

Takasi YAMAZAKI*: **New and noteworthy plants
of Scrophulariaceae in Himalaya (3)****

山崎 敬*: ヒマラヤ産ゴマノハグサ科植物新知見 (3)**

(Plates X-XII)

The materials of Scrophulariaceae (*Lagotis*, *Oreosolen*, *Pedicularis*, *Scrophularia* and *Wulfenia*) in Himalayas were studied. It has been received on loan for study through the kindness of Department of Botany, British Museum. In this study, I found some new species and some new interpretations, and will report them in this paper.

20) ***Lagotis kongboensis*** Yamazaki sp. nov. Fig. 1. 1-3. Pl. X. 1.

Planta 6-15 cm alta glabra. Rhizoma elongatum crassum, apice vaginis persistentibus destitutum, radices cylindricas emittens. Folia radicalia 3-7, petiolis 2.5-4.5 cm longis basi vaginatis, laminis ellipticis vel oblongo-ellipticis 2-4 cm longis 1-2.5 cm latis apice acutis vel obtusis et mucronatis, basi in petiolum elongato-attenuatis, margine 5-9 grosse serratis, serris acutis saepe duplicatis, in sicco papyraceis; folia caulina 3-5, multo minora, ovata vel late ovata apice acuta, margine 3-5 grosse argute serrato-dentata, sessilia vel (inferiora) breviter petiolata. Scapus folia longe superans. Inflorescentia spiciformis 2-3 cm longa 1 cm lata. Bracteae 6-8 mm longae 3.5-5 mm latae ovatae, apice acuminatae, margine 3-5 acuminate serratae. Calyx 5 cm longus spathaceus, apice bidentatus, nervis in dentes 2 excurrentibus, margine superiorum minute fimbriatus pilosus, dentibus lanceolatis acuminatis 1.2 mm longis. Corolla 7 mm longa, tubo 4 mm longo intus piloso, labio superiore bilobato, lobis linearibus 3 mm longis 0.7 mm latis, labio inferiore bilobato, lobis linearibus 3 mm longis 0.5 mm latis. Stamina inclusa, filamentis brevissimis. Antherae subdivaricatae filamentis paulo longiores. Stigma vix exserta. Fructus ignotus.

Lagotis alutacea affinis, sed a qua foliis argute dentatis, bracteis acuminata serratis, corollis minoribus differt.

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** Part 1. in Journ. Jap. Bot. 45: 145-149. Part 2. 1. c. 166-179 (1970).

Hab. S.E. Tibet: Kongbo, Deyang La, 13,500 ft. Grassy slopes. Corolla white. (Ludlow, Sherriff & Elliot. Aug. 9, 1947. no. 14291. Type in Brit. Mus. Isotype in Tokyo Univ.). Tsanang La, near Paka. 29°15' N. 94°15' E. 13,500-14,000 ft. Open hillside. Perianth white, sometimes tinged pale blue. (Ludlow, Sherriff & Taylor, July 18, 1958. no. 5876. Brit. Mus.).
21) **Lagotis nepalensis** Yamazaki sp. nov. Fig. 1. 4-5. Pl. X. 2.

Planta 5-6 cm alta glabra. Rhizoma elongatum subcarnosum, apice nudum, radices cylindricas fibrosas emittens. Folia radicalia 4-8, petiolis 2-4 cm longis glabris basi non dilatatis, laminis ovatis vel late ovatis 10-20 mm longis 7-14 mm latis apice rotundatis vel rarius obtusis basi cuneatis, margine 2-4 grosse rotundate dentatis utrinque glabris, in sicco carnosula.

