

Two New Species of *Lonicera* (Caprifoliaceae) from Yamagata Prefecture, Northern Japan

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Abstract Two new species of *Lonicera*, *L. kurobushiensis* and *L. uzenensis*, are described here. *Lonicera kurobushiensis* is smaller than *L. demissa* and differs by having bracteoles connate at the base, short peduncles, longer bracts, ovate-triangular, acute calyx lobes and large seeds. *Lonicera uzenensis* is discriminated from *L. sachalinensis* by having the calyx tubes connate at the base, short, dark red, glandular hairs on the peduncles, leaves, bracts and calyx tube and obtuse, ovate-triangular calyx lobes. Both of the new species are endemic to Yamagata Prefecture in northern Honshu, Japan.

Key words: *Lonicera*, *Lonicera kurobushiensis*, *Lonicera uzenensis*, new species, Japan

Introduction

In the New Flora of Yamagata (Yuhki, 1992) *Lonicera demissa* Rehder from Mt. Kurobushiyama (Gosho-zan) is described. *Lonicera demissa*, with two varieties, is endemic to Japan. Variety *demissa* is distributed in the Chubu District (Yamanashi, Nagano and Shizuoka Prefs.), of central Honshu and var. *borealis* H. Hara & M. Kikuchi is restricted to Iwate Pref., northern Honshu (Kitamura & Murata, 1971; Ohwi, 1973; Masamune, 1974; Hara, 1983, 1989; Ohba, 1993) *Lonicera demissa sensu lato* was not previously known in Yamagata Prefecture. Plants referred to *L. demissa* from Yamagata Pref. should therefore be clarified. After herbarium and field studies in Yamagata Prefecture in 1999 and 2001 it became clear that the Yamagata plants previously thought to be *L. demissa* represented an undescribed species.

Plants of *Lonicera* with deep purplish red, bilabiate corollae have been found on Mt. Koyôzan, Takahata-machi in southern Yamagata Pref. They are not mentioned in the New Flora of Yamagata (Yuhki, 1992). Those plants are similar to *L. sachalinensis* (F. Schmidt) Nakai [*L. maximowiczii* (Rupr. ex Maxim.) var. *sachalinensis* F. Schmidt] in the shape and color of the corolla. *Lonicera sachalinensis* is distributed from the Kuriles, Sakhalin, Hokkaido to the central part of Aomori Pref. (Mt. Hachimandake, Hichinohe-machi), northern Japan, and *Lonicera sachalinensis* does not reach Yamagata Prefecture. The Yamagata plants and *L. sachalinensis* were therefore compared, with the conclusion that the Yamagata plants represent an undescribed

species, which is described here.

Taxonomic treatment

Sect. *Lonicera*.

Lonicera kurobushiensis Kadota, sp. nov.

[Figs. 1, 3a, b]

Species ab *Lonicera demissa* var. *demissa* et *L. demissa* var. *borealis* bracteolis connatis, habitu parviore, pedunculis brevioribus, bracteis longioribus et lobis calycum obtuse ovato-triangularibus differt; ab *L. chrysantha* pedunculis hirsutis et bracteis longioribus differt.

Deciduous shrub, ca. 1 m tall, well branched. Branches slightly purplish gray, indistinctly 4-angled, glabrous; pith light brown; stem later fistulous. Winter buds lanceolate, 2–4 mm long. Leaves narrowly ovate to narrowly elliptic, 1.5–6 cm long, 1–3 cm broad, acute, cuneate to rounded, hirsute on both surfaces and along margin, additionally with short yellowish white glandular hairs; petioles 2–5 mm long, also hirsute and with short glandular hairs. Peduncles ca. 1 cm long, green, hirsute, with purplish red glandular hairs. Bracts 2, linear-lanceolate, 2–4 mm long, purplish, sparingly hirsute. Bracteoles 2, ovato-rounded to broadly elliptic, ca. 1.5 mm long, connate at 1/2 way from the base, purplish, hirsute. Flowers late May to early June, in pairs. Corolla bilabiate, yellowish white, ca. 1 cm long, hirsute on both surfaces; upper lip oblong, 6 mm, 4-lobed; lower lip, 6 mm long, 2 mm broad, drooping; tube 4 mm long, densely hirsute on surface, spurred near base, with dense short yellowish glandular hairs around base. Calyx-tubes 2 mm long, with short yellowish glandular hairs; lobes ovato-triangular, ciliate. Style hirsute; stigma capitate. Stamens 5, as long as the corolla; anthers linear, ca. 3 mm long, greenish gray; filaments hirsute. Fruits September. Berries separate, globose, ca. 5 mm in diameter, red, nearly glabrous; seeds disc-shaped, 4 mm long, 3 mm wide, 1 mm thick, light brown tinged with orange, granulate.

