POTAMOGETONACEAE

眼子菜科 yan zi cai ke

Guo Youhao (郭友好)[1]; Robert R. Haynes[2], C. Barre Hellquist[3], Zdenek Kaplan[4]

Herbs, perennial or annual, in fresh to brackish water, totally submerged or with floating leaves. Rhizomes present or absent. Stems elongated or shortened, terete to compressed, rarely strongly compressed. Leaves alternate or basal, occasionally opposite or subopposite; stipules free from leaves or adnate to leaf base and sheathing stems. Inflorescence a capitate spike, terminal or axillary. Plants monoecious; flowers small, bisexual. Perianth bractlike, free, present or absent. Stamens (1–)4; anthers sessile, (1 or)2-celled, extrorse, longitudinally dehiscent. Carpels (1–)4, free; ovule solitary. Fruit drupaceous. Embryo curved; endosperm absent.

Three genera and ca. 85 species: cosmopolitan; two genera and 24 species in China.

Guo Youhao & Li Qingyi. 1992. Potamogetonaceae (excluding *Halodule*, *Phyllospadix*, *Posidonia*, *Ruppia*, *Syringodium*, *Triglochin*, and *Zostera*). *In:* Sun Xiangzhong, ed., Fl. Reipubl. Popularis Sin. 8: 40–83.

1a. Submersed leaves with stipules free from leaf base, or if adnate then adnate portion less than 1/2 length of stipule; leaves submersed and floating or all submersed; submersed leaf blades translucent, not channeled, flattened; peduncle stiff, submersed or projecting above water surface ..... 1. *Potamogeton*
1b. Submersed leaves with stipules adnate to leaf blade for 2/3 or more length of stipule; leaves all submersed, blades opaque, channeled; peduncle lax, not projecting inflorescence above water surface ..... 2. *Stuckenia*

1. POTAMOGETON Linnaeus, Sp. Pl. 1: 126. 1753.

眼子菜属 yan zi cai shu

Herbs, perennial or annual, in fresh or brackish water, totally submerged or with floating leaves. Stems terete to compressed, rarely strongly compressed. Leaves alternate, occasionally opposite, mono- or dimorphic; stipules membranous, free or partially adnate to leaf base (sheaths); submerged leaves sessile or petiolate, linear or with thin blades lanceolate; margins entire, denticulate, or serrulate; floating leaves petiolate, with leathery blades lanceolate to ovate or broadly elliptic-oblong. Inflorescence a pedunculate spike, terminal or axillary, surrounded by sheath in bud, emergent, floating or submerged at anthesis. Perianth 4-merous, free, bractlike and shortly clawed, each inserted opposite a stamen. Stamens 4, united with perianth at base; anthers sessile, 2-celled, extrorse, dehiscence longitudinal. Carpels (1–)4(or 5), free; stigmas sessile or on short styles, expanded, capitate or peltate; ovule solitary, attached to adaxial side of carpel. Fruit drupaceous with fleshy exocarp and bony endocarp. Embryo curved or spiral, rarely erect; endosperm absent.

About 75 species: cosmopolitan; 20 species in China.

Hybridization has been recognized as frequent even in the genus *Potamogeton*. This situation not only obscures the limitation of some related species but also makes difficulties in the treatment of many infraspecific units in the genus. Exceptionally with the confirmed 20 species, there are ca. ten or even more speculated hybrids in China.

1a. Leaves dimorphic on adult plants, both submerged and floating leaves present.
2a. Floating leaves less than 2.5 × 1.2 cm; submerged leaves sessile, filiform to linear, less than 2 mm wide, thin and translucent, not phyllodial.
3a. Fruit with an obtuse or minutely undulate-toothed abaxial keel, beak ca. 0.3 mm ..... 16. *P. octandrus*
3b. Fruit with a distinctly cristate abaxial keel, beak 1–1.2 mm ..... 17. *P. cristatus*
2b. Floating leaves more than 3 × 1.5 cm; submerged leaves petiolate or sessile, ± lanceolate or oblong to elliptic, more than 5 mm wide or phyllodial, thick and opaque, 2–3 mm wide.
4a. Submerged leaves phyllodial; floating leaves with a flexible joint and distinct angle at top of petiole immediately below blade often different in color ..... 18. *P. natans*
4b. Submerged leaves with expanded blade; floating leaves without a joint and angle at top of petiole.
5a. Submerged leaves sessile.
6a. Plants usually unbranched, with distinct reddish tinge, particularly when dry; submerged leaves 7–33 mm wide, 9–19-veined, margin entire, apex obtuse; petioles of floating leaves shorter than blades ..... 14. *P. alpinus*

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6b. Plants usually branched, without a distinct reddish tinge; submerged leaves 5–12 mm wide, mostly 5–9-veined, margin minutely denticulate, apex mucronate; petioles of floating leaves usually longer than blades ..... 15. *P. gramineus*

5b. Submerged leaves petiolate.

7a. Submerged leaves 9–13-veined; leaf tips mucronate ..... 12. *P. wrightii*

7b. Submerged leaves (7–)11–21-veined; leaf tips acute to obtuse.

8a. Carpels (1 or)2(or 3); submerged leaf petiole 0.5–2.3 × length of blade ..... 19. *P. distinctus*

8b. Carpels 4; submerged leaf petiole 0.2–1.5 × length of blade ..... 20. *P. nodosus*

1b. Leaves monomorphic, all submerged.

9a. Leaves broadly linear-oblong, lanceolate, elliptic, or ovate-oblong to suborbicular, mostly more than 5 mm wide.

10a. Leaf margins serrate; fruit beak equal to or longer than body of carpel; plants occasionally forming hard, specialized turions ..... 9. *P. crispus*

10b. Leaf margins entire or minutely denticulate; fruit beak shorter than body of carpel; plants not forming specialized turions.