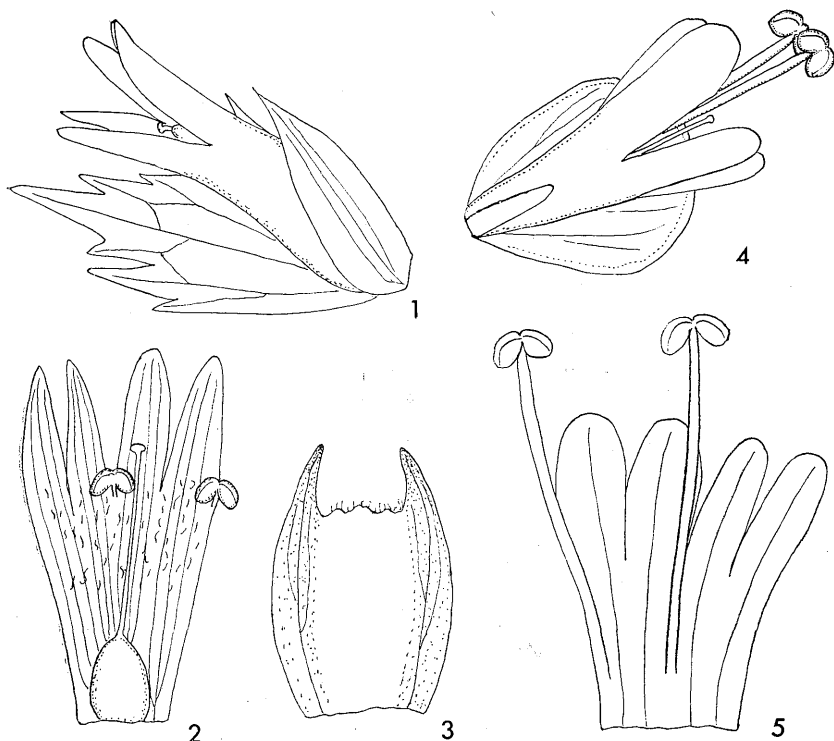


Fig. 1. 1-3: *Lagotis kongboensis*. 1. Flower. 2. Corolla opened. 3. Calyx. 4-5: *Lagotis nepalensis*. 4. Flower. 5. Corolla opened. 1-3 $\times 7$. 4-5 $\times 10$.

Scapus aphyllus 5-6 cm longus 1.5-2 mm latus glaber foliis longior. Inflorescentia globosa 1-1.5 cm longa 1-1.2 cm lata. Bracteae orbiculatae, infimae majores sursum minores, 3-4 mm longae 2.5-3.5 mm latae, margine albidae glabrae saepe sparsissime glandulosae. Calyx hyalinus bipartitus, laciniis lineari-lanceolatis acutis ca. 1.5 mm longis. Corolla 4 mm longa glabra, tubo 2 mm longo intus glabro, labio superiore bilobato, lobis late linearibus apice rotundatis 2 mm longis, labio inferiore bilobato, lobis apice rotundatis 2 mm longis. Stamina exserta, filamentis 2.5 mm longis, antherarum loculis sub-orbiculatis divaricatis. Stylus inclusus. Stigma capitata. Fructus ignotus.

Lagotis globosa affinis, sed a qua foliis dentatis elobatis, corollis brevioribus, filamentis longe exsertis differt.

Hab. W. Nepal: Urai Langna, 19,000 ft. Scree. (J.B. Tyson. July 9, 1953. no. 93. Type in Brit. Mus. Isotype in Tokyo Univ.).

22) **Lagotis pharica** Prain in Journ. Asia. Soc. Beng. 65: 62, Pl. 1. (1896).

Lagotis ramalana (non Batalin) Yamazaki in Hara, Fl. East. Himal. 2: 119 (1971) pro parte.

Hab. Bhutan: Taglung La near Thongu, Paro Chu. Corolla inky blue. Growing in small loose scree near the summit of the pass, alt. 15,000 ft. (Ludlow, Sherriff & Hicks. May 16, 1949, no. 16257 in Brit. Mus.). Yale La near Lingshi, alt. 4800 m. In open stony pasture. Flower blue (T. Yamazaki, May 23, 1967, no. 3225).

Distr. S. E. Tibet and N. W. Bhutan. New to Bhutan.

23) **Lagotis kunawurensis** (Royle) Ruprecht var. **sikkimensis** (Hook. f.) Yamazaki in Hara, Fl. East. Himal. 286 (1966).

Lagotis ramalana (non Batalin) Yamazaki in Hara, Fl. East. Himal. 2: 119 (1971) pro parte.

Hab. Bhutan: Yale La. In moist streamside. (T. Yamazaki, May 23, 1967. no. 3296). Singke La. 4800 m. (T. Yamazaki, May 19, 1967. no. 11534). Helli La near Lingshi Dzong, alt. 14,000 ft. In wet scree. Corolla white (Ludlow, Sherriff & Hicks, May 20, 1949. no. 16298).

Distr. Nepal, Sikkim and Bhutan. New to Bhutan.

24) **Lindenbergia hookeri** C. B. Clerke in Hook., Fl. Brit. Ind. 4: 261 (1884).

Lindenbergia bhutanica Yamazaki in Journ. Jap. Bot. 45: 145, Pl. 9. (1970). syn. nov.

Distr. E. Himalayas: Sikkim and Bhutan.

Hab. Sikkim, alt. 3-4,000 ft. (J.D. Hooker. Type of *L. hookeri* in Brit. Mus.). Sikkim (C.B. Clarke, March 1871. no. 16803 in Brit. Mus.). S.E. Bhutan. Pintsong, alt. 4,000 ft. Stony river bed. Corolla yellow (Ludlow and Sherriff, March 6, 1936. no. 1151 in Brit. Mus.).

