

A. I. BARANOV*: **The species of *Corispermum*
(Chenopodiaceae) in northeastern China** (2)**

エイ・アイ・バラノフ*: 中国東北部の *Corispermum*
(アカザ科) の種類** (2)

3. **C. rostratum** A. Bar. et B. Skvortzov, Fl. Plant. Herbac. Chinae bor.-or. 2: 82-83 et 110. fig. 80. 1959. Tabula nostra fig. 3.

Fruit narrow, oblong-ovate, 3.5-4.0 mm. long, 1.6-2.0 mm. broad, yellowish-somber-brown, warty, white stellate-hairy. Nutlet on the dorsal face not hollowed. Marginal wing, flat very narrow (1/5-1/10 as broad as the nutlet) gradually dwindling to nothing towards base of the beak, or entirely lacking. Beak conspicuous, protruding, free from the wing, 2-3 times exceeding breadth of the wing; branches of the beak very short, obscure, straight, erect; slit between the branches very short (ca. 1/3-1/4 as long as the beak) a far distance not reaching nutlet's margin.

This species is related to *Corispermum Korovinii* Iljin from which it differs in more robust stem, to 40 cm. tall, and in fruits which are narrower, warty, wingless or with a very narrow wing.

Hab.: sandy places.

Distrib.: Inner Mongolia, northern Manchuria (?).

Described from Inner Mongolia. Holotype is preserved in the Herbarium of the Institute of Forestry and Pedology of Academia Sinica, Shenyang (Mukden), China.

4. **C. declinatum** Steph. ex Stev. Mem. Soc. Nat. Mosc. 5: 384, 1817; Iljin in Kom. Fl. URSS. 6: 147. tab. 7, fig. 3, 1936; Kitag., Lineam. Fl. Mansh. p. 189. 1939; Krylov, Fl. Sib. Occid. 4: 926-927. 1930; Wang-Wei et al. Fl. Plant. Herbac. Chinae bor.-or. 2: 83. 1959; Grubov, Pl. Asiae Centralis. Fasc. 2: 53-54. 1966.—*C. tylocarpum* sensu Kitagawa in Rep. First Sci. Exped. Manch. Sect. 4(2): 105. 1935 (non sensu Hance 1868).

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Fruit oblong or elliptic, 3-4 mm. long, 1.3-2.5 mm. broad, nearly two times as long as broad, olive-green, not marked with spots or warts, glabrous, smooth, not shining. Nutlet flat or convex-concave. Marginal wing narrow (1/3-1/8 as broad as the nutlet), dwindling in breadth towards apex, entire or in the upper part remotely and obtusely denticulate, flat, non-transparent, occasionally purple colored; rarely wing is entirely lacking (forma *apterum* Iljin). Beak obscure, free from the wing, protruding far beyond the margin of the latter; branches of the beak short, straight, erect; slit between the branches very short, not reaching nutlet's margin.

Hab.: sandy steppes and hillsides, gravelly river banks; also in the fields and laylands as a weed.

Distrib.: European part of Russia, Siberia, Central Asia, Dzhungaria, northern Mongolia, northern China, Manchuria.

Described from Siberia. Type in the Leningrad²⁾⁴⁾.

5. **C. chinganicum** Iljin, Bull. Jard. Bot. Princ. URSS. 28: 648. 1929; idem in Kom. Fl. URSS. 6: 147. 1936; Kitag., Lineam. Fl. Mansh. p. 188, 1939; Wang-Wei et al. Fl. Plant. Herbac. Chinae bor.-or. 2: 83. 1959; Grubov, Pl. Asiae Centralis. Fasc. 2: 53. tab. III, fig. 3. 1966.

Fruit oblong-elliptic, 3.0-3.75 mm. long, 1.5-2.0 mm. broad, ca. two times as long as broad, plano-convex (nutlet not hollowed on the dorsal face) in cross section, dark olive-green or glaucous-green, often marked with dark somber-brown spots, very slightly shining. Marginal wing very narrow (1/7-1/8 as broad as the nutlet, ca. 0.2 mm. broad), or almost lacking, completely entire, non-transparent and non-membranous¹²⁾¹³⁾. Beak erect or slightly reclinate, protruding; slit between the branches usually not reaching nutlet's margin.

Hab.: sandy places, beach sands and dunes, sandy and gravelly river banks, sandy steppes.