11a. Leaves clasping stem, base rounded to cordate.

12a. Rhizomes spotted rusty red; leaves linear-lanceolate to ovate-oblong, 60–250 mm, entire, apex cucullate and splitting when pressed; stipules 10–80 mm ..... 10. *P. praelongus*

12b. Rhizomes unspotted; leaves ovate or ovate-oblong to lanceolate, minutely denticulate, apex flat, not splitting when pressed; stipules 3–22 mm ..... 11. *P. perfoliatus*

11b. Leaves not clasping stem, sessile, subsessile, or petiolate, base cuneate.

13a. Leaves long petiolate, petioles 16–140 mm ..... 12. *P. wrightii*

13b. Leaves sessile, subsessile, or shortly petiolate, petioles 2–15 mm.

14a. Leaves subsessile or shortly petiolate, petioles 2–15 mm ..... 13. *P. lucens*

14b. Leaves sessile.

15a. Plants usually unbranched, with distinct reddish tinge particularly when dry; leaves 7–33 mm wide, 9–19-veined, margin entire, apex obtuse ..... 14. *P. alpinus*

15b. Plants usually branched, without a distinct reddish tinge; leaves 5–12 mm wide, mostly 5–9-veined, margin minutely denticulate, apex mucronate ..... 15. *P. gramineus*

9b. Leaves linear, 0.5–5 mm wide.

16a. Leaves serrulate; stipules shortly adnate to leaf base ..... 1. *P. maackianus*

16b. Leaves entire; stipules free from leaf base.

17a. Leaves attenuate toward apex, with acuminate tips, slightly to distinctly falcate, (3–)5–7-veined with 2–18 additional sclerenchymatous strands ..... 2. *P. oxyphyllus*

17b. Leaves parallel-sided at least for lower 3/4 of their length with obtuse to acute or mucronate tips, rarely acuminate, not falcate, 3–5-veined, sometimes with 8–32 additional faint sclerenchymatous strands.

18a. Stems slightly to strongly compressed, in upper part often flattened, 0.9–3.5 mm wide; leaves 3–5-veined with 8–32 additional faint sclerenchymatous strands.

19a. Leaves 2.4–4.8 mm wide, with 12–32 sclerenchymatous strands in addition to vascular veins; stem in upper part 1.2–3.5 mm wide; fruit 3.4–4.6 mm ..... 3. *P. compressus*

19b. Leaves 1.5–2.3 mm wide, with 8–14 sclerenchymatous strands in addition to vascular veins; stem 0.9–1.5 mm wide; fruit 2.8–3.8 mm ..... 4. *P. mandschuriensis*

18b. Stems terete, 0.3–1 mm in diam. throughout shoot; leaves 3–5-veined, lacking faint sclerenchymatous strands.

20a. Peduncle 0.4–1.2 × length of fruiting spike; leaves apically obtuse to rounded and very shortly and indistinctly mucronate, mostly 2.1–3.5 mm wide; stipules 1.1–3.5 mm wide ..... 5. *P. obtusifolius*

20b. Peduncle 1.2–11 × length of fruiting spike; leaves apically acute to acuminate or sometimes distinctly mucronate, mostly 0.5–2.5 mm wide; stipules mostly 0.3–1.3 mm wide.

21a. Stipules fused only at base but free from each other at upper part, split into 2 remnants, fibrous, markedly creamy white when dry; leaves (3–)5-veined ..... 6. *P. friesii*

21b. Stipules not split into 2 remnants, intact stipules always fused throughout side toward leaf, not fibrous, green or greenish brown when dry; leaves 3-veined.

22a. Stipules connate, tubular at least when young, appearing as a closed ellipse when transversely dissected; leaves without rows of lacunae bordering midvein or rarely narrow rows present; midvein distinctly thickened toward leaf base; turions axillary; nodal glands absent or inconspicuous ..... 7. *P. pusillus*

22b. Stipules convolute, appearing as an open ellipse or a short spiral when transversely dissected; leaves mostly with broad and conspicuous rows of lacunae bordering midvein; midvein not thickened toward leaf base; turions axillary and then nodal glands absent or turions terminal and then nodal glands well developed.
23a. Turions terminal; leaves parallel-sided, apex obtuse to acute; spike 4–8 mm in fruit; fruit with rounded back; nodal glands present at least on some nodes, often well developed ..... 8. *P. berchtoldii*
23b. Turions axillary; leaves apically attenuate in upper 1/4 of their length, apex acuminate; spike 5–16 mm in fruit; fruit with obtuse to minutely undulate-toothed abaxial keel; nodal glands absent ..... 16. *P. octandrus*

1. Potamogeton maackianus A. Bennett, J. Bot. 42: 74. 1904, nom. cons.

微齿眼子菜 wei chi yan zi cai

Potamogeton serrulatus Regel & Maack.

Plants perennial, submerged in fresh water. Rhizomes present, terete. Stems creeping at base or even to lower part, slender, terete to slightly compressed, ca. 1 mm diam., richly branched; turions absent. Stipules 3–6 mm, adnate to and slightly fused with leaf base, convolute, membranous; leaves sessile, broadly linear, 2–6 cm × 2–4 mm, 3–7-veined, lateral veins faint, with narrow rows of lacunae bordering midvein, base rounded, margin serrulate, apex obtuse to rounded. Spikes usually few flowered, with only 2 or 3 whorls of contiguous or shortly distant opposite flowers; peduncles 1–4 cm. Carpels usually 4. Fruit obovoid, 3.5–4 mm, abaxial keel distinct, with a short beak ca. 0.5 mm at tip. Fl. and fr. Jun–Sep.