I compared *Lindenbergia bhutanica* with *L. hookeri* by the suggestion of Dr. L. H. J. Williams who was so kind enough to send the type specimen of *L. hookeri* and some materials. I arrived at a conclusion that it was proper to regard them as the same species, but the type specimen of *L. hookeri* has broader leaves and somewhat obtuse sepals.

25) **Oreosolen williamsi** Yamazaki sp. nov. Fig. 2. Pl. XI. 4.

Planta nana 2-3 cm alta perennis. Radix subcarnosa, collo squamigero, squamis parvis ovatis acutis. Caulis erectus simplex vel basi pauce ramosus inferiore 5-7 squamatus, squamis ovatis vel spatulatis membranaceis 4-6 mm longis 3-5 mm latis apice obtusis glabris. Folia subrosulata subcarnosa glabra, petiolis dilatatis 4-6 mm longis 1.5 mm latis, laminis ovatis vel late ovatis acutis, grosse argute serratis, 6-12 mm longis 5-9 mm latis a basi 3-5 nervosis, nervis venisque laxe reticulatis subtus praesertim conspicuis. Flores 2-4 in axillis foliorum subsessile. Calyx campanulatus ca. 6-7 mm longus 4 mm latus sparsissime glanduloso-pilosus 5-fidus, lacinis lineari-oblongis obtusis vel acutis 3-5 mm longis 1-1.5 mm latis sparsissime glanduloso-pilosis. Corolla cylindrica calyce subduplo-superans 11-13 mm longa extus sparsissime glanduloso-pilosa, tubo 9-10 mm longo 2.5 mm lato, labio superiore 2 mm longo bifido, lobis ovato-rotundatis 1.5-2 mm latis, labio inferiore trilobato, lobis 2 lateralibus ovato-rotundatis 2-2.5 mm longis 1.8-2 mm latis, lobo medio subminore. Stamina 4 inclusa, filamentis glabris. Stamino-dium nullum. Ovarium ovato-globosum glabrum, stylo filiforme ca. 8 mm longo apice capitato-stigmatoso.

A *Oreosolen wattii*, foliis ovatis

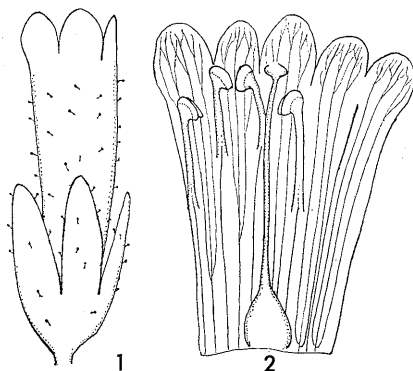


Fig. 2. *Oreosolen williamsi*. 1. Flower.
2. Corolla opened. $\times 4$.

minoribus, corollis minoribus, lobis subaequantibus, staminibus inclusis, staminodiis nullis differt.

Hab. N.W. Nepal: Gurjakhani, alt. 15,000 ft. Rocky scree slopes. Flowers yellow (Stainton, Sykes & Williams. June 13, 1954, no. 3105. Type in Brit. Mus. Isotype in Nat. Sci. Mus. Tokyo). Gangla Bhanjyang, 15,500 ft. Flowers yellow, leaves glossy (Polunin, Sykes & Williams. July 1, 1952, no. 2357, Brit. Mus.). C. Nepal: Changbu Khola, alt. 18-19,000 ft. (H. W. Tilman, June 1949, no. 667A. Brit. Mus.).

26) **Pedicularis wallichoides** Yamazaki sp. nov. Ser. Albiflorae. Fig. 3. Pl. XII. 5.

Planta 7-12 cm alta. Radix rugosa carnosae, collo reliquiis petiolorum in fibras tecto. Folia radicalia longipetiolata, petiolis filiformibus 2-6 cm longis sparse pilosis, lamina lanceolatis 2-4 cm longis 0.5-1.2 cm latis glabrescentibus, segmentis 6-13 jugis lanceolatis acutis 2-4 argute dentatis. Scapus

erectus aphyllus adpresse pilosis superne subdense florifer. Bractee foliiformes minora glabrae calycibus longiorae vel subaequilongae, petiolis dilatatis 3-4 mm longis margine pilosis. Flores in apicem scapi 4-7 dispositi alterni, pedicellis 3-7 mm longis glabris. Calyx tubuloso-urceolatus 10-13 mm longus 4-5 mm latus glaber apice 5 lobatus, tubo 6-7 mm longo, lobo postico minimo subulate 1 mm longo, lobis lateralibus ovatis vel ovato-oblongis acutis argute inciso-dentatis 3-4 mm longis et latis glabris. Corollae tubus calyce superans 15-20 mm longus 1.5 mm latus glaber. Galea extus glabra, pars verticalis 5 mm longus pars antheriger 7 mm longus 4 mm latus in rostrum sensim gradatim 3 mm longum attenuatus sub lente denticulatus scabridus, labio inferiore galeo longiore ca. 13 mm longo et lato trilobato margine glabro,

