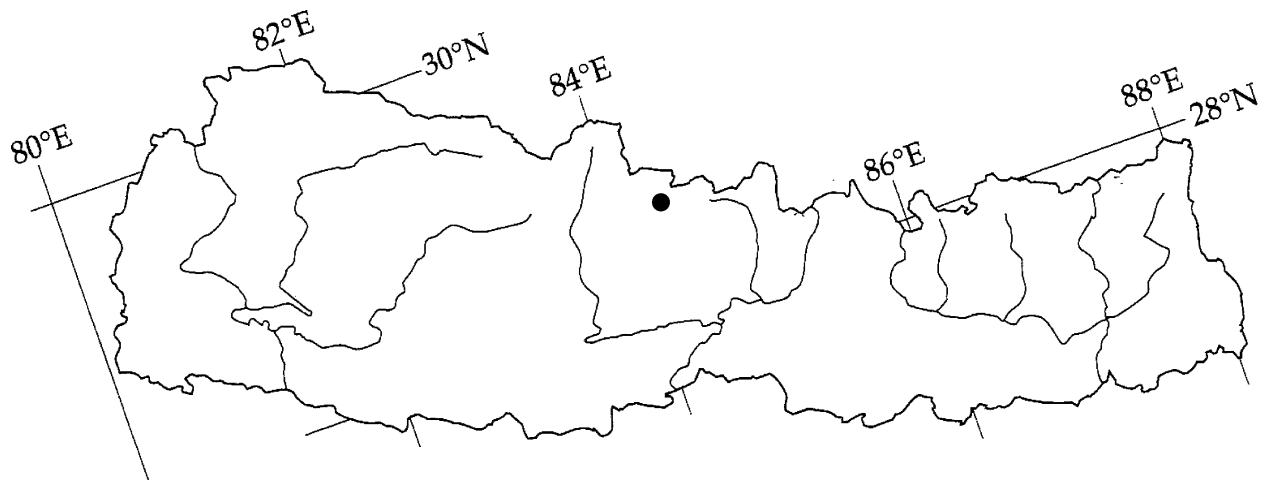


Fig. 9. Distribution of *Silene hideakiohbae* in Nepal

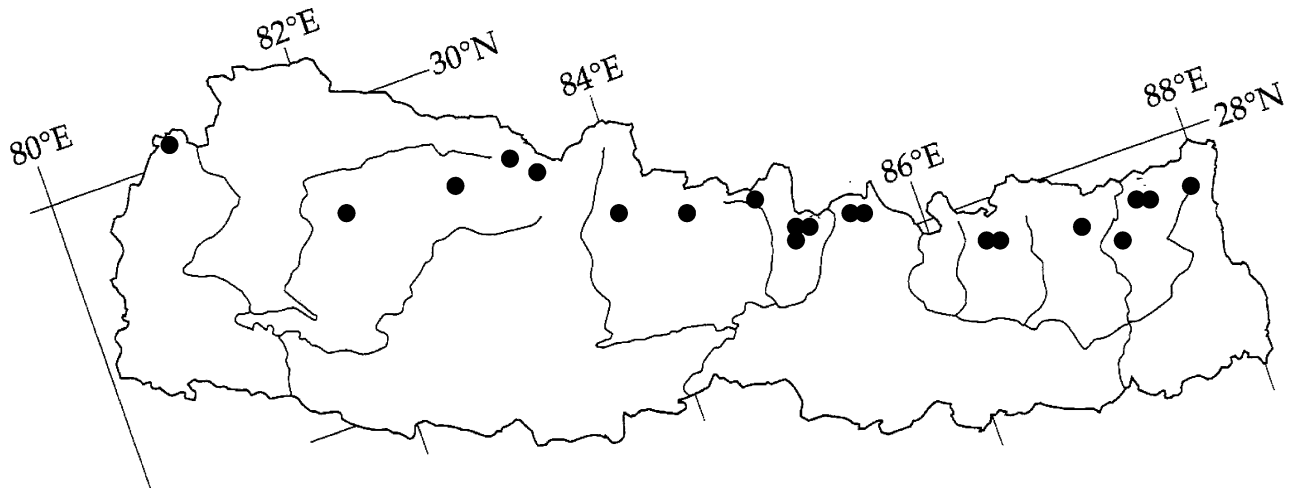


Fig. 10. Distribution of *Silene himalayensis* in Nepal

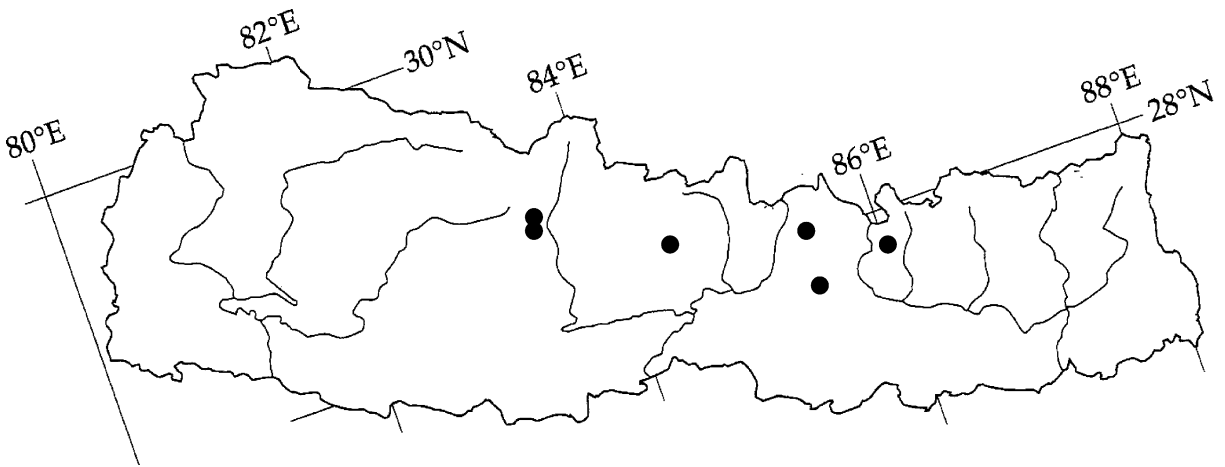


Fig. 11. Distribution of *Silene holosteifolia* in Nepal

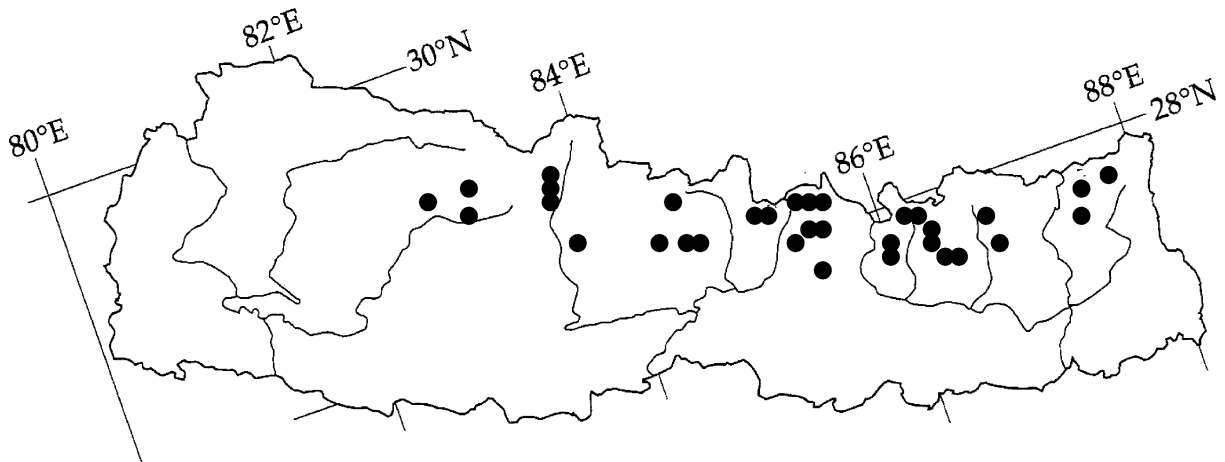


Fig. 12. Distribution of *Silene indica* in Nepal

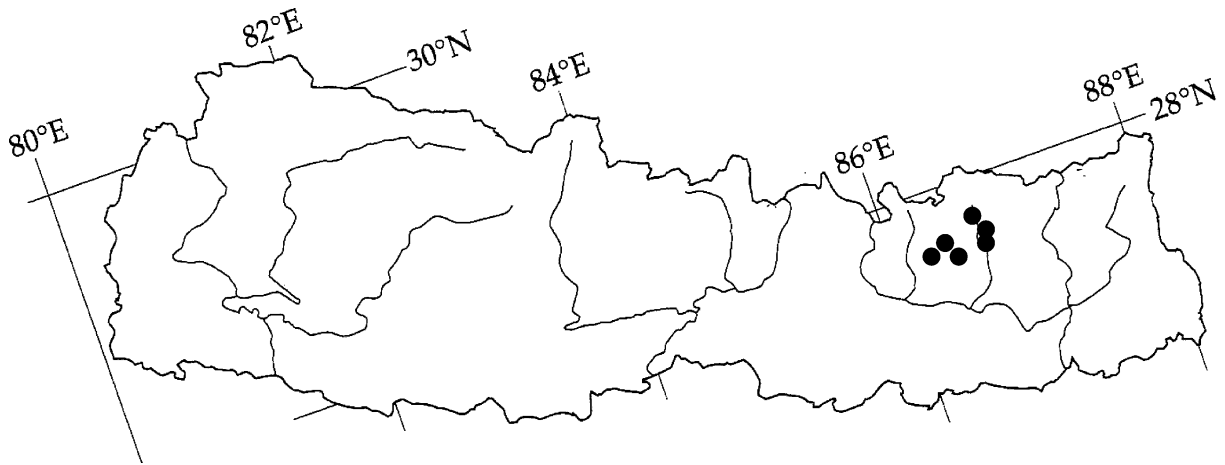


Fig. 13. Distribution of *Silene khasiana* in Nepal

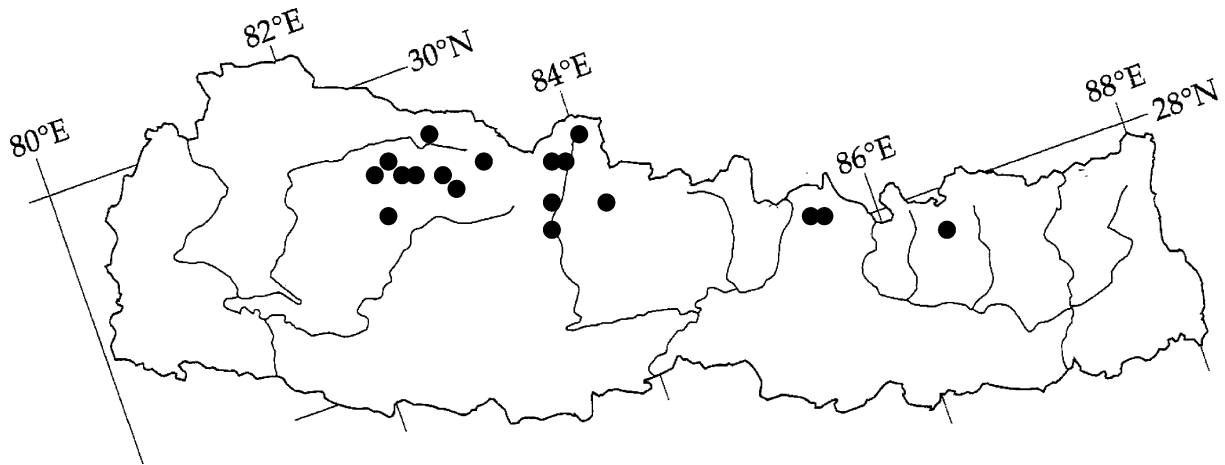


Fig. 14. Distribution of *Silene kumaonensis* in Nepal

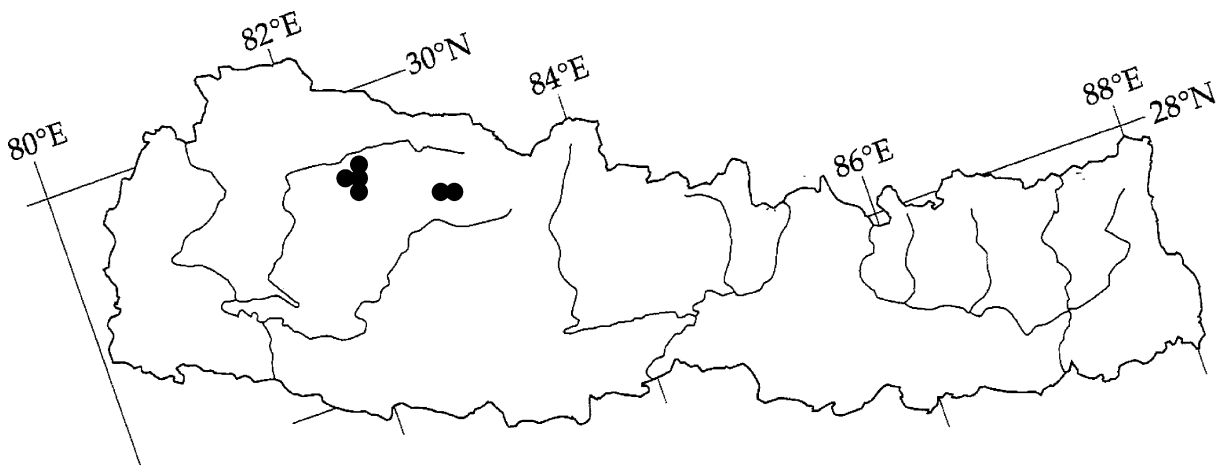


Fig. 15. Distribution of *Silene laxantha* in Nepal

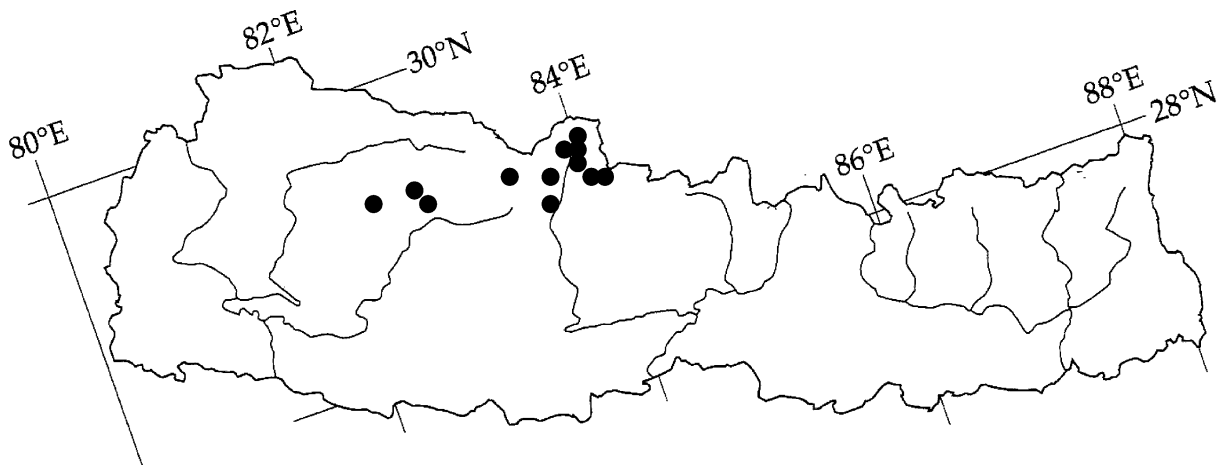


Fig. 16. Distribution of *Silene moorcroftiana* in Nepal

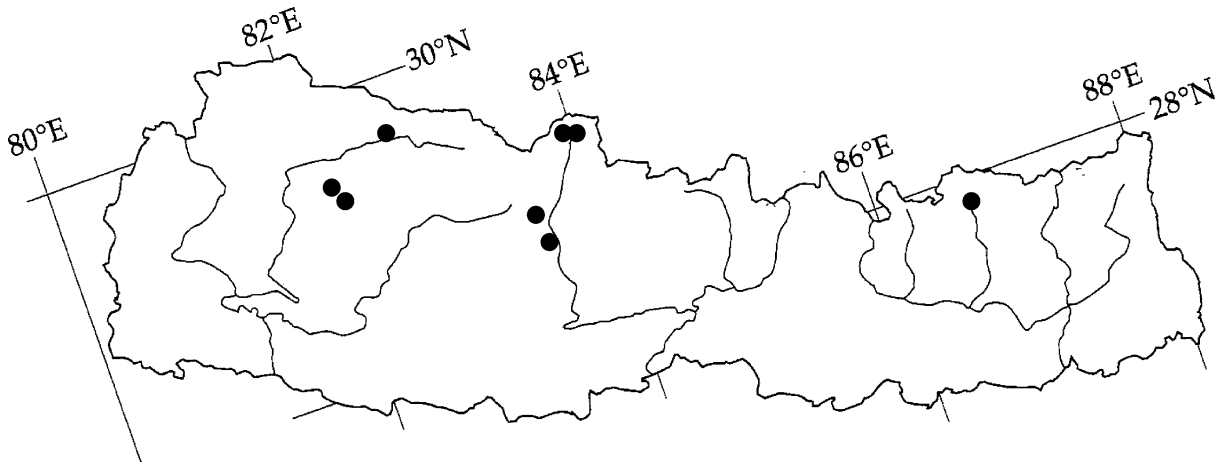


Fig. 17. Distribution of *Silene nepalensis* in Nepal

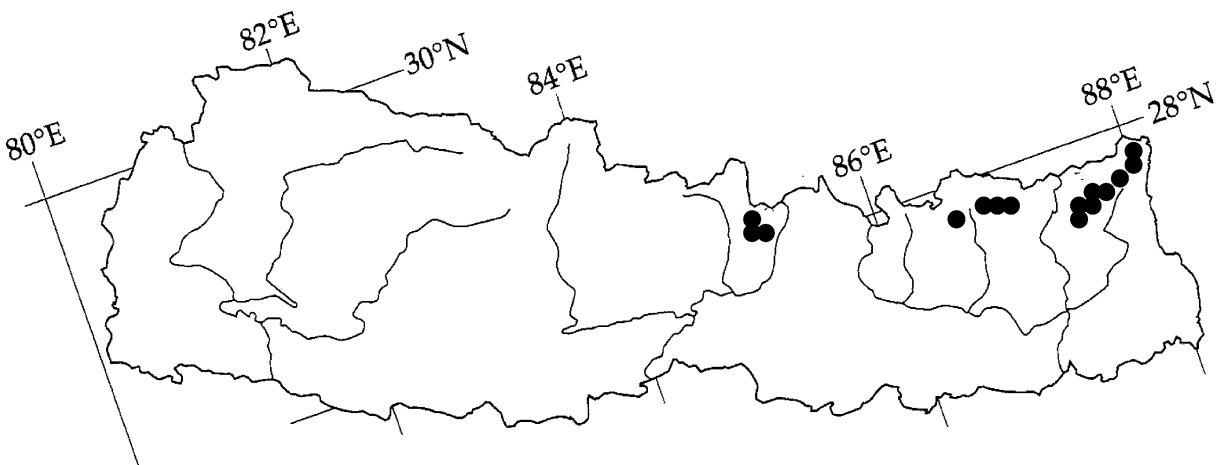


Fig. 18. Distribution of *Silene nigrescens* in Nepal

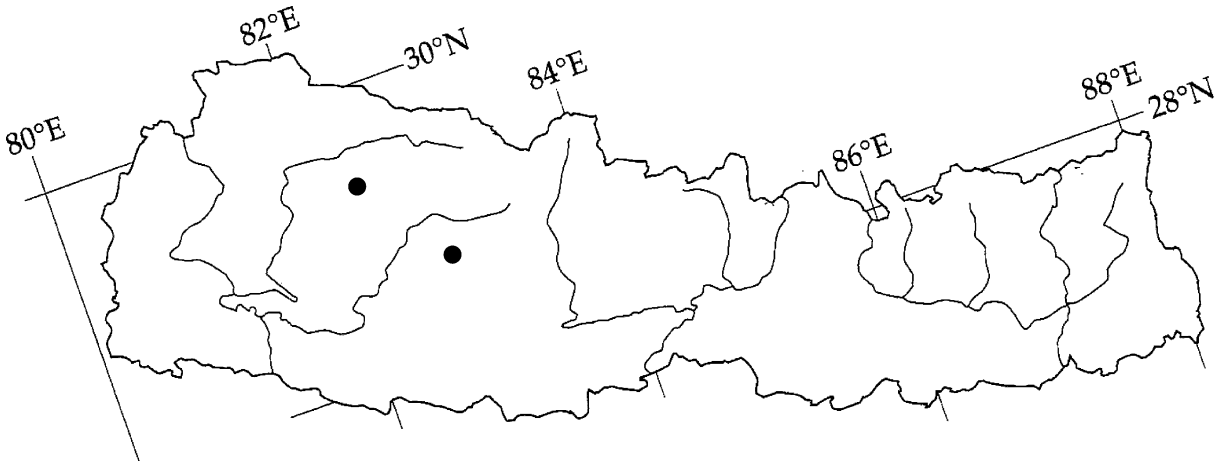


Fig. 19. Distribution of *Silene stracheyi* in Nepal

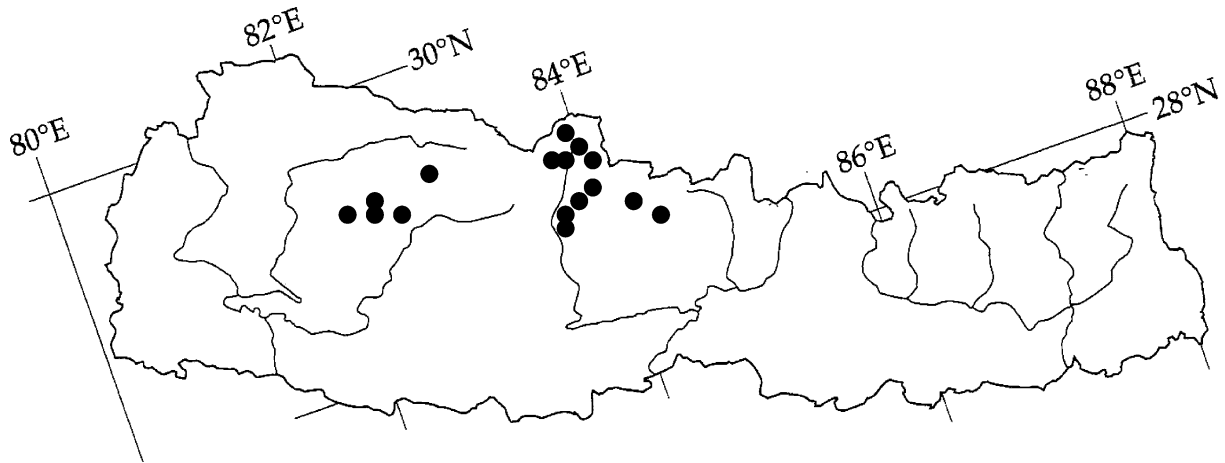


Fig. 20. Distribution of *Silene vauhierae* in Nepal

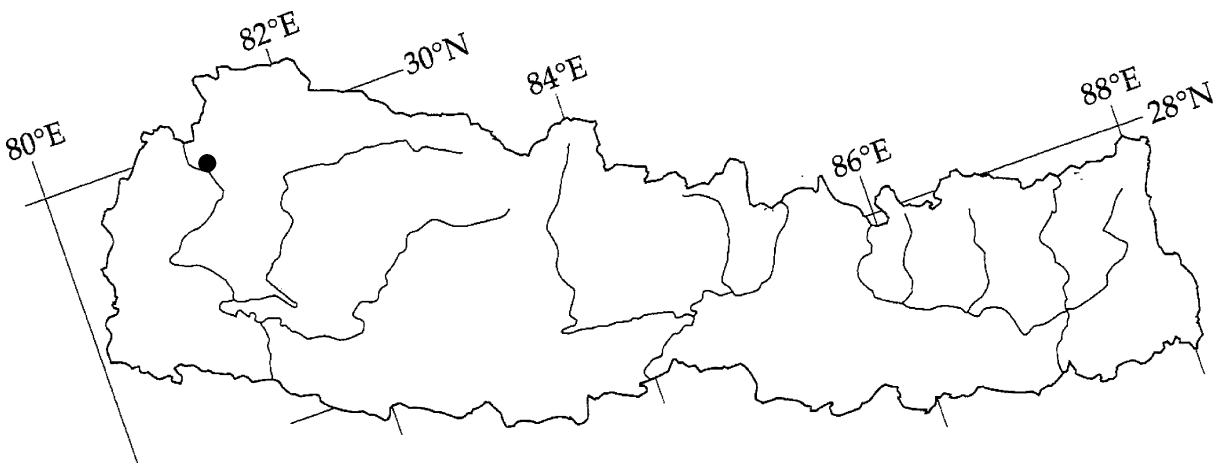


Fig. 21. Distribution of *Silene vulgaris* in Nepal

Appendix 1. List of the specimens of *Silene* of Nepal.

(*) – Specimens listed in the Flora of Nepal database made by the Society of Himalayan Botany and are available on the University of Tokyo Herbarium page of the World Wide Web (<http://ti.um.u-tokyo.ac.jp>).

***Silene baccifera* (L) Roth,**

Cucubalus baccifer L.

Distribution : Europe, Russia, Central Asia, West Siberia, Pakistan, India, Nepal, Bhutan, China.

Specimens from Nepal seen :

Dhaulagiri Zone, Myagdi District, Ghodepani Deurali – Sikha (83°40'E, 29°20'N), 2,200 m, 25 Aug. 1988, *M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro & H. Ikeda* 8810996 (TUS) (*as *Cucubalus baccifer*).

Gandaki Zone, Manang District, Bagarchhap (84°22'E 28°32'N), 2,030 m, flower white, shady place, adherence on the tree, 13 Aug. 1994, *M. Suzuki, N. Acharya, N. Fujii, T. Kajita, N. Kondo, M. Mikage, S. Noshiro & K. Yoda* 9485406 (TI, TUS) (*as *Cucubalus baccifer*).

Gandaki Zone, Manang District, Bagarchhap–Chame, 2,130 m, climbing on herbs at the edge of forest, fls. white, 14 Aug. 1994, *M. Mikage, N. Fujii, T. Kajita, N. Kondo, S. Noshiro & K. Yoda* 94704136 (TI).

Janakpur Zone, Ramechhap District, Jiri – Shivalaya (86°14'E 27°37'N – 86°17'E 27°36'N), 1,860–1,800 m, along river in shrubberies, petals white, 13 Aug. 1985, *M. Suzuki, N. Kurosaki & S.K. Wu* 8571654 (TUS) (*as *Cucubalus baccifer*).

C. Nepal, Bagmati Zone, Rasuwa Distr., Lingju – Tibling (28°12'N 85°07'E), 2,100 m, petals white, 13 Aug. 1994, *F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda and H. Tsukaya* 9420274 (TI).

