

Root thick, multiheaded. Stems shortened, slightly longer than leaves, covered with numerous remnants of one year-old petioles in lower part. Leaves numerous, on long filiform petioles, blades deeply split into narrow segments, incised deeper than center. Flowers light blue, about 3 cm diam., on long pedicels. Sepals 5, petaloid. Nectary petals yellowish, 1/5-1/4 of sepals, broadly elliptical when straightened, emarginate. Follicles 3-7, lanceolate, with erect beak, glabrous. Seeds oblong, narrow-winged, glabrous. In Buryatia, $2n = 14$.

On screes in high mountains, rock crevices. **West. Sib.:** AL—Go. **Cen. Sib.:** KR—Kha, Ve, TU. **East. Sib.:** BU—Se, Yuzh, ChI—Ka.—Mid. Asia. Mongolia, China, Japan. Described from Himalayas. Map 82.

9. *Aquilegia* L.

- | | | | |
|-----|----|---|-----------------------------|
| | 1. | Spurs short, 1/2 or less than 1/2 of sepals | 2. |
| | + | Spurs longer or only slightly shorter than sepals | 4. |
| | 2. | Spurs uncinately recurved at tip. Flowers large | 3. |
| | + | Spurs erect or inclined. Flowers small, up to 3 cm diam | |
| | | | 8. <i>A. parviflora</i> . |
| | 3. | Flowers large, 5-10 cm diam | 5. <i>A. glandulosa</i> . |
| | + | Flowers 2.5-3.5 cm diam. | 7. <i>A. oxysepala</i> . |
| | 4. | Carpels or stamens not exerted or somewhat exerted from flower. Sepals 1.5-2 times longer than limb of petals | 5. |
| | + | Carpels or stamens highly exerted from flower. Sepals shorter than or as long as limb of petals | 8. |
| 113 | 5. | Spurs of moderate length, thick, up to 5-6 mm diam at base | 6. |
| | + | Spurs long, slender, up to 3 mm diam. at base | 7. |
| | 6. | Leaves pilose on beneath, biternate, terminal segments incised almost up to center | 1. <i>A. amurensis</i> . |
| | + | Leaves glabrous on both surfaces, ternate; terminal segments with large and round teeth | 9. <i>A. sibirica</i> . |
| | 7. | Spurs tubular or uncinately covered. Carpels not exerted from flower | 3. <i>A. borodinii</i> . |
| | + | Spurs straight or arcuately curved. Carpels somewhat exerted from flower | 6. <i>A. leptoceras</i> . |
| | 8. | Flowers brownish red. Fruit stalk with violet spots | |
| | | | 2. <i>A. atropurpurea</i> . |
| | + | Flowers greenish yellow. Fruit stalk green or brown | 9. |
| | 9. | Leaves densely pubescent above and beneath | 4. <i>A. burjatica</i> . |
| | + | Leaves glabrous above, pubescent beneath | 10. <i>A. viridiflora</i> . |

1. *A. amurensis* Kom. 1926 in Bot. mat. (Leningrad) 4, 1: 8.

Stems 20-50 cm tall, branched upward, with somewhat pubescent pedicels. Radical leaves biternate, long-petiolate, leaflets orbicular-cuneate,

trifid, lobed or dentate, thin, glabrous or appressed pilose beneath. Flowers 2.5–5.5 cm diam., lilac-blue, sometimes whitish green. Sepals 2–3.5 cm long, 1–2 cm broad. Limb of petals pale yellow or white, considerably shorter than sepals. Spurs as long, slightly smaller or larger than limb, annularly or helically coiled at tip. Follicles 4–8, 1.5–3 cm long, with long divergent styles.

In forests and pebble beds around river beds, talus, and rocky slopes. **East. Sib.:** IR—Pr (Bodaibinsk region), BU—Se (Verkhneangrsk range), ChI—Ka, YAK—Vi, Al.—Far East, Korean peninsula. Described from Far East. Map 113.

2. **A. atropurpurea** Willd. 1809 Enum. Pl. Horti Berol.: 577—*A. viridiflora* auct. non Pallas.

Stems 20–40 cm tall, branched; with dense glandular pubescence in inflorescence. Radical leaves biternate, long-petiolate; terminal segments broadly orbicular-cuneate, trifid, round-toothed, thicker, pilose beneath. Flowers 2–3 cm diam. Sepals pale violet, ovate, subacute, 1–1.3 cm long, 4–5 mm broad. Limb of petals reddish brown, almost equaling sepals. Spurs straight, as long or slightly longer than sepals. Follicles 5, 1.5–2 cm long, with long styles almost as long as follicles.

On steep rocky slopes, larch forests. **East. Sib.:** ChI—Shi (Nerchinsk Zavod village, Argun' river near estuary).—Nor.-East. China (Manchuria). Described from Dauria. Map 84.

3. **A. borodinii** Schischkin 1927 in Melanges bot. offerts á Mr I. Borodin a l'occasion de son jubilé: 305.