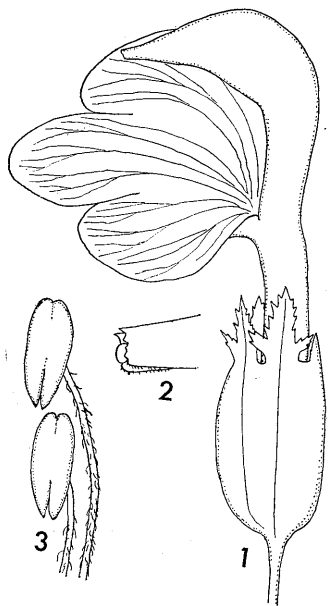


Fig. 3. *Pedicularis wallichoides*. 1. Flower $\times 2$. 2. Apical part of the galea. 3. Stamen.

lobo medio late oblongo apice rotundato 6 mm longo 5 mm lato, lobis lateralibus ovatis 6 mm latis. Filamenta 4 pilosa.

Pedicularis wallichii affinis, sed a qua foliis pinnatifidis, corollae lobis inferioribus margine integris non denticulatis differt.

Hab. Central Nepal. Mul Karka, Chilime Khola, alt. 3,800–4,000 m (Kanai et Shakya, July 3, 1970, no. 762247. Type in Tokyo Univ., Isotype in Dept. Med. Pl. Kathmandu). W. Nepal. Jori-dwari, alt. 13,500 ft. Flowers mauve with dark veins. Open slopes (T.B. Shrestha, July 4, 1966. no. 5299). Chile-Kaigaon, 13,000 ft. Flowers pink. On rock. (T.B. Shrestha, June 21, 1966, no. 5188).

27) ***Scrophularia bheriensis*** Yamazaki sp. nov. Fig. 4. 1. Pl. XI. 3.

Planta perennis erecta 30–40 cm alta. Caulis fere teres glaber. Folia radicalia subrosulata oblonga obtusa pinnatisecta superne glabra subtus ad nervos sparsissime pubescens 5–7 cm longa 2–2.5 cm lata ultimo obovata trilobata, segmentis irregulariter argute dentatis, lobis lateralibus oblongis vel oblongo-oblancoelatis obtusis vel acutis irregulariter argute lobato-dentatis; folia caulina alterna oblanceolata vel linearia 4–10 cm longa 0.8–2 cm lata irregulariter duplicato-lobata, lobis oblongo-oblancoelatis vel linearibus 2–3 argute lobatis vel dentatis. Inflorescentia cymoso-paniculata multiramosa, ramis divaricatis saepe basi dichasiis laxe multifloriferis,

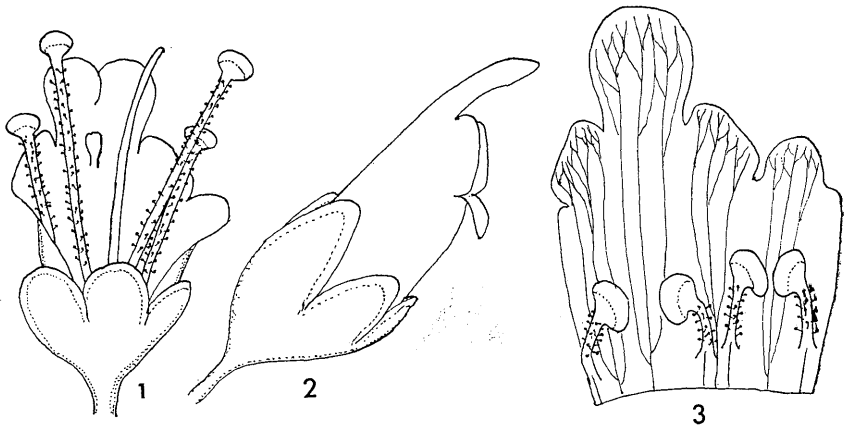


Fig. 4. 1. *Scrophularia bheriensis*. Flower opened. 2-3. *Scrophularia laportaeifolia*. 2. Flower. 3. Corolla opened. All $\times 7$.

pedicellis 1-4 mm longis glabrescentibus vel sparse glanduloso-punctatis. Bractee setaceae acutae 1-1.5 mm longae. Calyx campanulatus 2 mm longus 3 mm latus glaber, sepalis orbiculatis margine albo-hyalinis 1 mm longis et latis. Corolla extus glabra 5 mm longa, tubo 3 mm longo, labio superiore superante 1.3 mm longo 2 mm lato bilobato, lobis rotundatis 0.8 mm longis et latis, labio inferiore 0.8 mm longo trilobato. Stamina 4, 2 postica exserta 5 mm longa, 2 antica 4 mm longa corolla subaequilonga, filamentis glanduloso-pilosis. Staminodium inclusum clavatum apice rotundato-truncatum subintegrum vel 2-3 dentatum. Stylus ca. 5 mm longus apice anguste stigmatosus. Capsula globoso-ovoidea 3 mm longa et lata. Semina nigra elliptica 0.7-1 mm longa 0.4-0.5 mm lata.