***Silene caespitella* F.N. Williams**

Silene maheshwarii Bocq.

Distribution : India, Nepal, Bhutan, China.

Specimens from Nepal seen :

Between Mugu and Purana Mugu – Mugu Khola, 12,500 ft., growing in open coniferous forest, petals green-white with brown tips, 20 Aug. 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 5333 (TI).

Nepal, Tegar, N. of Mustang, 14,500 ft., open grass slopes, corolla pale green and white, *Stainton, Sykes & Williams* 2197 (E, TI).

Dhaulagiri Zone, Mustang District, a peak west of Makhchung, ca. 3.5 km S. from Tibetan border (83°59'E 29°15'N), 4,490 m, on margin of thicket on sunny exposed gentle SE-facing slope near the summit of a peak, 3 July 2003, *Y. Iokawa, T. Miyazaki, K. Yonekura, Y. Ibaragi & R.K. Uprety* 20320159 (TI).

Dhaulagiri Zone, Mustang District, Tukuiche – Yak Kharka (83°35'E 29°40'N), 3,100 m, 30 Aug. 1988, *M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro & H. Ikeda* 8881622 (TI).

Kali Gandaki, Jomson – Kagbeni, 2,750–2,800 m, 21 July 1983, *H. Ohba, H. Kanai, M. Wakabayashi, M. Suzuki & S. Akiyama* 8310567 (TI).

Lo Monthang – Chmmithong (Chumithou) (29°10'59'' N 83°57'12''E), 3,834–4,866 m, 1 Aug. 2002, *T. Watanabe, H.*

Watanabe, H. Devkota, Y.B. Bhurtyal, T. Bista & K.J. Malla LOM-SP020801(054) (TI).

Dhaulagiri Zone, Mustang District, Ghar Gompa (29°7'N 83°53'E), 4,000–4,200 m, in shrubbery near stream on scree slope, 19 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20220192 (TI).

Dhaulagiri Zone, Mustang District, around Thanti (29°01'N 84°04'04''E), 4,520 m, 12 Aug. 2001, *Y. Iokawa & M. N. Subedi* 20105080 (TI).

Dhaulagiri Zone, Mustang District, around Sangda pass (28°53'N 83°43'E), 4,400–4,650 m, in open grassy place on scree slope, 19 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20220083 (TI).

Dhaulagiri Zone, Mustang District, Pongio Kharka – Phalyak (28°51'40.3''N 83°44'41.3''E), 3,870 m, calyx pale green with dark brown veins, petals pale green, on banks, 13 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20210091 (TI).

Dhaulagiri Zone, Mustang District, around Sangda pass (28°53'N 83°43'E), 4,460 m, stony slopes, calyx cream with purple veins, petals pale pink, 10 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20230011 (TI).

Dhaulagiri Zone, Mustang District, Ghemi – Samar (29°04'N 83°52'E), 3,800 m, wet places sheltered by rocks, l calyx dark brownish purple, 25 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20230205 (TI).

Dhaulagiri Zone, Mustang District, north-east of Lo-Manthang (29°16'N 84°01'E), 3,800 m, soil slopes, fls. pale cream, 20 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20230137 (TI).

Dhaulagiri Zone, Mustang District, Ghami – Zhaite (29°03'42''N 83°52'39''E), 4,350 m, in meadow on a hill top, petal white, calyx tube pale green with dark red, 16 Aug. 2001, *S. Noshiro, M. Amano, T. Kurosawa & M.N. Subedi* 20106197 (TI).