Japanese name: Kurobushi-hyôtanboku (nov.).

TYPE: JAPAN; Honshu, Yamagata Pref., Higashine-shi, Tôgô, Kurobushiyama, alt. 720 m, 13 Jun 2001, N. Takahashi 01-03 (TNS–holotype; Fig. 1).

Specimens examined: JAPAN; Honshu, Yamagata Pref., Higashine-shi, Tôgô, Mt. Kurobushiyama, alt. 820 m, 30 May 1999, N. Takahashi 99-01–99-04 (TNS); Mt. Kurobushiyama, alt. 720 m, 13 Jun 2001, fl., N. Takahashi 01-01–01-02, 01-04–01-07 (TNS); Mt. Kurobushiyama, alt. 820 m, 29 Aug. 1999, Y. Kadota 996003 (TNS).

Habitat: *Lonicera kurobushiensis* grows in summer green forests. Associated species are *Quercus crispula*, *Pterocarya rhoifolia*, *Fagus crenata* and *Prunus ssiori* with a sublayer of *Acer mono* var. *mayrii*, *A. amoenum* var. *matsumurae*, *A. tschonoskii*, *Lindera umbellata* var. *membranacea*, *Fraxinus lanuginosa*, *Corylus sieboldiana*, *Tilia ×noziricola*, and a shrub layer of *Cephalotaxus harringtonia* var. *nana*, *Hydrangea paniculata*, *Ribes japonicum*, *Ilex crenata* var. *paludosa*, *Ligustrum*



Fig. 1. Type of *Lonicera kurobushiensis* Kadota (JAPAN: Honshu; Yamagata Pref., Higashine-shi, Mt. Kurobushiyama, 820 m, 30 May 1999, fl., N. Takahashi 01-03, holotype, TNS). Left corner inset shows an inflorescence (holotype).

tschonokii, *Lonicera strophiphora*, *Helwingia japonica*, *Euonymus melananthus* and *Rhamnus costata*. The herb layer contains *Dryopteris crassirhizoma*, *D. sabaei*, *Phegopteris polypodioides*, *Phyllitis scolopendrium*, *Cimicifuga simplex*, *Rodgersia podophylla*, *Clinopodium multicaule*, *Scutellaria pekinensis* var. *ussuriensis*, *Parasenecio dentata* var. *tanakae*, *Carex drichostachya* var. *glaberimma*, *C. stenotachys* var. *cuneata*. Associated climbers are *Clematis tosaensis*, *Schizophragma hydrangeoides*, *Schisandra chinensis* and *Tripterigium regelii*.

Key to *Lonicera kurobushiensis* and its allied species

- 1a. Bracteoles connate at 1/2 way from base; peduncels ca. 5 mm long; calyx lobes ovate-triangular, acute *L. kurobushiensis*
- 1b. Bracteoles free (separate); peduncle 5–25 mm long; calyx lobes broadly ovate-triangular, obtuse.
 - 2a. Leaves 1.5–3 (–5) cm long, apex acute, base cuneate; peduncle 5–15 mm long *L. demissa* var. *demissa*
 - 2b. Leaves 5–10 cm long, apex acuminate, base rounded to broadly cuneate base; peduncles 15–25 mm long
 - 3a. Peduncles villose, with patent hairs *L. chrysantha*
 - 3b. Peduncles hirsute, with flexuous hairs *L. demissa* var. *borealis*

Lonicera demissa Rehder in J. Arn. Arbor. **2**: 127 (1920); Kitam. & Murata, Col. Illus. Wood. Pl. Jap. **I**: 7, pl. 1-1, fig. 2-2 (1971); Masam., Col. Illus. Fl. Nippon **6 I**: 110 (1974); H. Hara, Wild Fl. Jap., Woody Pl. **II**: 243, pls. 263-1–2 (1989); H. Ohba, Fl. Jap. **IIIa**: 438 (1993).