Lakes, ponds, rarely in rivers, usually in slightly acid water. Anhui, Hebei, Heilongjiang, Hubei, Jiangsu, Jilin, Liaoning, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [Indonesia (Sumatra), Japan, Korea, Philippines, Russia (Siberia)].

2. Potamogeton oxyphyllus Miquel, Ann. Mus. Bot. Lugduno-Batavi 3: 161. 1867.

尖叶眼子菜 jian ye yan zi cai

Potamogeton chongyangensis W. X. Wang.

Plants perennial or annual, submerged in fresh water. Rhizome present or absent. Stems usually creeping at base, filiform, 0.5–1 mm in diam., densely branched; nodal glands absent; turions shootlike, strongly shortened, leafy, axillary or terminating lateral branches. Stipules axillary, free, 6–12 mm, convolute, membranous and translucent, fibrous-persistent; leaves sessile, linear, slightly to distinctly falcate, 3–10 cm × 1.5–3 mm, 5–7-veined with 2–18 faint but visible sclerenchymatous strands, with narrow rows of lacunae bordering midvein, midvein not thickened toward leaf base, base narrowly cuneate, attenuate toward apex, apex acuminate. Spikes in 3 or 4 whorls of opposite flowers, contiguous, broadly cylindric. Carpels 4. Fruit obovoid, 3–3.5 mm, abaxial keels 3, with a sharp midrib, with a short beak ca. 0.5 mm at tip. Fl. and fr. Jun–Oct. $2n = 26$.

Ponds and streams, usually in slightly acid water. Anhui, Heilongjiang, Hubei, Jiangsu, Jiangxi, Liaoning, S Shaanxi, Taiwan, Xizang, Yunnan, Zhejiang [Indonesia (Sumatra), Japan, Korea, Russia].

3. Potamogeton compressus Linnaeus, Sp. Pl. 1: 127. 1753.

扁茎眼子菜 bian jing yan zi cai

Potamogeton zosterifolius Schumacher.

Plants annual, submerged in fresh water. Rhizome absent. Stems densely branched, internodes slightly to strongly compressed, 1.2–3.5 mm wide; nodal glands absent; turions axillary or terminal, shortened shootlike, leafy. Stipules axillary, convolute, 1–1.8 cm, translucent, often fibrous-persistent at apex; leaves sessile, linear, 5–15 cm × 2.4–4.8 mm, 3–5-veined with 12–32 sclerenchymatous strands faint but visible, with narrow rows of lacunae bordering midvein, base narrowly cuneate, apex subacute to rounded and mucronate. Spikes 1.6–3.3 cm in 4–7 whorls of opposite flowers, contiguous, cylindric; peduncles 2.5–6 cm. Carpels usually 2. Fruit subrounded, 3.4–4.6 mm, abaxial keel distinct, beak slightly curved toward back. Fl. and fr. Jul–Sep. $2n = 26$.

Lakes, ponds, channels. Yunnan [Japan, Kazakhstan, Mongolia, Russia; boreal and temperate regions of Asia and Europe].

This species was also reported from NE China; however, those records may have been based on misidentifications of *Potamogeton mandschuriensis*.

4. Potamogeton mandschuriensis (A. Bennett) A. Bennett, Trans. & Proc. Bot. Soc. Edinburgh 29: 50. 1924.

东北眼子菜 dong bei yan zi cai

Potamogeton acutifolius Link ex Roemer & Schultes subsp. *mandschuriensis* A. Bennett, J. Bot. 42: 76. 1904.

Plants submerged in fresh water. Rhizome slightly compressed, 0.9–1.5 mm wide. Stems slightly compressed, sparsely to densely branched; turions axillary or terminal, shortened shootlike, leafy. Stipules axillary, convolute, 1.5–2 cm, herbaceous and translucent, often fibrous-persistent; leaves sessile, linear, 3–12 cm × 1.5–2.3 mm, 3-veined with 8–14 faint sclerenchymatous fibers, with narrow rows of lacunae bordering midvein, base narrowly cuneate, apex finely acuminate or acute. Spikes cylindric, with 3–5 whorls of opposite flowers. Carpels 4. Fruit obovoid, 2.8–3.8 mm, abaxial keel distinct. Fl. and fr. Jul–Sep.

Heilongjiang, Jilin, Liaoning [Russia].

The Chinese record of *Potamogeton acutifolius* Link ex Roemer & Schultes in FRPS (8: 50–51. 1992) was based on a misidentification of *P. mandschuriensis*.

5. Potamogeton obtusifolius Mertens & W. D. J. Koch in J. C. Röhling, Deutschl. Fl., ed. 3, 1: 855. 1823.

钝叶眼子菜 dun ye yan zi cai

Plants annual, submerged in fresh water. Rhizome absent, filiform. Stems ca. 0.8 mm in diam., slightly compressed and creeping at base, richly branched; a pair of nodal glands conspicuously present; turions terminal on axillary branches. Stipules axillary, free, 1–1.8 cm × 1.1–3.5 mm, convolute, membranous to herbaceous, often fibrous-persistent; leaves sessile, linear, 3–6 cm × 2.1–3.5 mm, 3(–5)-veined, lateral veins faint but visible, with narrow to broad rows of lacunae bordering obvious midvein, base narrowly cuneate, apex obtuse to rounded, indistinctly mucronate. Spikes in 2 or 3 whorls of opposite flowers, contiguous, broadly cylindric; peduncles 0.4–1.2 × length of fruiting spike. Carpels (3 or)4(or 5). Fruit obliquely obovoid, 2.6–3.6 mm, with a sharp abaxial keel distinct or indistinct. Fl. and fr. Jun–Oct. 2*n* = 26.

Ponds, lakes, rivers, streams. Heilongjiang [Japan, Kazakhstan, Kyrgyzstan, Mongolia, Myanmar, Russia; Europe, North America].