Dhaulagiri Zone, Mustang District, Samar (28°55'53'' N 83°49'41''E), 3,450 m, in cultivated fields, flower white, calyx tube pale green with dark purple lines, 16 Aug. 2001, *S. Noshiro, M. Amano, T. Kurosawa & M.N. Subedi* 20106081 (TI).

Dhaulagiri Zone, Mustang District, Alubari Kharka (28°45'23''N 83°40'12''E), 3,600 m, on heavily grazed slope in meadow, calyx tube pale green with dark purplish lines, 31 July 2001, *S. Noshiro, M. Amano, T. Kurosawa & M.N. Subedi* 20106036 (TI).

***Silene conoidea* L.**

Distribution : S. Europe, N. Africa, Turkey, Afghanistan, Pakistan, India, Nepal, China.

Specimens from Nepal seen :

Doti – Silgarhi, 4,500 ft., flowers pink with green calyx, in wheat field, 7 Apr. 1967, *N. Ecker-Racz* 48 (US).

Dillikot, 7,500 ft., cornfield weed, petals pink, 20 Apr. 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 3932 (E).

Phalabang, 4,500 ft., cornfield weed, flowers dark pink, 27 Mar. 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 641 (E).

Silene davidlongii Rajbhandari & Mitsuo Suzuki

Distribution : Nepal.

Specimens from Nepal seen :

Khaptang, Mugu Khola, 15,000 ft., open stony slopes, sepals with lines of hairs on veins, petals vary from white to brown, 21 Aug. 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 5373 (holotype Tl, isotype E, US).

Silene edgeworthii Bocq.

Agrostemma fimbriatum Wall. ex G. Don

Lychnis indica (Roxb. ex Otth) Benth. var. *fimbriata* (Wall. ex G. Don) Edgew. & Hook. f.

Silene indica Roxb. ex Otth var. *edgeworthii* (Bocq.) Y. Nasir

Distribution : Pakistan, India (West Himalaya), Nepal.

Specimens from Nepal seen :

Seti Zone, Bajhang District, Rasa - Roshadanda (81° 22'34''E 29°44'17''N-81°21'49''E 29°42'56''N), 2,260-2,540 m, in open grassy slope, 21 Aug. 1991, *M. Suzuki, H. Hatta, N. Kurosaki, M. Mikage, F. Miyamoto, K.R. Rajbhandari, H. Takayama & K. Terada* 9160895 (Tl, TUS) (*as *S. indica*).

Seti Zone, Bajura District, Birseni - Porakya (81°38' 25''E 29°29'52''N-81°35'09''E 29°26'14''N), 1,560-2,540 m, in shrubbery, petals pale green, 12 Aug. 1991, *M. Suzuki, H. Hatta, N. Kurosaki, M. Mikage, F. Miyamoto, K.R. Rajbhandari, H. Takayama & K. Terada* 9160508 (Tl) (*as *S. indica*).

Seti Zone, Bajura District, Khaptad National Park - Kaudegaon (81°09'03''E 29°23'08''N-81°12'42''E 29°22'22''N), 2,980-1,900 m, by path in *Quercus* forest, flower pale green, 28 Aug. 1991, *M. Suzuki, H. Hatta, N. Kurosaki, M. Mikage, F. Miyamoto, K.R. Rajbhandari, H. Takayama & K. Terada* 9161088 (Tl) (*as *S. indica*).

Silene falconeriana Royle ex Benth.

Distribution : Pakistan, India (West Himalaya), Nepal.

Specimens from Nepal seen :

Mugu Karnali valley, Daura, 9,000 ft., growing on dry, rocky slopes, whole plant viscid, petals green-brown, styles white, 16 Aug. 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 5261 (G).