Distrib.: Central Asia, Dzhungaria, Mongolia, northern China, Manchuria.

Described from eastern Mongolia. Type in the Leningrad labelled: "Lake Buir-Nur, beach sands. 27. 8. 1928. Coll. Tugarinov"²⁾¹²⁾.

6. **C. platypterum** Kitagawa, Rep. First Sci. Exped. Manch. 4(2): 100. fig. 12. 1935; idem Lineam. Fl. Manch. p. 189. 1939; Wang-Wei et al., Fl. Plant Herbac. Chinae bor.-or. 2: 83-84. 1959. Tabula nostra fig. 4a et b; et fig. 1 in textu.

Fruit broad elliptic to suborbiculate, (4)4.5-5 mm. long, 4.0-4.5(5) mm. broad, wing straw yellow, nutlet brownish-yellow, smooth, entirely glabrous, slightly shining, sometimes marked with brown spots. Nutlet on the dorsal face hollowed. Marginal wing broad (ca. $2/3$ - $3/4$ as broad as the nutlet), semi-transparent, membranous, flat, irregularly crose-denticulate along the margin, subtruncate and broadly, shallowly emarginate at base, narrowed and emarginate at the apex. Beak straight, in the lower part adnate to the wing in the upper part free

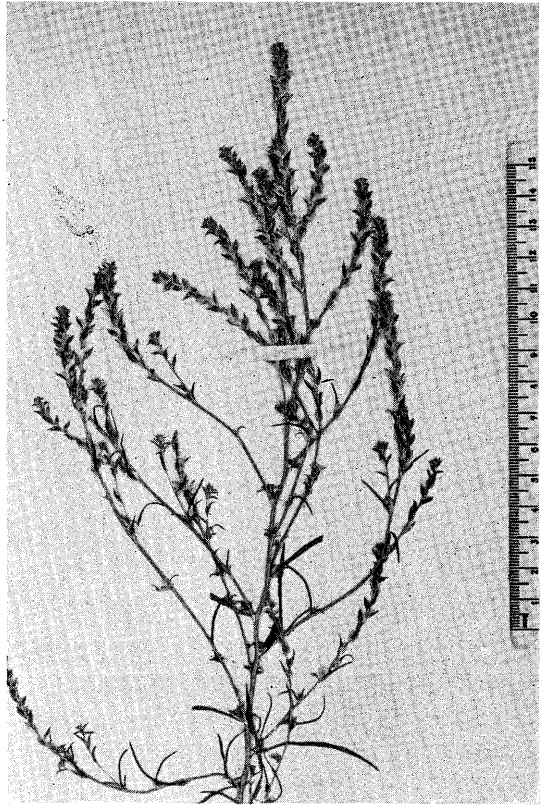


Fig. 3. *Corispermum platypterum* Kitagawa.

from the latter, ca. 1 mm. long, with twisted branches; slit between the branches short (ca. $1/4$ - $1/3$ as long as the beak), not reaching nutlet's margin but reaching wing's margin. Bracts ovate or elliptic-ovate, towards apex gradually narrowed into a fine hyaline point, cuneate at base, in fruit 5.0-5.5(7.5) mm. long, 2.5-3 mm. broad, not covering fully the fruit, with green center and broad, colorless, membranous, entire margin, \pm densely stellate hairy with yellowish hairs, veins yellowish, rather prominent especially near the base.

Hab.: dry, arid places.

Distrib.: Manchuria.

Described from Liaoning province in southern Manchuria. Holotype in the Herbarium of Tokyo University.

7. **C. macrocarpum** Bunge ex Maxim. Prim. Fl. Amur. p. 226. 1859; Kom. Fl. Mansh. ed. 1. 2. p. 159. 1903; Iljin in Kom. Fl. URSS. 6: 157. tab. 6, fig. 7. 1936; Wang-Wei et al., Fl. Plant. Herbac. Chinae bor.-or. 2: 84. fig. 81. 1959; Grubov, Pl. Asiae Centralis. Fasc. 2: 55-56. tab. 3, fig. 10. 1966. Tab. nostra, fig. 5.