6. Potamogeton friesii Ruprecht, Beitr. Pflanzenk. Russ. Reiches 4: 43. 1845.

弗里斯眼子菜 fu li si yan zi cai

Potamogeton mucronatus Schrader ex Sonder (1850), not C. Presl (1851); *P. pusillus* Linnaeus subsp. *friesii* (Ruprecht) J. D. Hooker.

Plants annual, submerged in fresh water. Rhizome absent or present. Stems filiform, compressed, sparsely to densely branched; nodal glands present; turions terminal or axillary, composed of 2 or 3 outer leaves and a fan-shaped structure from stipules oriented at 90° to leaves. Stipules 7–25 mm, fused at base, but at upper portion split into 2 remnants, fibrous, creamy white when dry; leaves sessile, linear, 2.3–6.5 cm × 1.2–3.2 mm, (3–)5(–7)-veined, lacunae lacking or 1 narrow row per side of midvein, apex mucronate. Spike with 4–8 flowers, 7–16 mm in fruit. Carpels 4. Fruit obovoid, 1.8–2.5(–3) mm, lacking keel; beak erect, 0.3–0.7 mm. Fl. and fr. Jun–Aug. 2*n* = 26.

Ponds, lakes, streams. Nei Mongol [Kazakhstan, Russia, Tajikistan; Europe, North America].

7. Potamogeton pusillus Linnaeus, Sp. Pl. 1: 127. 1753.

小眼子菜 xiao yan zi cai

Potamogeton panormitanus Bivona; *P. pusillus* var. *vulgaris* E. M. Fries.

Plants annual, submerged in fresh water. Rhizome absent. Stems terete to slightly compressed, ca. 0.8 mm in diam., sparsely to densely branched; nodal glands absent or inconspicuous; turions markedly reduced, axillary, usually narrowly fusiform. Stipules axillary, free, 5–12 mm, connate, membranous and translucent, tubular for most of their length when young, but splitting with age, not fibrous-persistent, green or greenish brown when dry; leaves sessile, linear, 2–6 cm × 0.6–2.3 mm, 3-veined with lateral veins inconspicuous, mostly without rows of lacunae bordering midvein, midvein distinctly thickened toward leaf base, apex acute to acuminate. Spikes with 2–4 whorls of opposite flowers, lax. Carpels 4. Fruit obliquely obovoid, 1.8–2.2 mm, abaxial keel indistinct, with a short beak at tip. Fl. and fr. May–Oct. 2*n* = 26.

Ponds, lakes, marshes, channels, paddy fields, in still or slow-flowing water. Anhui, Fujian, Gansu, Hainan, Heilongjiang, Hebei, Henan, Hubei, Hunan, Jiangsu, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [Afghanistan, India, Japan (including Ryukyu Islands), Kazakhstan, Korea, Kyrgyzstan, Myanmar, Nepal, New Guinea, Pakistan, Philippines, Russia, Tajikistan, Turkmenistan, Uzbekistan; Africa, SW Asia, Europe, North America].

8. Potamogeton berchtoldii Fieber in Berchtold & Opiz, Oekon.-techn. Fl. Böhm. 2: 40. 1838.

纤细眼子菜 xian xi yan zi cai

Potamogeton berchtoldii var. *tenuissimus* (Mertens & W. D. J. Koch) Fernald; *P. pusillus* Linnaeus var. *berchtoldii* (Fieber) Nyman; *P. pusillus* subsp. *tenuissimus* (Mertens & W. D. J. Koch) K. Richter; *P. pusillus* var. *tenuissimus* Mertens & W. D. J. Koch.

Plants annual, submerged in fresh water. Rhizome absent. Stems filiform, subsimple to freely branching; a pair of nodal glands conspicuously present; turions shortened, shootlike, terminal. Stipules axillary, convolute, fused throughout side toward leaf, 3–14 mm, membranous and translucent, flat or with inrolled margins, not fibrous-persistent; leaves sessile, linear, mostly broad, parallel-sided, 0.8–8.5 cm × 0.3–2.4 mm, 3-veined, with conspicuous lacunae bordering midvein, midvein not thickened toward leaf base, base rounded, apex obtuse or subacute to acute. Spikes in 1–3 whorls of opposite flowers, lax, 4–8 mm in fruit. Carpels 4. Fruit obliquely obovoid, 2–2.5 mm, rounded on back, with short beak tip. Fl. and fr. May–Oct. 2*n* = 26.

Ponds, lakes, marshes, ditches. Hebei, Heilongjiang, Shanxi, Yunnan [Bhutan, Japan, Korea, Russia; SW Asia, Europe, North America].

9. Potamogeton crispus Linnaeus, Sp. Pl. 1: 126. 1753.

菹草 zu cao

Plants perennial, submerged in fresh water. Rhizome present, terete to slightly flattened. Stems creeping at base, terete to slightly flattened and angular, sparsely branched; stiff axillary turions 1–3 cm × 8–15 mm, each a cluster of hard scales formed by strongly shortened, thickened and broadened leaves. Stipules axillary, convolute to shortly connate, 5–10 mm, membranous and evanescent; leaves sessile, broadly linear to narrowly oblong, 3–8 cm × 3–10 mm, 3–7-veined, margin mostly undulate or crispate, serrate, apex obtuse or rounded. Spikes cylindric, with 2–4 whorls of shortly distant opposite flowers; peduncles 14–65(–125) cm. Carpels 4, shortly connate at base. Fruit ovoid, 3.5–4 mm, abaxial keel distinct, few toothed on lower ridge; beak subequal to or longer than body of carpel, slender. Fl. and fr. Apr–Jul. 2*n* = 52.