Uthu, east of Jumla, 8,000 ft., growing on dry hillside, petals pink-brown, stems and leaves glandular hairy, 31 July 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 4967 (G).

Silene greywilsonii Rajbhandari & Mitsuo Suzuki

Distribution : Nepal.

Specimens from Nepal seen :

Jengla, West of Namdo (both sides), c. 5,300 m, leaves grey-green, florets deep blue, 25 Aug 1973, *Grey-Wilson and Phillips* 703 (holotype, K).

Jengla, West of Namdo (both sides), c. 5,300 m, leaves grey-green, calyx pale green patterned red, corolla pale pink, 25 Aug 1973, *Grey-Wilson and Phillips* 705 (K).

Silene helleboriflora Exell & Bocq.

Distribution : Nepal.

Specimens from Nepal seen :

East of Chalike Pahar, 13,500 ft., rock ledge, flowers, calyx green (pale), corolla dull purple, 3 Aug. 1954, *Stainton, Sykes & Williams* 3736 (E, Tl).

Near Phagune Dhuri, 12,500 ft., rock ledges on open slope, corolla purple, 13 Oct. 1954, *Stainton, Sykes & Williams* 9006 (E, Tl).

Dhaulagiri Zone, Mustang District, Throng Phedi, 4,000 m, 24 July 1983, *H. Ohba, H. Kanai, M. Wakabayashi, M. Suzuki & S. Akiyama* 8330812 (Tl).

Dhawalagiri Zone, Mustang District, above Muktinath - Jharkot (28°48'56''N 83°52'52''E-28°49'01''N 83°51'02''E), descending herb on cliff, sunny place, calyx greenish yellow with brown hairs, petals dark brown, 20 Aug. 1994, *M. Mikage, N. Fujii, T. Kajita, N. Kondo, S. Noshiro & K. Yoda* 9470502 (TUS) (*).

Taglung, S. of Tukucha, Kali Gandaki, 12,000 ft., on rock ledges, corolla yellow green and hairy, centre part of flowers purple, 20 Sept. 1954, *Stainton, Sykes & Williams* 7937 (E, Tl).

Samargaon, N. of Tukucha, 16,000 ft., on rock ledges, outer part of flowers pale green, covered with red hairs, central part dark red, anthers white, 16 Aug. 1954, *Stainton, Sykes & Williams* 7254 (E, Tl).

Kali Gandaki Tal (southwest of Tukucha), 3,650 m, 2 Sept. 1967, *H.J. Lange* 57 (K).

Tukucha, Kali Gandaki, 10,500 ft., open grass slopes, corolla yellowish green, interior of flower purplish red, 22 Aug. 1954, *Stainton, Sykes & Williams* 7404 (E, Tl).

Annapurna Himal, Seti Khola, 12,000 ft., in rock crevices, calyx green with brown hairs, petals dull dark red, 28 July 1954, *Stainton, Sykes & Williams* 6522 (E, K, Tl).

Lamjung Himal, 14,000 ft., growing from rock crevices, calyx with external brown hairs, pale green, up to 2 inches in diameter, petals dark red, 17 July 1954, *Stainton, Sykes & Williams* 6343 (E, Tl).

Mulmulaykhola, 14,000 ft., 14 Aug. 1931, *K.N. Sharma* 66 (type, E).

Silene hideakiohbae Rajbhandari & Mitsuo Suzuki

Distribution : Nepal.

Specimen from Nepal seen :

Gandaki Zone, Manang District, Suggi Khola, 2,520 m, 12 Aug. 1994, *M. Suzuki, N. Acharya, N. Fujii, T. Kajita, N. Kondo, M. Mikage, S. Noshiro & K. Yoda* 9485399 (holotype, TUS) (*as *S. indica*).

Silene himalayensis (Rohrb.) Majumdar

Melandrium apetalum (L.) Fenzl var. *himalayense* Rohrb.

Silene gonosperma (Rupr.) Bocq. subsp. *himalayensis* (Rohrb.) Bocq.

Lychnis himalayensis (Rohrb.) Edgew.

Distribution : Russia, Afghanistan, Pakistan, India, Nepal, Bhutan, China.

Specimens from Nepal seen :

Tinkar Khola, 16,000 ft., scree, 2 July 1953, *J.B. Tyson* 70 (E, Tl).

Maharigaon, 10,500 ft., growing on grassy slopes on edge of forest, petals greenish, calyx ribbed with brown, 15 July 1952, O. Polunin, W.R. Sykes & L.H.J. Williams 174 (TI).

East of Chalike Pahar, 14,000 ft., grass slopes, flowers pale green, streaked purple, 1 Aug 1954, Stainton, Sykes & Williams 3710 (E, TI, US).

Near Chalike Pahar, 14,500 ft., among short turf & Rhododendron shrublets, flowers pale green with purple lines, 6 Aug. 1954, Stainton, Sykes & Williams 3773 (E, K, TI, US).

Khung Khola headwaters, 5,200 m, calyx whitish and reddish veins, 16 Aug. 1973, Grey-Wilson & Phillips 640 (K).

Dolpo, Tarap (29°2'N 83°12'E), 16,500 ft., on scree, calyx reddish black, petals white, 19 July 1966, J.D.A. Stainton 5559 (TI).

Muktinath, 13,000 ft., open grass slopes, corolla mauvish green, 28 July 1954, Stainton, Sykes & Williams 2041 (E, TI).

Namdo, N. of Mustang, 17,000 ft., open marshy ground, infl. purplish red, 8 Aug. 1954, Stainton, Sykes & Williams 2281 (E, TI).

Khangsar, 15,500 ft., open grassy slopes, flowerbrown pink, insignificant, calyx lined with purple brown, leaves grey-green marked with purple, stem purple at the nodes, 29 July 1950, D.G. Lowndes 1292 (E, TI).

Thaple Himal, 4,400 m, 30 June 1953, S. Nakao s.n. (KYO).

Near Bajou, 4,000 m, 29 June 1953, S. Nakao s.n. (KYO).

Rambrong, Lamjung Himal, 14,000 ft., on open slopes, calyx green with brown veins, 7 July 1954, Stainton, Sykes & Williams 6201 (E, TI).

Bagmati Zone, Rasuwa District, Jaisuli Kund - Paldol Base Camp (28°13'N 85°12'E), 4,300 m, on sandy slopes, 2 Aug. 1994, F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya 9410153 (E, TI) (*as *S. gonosperma* subsp. *himalayensis*).

Bagmati Zone, Rasuwa District, Jaisuli Kund - Paldol Base Camp (28°13'N 85°12'E), 4,300 m, rocky place beside a river from a glacier lake, calyx tube white with 10 brown-haired lines, petal apex brown, 2 Aug. 1994, F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya 9430068 (TI) (*as *S. gonosperma* subsp. *himalayensis*).

Bagmati Zone, Rasuwa District, Paldol Base Camp (28°13'N 85°12'E), 4,300 m, 2 Aug. 1994, F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya 9420112 (E, TI) (*as *S. gonosperma* subsp. *himalayensis*).

Bagmati Zone, Rasuwa District, around Seto Kund (28°16'N 85°08'E), 3,805 m, on rocks, 50-80 cm tall, petals pale green with deep purple at base and brown at the serrated tips, 10 Aug. 1994, F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya 9430110 (TI) (*as *S. gonosperma* subsp. *himalayensis*).

Chilime Khola 15,000 ft., grassland, petals green, tinged purple, calyx brown striped purple tips, July 1949, O. Polunin 1166 (TI).

Langtang, 12,000 ft., shady ground, flowers green with brown stripe to calyx, 23 June 1949, O. Polunin 557 (TI).

Singum Gompa - Gosainkund, 3,200-4,200 m, 23

Aug. 1972, H. Kanai, H. Hara & H. Ohba 721878 (TI).

Mul Kharka, Chilime Khola, 3,800-4,100 m, 2 July 1970, Kanai & Shakya 675179 (TI).

Janakpur Zone, Ramechhap District, around Jata Pokhari (86°25'E 27°43'N), 4,220 m, 18 July 1985, H. Ohba, T. Kikuchi, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu 8530341 (TUS) (*as *S. nepalensis*).

Janakpur Zone, Ramechhap District, Thare Og - Bigphera Lho Glacier (86°28'E 27°45'N-86°29'E 27°47'N), 4,150-4,700 m, 25 July 1985, N. Kurosaki 8570816 (TUS) (*as *S. nepalensis*).

Bhut Bkhri, 16,000-17,000 ft., fls. greenish white, 1930, Lall Dhwaj 477 (E).

Between Mouma and Tiptop La, 4,300 m, 23 July 1962, K. Nishioka 711 (KYO).

Dheoma, 4,100 m, 21 July 1962, K. Nishioka 617 (KYO).

Topke Gola - Jalang Chhyongo, 4,000 m, calyces with green purple ridges, 20 June 1972, H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki & P.R. Shakya 720627 (TI) (*as *S. nigrescens*).

Jalang Chhyongo - Thudam (87°30'E 27°40'N), 21 June 1972, H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki & P.R. Shakya 726394 (TI).

Koshi Zone, Sankhuwa Sabha District, around Yangri Kharka (87°10'E 27°45'N), 3,540 m, 19 July 1988, M. Suzuki, N. Naruhashi, N. Kurosaki, Y. Kadota, M.N. Subedi, M. Minaki, S. Noshiro and H. Ikeda 8820658 (TUS) (*as *S. nepalensis*).

Koshi Zone, Sankhuwa Sabha District, Jaljale Himal, around Banduke (87°30'E 27°30'N), 4,150 m, 25 July - 3 Aug. 1991, H. Ohba, S. Akiyama, H. Ikeda, T. Kikuchi, S. Noshiro, Y. Omori, M.N. Subedi & M. Wakabayashi 9120198 (TI) (*as *S. gonosperma* subsp. *himalayensis*).

Koshi Zone, Sankhuwa Sabha District, Jaljale Himal, Jomle - Goja (87°30'E 27°30'N), 4,000-4,130 m, among Rhododendron anthopogon shrubs, flowers pale-green, purplish above, 5 Aug. 1991, H. Ohba, S. Akiyama, H. Ikeda, T. Kikuchi, S. Noshiro, Y. Omori, M.N. Subedi & M. Wakabayashi 9110291 (TI) (*as *S. gonosperma* subsp. *himalayensis*).

Tamur valley, Mewa Khola, Topke Gola, 12,500 ft., on stony ground, corolla green with purple stripes, filaments purple, 11 July 1956, J.D.A. Stainton 928 (G).

N.E. Nepal, above Tseram (27°32'N 87°57'E), 3,850 m, amongst mossy boulders in forest, 17 Sept. 1989, KEKE 731 (E).

Silene himalayensis (Rohrb.) Majumdar var. ***pertica*** (Bocq.) Rajbhandari et Mitsuo Suzuki, stat. et comb. nov.

Silene gonosperma (Rupr.) Bocq. subsp. *himalayensis* (Rohrb.) Bocq. var. *pertica* Bocq. in Candollea 22 : 9 (1967); in Phan. Monogr. 1 : 35 (1969).

Distribution : Nepal.

Specimen examined :

Nepal, 1929, Lall Dhevoj 194 (holotype, E).

Silene holosteifolia Bocq. & Chater

Distribution : Nepal, Bhutan.