Hab. W. Nepal: Ila. Bheri river, alt. 6,000 ft. Dry open slopes. Corolla, lobus cream, tubè green. (Polunin, Sykes & Williams. Sept. 6, 1952, no. 3245. Type in Brit. Mus.). Near Dunaihi, Bheri valley, 7,000 ft. Among rocks near river bed in dry warm areas. Flowers greenish white. (Polunin, Sykes et Williams. July 17, 1952, no. 2487, in Brit. Mus. and Tokyo Univ.).

28) **Scrophularia laportaeifolia** Yamazaki sp. nov. Fig. 4. 2-3. Pl. XII. 6.

Planta nana 10-17 cm alta perennis. Radix pauciramosa subcarnosa. Caulis erectus pauciramosus subtetragonus crispate albo-lanatus. Folia opposita, petiolis 2-3.5 cm longis crispate albo-lanatis, laminis ovatis apice acutis basi truncato-rotundatis vel subcuneatis margine grosse duplicato-dentatis 6-13 cm longis 4-10 cm latis membranaceis, superne glabris subtus ad nervos albo-pilosis, dentibus late ovatis acutis irregulariter 2-3 grosse mucronate dentatis. Inflorescentia terminalis racemosa subcapitata 2-5 cm longa 2-2.5 cm lata, axis albo-pilosis cum glandulosis, pedunculis 1-3 mm longis pauciramosis apice subdense 2-4 floriferis, pedicellis 2-3 mm longis glabris sub lente sparsissime glanduloso-punctatis. Bractee lanceolatae vel lineari-oblongae obtusae margine sparse glanduloso-pilosae 4-10 mm longae 1-2 mm latae. Bracteolae lineares acutae 2-3 mm longae sparse glanduloso-punctatae. Calyx 5-partitus glaber 3 mm longus, segmentis late ovatis apice rotundatis rarius obtusis 2-2.5 mm longis 2 mm latis margine albo-membranaceis. Corolla calyce subduplo-superans 6 mm longa extus glabra, tubo 3 mm longo, labio superiore superante obovato-rotundato ca. 2 mm longo et lato integro, labio inferiore trilobato ca. 0.8 mm longo. Stamina inclusa, filamentis breves glanduloso-puberulis. Staminodium nudum.

Stylus 1.5 mm longus apice capitato-stigmatosus. Capsula ovoidea ca. 4 mm longa 3 mm lata calyce superans.

Hab. W. Nepal: Tologaon (Marma), 29°45' N. 80°50' E., alt. 9,500 ft. In forest. Flowers white (J.D.A. Stainton. June 15, 1965, no. 4928. Type in Brit. Mus.). Ghola village, alt. 9,000 ft. On lime stone rock. Flowers mauve white (T.B. Shrestha. June 15, 1965, no. 4206 in Brit. Mus.).

29) **Wulfenia amherstiana** (Wall.) Bentham in Scroph. Ind. 46 (1835). Pennell in Acad. Nat. Sci. Philad. Monog. 5: 67 (1943).

Distr. Western Himalayas from Afghanistan to Kumaun and Western Nepal. New to Nepal.

Hab. W. Himalayas: Hazara, Kagan, Kamalban forest, alt. 7,000 ft. (A. Hafiz Khan. Sept. 18, 1924, TI). Peshawar, Nathia Gali (M. Monji. Oct. 13, 1957, TI). Rawalpindi, Murree Hills, alt. 7,800 ft. (J.F. Duthie, July 22, 1894, Brit. Mus.). Kashmir, Gulmarg, 8-9,000 ft. (J.F. Duthie, July 16, 1892. Brit. Mus.). Garhwal, Ramni, alt. 2500 m (H.A. Rau, June 10, 1959, no. 10072, TI). Kumaun, Gosa, 9-10,000 ft. (J.F. Duthie, Sept. 20, 1884, no. 3256, Brit. Mus.).

W. Nepal: Below Gaejigoth, Dori Lehk, North of Jumla, alt. 10,000 ft. (Polunin, Sykes & Williams, Aug. 9, 1952, no. 5048, Brit. Mus.).

var. **nepalensis** (Yamazaki) Yamazaki comb. nov.