LECTOTYPE (Hara, 1983): JAPAN; Honshu: Yamanashi Pref., Mt. Fuji, 1 June 1914, E. H. Wilson 6908 (A, K).

Lonicera ibotiformis Nakai, Tent. Capr. Jap. 77 (1921).

Japanese name: Ibota-hyôtanboku.

Distribution: Yamanashi, Nagano and Shizuoka Prefs., endemic to Japan.

var. ***borealis*** H. Hara & M. Kikuchi in J. Jpn. Bot. **36**: 384 (1961); Kitam. & Murata, Col. Illus. Wood. Pl. Jap. **I**: 7 (1971); Masam., Col. Illus. Fl. Nippon **6 I**: 111 (1974); H. Hara, Wild Fl. Jap., Woody Pl. **II**: 243, pl. 263-3–4 (1989); H. Ohba, Fl. Jap. **IIIa**: 438 (1993).

Japanese name: Kitakami-hyôtanboku.

TYPE: JAPAN: Honshu; Iwate Pref., Iwate-gun, Tamayama-mura, Mt. Himekami-yama [Himegami-dake], 31 May 1961, M. Kikuchi s.n. (TI).

Distribution: Kitakami Range, Iwate Pref., endemic to Japan.

Lonicera chrysantha Turcz. [in Bull. Soc. Nat. Moscou **11**: 93 (1838), nom. nud.] ex Ledeb., Fl. Ross. **2**: 388 (1844); Kitam. & Murata, Col. Illus. Wood. Pl. Jap. **I**: 7 (1971); H. Hara, Rev. Capr. Jap. 68 (1983); Nedol., Pl. Vasc. Ori. Extr. Sov. **2**:

282, fig. 90 (1987); P. S. Hsu & H. J. Wang, Fl. Reipubl. Pop. Sin. **72**: 189 (1988); H. Hara, Wild Fl. Jap., Woody Pl. **II**: 242, pl. 262-4-5 (1989); W. T. Lee, Lineam. Fl. Kor. 1036 (1996) & Color. Stand. Illus. Kor. Pl. 331, pl. 331-1981 (1996); Y. N. Lee, Fl. Kor. 749, photo 2393 (1996).

Japanese name: Nemuro-bushidama.

TYPE: RUSSIA: "In rupibus Dahurie orientalis prope Zuruchantai", 1831, Turczaninov s.n. (LE-n. v.).

Caprifolium chrysantha (Rupr.) Kuntze, Revis. Gen. Pl. **1**: 274 (1891).

Caprifolium gibbiflorum (Rupr.) Kuntze, Revis. Gen. Pl. **1**: 274 (1891).

Lonicera chrysantha Turcz. ex Ledeb. var. *crassipes* Nakai, Tr. & Shr. Jap. ed. 2, 642, fig. 288 (1927); H. Ohba, Fl. Jap. **IIIa**: 437 (1993).

Lonicera chrysantha Rupr. ex Ledeb. subsp. *gibbiflora* (Rupr.) Kitag., Neo-Lineam. Fl. Mansh. 587 (1979).

Xylosteum gibbiflorum Rupr. in Mém. Biol. **2**: 430 (1856).

Distribution: Hokkaido, the Kuriles (Kunashiri Is.) and Far Eastern Russia (Primorje and Priamurje).

Sect. **Isika** (Adans.) Rehder in Ann. Rep. Missouri Bot. Gard. **14**: 49 (1903).

Genus *Isika* Adans., Fam. Pl. **2**: 501 (1763).

LECTOTYPE (Hara, 1983): *Lonicera alpigera* L.

Lonicera uzenensis Kadota, sp. nov.

[Figs. 2c, d, 3]

Lonicera sachaliensis affine, sed in baccis fusiformibus, tubis calycum basi connatis, pedicellis, foliis, bracteis et tubis calycum glanduliferis et lobis calycum obtuse ovato-triangularibus differt.