Stems 20–40 cm tall, lower part together with petioles covered with sparse distant hairs; inflorescence, with dense short glandular hairs. Radical leaves biternate on 7–15 cm long petioles, terminal segments orbicular-obovate; middle 3-lobed, lateral bilobed, entire or dentate. Flowers pendent, on arcuately curved pedicels, blue, 2–4 cm diam. Sepals ovate, acute, 1.5–2.2 cm long, 0.6–1 cm broad. Petals whitish, 2.5 cm long, 0.5 cm broad, their limb 1/2 of sepals. Spur 1.5 times longer than limb, erect, curved only at tip. Follicles 5, with long (0.7 cm) style.

On rock screes and cliffs in alpine belt. **West. Sib.:** AL—Go. **Cen. Sib.:** KR—Kha, Ve (Oisk range—class. hab.—and others), TU. **East. Sib.:** BU—Yuzh.—Endemic. Map 86.

4. **A. burjatica** Peschkova 1977 in Novosti sist. vyssh. rast. [Developments in the Taxonomy of Higher Plants] 14: 236.

Stems 20–50 cm tall, glandular-pubescent. Radical leaves biternate. Terminal segments broadly obovate, on short petiolules, incised into 2–3 round or obtuse lobes up to center or slightly deeper, densely pilose on both surfaces. Flowers greenish yellow. Sepals about 1 cm long, 0.5 cm broad, densely pubescent. Limb of petals yellowish, 1.5–2 times longer than sepals. 114 Spurs erect, long, slender, equal to limb of petals. Follicles 5, 1–2 cm long, with about 1 cm long style.

On calcareous rock slopes and cliffs, on rocky-rubble soils in steppes. **Cen. Sib.:** TU. **East. Sib.:** BU—Yuzh (5 km from Tarbagatai village—class. hab.).—Mongolia. Map 85.

5. **A. glandulosa** Fischer ex Link 1822, Enum. Hort. Berol. Alt. 2: 84—*A. brevicalcarata* Kolokoln. ex Serg. 1956 in Sist. zam. Gerb. Tom. un-ta [Notes on Taxonomy at the Herbarium of Tomsk State University] 97–80: 6.

Stem erect, simple or somewhat branched in upper part, 15–35 (60) cm tall, subglabrous, with densely glandular-pubescent pedicels. Radical leaves biternate, primary segments on 1–4 cm long petiolules, secondary on much shorter petiolules or sessile, 1–2.5 cm long, 1.5–3 cm broad, orbicular, with broadly cuneate base, trifid, with round-toothed segments; cauline leaves tripartite, with oblong or linear entire lobes. Flowers large, 5–10 cm diam., single or 2–3, brightly colored, occasionally greenish or whitish along edges. Sepals ovate or elliptical, usually longer than petals, 3–5 cm long, 1.5–3 cm broad, blue. Petals blue, yellowish or whitish, limb 2–4 times longer than spur. Spur 0.5–1 cm long, uncinately recurved. Stamens equaling pubescent carpels. Follicles 8–10, about 2 cm long, with coiled styles. Seeds black, mat. All over the distribution range, $2n = 14$.

In alpine meadows, around mountain brooks, descends into upper forest belt. **West. Sib.:** KE, AL—Ba, Go. **Cen. Sib.:** KR—Kha, Ve, TU. **East. Sib.:** IR—An, BU—Se, Yuzh, ChI—Ka, Shi (Khentei-Chikoi upland).—Mid. Asia. West. China, Mongolia. Described from Altay. Map 87.

Plants with very short spurs and much smaller pendent flowers described as *A. brevicalcarata* Kolokoln. ex Serg. are found sporadically among populations of common *A. glandulosa* all over the distribution range. They fall fully within the range of morphological variation of *A. glandulosa* and hence there is no justification to accord it the status of species.

- 115 6. **A. leptoceras** Fischer et Meyer 1837 in Ind. Sem. Horti Bot. Petropol. 4: 33. Stems 20–30 cm tall, glabrous or somewhat pubescent, glandular-pubescent in inflorescence. Leaves with glandular-pubescent petioles, ternate, their segments orbicular-cuneate, lobed, 1.5–2 cm long, and somewhat narrower. Flowers 3–5 cm diam., lilac blue, sepals 1.8–2.5 cm long, about 1 cm broad. Limb of petals bluish or whitish, yellowish along margin, 1/2–2/3 of sepals. Spurs straight or arcuately curved, equaling or shorter than sepals. Follicles up to 2.2 cm long, with long flexuose beak.

In mountainous forests. **East. Sib.:** ChI—Shi.—Nor.-East. China (Manchuria). Described from Transbaikal. Map 88.

7. **A. oxysepala** Trautv. et Meyer 1847, Fl. Ochot.: 10.

Stems 70–100 cm tall, glandular in inflorescence, branched. Radical leaves numerous, biternate, coriaceous, green, glaucous beneath, lobes orbicular, broadly obovate or oval-cuneate, dentate, 3–5 cm long, 3–3.5 cm broad. Upper cauline leaves acute, palmate. Flowers 2.5–3.5 cm diam. Sepals white, violet, broadly lanceolate, longer than limb of petals. Spurs up to 1 cm long, incurved. Follicles 2–3 cm long, hairy.

In meadows, on banks of rivers and brooks. **East. Sib.:** ChI—Shi (Argun' river near Tylyuger river estuary).—Far East, China, Korea. Described from Udsu.

8. **A. parviflora** Ledeb. 1815 in Mém. Acad. Sci. Pétersb. (Sci. Phys.-Math.) 5: 544.