Fruit broad elliptic, suborbiculate or obovate-orbiculate, 4.5-6 mm. long, 4.0-5.5 mm. broad, dark olive green, glabrous, shining, or \pm pubescent sometimes on the dorsal face marked with dark brown spots. Marginal wing broad (ca. 1/2-3/4 as broad as the nutlet), flat or sometimes undulate, light colored, semi-transparent, minutely sinuate-denticulate along the margin, shallowly sinuate on the broad, rounded apex. Beak usually conspicuous, short (its length is equal to the breadth of the wing; consequently, the beak is not protruding beyond the wing's margin); branches are slightly arcuate, adnate to the marginal wing; slit between the branches is rather broad, ca. 2/3 as long as the beak, not reaching nutlet's margin.

Hab.: beach sands on the banks of the rivers and on the seashore.

Distrib.: Mongolia (Ordos), northern Manchuria, Russian Far East.

Described from the Amur river. Type in the Leningrad²⁾⁴⁾.

Several infraspecific taxa have been established by the previous authors within this species. These taxa are based on the difference in the size and form of leaves and spikes and on the presence or absence of pubescence on the fruits. With regard to the latter character it should be borne in mind that according to Grubov²⁾ often both glabrous and pubescent fruits can be seen on the same plant of *Corispermum macrocarpum*; consequently, this is a weak character which has no great taxonomic value. Evidently for this reason Grubov does not segregate taxonomically any forms with glabrous or pubescent fruits within this species. In view of this and in view of the fact that these infra-specific taxa have no distinctive geographical areas I regard them only as forms. They are as follows:

forma **rubrum** (Fuh Wang Wei) A. Bar. grad. nov.

Corispermum macrocarpum Bge. ex Max. var. *rubrum* Fuh ex Wang Wei in Fl. Plant. Herbac. Chinae bor.-or. 2: 84 et 110. 1959.

Stems purplish; spikes smaller and more narrow than in the typical plants; fruits glabrous or pubescent, often smaller than in the typical plants.

forma **elongatum** (Fuh et Wang Wei) A. Bar. grad. nov.

C. macrocarpum Bge. ex Max. var. *elongatum* Fuh et Wang Wei l.c.

Stems slightly purplish, leaves linear, 1-3 cm. long, 1.5-3 mm. broad; spikes elongate, more slender than in typical plants, 5-12 cm. long, 1-1.3 cm. broad. Fruits often pubescent, with narrow marginal wing.

forma **microstachyum** (Fuh et Wang Wei) A. Bar. grad. nov.

C. macrocarpum Bge. ex Max. var. *microstachyum* Fuh et Wang Wei l.c.

Leaves very narrow linear; spikes smaller, 1-2(2.5) cm. long, 1-1.5 cm. broad, capituliform; fruits pubescent, indistinctly punctate.

In the *Plantae Asiae Centralis*²⁾ there is a discrepancy between the illustration and description of the fruits of *C. macrocarpum*. While in the key the fruit is described as: "orbiculate or orbiculate-obovate" on the figure it is clearly pictured as elliptic.

This species, i.e. *C. macrocarpum*, is one of the few Manchurian plants which are missing from M. Kitagawa's "Lineamenta".

8. **C. elongatum** Bunge ex Maxim. Prim. Fl. Amur. p. 224. 1859; Kom. Fl. Mansh. ed. 1. 2: 158. 1903; Kitag., Rep. First Sci. Exped. Manch. 4(2): 99. 1935; idem Lineam. Fl. Mansh. p. 189. 1939; Iljin in Kom. Fl. URSS. 6: 156. Tab. 6, fig. 15. 1936; Wang-Wei et al., Fl. Plant. Herbac. Chinae bor.-or. 2: 85, fig. 82. 1959; Grubov, Pl. Asiae Centralis. Fasc. 2: 54. Tab. III, fig. 9. 1966. Tab. nostra, fig. 6.

Fruit elliptic or oblong-elliptic, sometimes obovate, (3)4-4.5 mm. long, 2.5-3.5 mm. broad, light greyish-green, very shining, on the dorsal face marked with whitish warts and brownish spots, glabrous or pubescent, plano-convex or concave-convex in cross section. Nutlet on the dorsal face convex. Marginal wing in typical plants rather broad (ca. 1/3-1/4 as broad as the nutlet), broadest in the upper half, non-transparent, entire or denticulate, shallowly emarginate on the broad rounded apex. Beak obscure, triangulate, adnate to the wing, its length equals ca. 1/2 of the wing's breadth; slit between the branches very narrow, imperceptible.