Deciduous shrub, ca. 0.8 m tall, well branched. Branches slightly purplish gray, indistinctly 4-angled, glabrous; young branches tinged purplish, nearly glabrous but with sparse short dark red glandular hairs; pith white; stem not fistulous. Winter buds narrowly ovato-lanceolate, ca. 8 mm long. Leaves ovate to elliptic, 3-8 (-10.5) cm long, 1.5-4 (-5.5) cm broad, acute to acuminate, cuneate to rounded or subtruncate, with long appressed hairs and short dark red glandular hairs along midribs on adaxial surface, ciliate: petioles 4-7 mm long, sparingly with short dark red glandular hairs. Peduncles 1-2.5 cm long, with sparse long flexuous hairs and short dark red glandular hairs. Bracts 2, ovate, 1-2 mm long, green, glabrous. Bracteoles 2, rounded, ca. 1 mm in diam., connate, green, ciliate. Flowers late May to early June, in pairs. Corolla bilabiate, deep purplish red, ca. 7 mm long, hirsute on surface; upper lip oblong, 4-5 mm, shallowly 4-lobed; lower lip 5 mm long, 2 mm broad, drooping; tube 4 mm long, clearly spurred near the base. Calyx-tubes 3 mm long, connate at base, with sparse with short reddish glandular hairs; lobes triangular, obtuse, ciliate. Style hirsute; stigma capitate. Stamens 5, as long as corolla; anthers lanceolate, ca. 3 mm long, yellow; filaments hirsute at base. Fruits in August. Berries ellipsoidal, ca. 1 cm