Wulfenia nepalensis Yamazaki in Journ. Jap. Bot. 45: 177, Pl. 9 (1970).

Distr. Central Nepal.

Hab. Nepal. Lumle-Dumpus, alt. 6,900 ft. (H. Flatt, May 10, 1970, no. 176, Brit. Mus.). Modi Khola, East of Kusma, alt. 5,000 ft. (Stainton, Sykes & Williams, May 12, 1954, no. 530).

Scapi foliis 2-3 plo longiores. Folia grosse irregulariter dentata. Corolla calyce 2-3 plo longiora....var. *amherstiana*.

Scapi foliis paulo longiores. Folia irregulariter grosse lobata. Corolla calyce 1.5-2 plo longiora....var. *nepalensis*.

Explanation of Plates X-XII

Pl. X. 1. *Lagotis kongboensis*. 2. *Lagotis nepalensis*.

Pl. XI. 3. *Scrophularia bheriensis*. 4. *Oreosolen williamsi*.

Pl. XII. 5. *Pedicularis wallichoides*. 6. *Scrophularia laportaeifolia*.

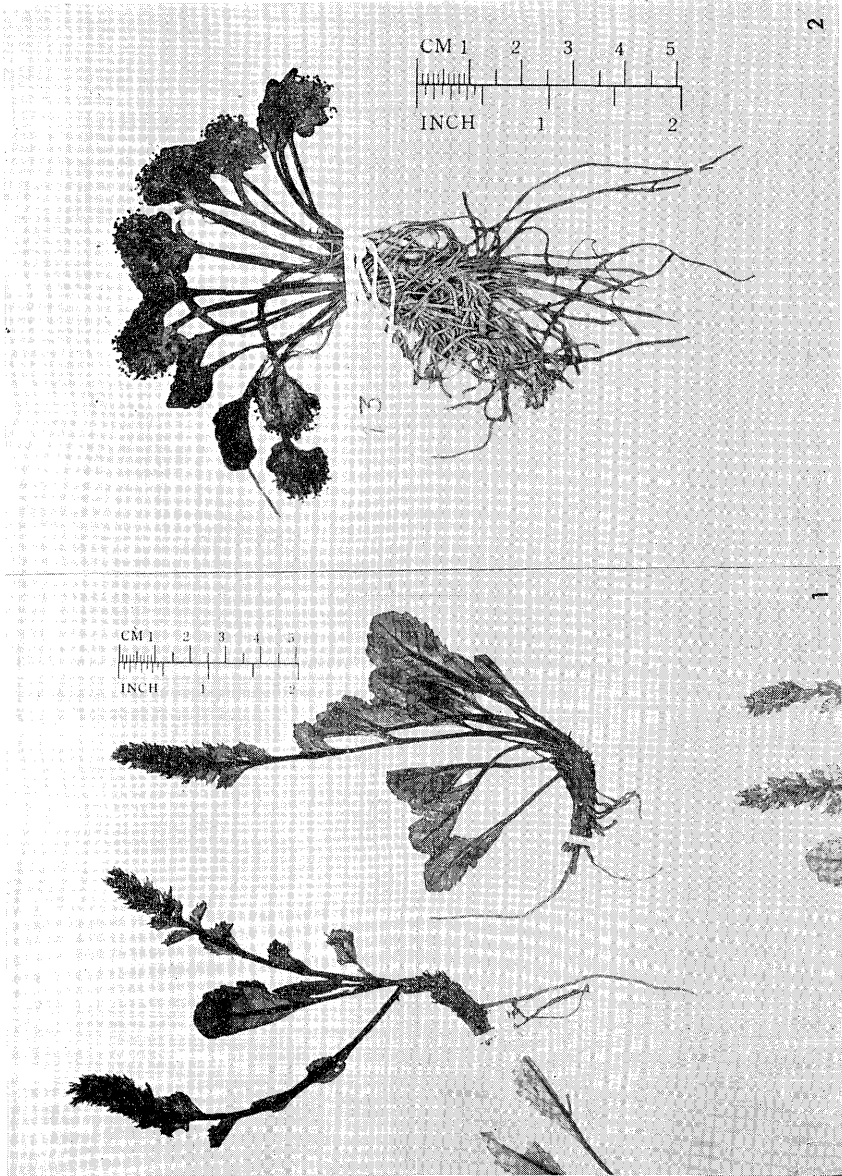
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大英博物館のヒマラヤ調査で採集されたゴマノハグサ科のうちウルップソウ属、ゴマノハグサ属、*Oreosolen* 属の新しいものを報告した。ウルップソウ属はアジアの高山地域に広く分布するもので、25 種類ほど知られている。そのうちウルップソウ節 Sect. *Caulescentes* にぞくするものは形態がよく似ている。日本でもウルップソウとユウバリソウ、ホソバウルップソウがよく似ているように、大陸でも同じである。しかし地域的にはっきりして、それぞれ独立種とみなすのが適当と思う。ウルップソウの近縁種は大陸ではシベリア、カムチャツカに *L. minor* (Willd.) Standl., 蒙古、華北、新疆に *L. integrifolia* (Willd.) Schischk. があり、チベットに *L. crassifolia* Prain, ヒマラヤに *L. kunawurensis* (Royle) Ruprecht が分布する。雲南、西康には上記とはやや異なる *L. alutacea* の一群がある。その中で NEFA と西康の国境にあるものは新しいものとみられるのでここに *L. kombgoensis* として報告した。