Lakes, streams, ponds, paddy fields. Fujian, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xi-

zang, Yunnan, Zhejiang [Afghanistan, Bangladesh, Bhutan, India, Indonesia (Sumatra), Japan, Kazakhstan, Korea, Kyrgyzstan, Laos, Mongolia, Myanmar, Nepal, Pakistan, Russia, Tajikistan, Thailand, Turkmenistan, Uzbekistan, Vietnam; Africa, SW Asia, Australia, Europe; introduced in North and South America and Pacific islands (New Zealand)].

10. Potamogeton praelongus Wulfen, Arch. Bot. (Leipzig) 3(3): 331. 1805.

白茎眼子菜 bai jing yan zi cai

Plants perennial, submerged in fresh water. Rhizome spotted, rusty red, slender or sometimes robust, often developing turions at tip. Stems terete, usually elongated, simple or sparsely branched. Stipules axillary, convolute, 1–8 cm, membranous, free from leaf base, usually persistent; leaves sessile, distichous, linear-lanceolate or lanceolate to ovate-oblong or ribbonlike, 6–25 cm, midvein conspicuous, with narrow rows of lacunae bordering midvein, base rounded to cuneate and semiamplexicaul, margin entire, apex often obtuse and markedly cucullate, splitting when pressed. Spikes cylindric, contiguous, with 6–12 whorls of opposite flowers; peduncles 5–80 cm. Carpels 4. Fruit (3.8–)4.5–5.5 mm, abaxial keel distinct; beak erect, 0.6–1 mm. Fl. and fr. Jul–Sep. 2*n* = 52.

Submersed in ponds or channels of still water. Heilongjiang, Jilin, Liaoning, Xinjiang, Yunnan [Japan, Kazakhstan, Mongolia, Russia; Europe, North America].

11. Potamogeton perfoliatus Linnaeus, Sp. Pl. 1: 126. 1753.

穿叶眼子菜 chuan ye yan zi cai

Potamogeton perfoliatus var. *mandschuriensis* A. Bennett.

Plants perennial, submerged in fresh water. Rhizome unspotted, terete, slender. Stems terete, 0.5–2.5 mm in diam., densely branched at upper part. Stipules axillary, convolute, 3–22 mm, membranous, evanescent; leaves sessile, lanceolate to broadly ovate, orbicular-ovate, or ovate-oblong, 3–5-veined, with narrow rows of lacunae bordering midvein, base cordate and amplexicaul, margin minutely denticulate, apex obtuse or rounded. Spikes usually contiguous and cylindric, with 4–7 whorls of opposite flowers; peduncles 2–11 cm. Carpels 4. Fruit obovoid, 2.5–4.5 mm, abaxial keels 3, with a slightly sharp midvein and 2 indistinct lateral keels, with a short beak at tip. Fl. and fr. May–Oct. 2*n* = 52.

Lakes, ponds, rivers, channels. Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jilin, Liaoning, Nei Mongol, Qinghai, Shandong, Shanxi, Xinjiang, Xizang, Yunnan [Afghanistan, India, Indonesia (Sumatra), Japan, Kazakhstan, Korea, Kyrgyzstan, Mongolia, Pakistan, Russia, Tajikistan, Uzbekistan; Africa, SW Asia, Australia, Central and North America, Europe].

12. Potamogeton wrightii Morong, Bull. Torrey Bot. Club 13: 158. 1886.

竹叶眼子菜 zhu ye yan zi cai

Potamogeton intortusifolius J. B. He, L. Y. Zhou & H. Q. Wang; *P. japonicus* Franchet & Savatier; *P. mucronatus* C. Presl (1851), not Schrader ex Sonder (1850).

Plants perennial, submerged. Rhizome terete, slender. Stems simple or rarely sparsely branched, internodes elongated, terete, ca. 2 mm in diam. Stipules axillary, convolute, large and conspicuous, 2.5–5 cm, membranous, free from leaf base. Submerged leaves petiolate; petiole 1.6–14 cm; blade narrowly oblong to oblong-lanceolate, 8–20(–31) × (0.7–)1.4–2(–2.7) cm, 9–13-veined, with a conspicuous midvein, base rounded or cuneate, margin undulate and minutely denticulate, apex mucronate. Floating leaves usually absent, sometimes present, bright green, often with reddish tinge, oblong to elliptic, 5.2–12.5 × 1.2–2.5 cm, 11–25-veined, base cuneate, apex mucronate. Spikes densely flowered, with many whorls of opposite flowers; peduncles 4–7 cm, thickened upward. Carpels 4. Fruit obovoid, 2–3.3 mm, abaxial keels 3, distinct, with a narrowly winglike midvein; beak short. Fl. and fr. Jun–Oct. 2*n* = 52.

Lakes, rivers, channels, ponds. Anhui, Fujian, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Yunnan, Zhejiang [India, Indonesia, Japan, Kazakhstan, Korea, Laos, Malaysia, Myanmar, New Guinea, Pakistan, Philippines, Russia, Thailand, Vietnam; Pacific islands].

The species here called *Potamogeton wrightii* was generally treated under the name *"P. malaianus,"* but the type specimen of *P. malaianus* Miquel is actually *P. nodosus*.

13. Potamogeton lucens Linnaeus, Sp. Pl. 1: 126. 1753.

光叶眼子菜 guang ye yan zi cai

Potamogeton gaudichaudii Chamisso & Schlechtendal; *P. sinicus* Migo.