Specimens from Nepal seen :

Taglung, S. of Tukuha, Kali Gandaki, 11,500 ft., hanging from gravel cliff, calyx and corolla pinkish green,

filaments and anthers pale green, 21 Sept. 1954, *Stainton, Sykes & Williams* 7963 (TI).

Dhawalagiri Zone, Mustang District, NW of Tukche, valley of Yamkin Khola (28°41'15"-44°02'N, 83°37'35"-39°09'E), 2,940 m, on mossy tree trunk, flowers pale greenish, 20 Sept. 1995, *M. Mikage & K. Yonekura* 9552344 (E, TI, TUS) (*).

Gandaki Zone, Manang District, Bimtang (28°38'04" N 84°28'20" E), 2,850 m, petal purple, calyx white green, adherence on the tree, forest floor, 12 Aug. 1994, *M. Suzuki, N. Acharya, N. Fujii, T. Kajita, N. Kondo, M. Mikage, S. Noshiro & K. Yoda* 9485398 (E, TUS) (*).

Bimtakochi - Karche, 3,900-2,900 m, 10 Nov. 1963, *T. Namba* 1110030-2 (KYO). Phulchoki, south of Kathmandu, 2,400-2,700 m, styles 3, capsule 1- roomed, tip 6-valved, seeds orange brown, 19 Sept. 1970, *H. Kanai & Ch. Chuma* 675166 (TI).

Phulchoki, south of Kathmandu, 8,750 ft., broken slope in *Quercus/Rhododendron* forest, locally frequent, slender 1.5 ft. herb, leaves pale green, flowers an odd mauve/green, 25 Sept. 1966, *A.D. Schilling* 1078 (TI).

Phulchoki, Kathomandu, 2,500 m, 3 Oct. 1978, *H. Idzumi & M. Togashi* s.n. (TI).

Thale Patil - Mangan (852281), 3,400-3,100 m, hanging on cliff, calyces green with brown purple nerves, petals brown purplish green, 27 Aug. 1972, *H. Kanai, H. Hara & H. Ohba* 726393 (KYO, TI) & 721994 (TI).

Kalingchok, Tingoang - Khosori Khabre, 3,000 m, style 3, capsule 1-celled, tip 6-valved, 12 Sept. 1970, *H. Kanai, Ch. Chuma & T. Nagano* 672850 (TI).

***Silene indica* Roxb. ex Otth**

Lychnis indica (Roxb. ex Otth) Benth.

Distribution: Pakistan, India, Nepal, Bhutan, China (Tibet).

Specimens from Nepal seen:

S. of Gurjakhani, 12,000 ft., among tall vegetation in gully, calyx green & white striped, 16 Aug. 1954, *Stainton, Sykes & Williams* 3863 (E, TI).

Nr. Tarakot, Bheri river, 11,000 ft., among long grass in forest clearings, flowers greenish white, 14 July 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 2465 (G).

Nr. Lumsum, 8,500 ft., semi-shade, on earth bank, flowers whitish, 10 Sept. 1954, *Stainton, Sykes & Williams* 4316 (G).

Dhaulagiri Zone, Mustang District, Titigaon - Ghasa (28°39'N 83°37'E), 2,000 m, slope meadow, flower white, 6 Aug. 1996, *T. Hoshino, M. Amano, H. Koba, N. Miyoshi, K.R. Rajbhandari, M. Sato, P. Shrestha & S. Takatsuki* 9666181 (TI).

Ghasa, S. of Tukucha, Kali Gandaki, 9,000 ft., on open grass, calyx pale green, corolla and filaments white, anthers black, 4 July 1954, *Stainton, Sykes & Williams* 1515 (G).

Taglung, S. of Tukucha, Kali Gandaki, 9,000 ft., at edge of field, corolla pale green, filaments and anthers white, 19 Sept. 1954, *Stainton, Sykes & Williams* 7926 (G).

Chimgaon, N. of Tukucha, Kali Gandaki, 14,500 ft., open grass slopes, inflorescence, stem and underside of leaf blackish purple, 17 July 1954, *Stainton, Sykes & Williams*

1848.

Gandaki Zone, Kaski Distr., Ghodepani (28°24'09"N 83°41'58"E-28°18'23"N 83°46'30"E), 2,700 m, open place, 28 Aug. 1994, *M. Mikage, N. Fujii, T. Kajita, N. Kondo, S. Noshiro & K. Yoda* 9485560 (TI, TUS) (*).

Bonshim - Ngyak, 4 Oct. 1963, *T. Namba* 1004063-2 (KYO).

Jagat, 1,650 m, 29 July 1953, *S. Nakao* s.n. (KYO).

Gandaki Zone, Gorkha Distr., Ripche - Lungdang Gompa (28°27'57"N 84°57'46"E-28°28'10"N 85°03'07"E), 2,840 m, erect herb in open grassland, petals white, mid lobe of calyx blackish with nectary hairs, 28 July 1994, *M. Suzuki, N. Acharya, N. Fujii, L. Joshi, T. Kajita, N. Kondo, M. Mikage, S. Noshiro & K. Yoda* 9470233 (TUS). (*as *S. caespitella*).

Gandaki Zone, Gorkha Distr., Ranagaon (28°26'N 84°52'E-28°32'01"N 84°47'29"E), 1,780 m, 3 Aug. 1994, *M. Suzuki, N. Acharya, N. Fujii, T. Kajita, N. Kondo, M. Mikage, S. Noshiro & K. Yoda* 9485253 (PE). (*as *S. caespitella*).

Nepal, Tapchet, 8,000 ft., 1928, *Lall Dhevoj* 173 (E) (mounted with *Silene nigrescens*).

Nepal, Tapchet, 13,000 ft., flowers white, 1928, *Lall Dhevoj* 206 (E).

Michet, 13-14,500 ft., 1927, *C. Wigram* (communicated) s.n. (E, K).

Nepal, Michet, 14-15,000 ft., 1928, *Lall Dhevoj* 200 (E).

Bagmati Zone, Rasuwa District, Pati Kharka - a Kharka (near Pabil Kharka) (28°14'N 85°09'E), 3,115 m, on subalpine grassland with *Pedicularis* and *Umbelliferae* sp., petals greenish-white, 5 Aug. 1994, *F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya* 9430094 (TI) (*) & on a mossy rock 9430090 (TI) (*as *S. thomsonii*).

Bagmati Zone, Rasuwa District, Chyauche Kharka - Lingju (28°14'N 85°07'E), 2,325 m, on open grassland near a millet field, calyx pale green, petals white, 12 Aug. 1994, *F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya* 9430120 (E, TI) (*).

Bagmati Zone, Rasuwa District, Chyauche Kharka - Lingju (28°14'N 85°07'E), 3,130 m, on rocky grassland, calyx pale green, petals pale green lower, whitish green upper, 12 Aug. 1994, *F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya* 9430121 (TI) (*).

Bagmati Zone, Rasuwa District, Yure Kharka - Tinbu Kharka (28°10'N 85°13'E), 3,500 m, on grassland slopes, 26 July 1994, *F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya* 9410045 (E, TI) (*).

Dakchinkali - Okhre Danra, 1,500-1,950 m, 1 Sept. 1970, *H. Kanai & T.B. Shrestha* 672791 (TI).

Nepal, *Wall. Cat.* 624 (type, E).

Nepal, 1929, *Lall Dhevoj* 56 (E).

Nepal, Gosainthan, *Wall. Cat.* 621 (isotype, E).

Langtang village area, 11,500 ft., bushy grassy places, flowers greenish purple, 1 Aug. 1949, *O. Polunin* 1580 (TI).

Langtang gorge - Langtang, 3,200 m, petals outer blade blackish, 12 July 1970, *H. Kanai & P.R. Shaky* 672469 (TI).

Syabrubensi, 1,700 m, 19 July 1970, *H. Kanai & P.R. Shaky* 672657 (TI).

Between Syabrubensi & Syarpagaon, 5,500 ft., grassy

ground, petals purple, calyx green, 30 July 1949, *O. Polunin* 1313 (G).

Chilime Kharka camp, 13,000 ft., grassy banks, flowers greenish, July 1949, *O. Polunin* 1406 (TI). (leaves oval or roundish).

Gosainkund Lake, 4,260 m, calyx yellowish green with purple nerves, corolla purple, petals purple, 27 Aug. 1969, *Kanai & Malla* 674928 (TI).

Singum Gompa - Gosainkund (852281), 3,200-4,200 m, 23 Aug. 1972, *H. Kanai, H. Hara & H. Ohba* 726392 (TI). (leaves oval or rounded).

Dunche - Singum Gompa (852281), 22 Aug. 1972, *H. Kanai, H. Hara & H. Ohba* 726395 (TI).

Dunche - Singum Gompa, 3,000 m, 22 Aug. 1972, *H. Kanai, H. Hara & H. Ohba* 721824 (KYO, TI) (*as *S. thomsonii*).

Mangen - Khodang Danda (852276), 3,100-2,500 m, 28 Aug. 1972, *H. Kanai, H. Hara & H. Ohba* 726399 (TI).

Kalingchok, Thala - Tale Bisauna, 2,500 m, lobes of corolla and corona purple at the margin, *H. Kanai, Ch. Chuma & T. Nagano* 672803 (KYO, TI).

Kalinchok, 8 June 1973, *H. Hara & S. Kurosawa* s.n. (TI).

Rolwaling Khola, Thangdingma - Beding, 3,200-3,600 m, 2 Sept. 1983, *H. Ohba, M. Wakabayashi, M. Suzuki & S. Akiyama* 8331757 (E).

Rolwaling Khola, Beding - Na (863276), 3,600-4,050 m, 4 Sept. 1983, *H. Ohba, M. Wakabayashi, M. Suzuki & S. Akiyama* 8331829 (TUS) (*as *S. thomsonii*).

Bheding, 12,000-13,000 ft., 1930, *Lall Dhwoj* 264 (E).

Beding, 3,600 m, fleurs blanche, 22 Sept. 1954, *A. Zimmermann* 1425 (G).

Khare Khola - Phedi Kharka, (862276, 862275), 4,000-2,100 m, 13 Sept. 1983, *H. Ohba, M. Wakabayashi, M. Suzuki & S. Akiyama* 8332064 (TUS) (*) & 8332036 (TUS) (*).

Janakpur Zone, Ramechhap Distr., Shivalaya - Bhandar (86°17'E 27°36'N-86°20'E 27°34'N), 1,800-2,300 m, in shrubberies, 17 Aug. 1985, *H. Ohba, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu* 8571681 (TI) (*).

Janakpur Zone, Ramechhap Distr., Koshing Kharka - Thare Og (86°26'E 27°44'N-86°28'E 27°45'N), 4,000-4,150 m, 22 July 1985, *H. Ohba, T. Kikuchi, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu* 8570672 (TI) (*).

Sagarmatha Zone, Solukhumbu Distr., Loding - Pike Bhanjyang (86°22'E 27°32'N-86°29'E 27°32'N), 2,600-3,500 m, 5 Sept. 1985, *H. Ohba, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu* 8531311 (TI) (*) & 8572324 (TI, TUS) (*).

Sagarmatha Zone, Solukhumbu Distr., Sete - Taktor (86°26'E 27°34'N-86°31'E 27°34'N), 2,550-3,000 m, 19 Aug. 1985, *H. Ohba, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu* 8530940 (TI) (*) & 8571829 (TUS) (*).

Phaploo, 8,000-9,000 ft., 1930, *Lall Dhwoj* 102 (E).