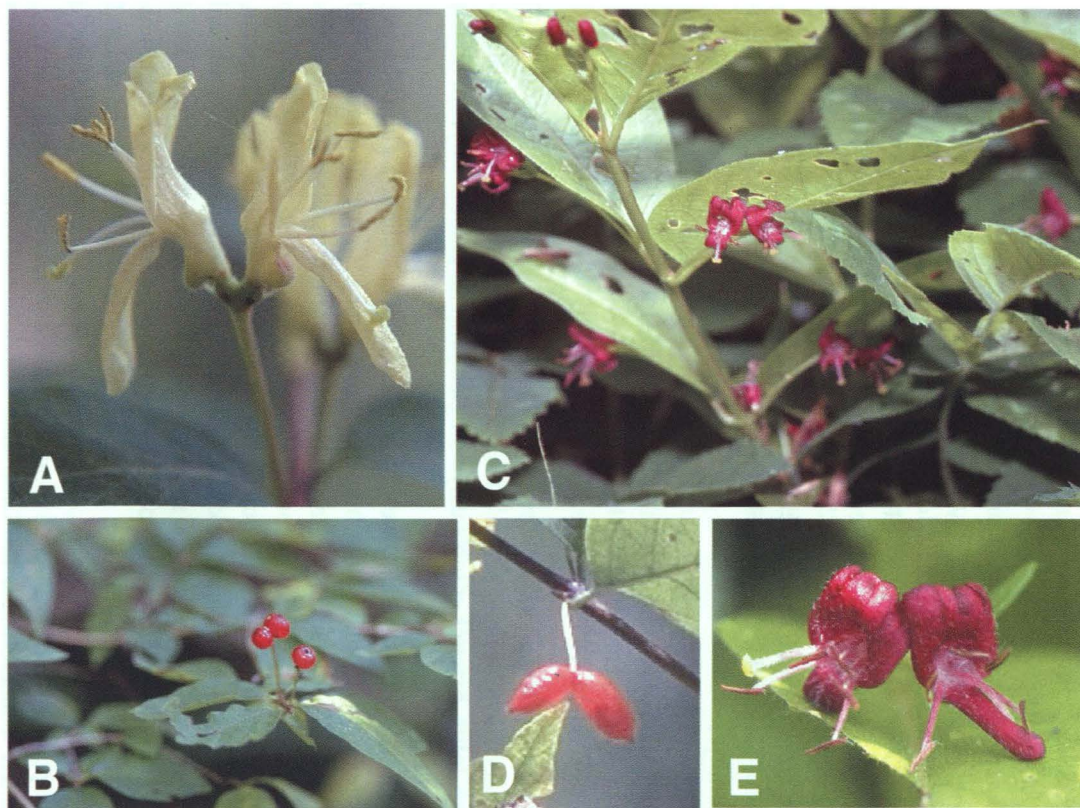


Fig. 2. Habit of *Lonicera kurobushiensis* and *L. uzenensis*. A: *L. kurobushiensis* taken from Mt. Kurobushiyama, Higashine-shi, Yamagata Pref., 30 May 1999 by Mr. N. Takahashi. B: *L. kurobushiensis* taken on Mt. Kurobushiyama, Higashine-shi, Yamagata Pref., 28 August 1999 by Mr. N. Takahashi. C: *L. uzenensis* taken on Mt. Koyōzan, Takahata-machi, Yamagata Pref. on 5 June 2001. D: *L. uzenensis* taken on Mt. Koyōzan, Takahata-machi, Yamagata Pref. taken by Mr. S. Kato on 5 June 2001.

long, 6–7 mm in diameter, connate 1/4 way from base, red; seeds oblong, 6–7 mm long, ca. 4 mm wide, 1 mm thick, light brown tinged with orange, granulate.

Japanese name: Uzen-benibana-hyōtanboku (nov.).

TYPE: JAPAN; Honshu, Yamagata Pref., Higashiokitama-gun, Takahata-cho, Mt. Koyōzan, 660 m, 5 June 2001, Y. Kadota 011001 (TNS–holotype, MAK, KYO, SAPT, TI, TNS, TUS–isotypes; Fig. 3).

Specimens examined: JAPAN; Honshu, Yamagata Pref., Higashiokitama-gun, Takahata-cho, Mt. Koyōzan, alt. 660 m, 26 May 1999, fl. N. Takahashi 99-09-99-10 (TNS); Mt. Koyōzan 11 August 2001, fr. N. Takahashi 01-08-01-15 (TNS).

Lonicera uzenensis is distinguished from *L. sachalinensis* by having the fusiform berries, the calyx tube (hypanthium) connate at the base, the pedicels, leaves, bracts and calyx tube with short, reddish brown glandular hairs and the obtusely ovate-triangular calyx-lobes.

Habitat: *Lonicera uzenensis* grows on rocky slopes with *Rosa acicularis* (dominant), *R. nipponensis*, *Vaccinium vitis-idaeus*, *Spiraea chamaedryfolia*, *Chamaepericlymenum canadense*, and *Lilium medeoloides*.

Key to *Lonicera uzenensis* and its allied species

- 1a. Berries fusiform; calyx tube connate at base; leaves, bracts, peduncle and calyx tubes clothed with dark reddish glandular hairs *L. uzenensis*
- 1b. Berries globose; calyx tubes connate 1/2–2/3 from the base
 - 2a. Leaves clothed with dark red glandular hairs; peduncles sparingly hirsute with reddish glandular hairs *L. maximowiczii*
 - 2b. Leaves and peduncles glabrous
 - 3a. Leaves broadly lanceolate to narrowly ovate, acuminate, araneous on abaxial surface; calyx lobes triangular-lanceolate; corollae blackish purple *L. tatarinowii*
 - 3b. Leaves ovate to elliptic, acute to subacuminate, glabrous on abaxial surface; calyx lobes broadly triangular; corollae purplish red
 - 4a. Leaves sparingly pubescent with curved hairs on adaxial surface, densely villose with patent hairs along midrib on the abaxial surface, glaucous *L. okamotoi*
 - 4b. Leaves glabrous on adaxial surface, pubescent with appressed hairs on abaxial surface, not glaucous *L. sachalinensis*

Lonicera maximowiczii (Rupr. ex Maxim.) Rupr. ex Maxim. in Gartenfl. 6: 107 (1857); Nedol., Pl. Vasc. Ori. Extr. Sov. 2: 282, fig. 90 (1987); P S. Hsu & H. J. Wang, Fl. Reipubl. Popularis. Sin. 72: 189 (1988)—*Xylosteum maximowiczii* Rupr. ex Maxim. in Bull. Phys.-math. Acad. St-Pt. 15: 136 (1856).

Japanese name: Manshu-hyōtanboku.