Plants perennial, submerged in fresh water. Rhizome slender to robust. Stems terete, elongated, ca. 2 mm in diam., richly or sparsely branched. Stipules axillary, large, conspicuous, convolute, 2–8(–11) cm, herbaceous, free from leaf base; leaves subsessile to shortly petiolate; petiole 2–15 mm; leaf blade elliptic or ovate-elliptic to lanceolate-elliptic, 2–18 × 0.8–5 cm, 9–11-veined, midvein thickened and conspicuous, without rows of lacunae bordering midvein, base cuneate, margin often undulate, minutely denticulate, apex mucronate or cuspidate. Spikes densely flowered, with many whorls of somewhat opposite flowers; peduncles 3–20 cm, thickened upward. Carpels 4. Fruit ovoid, 3.2–4.5 mm, abaxial keel distinct; beak short. Fl. and fr. Jun–Oct. 2*n* = 52.

Lakes, ponds, channels. Anhui, Gansu, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Jiangxi, Jilin, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Xinjiang, Xizang, Yunnan [Afghanistan, India, Kazakhstan, Kyrgyzstan, Myanmar, Nepal, Pakistan, Philippines, Russia, Tajikistan, Turkmenistan, Uzbekistan; N Africa, SW Asia, Europe].

14. Potamogeton alpinus Balbis, Misc. Bot. 13. 1804.

高山眼子菜 gao shan yan zi cai

Potamogeton rufescens Schrader; *P. tenuifolius* Rafinesque.

Plants perennial, in fresh water, usually with reddish tinge particularly when dry. Rhizome slender. Stems terete, 1.5–2 mm in diam., simple, but sometimes with horizontal stolons. Leaves dimorphic; stipules axillary, convolute, herbaceous,

slightly amplexicaul, 12–35 mm. Submerged leaves sessile, lanceolate to linear-lanceolate or elliptic-oblong, 5–38 × 0.7–3.3 cm, 9–19-veined, with broad rows of lacunae bordering midvein, base cuneate, margin entire, apex obtuse. Floating leaves petiolate; blade elliptic to broadly lanceolate, 4–9 cm × 8–25 mm, leathery or subleathery, (5–)7–13-veined, base cuneate to narrowly cuneate, margin entire, apex obtuse. Spikes cylindric, 6–15 cm, densely flowered; peduncles thicker than stem. Carpels 4. Fruit obovoid, 2.6–3.7 mm, abaxial keel somewhat sharp, with a short beak. Fl. and fr. Jul–Sep. 2*n* = 52.

Lakes, ponds, marshes, usually in slightly alkaline water. Heilongjiang [Afghanistan, India (Assam), Japan, Kazakhstan, Korea, Myanmar, Pakistan, Russia, Uzbekistan; Europe, North America].

15. Potamogeton gramineus Linnaeus, Sp. Pl. 1: 127. 1753.

禾叶眼子菜 he ye yan zi cai

Potamogeton heterocaulis Dia; *P. heterophyllus* Schreber.

Plants perennial, in fresh water. Rhizome slender to slightly robust, usually densely branched, with apical dormant buds. Stems terete, 1–2 mm in diam., usually densely branched, sometimes sparsely branched. Leaves dimorphic; stipules axillary, convolute, conspicuous, 6–35 mm, herbaceous or membranous, amplexicaul. Submerged leaves sessile, translucent, linear-oblong to oblanceolate, 3–5 cm × 5–12 mm, herbaceous, (3–)5–9(–13)-veined, base cuneate, margin ± minutely denticulate, apex mucronate. Floating leaves present or absent, petiolate; petiole usually longer than blade; blade opaque, elliptic or ovate-elliptic to elliptic-lanceolate, (7–)11–21(–23)-veined, leathery, base cuneate or rounded, margin entire, apex obtuse. Spikes cylindric, 15–40 mm, densely flowered, with many whorls of opposite flowers; peduncles 4–7 cm, thickened upward. Carpels 4. Fruit obovoid, 2.4–3.1 mm, abaxial keel obtuse, with a short beak at tip. Fl. and fr. Jul–Sep. 2*n* = 52.

Ponds, marshes, channels. Heilongjiang, Jilin, Liaoning, Nei Mongol, N Shaanxi, Sichuan, Xinjiang, Xizang, Yunnan [Japan, Kazakhstan, Korea, Mongolia, Pakistan, Russia, Turkmenistan, Uzbekistan; SW Asia (Iran), Europe, North America].

16. Potamogeton octandrus Poiret in Lamarck, Encycl., Suppl. 4: 534. 1816.

南方眼子菜 nan fang yan zi cai

Hydrogeton heterophyllum Loureiro; *Potamogeton asiaticus* A. Bennett; *P. hubeiensis* W. X. Wang, S. C. Sun & H. Q. Wang; *P. javanicus* Hasskarl; *P. limosellifolius* Maximowicz ex Korshinsky; *P. miduhikimo* Makino; *P. octandrus* var. *miduhikimo* (Makino) H. Hara.

Plants annual or perennial, in fresh water. Rhizome inconspicuously present or absent. Stems filiform, terete, ca. 0.5 mm in diam., sparsely to densely branched; nodal glands absent; dormant buds axillary, narrowly fusiform, with 1–3 acerose leaves. Leaves dimorphic; stipules axillary, convolute, 4–13 mm, membranous, free from leaf base, decaying early, green or greenish brown when dry. Submerged leaves alternate, sessile, linear to filiform, 2–6 cm × ca. 1 mm, 3-veined, lacunae conspicuous along midvein, midvein not thickened toward leaf base, attenuate toward apex in upper 1/4 of their length, apex acuminate. Floating leaves petiolate, usually alternate, approximately opposite just below peduncle; blade opaque, elliptic or oblong to oblong-ovate, 1.5–2.5 cm × 7–12 mm, leathery, 5–7-veined, base rounded, apex acute or obtuse. Spikes densely flowered, with 4 whorls of opposite flowers; peduncles 1–1.5 cm. Carpels 4. Fruit obovoid, 1.5–2.5 mm, abaxial keel indistinct to distinct, obtuse to minutely undulate-toothed, with a short beak to 0.3 mm. Fl. and fr. May–Oct. 2*n* = 28.