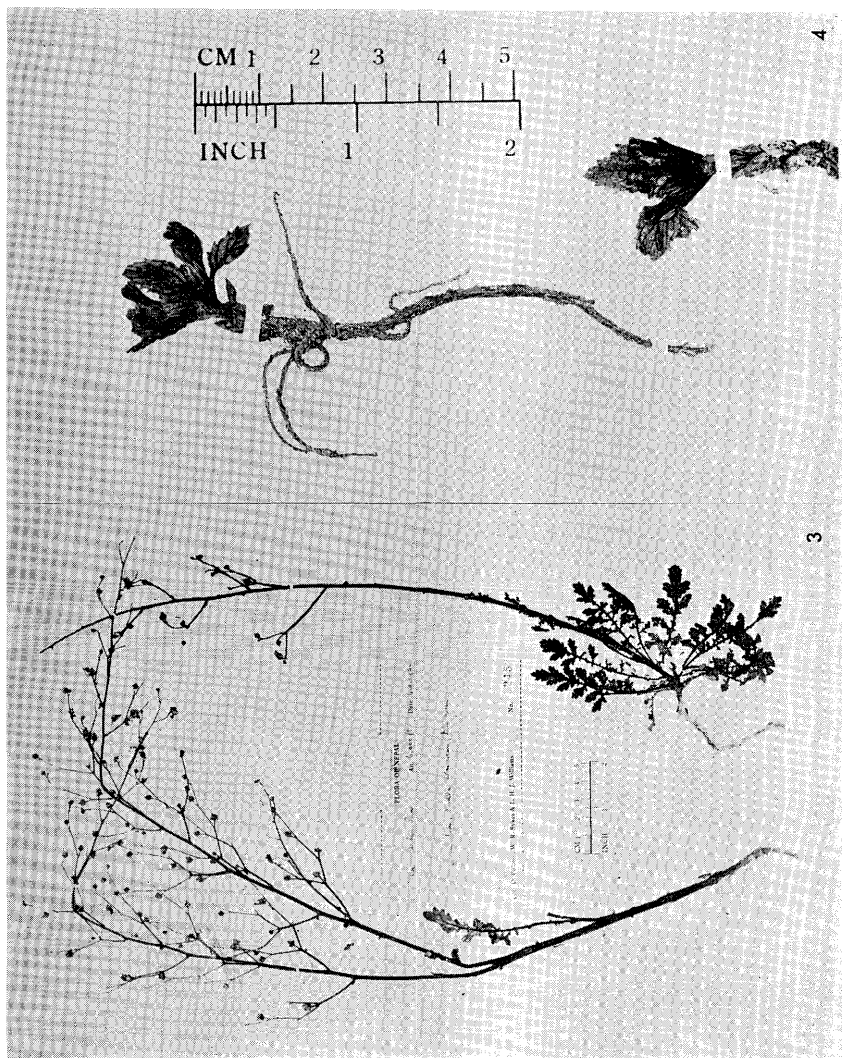
Sect. *Acaules* に属するものは西康、チベットからコーカサス、アフガニスタン、イランに分布する。ネパールにはこの類は知られていなかったが、新種とみられるものを *L. nepalensis* として報告した。

ブータンから *L. ramalana* Batalin として Fl. East. Himalaya 2 巻に報告したものは、2 種類の混合であった。Yale La 峠の頂上附近で、葉のない濃紫色のものをみつけた。またそこから 100 m ほどはなれた所に花穂のごく若い、葉の発達したものをみつけた。同じ *Lagotis* なので同一種と速断したのが誤りであった。2 種類のもつ異った特徴から *L. ramalana* にしてしまったのである。大英博物館のブータンの採集品の中に、我々と同じ場所と思われる所から、葉も花もよくのびたものを採集している。これは花が白色で *L. kunawurensis* であり、我々の採集した葉をもつ若い花穂のものと同じであった。また別の場所からであるが我々の濃紫色の葉のないものと同じで、葉のよくのびた標本を採集している。これは明らかにチベットにある *L. pharica* Prain であった。今から考えると、接近して生えていても、*L. pharica* は砂礫地の斜面にはえ、*L. kunawurensis* は雪解水の流れる水湿地にはえていて生育地が異っていたのである。