Hab.: beach sands in river valleys, sand dunes and sandy steppes.

Distrib.: Russian Far East (Ussuriland), northern Manchuria, northern China, eastern Mongolia (Ordos).

Described from the Amur river. Type in the Leningrad²⁾⁴⁾.

One infraspecific taxon has been so far established within this species. I regard this taxon as a form:

forma *stellatopilosum* (Wang Wei et Fuh) A. Bar. grad. nov.

C. elongatum Bge. ex Max. var. *stellatopilosum* Wang Wei et Fuh, Fl. Plant. Herbac. Chinae bor.-or. 2: 85 et 111. 1959.

Axis of inflorescence, bracts and fruits fuscous stellate-pilose.

Although Grubov²⁾ reports also that fruits in this species might be glabrous or hairy he does not segregate these forms taxonomically. This is because according to herbarium material there is a very gradual change from glabrous fruits to pubescent ones. Hence any delimitation of these forms is impossible especially since they have no other distinctive characters whatsoever. In addition to that, Grubov says that it is sometimes very difficult to distinguish *Corispermum elongatum* from *C. macrocarpum*. Both species grow together and in both of them the fruits vary very much with regard to their size, thickness, breadth of marginal wing and pubescence. Grubov even states that these two species are linked together with a series of intergrading forms.

Regarding the relationships of *Corispermum elongatum* I may say only that it seems to be closely related to *C. Stauntonii* Moq. but has larger and very shining fruits.

The comparison of the description and figure of *Corispermum elongatum* in the Grubov's monograph²⁾ shows certain discrepancy between them. In the key the fruits are described as: "obovate, broad ovate to suborbiculate", while the fruits on the figure is elliptic.

9. *C. Stauntonii* Moq. Chenop. Monogr. Enum. p. 104. 1840 et in DC. Prodr. 13(2): 140. 1846; Forbes et Hemsl. in Journ. Linn. Soc. 26: 327. 1891. pro parte; Kom. Fl. Mansh. ed. 1. 2: 159. 1903 pro parte (quoad *C. Stauntonii* in sensu Forbes et Hemsl.); Ulbrich in E.P. Nat. Pfl.-fam. ed. 2. 16c: 541. 1934; Kitag., Rep. First Sci. Exped. Manch. 4(2): 102. 1935; idem Lineam. Fl. Mansh. p. 189. 1939; Wang-Wei et al., Fl. Plant. Herbac. Chinae bor.-or. 2: 85. 1959.

Fruit elliptic, 3-4 mm. long, 2.5-3 mm. broad, dark green, marked with distinct dark spots, glabrous, shining (especially marginal wing) but not as much as in preceding species. Marginal wing very broad (ca. 2/3-4/5 as broad as the nutlet), flat, entire at the apex, shallowly emarginate at the base, neither membranous nor transparent, completely entire along the margin. Beak rather conspicuous (ca. 2-3 times as long as the wing's breadth),

protruding far beyond the wing's margin, with spreading branches; slit between the branches broad, short (ca. 2/3 as long as the beak), not reaching nutlet's margin.

Hab.: sandy places, beach sands, sandy flats in river valleys.

Distrib.: Manchuria (southern), Korea, northern China.

Described from China. Holotype is extant in Herb. Prodr. DC. (Geneva). A fragment of this holotype is preserved in the Kew Herbarium¹¹⁶⁾.

Kitagawa (1935) established within this species one variety which I regard as a form viz.:

forma **lasiocarpum** (Kitagawa) A. Bar. grad. nov.

Corispermum Stauntonii Moq. var. *lasiocarpum* Kitag. in Rep. First Sci. Exped. Manch. 4(2): 102. 1935.

Stems, leaves and bracts \pm densely pilose. Fruit \pm densely white stellate hairy.

Described from the Liaotung peninsula in southern Manchuria. Type in the Herbarium of Tokyo University.

Iljin⁹⁾ makes a remark that specimens of *Corispermum elongatum* Bge. collected on the banks of the Lake Khanka are characterized with non-shining fruits and are identical with the type material of *C. Stauntonii* Moq. from China. This probably means that these two species belong to a group of critical taxa which are still incompletely studied.