Ponds and channels, usually in slightly acid water. Fujian, Guangdong, Guangxi, Hainan, Hebei, Heilongjiang, Hubei, Hunan, Jiangsu, Liaoning, Nei Mongol, S Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [Bangladesh, India, Indonesia (Java), Japan (including Ryukyu Islands), Korea, Malaysia, Myanmar, Nepal, New Guinea, Russia, Thailand, Vietnam; Africa, Australia].

17. Potamogeton cristatus Regel & Maack, Mém. Acad. Imp. Sci. Saint Pétersbourg, Sér. 7, 4(4) [Tent. Fl. Ussur.]: 139. 1861.

鸡冠眼子菜 ji guan yan zi cai

Potamogeton iriomotensis Masamune.

Plants annual or perennial, in fresh water. Rhizome inconspicuously present or absent. Stems filiform, terete, ca. 0.5 mm in diam., simple or sparsely branched; dormant turions axillary, narrowly fusiform, with 3–5 acerose leaves. Leaves dimorphic; stipules convolute, 6–10 mm, membranous, free from leaf base. Submerged leaves sessile, linear to filiform, 2.5–7 cm × ca. 1 mm, 3-veined. Floating leaves usually alternate, opposite just below peduncle, petiolate; petiole 1–1.5 cm; blade opaque, ovate to ovate-oblong, rarely lanceolate, 1.5–2.5 cm × 3–11 mm, leathery, 7-veined, base rounded or cuneate, apex acute or obtuse. Spikes with 3–5 whorls of opposite flowers; peduncles 0.8–1.5 cm. Carpels 4. Fruit obovoid, 1.5–2.5 mm, laterally compressed and shortly pedicellate, abaxial keel cristate; beak 1–1.2 mm, slender. Fl. and fr. May–Sep.

Ponds, paddy fields. Anhui, Fujian, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Liaoning, Sichuan, Taiwan, Zhejiang [Japan (including Ryukyu Islands), Korea, Russia].

18. Potamogeton natans Linnaeus, Sp. Pl. 1: 126. 1753.

浮叶眼子菜 fu ye yan zi cai

Potamogeton morongii A. Bennett.

Plants perennial, in fresh water. Rhizome slender to robust, terete. Stems slender to robust, terete, 1.5–2 mm in diam., usually simple or occasionally sparsely branched. Leaves dimorphic. Submerged leaves reduced to long, narrowly linear, obtuse phyllodes, 10–20 cm × 2–3 mm, often disappearing early, 1–3-veined. Floating leaves with axillary, convolute, often fibrous-persistent stipules 4–17 cm, petiolate, with a flexible discolored joint and distinct angle at top of petiole immediately below blade; blade opaque, ovate to broadly oblong-ovate or ovate-elliptic, 4–9 × 2.5–5 cm, leathery, 17–35-veined, base cuneate to subcordate, apex rounded or cuspidate. Spikes cylindric, 3–5 cm, densely flowered; peduncles 3–8 cm. Carpels 4. Fruit obovoid, 3.5–4.5 mm, abaxial keel obtuse, indistinct, with a short beak at tip. Fl. and fr. Jul–Oct. 2*n* = 52.

Lakes, ponds, channels, usually in slightly acid water. Heilongjiang, Xizang [Afghanistan, Japan, Kazakhstan, Korea, Kyrgyzstan,

Mongolia, Myanmar, Nepal, Russia, Tajikistan, Uzbekistan; temperate and boreal regions of Africa, SW Asia, Europe, and North America].

19. Potamogeton distinctus A. Bennett, J. Bot. 42: 72. 1904.

眼子菜 yan zi cai

Potamogeton fontigenus Y. H. Guo, S. C. Sun & H. Q. Wang; *P. franchetii* A. Bennett; *P. longipetiolatus* E. G. Camus; *P. perversus* A. Bennett.

Plants perennial, in fresh water. Rhizome terete, slender, with apical dormant buds. Stems terete, slender, 1.5–2 mm in diam., simple or rarely sparsely branched. Leaves dimorphic; stipules axillary, convolute, 2–7 cm, membranous, translucent, amplexicaul, often persistent, 11–19-veined; petiole 5–20 cm. Submerged leaves petiolate; blade narrowly lanceolate to lanceolate, herbaceous, often decaying early, 9–17-veined. Floating leaves petiolate; petiole 0.5–2.3 × length of blade; blade opaque, lanceolate to ovate-lanceolate or broadly elliptic, 2–10 × 1–4 cm, leathery, 11–19-veined, base obtuse or sometimes cuneate, apex acute or obtuse. Spikes cylindric, 2.5–8 cm, densely flowered, contiguous; peduncles thicker than stem, 3–10 cm. Carpels (1 or)2(or 3). Fruit broadly obovoid, 2.9–3.7 mm, abaxial keels 3, with a sharp midrib and ± obtuse lateral keels. Fl. and fr. May–Oct. 2*n* = 52.

Ponds, paddy fields, channels. Fujian, Gansu, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [Bhutan, Indonesia, Japan (including Ryukyu Islands), Korea, Malaysia, Nepal, Philippines, Russia, Thailand, Vietnam; Pacific islands].

The Chinese record of *Potamogeton polygonifolius* Pourret in FRPS (8: 67. 1992) was based on a misidentification of *P. distinctus*.

20. Potamogeton nodosus Poiret in Lamarck, Encycl., Suppl. 4: 535. 1816.

小节眼子菜 xiao jie yan zi cai

Potamogeton indicus Roxburgh (1820), not Roth (1818); *P. malaianus* Miquel.