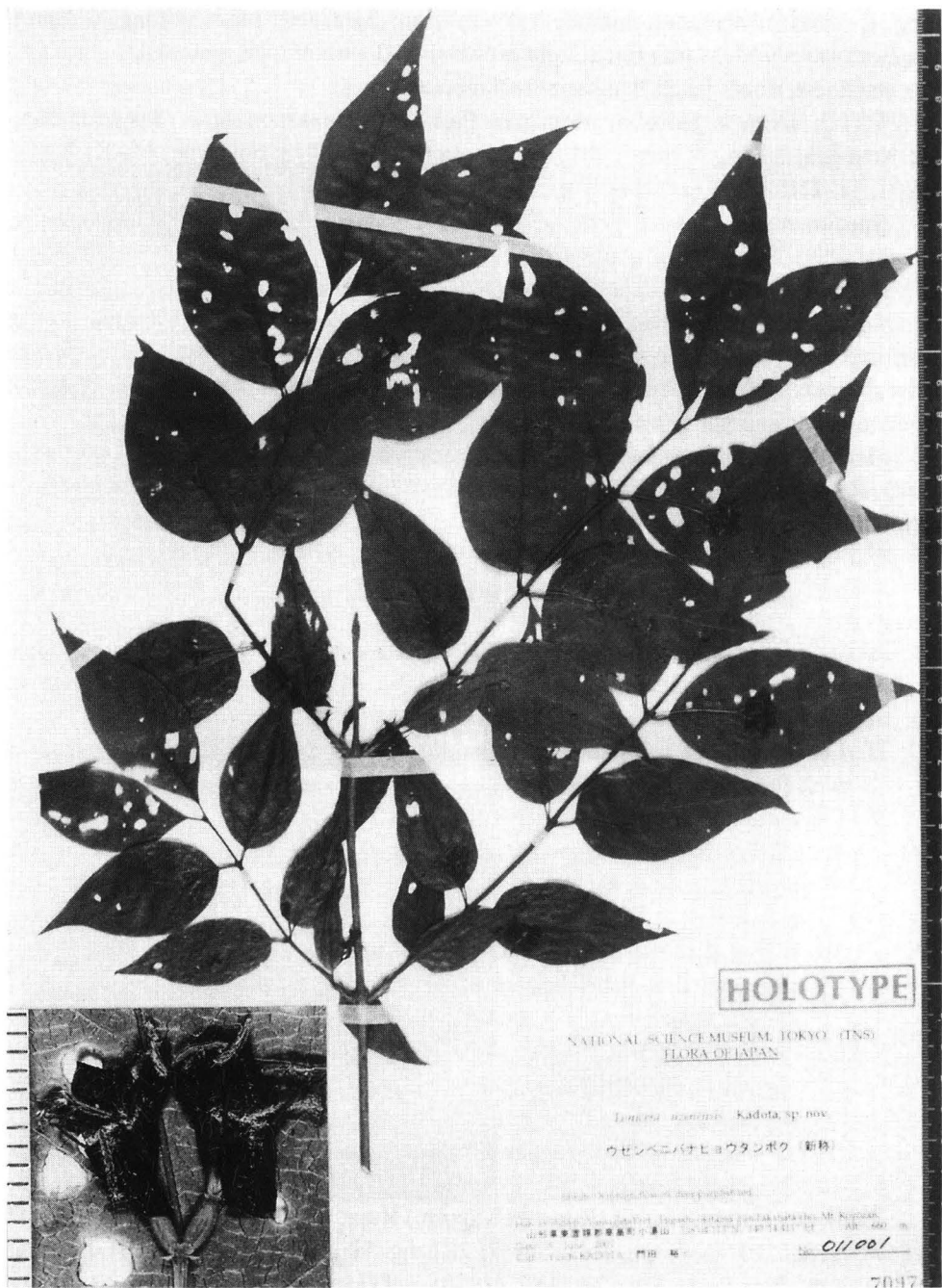


Fig. 3. Type of *Lonicera uzensis* Kadota (JAPANA: Honshu; Yamagata Pref., Takahata-machi, Mt. Koyōzan, 660 m, 5 June 2001. Y. Kadota 011001, holotype, TNS). Left corner inset shows an inflorescence (holotype).

TYPE: "Mandshuria ad fl. Amur", 1855, R. Maack (LE-n. v.).

Caprifolium maximowiczii (Rupr.) Kuntze, Revis. Gen. Pl. **1**: 274 (1891).

Lonicera sachalinensis (F. Schmidt) Nakai var. *barbinervis* Nakai in J. Jpn. Bot. **14**: 367 (1938).