10. **C. thelelegium** Kitagawa, Rep. First Sci. Exped. Manch. 4(2): 103. fig. 13. 1935; idem Lineam. Fl. Mansh. p. 190. 1939; Wang-Wei et al., Fl. Plant. Herbac. Chinae bor.-or. 2: 85. fig. 83. 1959. Tab. nostra, fig. 7a-c.

Fruit irregularly elliptic or elliptic-obovate, 4.5-5.0 mm. long, 3.0-3.5 mm. broad, dark colored, fuscous, not shining, on both faces densely yellowish stellate-hairy and marked with whitish warts. Marginal wing very narrow (ca. 1/10 as broad as the nutlet), flat or hardly undulate at the very margin, submembranous, semi-transparent, shallowly emarginate at the base, entire and rounded at the apex, along the margin almost entire or slightly, minutely crenulate. Beak straight, free from the wing, very short, ca. 0.5 mm. long, with erect branches; slit between the branches long (ca. 2/3 as long as the beak), almost reaching nutlet's margin. Bracts broad ovate or orbiculate-ovate, gradually narrowed into cuneate base, towards apex shortly, abruptly narrowed and on the apex crowned with a hyaline point; in fruit 6-7 mm.



Fig. 4. *Corispermum thelegium* Kitagawa.

the margin and sparsely stellate-hairy over their surface.

Two varieties of this species described by Kitagawa, I consider only as forms.

forma **laxius** Kitag. Rep. First Sci. Exped. Manch. 4(2): 104. 1935.

Spikes longer, more slender, becoming loose towards base;

forma **percassum** (Kitag.) A. Bar. grad. nov.

Corispermum thelegium Kitag. var. *percassum* Kitag. l.c. p. 104, tab. 14.

Spikes more dense than in typical plants, broader, very thick, ca. 1.5 cm. broad. Bracts very broad (to 9 mm.).

forma **leiocarpum** (Kitag.) A. Bar. grad. nov.

Corispermum thelegium Kitag. var. *leiocarpum* Kitag. l.c. pp. 104-105.

long, 4-5 mm. broad, fully covering the fruit; center green, margins broad, submembranous, white; central vein thick, prominent.

Hab.: sandy places.

Distrib.: Manchuria (southern), northern China (Jehol).

Described from Jehol province in northern China. Holotype is preserved in the Herbarium of Tokyo University.

After Kitagawa this is a very distinct species characterized by thick spikes and papillose-ciliolated bracts. I have examined bracts of the type specimen and found that they are papillose-ciliate along

Fruit somewhat broader, 4.5 mm. long, 3.4–4 mm. broad, entirely glabrous, shining. Nutlet on both faces minutely wrinkled.

The illustration of the fruit of *Corispermum thelelegium* in Flora Plant. Herbac. Chinae bor.-or. 2. (fig. 83 on p. 86) has, apparently, no likeness with the genuine fruits of this species (cf., for example, the figure attached to this paper which is made on the basis of herbarium type material).

11. *C. sibiricum* Iljin, Bull. Jard. Bot. Princ. USSR. 28 : 649. 1929; idem in Kom. Fl. URSS. 6 : 149. tab. 5, fig. 12. 1936; Wang-Wei et al., Fl. Plant. Herbac. Chinae bor.-or. 2 : 86. fig. 84. 1959.—*Corispermum squarrosus* L. var. *sibiricum* (Iljin) Kryl. et Serg., Fl. Sib. Occ. 4 : 926. 1930.

Fruit oblong-elliptic or elliptic, 3–4 mm. long, 2.2–3.0 mm. broad, somber-brown-olive or more rarely green, often marked with reddish-brown spots, slightly shining. Marginal wing rather broad to narrow (ca. 1/3–1/10 as broad as the nutlet), flat, shallowly emarginate at base, subemarginate at the apex, only at the edge almost membranous, towards center of the fruit becoming leathery thicker and not translucent, entire along the margin. Beak short, straight (its length ca. 1 1/3 times exceeds breadth of the wing), slightly protruding beyond the wing's margin; branches erect, in basal part adnate to the wing; slit between the branches narrow, ca. 1/2 as long as the beak, not reaching nutlet's margin.

Hab.: sandy and gravelly riparian flats.

Distrib.: Siberia, Mongolia, Manchuria.