De Tesinga a Namche Bazar, 3,450 m, fleur blanche, 15 Oct. 1954, *A. Zimmermann* 1716 (G).

Sagarmatha Zone, Solukhumbu Distr., Khare - Tangna (27°46'N 86°12'E), 4,150 m, on grazed grassland slope, petals white at anthesis, pink to pale purple after flowering, 20 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K.*

Arai & T. Komatsu 9588205 (TUS) (*as *S. gonosperma* subsp. *himalayensis*).

Koshi Zone, Sankhuwasabha Distr., Jaljale Himal, Shuwan Kharka (near Panch Pokhari) - Topke Gola (87°30'E 27°35'N), 4180-3570 m, 7 Aug. 1991, *H. Ohba, S. Akiyama, H. Ikeda, T. Kikuchi, S. Noshiro, Y. Omori, M.N. Subedi & M. Wakabayashi* 9120260 (TI) (*as *S. gonosperma* subsp. *himalayensis*).

Arun valley, Thudam, E. of Chyamtang, 12,000 ft., among shrubs, calyx, corolla and filaments green, 15 July 1956, *J.D.A. Stainton* 1001 (G).

Thudam (873275), 3,400 m, 24 June 1972, *H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki & P.R. Shakya* 726396 (TI).

Near Wallungchung Gola, 3,400 m, under the bush, 16 July 1962, *K. Nishioka* 117 (KYO).

Tolo Gompa Khola, 2,900 m, 16 July 1953, *S. Nakao* s.n. (KYO).

***Silene khasiana* Rohrb.**

Distribution: India, Nepal, Bhutan, China (Tibet), Myanmar.

Specimens from Nepal seen:

Janakpur Zone, Ramechhap District, Shivalaya - Deorali (86°17'E 27°36'N-86°20'E 27°34'N), 1,800-2,700 m, 5 July 1985, *H. Ohba, T. Kikuchi, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu* 8570112 (TI) & 8530069 (TUS) (*as *S. indica*).

Janakpur Zone, Ramechhap District, Choarma - Kyama (86°28'E 27°41'N-86°25'E 27°37'N), 2,760-2,600 m, in shrubberies, 3 Aug. 1985, *H. Ohba, T. Kikuchi, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu* 8571239 (TI) (*as *S. indica*) and 8530725 (TUS) (*as *S. indica*).

Janakpur Zone, Ramechhap District, Bhandar - Shivalaya (86°20'E 27°34'N-86°17'E 27°36'N), 2,300-1,800 m, by path in shrubberies, 6 Aug. 1985, *H. Ohba, T. Kikuchi, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu* 8571372 (TI, TUS) (*as *S. indica*).

Janakpur Zone, Ramechhap District, Shivalaya - Bhandar (86°17'E 27°36'N-86°20'E 27°34'N), 1,800-2,300 m, 17 Aug. 1985, *H. Ohba, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu* 8530835 (TI) (*as *S. indica*).

Janakpur Zone, Ramechhap District, Sibalaya - Bandar (86°18'E 27°37'N), 2,300 m, on a rock, flower white, 19 July 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 9592046 (TUS) (*as *S. indica*).

Janakpur Zone, Ramechhap District, Shivalaya - Bhandar (86°17'E 27°36'N-86°21'E 27°34'N), 2010 m, 28 July 1997, *M. Wakabayashi, M. Amano, M. Mori, K.R. Rajbhandari & K. Shinozaki* 9720003 (TUS) (*as *S. indica*).

Above Those, 7,000 ft., at the edge of open forest in the shade of shrubs on grassy banks, locally frequent, slender 1.5 ft, herb of sprawling habit, very pale pink flowers, 19 July 1966, *A.D. Schilling* 1043 (K).

Sagarmatha Zone, Solukhumbu District, Beni - Loding (86°34'E 27°32'N-86°32'E 27°32'N), 2,350-2,600 m, 4 Sept. 1985, *H. Ohba, M. Wakabayashi, M. Suzuki, N. Kurosaki, K.R. Rajbhandari & S.K. Wu* 8531301 (TI) (*as *S. indica*).

De Namche Bazar a la Bhote Kosi, 3,250 m, fleurs

blanc verdâtre - légerment bleues, edroits fais - 1/2 ombre, 14 Oct 1954, A. Zimmermann 1663 (G).

Rive gauche de l'Imja Khola, 3,200 m, 20 October 1954, fleurs blanc rose - calice, strie de violet, parmi les arbustes, A. Zimmermann 1762 (G).

Phaplos, 8-9,000 ft., 1930, Lall Dhwoj 102 (E, G) (This sheet also contains a specimen of *Silene indica*).

Silene kumaonensis F.N. Williams

Distribution : India (Kumaon), Nepal, China (Tibet).

Specimens from Nepal seen :

W. Nepal, Nyilu, 19 Sept. 1936, F.M. Bailey s.n. (E).

W. Nepal, Lung Jar, 23 July 1936, F.M. Bailey s.n. (E).

Rimi, S.E. of Jumla, 10,000 ft., growing on banks, among long grass, petals dull pink, 27 Sept. 1952, O. Polunin, W.R. Sykes & L.H.J. Williams 5439 (G).

Bhurchula Lekh, S. of Jumla, 11,000 ft., growing from rock crevice, sepals green with brown veins, petals pale brown-red, 19 July 1952, O. Polunin, W.R. Sykes & L.H.J. Williams 4782 (G).

Between Mugu and Purana Mugu, Mugu Khola, 12,500 ft., growing in open coniferous forest, sepals with brown veins, petals brown, O. Polunin, W.R. Sykes & L.H.J. Williams 5332 (G).

Karnali Zone, Jumla Distr., Gothichaur - Churta (82° 20'E 29°10'N), 2,920 m, trailing herb by the side of a cultivated land, flowers greenish with purple ridges, 27 Sept. 1991, M. Minaki, K.K. Joshi, Y. Kadota, H. Sugita, A., Takahashi, S. Tsuda, H. Yagi & C. Yonebayashi 9109191(a) (TI) (*as *S. waltonii*).

Karnali Zone, Dolpa Distr., Dunai - Juphal Airport (82° 50'E 28°50'N), 2,540 m, roadside, 15 Oct. 1991, M. Minaki, K. K. Joshi, Y. Kadota, H. Sugita, A., Takahashi, S. Tsuda, H. Yagi & C. Yonebayashi 9104522 (TI) (*as *S. waltonii*).

Karnali Zone, Dolpa Distr., Rimi - Doizum (82°30'E 29°00'N), 3,000 m, 30 Sept. 1991, M. Minaki, K.K. Joshi, Y. Kadota, H. Sugita, A., Takahashi, S. Tsuda, H. Yagi & C. Yonebayashi 9104323 (TUS) (*as *S. waltonii*).

Nr. Dogadi Khola, 12,000 ft., among boulders near river bed, flowers pinkish, calyx green, purple streaked, 8 Aug. 1954, Stainton, Sykes & Williams 3799 (G).

Barbung Khola, east of Charkkha, 4,500 m, leaves grayish-green, calyx green, corolla pink, Grey-Wilson & Phillips 753 (K).

Tarap Khola (28°50'N 83°7'E), 12,000 ft., on stony slopes, stems 4 ft., trailing downwards across rocks, petals pink, 7 July 1963, J.D.A. Stainton 4411 (G).

2 m. south of Mur (Koram Tippo river), 4,400 m, leaves grey-green, calyx pale green, corolla pale pink, 7 Aug. 1973, Grey-Wilson & Phillips 573 (K).

Samargaon, N. of Tukucha, 15,000 ft., open grass slopes, corolla green, filaments white, 16 Aug. 1954, Stainton, Sykes & Williams 7263 (G).

Tukucha, Kali Gandaki, 10,500 ft., open grass slopes, corolla green-striped with red, filaments white, 21 Aug. 1954, Stainton, Sykes & Williams 7358 (G).

Tegar, (N. of Mustang), 14,000 ft., on grass amongst shrubs, corolla pale green, 8 Oct. 1954, Stainton, Sykes & Williams 8108 (G).

Dhaulagiri Zone, Mustang District, Tukuche - Yak Kharka (83°35'E 29°40'N), 3,100 m, 30 Aug. 1988, M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro, H. Ikeda 8881604 (TI).

Dhaulagiri Zone, Mustang District, Tukuche - Yak Kharka (83°35'E 29°40'N), 3,190 m, 30 Aug. 1988, M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro, H. Ikeda 8860869 (TI).

Dhaulagiri Zone, Mustang District, Tukuche - Yak Kharka (83°35'E 29°40'N), 2,800 m, 30 Aug. 1988, M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro, H. Ikeda 8811195 (TI).

Dhaulagiri Zone, Mustang District, Samar (28°56'N 83°50'E), 3,600 m, climb in shrubbery in gorge, petals white, 16 Aug. 2002, F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi 20220147 (TI).

Dhaulagiri Zone, Mustang District, Tukuche - Tallo Ghansa (83°35'E 29°40'N), 3,075 m, 1 Sept. 1988, M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro, H. Ikeda 8800722 (TI).

Dhaulagiri Zone, Mustang District, Tukuche - Tallo Ghansa (83°35'E 29°40'N), 3,075 m, 1 Sept. 1988, M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro, H. Ikeda 8800717 (TI).

Dhaulagiri Zone, Mustang District, Yak Kharka - Tukuche (83°35'E 29°40'N), 3,340 m, 1 Sept. 1988, M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro, H. Ikeda 8830600 (TI).

Gandaki Zone, Manangbhot Distr., Khangsar - Manang (83°58'E 28°40'N), 3,600 m, calyx green, 2 Aug. 1983, H. Ohba, H. Kanai, M. Wakabayashi, M. Suzuki & S. Akiyama 8310952 (E).

Bagmati Zone, Rasuwa District, between Syarpagaon & Langtang, 3,000 m, occasional hanging plant in shade, corolla lobes brownish, corona pinkish, 20 Sept. 1966, D.H. Nicolson 2556 (TI, US).

Bagmati Zone, Rasuwa District, Langtang village to Ghora Tabela (28°12'59'N 85°30'11'E), 3275 m, shady bank of river gorge, overhung by shrubs, scrambling herb, stems to 1.5 m or more, hanging through shrubs, 15 Oct. 2001, D.G. Long, M.F. Watson, D.G. Knott, S. Crutchley & M.N. Subedi (ENEP) 481 (E).

De Pare at Thammu, 3,400 m, 12 Oct. 1954, A. Zimmermann 1640 (G).

Silene laxantha Majumdar

Melandrium pilosum Edgew.

Lychnis pilosa (Edgew.) Edgew. & Hook. f.

Silene eduardi Bocq.

Distribution : Pakistan, India (West Himalaya), Nepal, China (Tibet).

Specimens from Nepal seen :

Karnali Zone, Jumla Distr., Deula Deuli - Hanka (82° 10'E 29°00'N), 4,100 m, open place, 19 Sept. 1991, M. Minaki, K.K. Joshi, Y. Kadota, H. Sugita, A., Takahashi, S. Tsuda, H. Yagi & C. Yonebayashi 9104105 (TI) (*as *S. vauitiera*).

Bhurchula Lekh, near Jumla, 12,500 ft., open slopes above forest, sepals green, with red hairs, petals dirty white

with reddish brown venation, 10 July 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 4506 (E, TI).

Bhurchula Lekh, S. of Jumla, 12,000 ft., growing in shade of trees on open slopes, calyx green with brown glandular hairs on veins, petals greenish yellow with brown venation, 17 July 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 4744 (TI).