Lonicera sachalinensis (F. Schmidt) Nakai var. *stenophylla* Nakai in J. Jpn. Bot. **14**: 367 (1938).

Distribution: N. Korea, NE. China (Heilongjiang, Jilin and Liaoning) and Far Eastern Russia (Primorje and Priamurje).

Lonicera okamotoana Ohwi in J. Jpn. Bot. **13**: 340 (1937).

Japanese name: Nansen-hyôtanboku.

TYPE: KOREA: Mt. Chiisan, J. Ohwi 6840 (holotype-KYO!; isotype-TNS!).

Lonicera okamotoana Ohwi var. *latifolia* Ohwi in J. Jpn. Bot. **13**: 341 (1937) — *Lonicera maximowiczii* (Rupr. ex Maxim.) Rypr. ex Maxim. var. *latifolia* (Ohwi) H. Hara, Rev. Caprifoliaceae. Jap. **71** (1983).

Distribution: S. Korea.

Lonicera sachalinensis (F. Schmidt) Nakai in J. Coll. Sci. Univ. Tokyo, **42**: 106 (1921); Nedol., Pl. Vasc. Ori. Extr. Sov. **2**: 282, fig. 90 (1987); P. S. Hsu & H. J. Wang, Fl. Reipubl. Popularis. Sin. **72**: 188 (1988), in nota — *Lonicera maximowiczii* (Rupr. ex Maxim.) var. *sachalinensis* F. Schmidt in Mem. Acad. Sci. Pétersb., ser. 7, **12**: 142 (1868); H. Hara, Wild Fl. Jap., Woody Pl. **II**: 246, pls. 270-3-5 (1989); H. Ohba, Fl. Jap. **IIIa**: 443 (1993) — *Lonicera maximowiczii* (Rupr. ex Maxim.) subsp. *sachalinensis* (F. Schmidt) Nedol. in Bot. Zhurn. **69**: 368 (1984).

Japanese name: Benibana-hyôtanboku.

LECTOTYPE (Porjakova, 1958; Fl. URSS tom. 23): RUSSIA: Sakhalin, Ssusunai, 11 September 1861, Glehn s.n. (LE-n. v.).

Lonicera maximowiczii auct. non (Rupr. ex Maim.) Rupr. ex Maxim.: Kitam. & Murata, Col. Illust. Wood. Pl. Jap. I: 15, pl. 3-18, fig. 7-4 (1971).

Lonicera sachalinensis (F. Schmidt) E. Wolf in Mitt. Deutsch. Dendr. Ges. **33**: 36 (1923), a later homonym.

Distribution: Honshu, Hokkaido, Sakhalin and the Kuriles (southern part).

Note: In Japan *L. sachalinensis* was thought to be restricted to Hokkaido (Kitamura & Murata, 1971; Masamuna, 1974; Hara, 1979, 1983; Ohba, 1993). It has also been collected in Aomori Pref., northern Honshu (Kamikita-gun, Shichinohe-machi, Mt. Hachimandake, 8 July 1989, K. Hosoi s.n., TNS 688071).

Lonicera tatarinowii Maxim. in Mem. Div. Sav. Acad. Sci. St.-Petersb. **9**: 138 (1859), in nota; in Bull. Acad. Sci. St.-Petersb. **24**: 38 (1878); P. S. Hsu & H. J. Wang, Fl. Reipubl. Popularis Sin. **72**: 188 (1988); W. T. Lee, Lineam. Fl. Kor. 1042 (1996) & Color. Stand. Illus. Kor. Pl. 332, pl. 332-1992 (1996).

Japanese name: Yanagi-hyôtanboku.

TYPE: CHINA: vicinity of Baihua-shan, near Beijin (P. S. Hsu & H. J. Wang, 1988).

Lonicera leptantha Rehder in Repert. Spec. Nov. Regni Veg. **6**: 274 (1909)—*Lonicera tatarinowii* Maxim. var. *leptantha* (Rehder) Nakai, Fl. Sylv. Kor. **11**: 81, t. 35 (1921).

Lonicera hypolueca auct. non Decne.: Nakai in Bot. Mag. Tokyo **29**: 6 (1916).

Distribution: China (Liaoning, Shanxi and Hebei) and Korea.

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