Described from eastern Siberia. Type is in the Leningrad. Among the several specimens which are cited under the original description of *Corispermum sibiricum* the one that is labelled: "Near Krasnoyarsk, Tietiushi Island, 1. 9. 1910. Coll. A. Yermolaiev" must be considered as the type specimen because it is more complete and better developed¹³⁾. This specimen is identified in herbarium as: *Corispermum sibiricum* ssp. *jenissejense* Iljin. Therefore in accordance with contemporary rules of botanical nomenclature this subspecies must be called *C. sibiricum* ssp. *sibiricum*¹⁴⁾.

This species of *Corispermum* is not listed in Kitagawa's "Lineamenta".

12. *C. puberulum* Iljin, Bull. Jard. Bot. Princ. URSS. 28 : 645. 1929; Kitagawa, Rep. First Sci. Exped. Manch. 4(2) : 101. 1935; idem in Lineam. Fl. Mansh. p. 189. 1939; Kung in Liou, Fl. Ill. N. China. 4 : 69. tab. 25. 1935; Wang Wei et al., Fl. Plant. Herbac. Chinae bor.-or. 2 : 87. 1959; Grubov, Pl. Asiae

Centralis. 2: 54. 1966, pro syn.

Fruit elliptic or suborbiculate, 3-4 mm. long, 2-3.5 mm. broad, yellowish-green to reddish, on both faces somewhat shining or not shining, sparsely hairy, later slightly calvescent, hairs colorless or somewhat brownish. Marginal wing \pm membranous, \pm broad (ca. 1/2-1/6 as broad as the nutlet), at base of the fruit and near the base of the beak subemarginate, flat, completely entire or denticulate along the margin. Beak conspicuous (its length 4-5 times exceeds breadth of the wing), protruding far beyond the wing's margin, branches long, somewhat spreading; slit between the branches long (ca. 1/2 as long as the beak), not reaching nutlet's margin.

Hab.: sandy places.

Distrib.: Manchuria, Mongolia, northern China.

Described from northern China. Type is preserved in Leningrad and is labelled: "Tschi-fu, 9. 1885. No. 69, ex herb. de Jolis (Horb. Boiss.)" ¹²⁾.

A form of this species with glabrous fruits has been segregated taxonomically by Kitagawa:

forma **lissocarpus** (Kitag.) A. Bar. grad. nov.

Corispermum puberulum Iljin var. *lissocarpum* Kitag., Rep. First Sci. Exped. Manch. 4(2): 101. 1935.

Fruit entirely glabrous.

In the opinion of Grubov²⁾¹²⁾ *Corispermum puberulum* is conspecific with *C. elongatum*. I can not hold with this view and I believe that *C. puberulum* and *C. elongatum* are two distinct species because their fruit characters are quite different: Fruits in *C. puberulum* are unicolorous, smooth but almost not shining or completely not shining; in *C. elongatum* the fruits are warty and marked with brownish spots, very shining. Marginal wing in *C. puberulum* is broader, membranous; in *C. elongatum* marginal wing is narrower, broadest in the upper half, neither membranous nor transparent. Beak is relatively large, conspicuous in *C. puberulum*; in *C. elongatum* beak is very small, obscure.

13. **C. flexuosum** Wang Wei et Fuh, Fl. Plant. Herbac. Chinae bor.-or. 2: 87 et 111. 1959.

Fruit elliptic or almost oblong, at base rounded or subtruncate, rounded at the apex, unicolorous, on both faces densely stellate-hairy. Marginal wing narrow (ca. 1/3-1/6 as broad as the nutlet), entire or obscurely denti-

culate along the margin. Beak obscure or somewhat protruding.

Hab.: sandy places.

Distrib.: Inner Mongolia, northern Manchuria.

Described from northern Manchuria (Harbin). Type specimen is deposited in the Herbarium of the Institute of Forestry and Pedology of Academia Sinica, Shenyang (Mukden), China.

Forma **leiocarpum** (Wang Wei et Fuh) A. Bar. grad. nov.

Corispermum flexuosum Wang Wei et Fuh var. *leiocarpum* Wang Wei et Fuh, Fl. Plant. Herbac. Chinae bor.-or. 2: 87 et 111. 1959.

Fruit entirely glabrous.

Corispermum flexuosum is closely related to *C. confertum* Bge. ex Maxim. The difference between these two taxa is in the fruit characters. In *C. confertum* the fruits are broad-winged (wing ca. 1/3-1/2-3/4 as broad as the nutlet), glabrous and emarginate at the apex. In *C. flexuosum* the fruit is narrow-winged, densely stellate-hairy, rounded or subtruncate at the base, rounded at the apex.