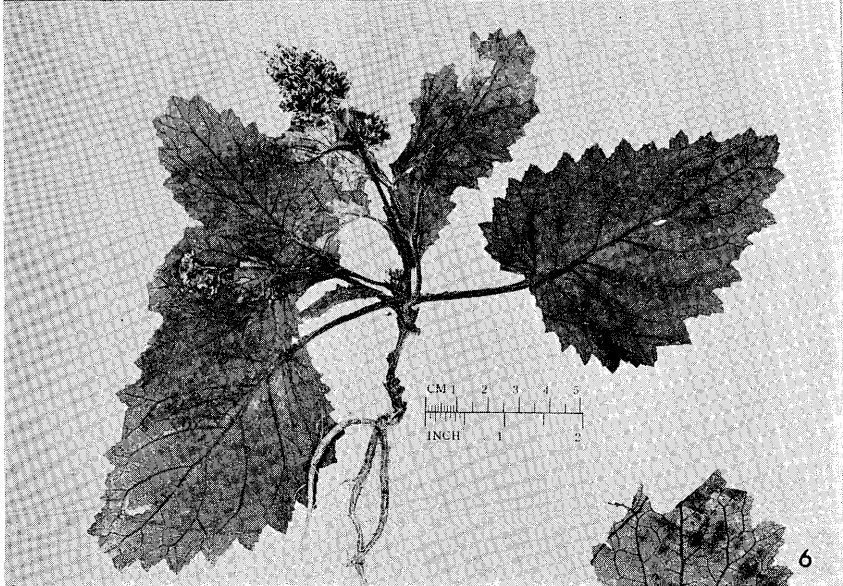
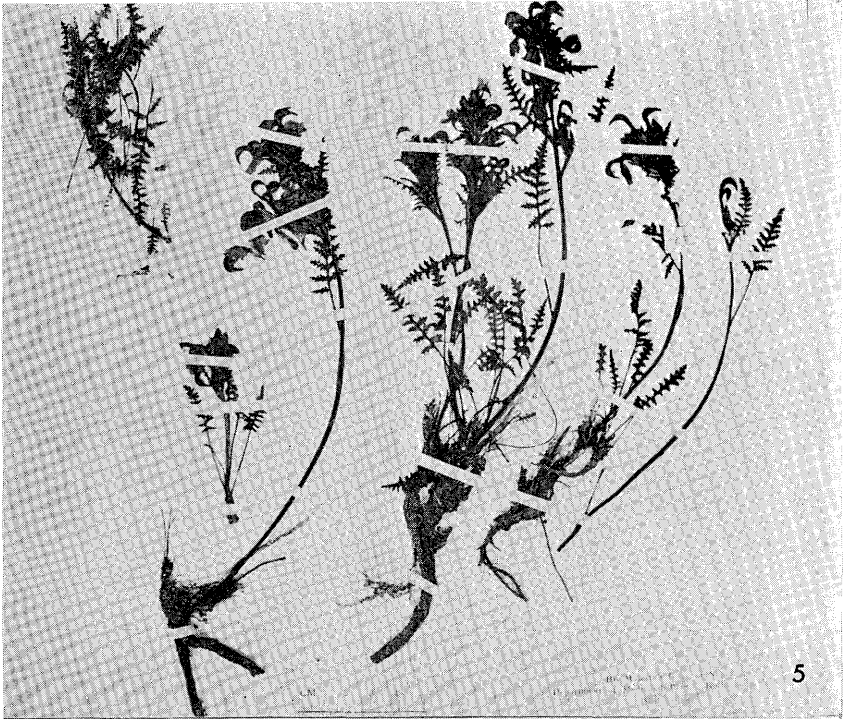
Wulfenia 属はアルプスから西部ヒマラヤの高山に 3 種類知られている。ネパールからは知られていなかったが、我々の調査で中部ネパールで発見し、4 種類となった。大英博物館の西部、中部ネパールの標本を調べると、西部ネパールまでは西部ヒマラヤにある *W. amherstiana* であるが、中部ネパールでは明らかに異っている。しかし *W. amherstiana* と中部ネパールの *W. nepalensis* とは葉の形、花茎の長さ、がく裂片の長さで区別できるが、いづれも量的な差であり、質的な違いとみられないので変種関係とみるのが適当と思う。



T. YAMAZAKI: Scrophulariaceae in Himalaya



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