Chakhure Lekh, S. of Jumla, 12,000 ft., growing in shade of trees on open slopes, petals greenish yellow with brown venation, 17 July 1954, *O. Polunin, W.R. Sykes & L.H.J. Williams* 4744 (E).

Nr. Phagune Dhuri, 11,500 ft., steep rocky scree slopes, flowers greenish white, with purple veins, 9 July 1954, *Stainton, Sykes & Williams* 3437 (E).

Maharigaon, 5 miles N.E., 14,000 ft., growing amongst boulders with other herbaceous species, flowers greenish tinged with brownish-purple, 24 July 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 286 (G).

Nr. Balangra Pass, 13,500 ft., rocky ravines, amongst other tallish herbaceous plants or around rocks, flowers dull purplish with purplish lines on calyx, 26 July 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 2576 (TI).

Nr. Dogadi Khola, 12,000 ft., among rocks on dry shrub slopes, flowers greenish, 20 June 1954, *Stainton, Sykes & Williams* 3209 (G).

Nr. Phagune Dhuri, 11,500 ft., steep rocky scree slopes, flowers greenish-white, with purple veins, 9 July 1954, *Stainton, Sykes & Williams* 3437 (K, TI, US).

***Silene moorcroftiana* Wall. ex Benth.**

Silene persica Boiss. subsp. *moorcroftiana* (Wall. ex Benth.) P.K. Chowdhuri

Distribution: Afghanistan, Pakistan, India (West Himalaya), Nepal, China (Tibet).

Specimens from Nepal seen:

W. Nepal, Nyilu Karhna, 19 Sept. 1936, *F.M. Bailey* s.n. (E).

Between Lunh and Lan, 9,000 ft., growing on dry, open, stony slopes, petals pink, 9 Sept. 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 3296 (G).

Karnali Zone, Dolpa District, Ankhe - Dunai (82°50'E 29°00'N), 2,750 m, open place, fl. pink-white, 10 Oct. 1991, *M. Minaki, K.K. Joshi, Y. Kadota, H. Sugita, A. Takahashi, S. Tsuda, H. Yagi & C. Yonebayashi* 9104467 (TI, TUS) & 2,560 m, 9109307 (TI).

Karnali Zone, Dolpa District, Rachi - Ankhe (82°50'E 29°00'N), 2980 m, on rock, flowers white, 9 Oct. 1991, *M. Minaki, K.K. Joshi, Y. Kadota, H. Sugita, A. Takahashi, S. Tsuda, H. Yagi & C. Yonebayashi* 9109283 (TI).

Dolpo, Saldang (29°18'N 83°5'E), 13,500 ft., on stony ground, petals pink, calyx green striped pink, 25 June 1963, *J.D.A. Stainton* 4359 (G).

Mahagung Kola, 4 miles east of Tingkyu, leaves green corolla white above, pink below, 4 Aug. 1973, *Greywilson & Phillips* 497 (K).

Saldanggaon, Chharkabhot, 15,500 ft., growing on dry scree slopes, flowers pinkish purple, calyx, veins brownish-purple, 23 June 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 1194 (G).

Tukucha, Kali Gandaki, 9,000 ft., dry stony slopes,

calyx green and pink, corolla pink, 26 July 1954, *Stainton, Sykes & Williams* 1996 (G).

Dhawalagiri Zone, Mustang District, N. of Sangdala, valley of Thellung Khola (W. side) (83°56'E 29°08'N), 3,800 m, on sunny exposed pebbly slope at roadside along stream, corolla white, tinged with pink, 1 July 2003, *Y. Iokawa, T. Miyazaki, K. Yonekura, Y. Ibaragi & R.K. Uprety* 20320108 (TI).

Dhawalagiri Zone, Mustang District, between Ekle Bhatti and Khingar, S. side of Jhong khola (83°49'E 29°49'N), 3,330 m, on sunny exposed N-facing slope, flowers closed at 2:00 P.M., petals white with pinkish tinge, 26 June 2003, *Y. Iokawa, T. Miyazaki, K. Yonekura, Y. Ibaragi & R.K. Uprety* 20320027 (TI).

Muktinath, 12,500 ft., at edge of field, corolla mauvish white, 25 June 1954, *Stainton, Sykes & Williams* 1414 (G).

Muktinath, 11,500 ft., on dry stony slopes, flowers brownish green, 8 June 1954, *Stainton, Sykes & Williams* 5654 (G).

Dhaulagiri Zone, Mustang District, Kagbeni - Muktinath (835285, 836285), 2,800-3,550 m, 22 July 1983, *H. Ohba, H. Kanai, M. Wakabayashi, M. Suzuki & S. Akiyama* 8330720 (TI).

Dhawalagiri Zone, Mustang District, Jharkot - Marpha (28°49'01"N 83°51'02"E - 28°45'17"N 83°41'28"E), 3,100 m, erect herb on rock at roadside slope, dry and sunny place, fls. white, lower surface of petals reddish, 21 Aug. 1994, *S. Noshiro, N. Fujii, T. Kajita & K. Yoda* 9470526 (TI, TUS).

Dhawalagiri Zone, Mustang District, Jomson - Jharkot (28°47'09" - 49'38"N, 83°42'50" - 51'07"E), 3,040 m, 22 Sept. 1995, *M. Mikage, N. Anjiki, N. Kondo, R. Lacoul & K. Yonekura* 9552385 (TI, TUS).

Mustang, 15,000 ft., at edge of field, calyx green-striped with pink, corolla white, 4 Aug. 1954, *Stainton, Sykes & Williams* 2184 (G).

Dhawalagiri Zone, Mustang District, Tsarang (29°05'30"N 83°56'05"E), 3,400 m, on sandy steep slope, petal pinkish white inside, reddish white outside, anther greenish white, style and filament white, calyx tube greenish white with reddish, 7 Aug. 2001, *S. Noshiro, M. Amano, Y. Iokawa, T. Kurosawa & M.N. Subedi* 20106115 (TI).

Dhawalagiri Zone, Mustang District, Pongio Kharka - Phalyak (28°53'N 83°43'E), 3,870 m, calyx pale yellow with brown veins, petals pale pink, on exposed dry cliffs, 13 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20210095 (TI).

Dhawalagiri Zone, Mustang District, Lo-Manthang (29°11'N 83°57'E), 3,800 m, wet places, 23 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20230190 (TI).

Dhawalagiri Zone, Mustang District, Pongio Kharka - Phalyak (28°53'N 83°43'E), 3,800 m, fls. pale pink to white, on rocks, 13 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20230057 (TI).

Dhawalagiri Zone, Mustang District, Shyammochen (Syangboche) - Tsarang (83°50'17"E 28°59'28"N), 3,773-3,559 m, 30 July 2002, *T. Watanabe, H. Watanabe, H. Devkota, Y.B. Bhurtyal, R.K. Uprety, K.J. Malla & T. Bista* LOM- SP 020730(005) (TI).

Dhawalagiri Zone, Mustang District, Kagbeni - Chele (Tsele) (83°47'04"E 28°56'16"N), 3,773-3,559 m, 28 July 2002, *T. Watanabe, H. Watanabe, H. Devkota, Y.B. Bhurtyal, R.K. Uprety, K.J. Malla & T. Bista* LOM-SP020728 (016) (TI).

Dhawalagiri Zone, Mustang District, Kagbeni - Chuksang (28°50'N 83°47'E), 2,810-2,970 m, 9 July 2000, *Y. Iokawa, M.N. Subedi, Y. Takahashi & K. Kano* 20020017 (TI).

Dhawalagiri Zone, Mustang District, Kagbeni - Chuksang (28°50'N 83°47'E), 2,810-2,970 m, 9 July 2000, *Y. Iokawa, M.N. Subedi, Y. Takahashi & K. Kano* 20020015 (TI).

Silene nepalensis Majumdar

Lychnis multicaulis Wall. ex Royle

Distribution: India, Nepal, Bhutan, China.

Specimens from Nepal seen:

W. Nepal, Paya, 14,000 ft., 28 Aug. 1936, *F.M. Bailey* s.n. (E).

Bhurchula Lekh, S. of Jumla, 11,000 ft., growing on open slopes, sepals pale green with brown veins, petals greenish white within, dirty brown without, 19 July 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 4784 (TI).

Nr. Balangra Pass, 13,000 ft., open grassy slopes, small ravines, flowers greenish white, with purplish streaks on calyx, 26 July, 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 2570 (TI).

Katkl, Langu-Mugu Khola confluence, 9,000 ft., dry, open stony slopes, petals greenish-white, 16 Aug., 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 5267 (G).

Chimgaon, N. of Tukucha, 9,000 ft., at edge of field, 3 June 1954, *Stainton, Sykes & Williams* 889 (G).

Tukucha, Kali Gandaki, 11,000 ft., open grass slopes, corolla green-striped with dark green, 21 July 1954, *Stainton, Sykes & Williams* 1937 (G).

Namdo, N. of Mustang, 16,000 ft., open grass slopes, corolla green, marked with mauve, 9 Aug. 1954, *Stainton, Sykes & Williams* 2298 (E, TI).

Tangboche - Feroche, 13,000 ft., on exposed area, flowers green with black ridges, 31 July 1966, *Banerjee & P.R. Shakya* 5706 (US).

Silene nigrescens (Edgew.) Majumdar

Lychnis nigrescens Edgew.

Distribution: India (East Himalaya), Nepal, Bhutan, China (Tibet), Myanmar.

Specimens from Nepal seen:

Bagmati Zone, Rasuwa District, a kharka (near Seto Kund) - Seto Kund (28°16'N 85°08'E), 4,170-3,930 m, petals bluish and pinkish, 8 Aug. 1994, *F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya* 9420206 (TI) (*).

Bagmati Zone, Rasuwa District, around Seto Kund (28°16'N 85°08'E), 3,890 m, between rocks along a stream, petals purplish, 10 Aug. 1994, *F. Miyamoto, K.R. Rajbhandari, S. Akiyama, M. Amano, H. Ikeda & H. Tsukaya* 9430108 (TI) (*).

Khola Kharka, 13,500 ft., stony ground, S.W. stream, petals green, calyx with brown ribs, 17-19 July 1949, *O. Polunin* 1101 (TI).

E. Nepal, Janakpur Zone, Ramechhap District, Thare Og - Nubre Glacier (86°28'E 27°45'N-86°25'E 27°48'N),

4,500 m, 26 July 1985, *M. Suzuki & N. Kurosaki* 8570834 (TUS) (*).

C. Nepal, Rolwaling Himal, Numbur, 4,600 m, 13 May 1963, *K. Yoda* s.n. (KYO) (collector's name kindly translated from Japanese by Dr. K. Yonekura).

Nepal, col de Hadengi La, 4,650 m, 25 Sept. 1954, *A. Zimmermann* 1454 (G).

Sagarmatha Zone, Solukhumbu District, around Dig Kharka (86°5'E 27°44'N), 4,550 m, fl. dull purple, scree, 14 Aug. 1997, *M. Wakabayashi, M. Amano, M. Mori, K.R. Rajbhandari & K. Shinozaki* 9715164 (TI) (*).

Sagarmatha Zone, Solukhumbu District, Horsola Kharka - Tangnag (86°49'-50'E 27°41'-43'N), 3,890 m, on stream sides, 11 Aug. 1997, *M. Wakabayashi, M. Amano, M. Mori, K.R. Rajbhandari & K. Shinozaki* 9730219 (TI) (*).