Doubtful species. The species of bugseeds which discussed in this paper are more or less common in northeastern China and are represented in collections made in this part of Asia. However, besides of them there are several other species which are listed in sundry floras and lists of plants of Manchurian flora but which are not represented in herbaria. These species are as follows:

Corispermum candelabrum Iljin, Bull. Jard. Bot. Princ. URSS. 28: 654. 1929; Kitagawa, Rep. First Sci. Exped. Manch. 4(2): 99. 1935; idem in Lineam. Fl. Mansh. p. 188. 1939.

C. Redowskii Fisch. Cat. Hort. Gorenk. p. 25. 1808; Kitagawa, l.c. 1935. p. 105 et l.c. 1939. p. 189; Iljin in Kom. Fl. URSS. 6: 149. tab. 7, fig. 4. 1936.

C. confertum Bge. ex Maxim. Prim. Fl. Amur. p. 225. 1859; Kom. Fl. Mansh. ed. 1. 2: 159. 1903.

C. hyssopifolium L. Sp. Pl. ed. 2. p. 4. 1762; Kom. Fl. Mansh. ed. 1. 2: 159. 1903.

I do not discuss these species because there are sound reasons to think that their occurrence in Manchuria is doubtful.

Conclusion. In the foregoing paragraphs I have attempted to give an overall picture of diversity of species of bugseeds and the state of research

of this group in northeastern China. We have seen that there is hitherto no comprehensive sources of information on this genus and that in sundry publications bearing on this subject one can find various inaccuracies in discussing members of this group. As a final note I may say that notwithstanding all work that has been done for the study of *Corisperma* in northeastern China their taxonomy is still a challenge for a botanist.

Selected References

- 1) Brenan, J.P.M., Personal communication in a letter (June 30, 1967).
- 2) Grubov, V.I., *Plantae Asiae Centralis*. Fasc. 2. *Chenopodiaceae*. 134 pp. 8 pls. 1966. (in Russian).
- 3) Iljin, M.M., *Corispermum* generis species nova. *Bull. Jard. Bot. Princ. URSS*. 28(5-6): 637-654. 1929. (in Latin).
- 4) — *Fam. Chenopodiaceae in Fl. URSS*. vol. 6. 954 pp. 55 pls. 1936. (in Russian).
- 5) Krylov, P. et al., *Flora Sibiriae Occidentalis*. Fasc. 4. pp. 719-979 +XII. 1930. (in Russian).
- 6) Kitagawa, M., *Corispermum* in Manchuria et Korea. *Rep. First Sci. Exped. Manch. Sect. 4. Pt. 2*. 187 pp. 19 pls. 1935. (in Latin).
- 7) — *Lineamenta Florae Manshuricae*. 487 pp. 12 pls. 1 map. 1939.
- 8) Komarov, V.L., *Flora Manshuricae*. ed. 1. vol. 2. 1-787 pp. 17 pls. 1903. (in Russian).
- 9) — *Flora Manshuricae*. ed. 2. vol. 2. 766 pp. 17 pls. 1950. (in Russian).
- 10) Kung, Hsien Wu, *Fam. Chenopodiaceae in Flora Illustree du Nord de la Chine*. Fasc. 4. 97 pp. 41 pls. 1935.
- 11) Moquin-Tandon, A., *Chenopodearum Monographica Enumeratio*. 182 pp. 1840.
- 12) Tzvelev, N.N., Personal communication in a letter (August 24, 1967).
- 13) — Personal communication in a letter (December 26, 1967).
- 14) — Personal communication in a letter (August 26, 1968).
- 15) Ulbrich, *Fam. Chenopodiaceae in Engler u. Prantl Die natuerlichen Pflanzenfamilien*. ed. 2. Bd. 16c. 1934.
- 16) Wang Wei et al., *Fam. Chenopodiaceae in Liou et al. Flora Plantarum Herbacearum Chinae boreali-orientalis*. vol. 2. 120 pp. 1959. (in Chinese, with Latin descriptions of new taxa).
- 17) Weibel, R., Personal communication in a letter (August 1, 1967).

正 誤 (Errata)

	誤 (For)	正 (Read)
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