Sagarmatha Zone, Solukhumbu District, around Tangnag (86°50'E 27°43'N), 4,300 m, 12 Aug. 1997, *M. Wakabayashi, M. Amano, M. Mori, K.R. Rajbhandari & K. Shinozaki* 9720188 (TI) (*).

Sagarmatha Zone, Solukhumbu District, around Khare (86°53'E 27°44'N), 4,850 m, fl. yellowish, 16 Aug. 1997, *M. Wakabayashi, M. Amano, M. Mori, K.R. Rajbhandari & K. Shinozaki* 9710270 (TI) (*) & 9710271 (TI) (*).

Sagarmatha Zone, Solukhumbu District, Dudh Kund - Mosom Kharka (86°51'-49'E 27°41'-40'N), 4,590 m, 25 Aug. 1997, on open stony slopes, *M. Wakabayashi, M. Amano, M. Mori, K.R. Rajbhandari & K. Shinozaki* 9730340 (TI) (*).

Sagarmatha Zone, Solukhumbu District, Tangna - Dik Kharka (27°44'N 86°51'E), 4,300 m, on banks or rocks by streams, 6 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 95808231 (E, TI, TUS) (*) & 9588126 (TI) (*).

Sagarmatha Zone, Solukhumbu District, Dik Kharka - Khare (27°44'N 86°52'E), 4,500 m, on alpine rocky slope, petals creamy white to pale purple, 7 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 9588132 (TI) (*).

Sagarmatha Zone, Solukhumbu District, Rato Odara - Chhomalung Base Camp (27°43'N 86°54'E), 4,600 m, on grassland slopes, 11 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 9580280 (TI) (*).

Sagarmatha zone, Solukhumbu District, Chhomalung Base Camp - Seto Pokhari (27°47'N 86°55'E), 4,500 m, on exposed place near the river, 12 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 9592255 (TI, TUS) (*), & 9596285 (TI) (*).

Sagarmatha Zone, Solukhumbu District, Seto Pokhari - Chhomalung Base Camp (27°47'N 86°57'E), 4,580 m, grassy place, flowers pink, 17 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 9596343 (TI) (*).

Sagarmatha Zone, Solukhumbu District, Khare - Tangna (27°46'N 86°12'E), 4,400 m, on sandy bank beside a river (Hinku khola), 20 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 9588198 (TI) (*).

Sagarmatha Zone, Solukhumbu District, around Dudh Kund (27°42'N 86°50'E), 4,440 m, grazed place, flowers purple, 25-26 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 9596459 (TI, TUS) (*).

Sagarmatha Zone, Solukhumbu District, around Dudh Kund (27°42'N 86°50'E), 4,500 m, on a rocky ground, plant with blackish hair, 25–26 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 9592418 (TI) (*).

Sagarmatha Zone, Solukhumbu District, around Dudh Kund (27°42'N 86°50'E), 4,510 m, on sandy place beside a stream near glacier, 26 Aug. 1995, *F. Miyamoto, M. Amano, H. Ikeda, C.M. Joshi, K. Arai & T. Komatsu* 9588247 (TI, TUS) (*). Koshi Zone, Sankhusabha District, Jaljale Himal, Shuwan Kharka (Near Panch Pokhari) – Topke Gola (87°30'E 27°35' N), 4,180–3,570 m, corolla ivory with purple veins, 7 Aug. 1991, *H. Ohba, S. Akiyama, H. Ikeda, T. Kikuchi, S. Noshiro, Y. Omori, M.N. Subedi & M. Wakabayashi* 9110367 (TI) (*), 9120267 (TI) (*), 9120270 (TI) (*).

Koshi Zone, Sankhusabha District, Jaljale Himal, Topke Gola–Bomrang (87°30'E 27°35'N), 3,570–4,200 m, on rocks, 9 Aug. 1991, *H. Ohba, S. Akiyama, H. Ikeda, T. Kikuchi, S. Noshiro, Y. Omori, M.N. Subedi & M. Wakabayashi* 9110408 (TI) (*).

Bhut Pokri, Nepal, 16–17,000 ft., 1930, *Lall Dhwoj* 553 (E, G).

Kang La, Tseram, 14–15,000 ft., 10 Sept. 1905, *D.J. Jacot-Guillarmod* LY1 (G).

Arun – Tamur watershed, Thagla Bhanjyang, N. of Topke Gola, 14,500 ft., on stony ground, calyx green with purple markings, corolla purple, 14 July 1956, *J.D.A. Stainton* 988 (G).

Lama Chhungbu (873275), 4,200 m, 24 June 1972, *H. Kanai, H. Ohashi, K. Iwatsuki, H. Ohba, Z. Iwatsuki & P. R. Shakya* 720727 (TI).

Yalung, Simbua Khola, 4,080 m, scree, fairly common, 12 Sept. 1978, *D. Binns, R. Mason & G. Wright* 55 (E).

Between Kangbachen and Lhonak, 4,500 m, 27 Sept. 1962, *K. Nishioka* 1117 (KYO).

Lhonak, camp de base, 4,700 m, 4 July 1942, *Wyss-Dunant* 1123 (G).

Environs of Ghunsa (27°40'87°57'), 3,520 m, on gravelly rocky banks of stream, corolla brown–purple, calyx hairs purple, 8 Sept. 1989, *KEKE* 382 (E).

***Silene stracheyi* Edgew.**

Distribution : India (Kumaun), Nepal, Bhutan.

Specimens from Nepal seen :

Between Jumla and Garjigoth, 11,000 ft., growing among rocks beside stream, height 2 ft., sepals pale green petals white, 8 Aug. 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 5039 (G).

Near Surtibang Lekh, 11,000 ft., straggling among vegetation in burnt forest, flowers white, 11 July 1954, *Stainton, Sykes & Williams* 3448 (G).

***Silene vautierae* Bocq.**

Distribution : Nepal.

Specimens from Nepal seen :

Karnali Zone, Jumla District, Deula Deuli – Hanka (82°10'E 29°00'N), 4,300 m, open place, 19 Sept. 1991, *M. Minaki, K.K. Joshi, Y. Kadota, H. Sugita, A. Takahashi, S. Tsuda, H. Yagi & C. Yonebayashi* 9104104 (TI, TUS) (*), 9105036 (TI) (*), and 9109080 (TI) (*).

Lulo Khola, 15,000 ft., on stony slopes, stems dark red, 19 Sept. 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 3509 (E, TI).

Nr. Jogni Daha, 13,000 ft., on open earth beside river, 1 Oct. 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 5486 (E, TI).

Nr. Balangra Pass, 15,500 ft., moist places in exposed earth and around small rocks near melted snow of streams, leaves and stems dull purplish, flowers purplish, 26 July 1952, *O. Polunin, W.R. Sykes & L.H.J. Williams* 2586 (E, TI).

East of Chalike Pahar, 14,000 ft., among sand and rocks on river bed, 2 Aug. 1954, *Stainton, Sykes & Williams* 3717 (E, TI).

East of Chalike Pahar, 14,000 ft., sand and rocks in river bed, leaves and stems purplish, 21 Sept. 1954, *Stainton, Sykes & Williams* 4521 (TI).

West side of Khung Khola, 5,000 m, leaves deep green and red flush, calyx reddish and deeper veins, corolla pale pink, 18 Aug. 1973, *Grey-Wilson & Phillips* 666 (K).

3 m. north of Shimen, 4,300 m, leaves deep green, flowers rose–purple, 6 Aug. 1973, *Grey-Wilson & Phillips* 543 (K).

Dhawalagiri Zone, Mustang District, Chabarbu (Thorang Phedi) – Jharkot 28°48'25''–57''N 83°51'07''–53'43'E, 4,310 m, on sunny steep slope, 24 Sept. 1995, *M. Mikage & K. Yonekura* 9552466 (TUS) (*).

Taglung, S. of Tukucha, Kali Gandaki, 14,500 ft., open rocky slopes, calyx and corolla purple, 16 July 1954, *Stainton, Sykes & Williams* 1824 (E, TI).

Tukucha, Kali Gandaki, 14,000 ft., on scree slopes, corolla & leaves purple, corolla covered with purple hairs, 12 Sept. 1954, *Stainton, Sykes & Williams* 7779 (E, TI).

Larjung, S. of Tukucha, Kali Gandaki, 12,000 ft., amongst stones on scree slope, corolla and filaments purple, 23 July 1954, *Stainton, Sykes & Williams* 1941 (E, TI).

Muktinath, 13,000 ft., open grass slopes, corolla mauvish green, 28 July 1954, *Stainton, Sykes & Williams* 7410 (TI).

Dhawalagiri Zone, Mustang District, around Sangda pass (28°52'38.5''N 83°42'E), 4,530 m, calyx pale brown, vein purple with purple bristles and glandular, petals purple, on scree slopes, 11 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M. N. Subedi* 20210044 (TI).

Dhaulagiri Zone, Mustang District, Yak Kharka – Tukuche (83°35'E 29°40'N), 3,390 m, 1 Sept. 1988, *M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro, H. Ikeda* 8830566 (TI).

Dhawalagiri Zone, Mustang District, around Sangda pass (28°53'N 83°43'E), 4,400 m, stony slopes, calyx cream with purple veins, petals purple, 12 Aug. 2002, *F. Miyamoto, N. Kurosaki, S. Akiyama, H. Ikeda, Y. Iokawa, Y. Takahashi, M. Tsusaka & M.N. Subedi* 20230050 (TI).

Dhawalagiri Zone, Manang & Mustang District, Thorung La (28°46'46''N 83°58'16''E), 5,110 m, fl. dark purple, open dried place, alpine rocky place, 19 Aug. 1994, *M. Mikage, N. Fujii, T. Kajita, N. Kondo, S. Noshiro & K. Yoda* 9485497 (TI).

Dhaulagiri Zone, Mustang District, around Yak Kharka (83°35'E 29°40'N), 4,200 m, 31 Aug. 1988, *M. Suzuki, T.*

Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro, H. Ikeda 8881669 (TI).

Dhaulagiri Zone, Mustang District, around Yak Kharka (83°35'E 29°40'N), 4130 m, petal light purple, on a rocky slope, 31 Aug. 1988, M. Suzuki, T. Maeda, N. Naruhashi, R. Watanabe, M.N. Subedi, M. Minaki, S. Noshiro, H. Ikeda 8860912 (TI).

Jargeng Khola, 14,500 ft., screes, flower dull mauve, inflated calyx veined with dull red, stems more or less dark red, 5 Aug. 1950, D.G. Lowndes 1331 (E, TI).

Gandaki Zone, Gorkha District, around Thangmanang Kharka (28°33'09"N 84°39'19"E), 3,815 m, open sandy place, 6 Aug. 1994, M. Suzuki, N. Acharya, N. Fujii, T. Kajita, N. Kando, M. Mikage, S. Noshiro & K. Yoda 9460243 (TUS) (*).

P29 East Peak, 4,500 m, 22 Oct. 1963, T. Namba 1022006 (KYO).

Silene vulgaris (Moench) Garcke

Cucubalus behen L.

Behen vulgaris Moench

Silene inflata Sm.

Silene venosa Ascherson

Distribution : Europe, N. Africa, Asia eastwards to West Himalaya, Pakistan, India, Nepal, China.

Specimen from Nepal seen :

Nepal, Dhuli, 9,000 ft., hillside, 13 July 1953, J.B. Tyson 97 (E).