Plants perennial, in fresh water. Rhizome terete, slender to robust. Stems usually simple or occasionally sparsely branched, terete, 1.5–2 mm in diam. Leaves dimorphic; stipules axillary, convolute, 2–4 cm, membranous, amplexicaul. Submerged leaves petiolate; petiole 0.2–1.5 × length of blade; blade lanceolate or narrowly lanceolate, (7–)11–21-veined, apex obtuse, often decaying early. Floating leaves opaque; blade elliptic or ovate-elliptic, 3–6 × 1.5–3 cm, leathery, (11–)15–23-veined, base cuneate or obtuse, apex acute or slightly obtuse. Spikes cylindric, densely flowered; peduncles 4–6 cm, thicker than stem. Carpels 4. Fruit obovoid, 3–4 mm, abaxial keel distinct. Fl. and fr. Jul–Sep. 2*n* = 52.

Ponds and channels by lakes, usually in slightly alkaline water. N Shaanxi, Xinjiang, Yunnan [Bangladesh, India, Indonesia, Japan, Kazakhstan, Myanmar, Nepal, New Guinea, Pakistan, Russia, Sri Lanka, Tajikistan, Thailand, Turkmenistan, Uzbekistan, Vietnam; Africa, SW Asia, Europe, North and South America, Pacific islands].

2. STUCKENIA Börner, Bot.-Syst. Not. 258. 1912.

蓖齿眼子菜属 bi chi yan zi cai shu

Plants perennial, in fresh to saline water, totally submerged. Rhizomes present; turions absent or occasionally present; tubers absent or present. Stems elongate, terete. Stipules not tubular, adnate to base of leaf blades for 2/3 or more length of stipule, extending past adnation as free ligule. Leaves alternate, sessile, opaque, linear, channeled, turgid, veins 1–5, base acute, margin entire, apex obtuse to acute. Inflorescences spikes, submersed, capitate or cylindric; peduncles flexible, not projecting inflorescence above water surface. Pistils 4. Fruit abaxially rounded, beaked or not, turgid. Embryo with less than 1 full coil. *x* = 13.

Seven species: cosmopolitan; four species in China.

1a. Leaf sheaths connate, tubular toward base at least when young, appearing as a closed ellipse when transversely dissected.
  2a. Fruit (2.7–)2.9–3.3 mm; leaves narrowly linear, 0.7–2.4 mm wide, apex obtuse or rounded; leaf sheaths on vegetative branches 0.8–3.5 mm in diam. ..... 1. *S. amblyophylla*
  2b. Fruit 1.9–2.6(–3) mm; leaves mostly filiform, 0.2–1.2(–1.6) mm wide, apex obtuse or bifurcate; leaf sheaths on vegetative branches 0.3–1.8 mm in diam. ..... 2. *S. filiformis*
1b. Leaf sheaths convolute, appearing as a short spiral when transversely dissected.
  3a. Leaves dark green or mostly conspicuously dark brown to blackish when dried, older ones discolored, creamy whitish or grayish to bright white, hyaline edges of leaf sheaths creamy yellowish, markedly contrasting with dark sheaths; plants unbranched or moderately to richly branched near base and sparingly so above; leaf blades on main stem sheaths 80–260 mm, occasionally recurved toward apex, sometimes even twisted spirally when dried, apex obtuse to rounded ..... 3. *S. pamirica*
  3b. Leaves usually olive-green to dark green, sometimes brownish green to light brown, rarely brown but then leaf blade less than 80 mm and plants richly branched above, hyaline edges of leaf sheaths greenish to pale brownish, not conspicuously contrasting with sheaths; plants usually richly branched throughout or only above; leaf blades on main stem sheaths 18–120 mm, mostly ± straight, only rarely recurved toward apex when dried, apex mostly acute to acuminate, occasionally obtuse or rounded with short mucro ..... 4. *S. pectinata*

1. Stuckenia amblyophylla (C. A. Meyer) Holub, Preslia 68: 364. 1997.

钝叶菹草 dun ye zu cao

Potamogeton amblyophyllus C. A. Meyer, Beitr. Pflanzenk. Russ. Reiches 6: 10. 1849.

Plants perennial, submerged. Rhizome branched, terete, 1–1.5 mm in diam., with apical dormant buds. Stems moderately branched at base. Stipules partly fused with leaf base and sheathing stem; sheaths 0.6–4 cm, on vegetative branches 0.8–3.5 mm in diam., herbaceous, connate, tubular toward base at least when young, appearing as a closed ellipse when transversely dissected, persistent; leaves sessile, filiform, 5–10 cm × 0.7–2.4 mm, 3-veined, apex obtuse to rounded. Spikes terminal, with 4–6 whorls of opposite flowers, lowermost whorl shortly distant from upper whorls; peduncles filiform, 1–22 cm. Carpels 4. Fruit (2.7–)2.9–3.3 × ca. 2 mm, abaxial keel indistinct, obtuse, beak recurved. Fl. and fr. Jul–Oct.

Ponds, lakes, marshes, swamps. Qinghai, Xinjiang, Xizang, Yunnan [Afghanistan, Kazakhstan, Kyrgyzstan, Russia, Tajikistan; SW Asia].

2. Stuckenia filiformis (Persoon) Börner, Fl. Deut. Volk, 713. 1912.

丝叶眼子菜 si ye yan zi cai

Potamogeton filiformis Persoon, Syn. Pl. 1: 152. 1805; *Coleogeton filiformis* (Persoon) Les & R. R. Haynes; *P. applanatus* Y. D. Chen; *P. filiformis* var. *applanatus* (Y. D. Chen) Q. Y. Li; *P. rostratus* Hagström.

Plants perennial, submerged. Rhizome terete, slender, with apical dormant buds. Stems slender, terete to compressed, ca. 0.5 mm in diam., sparsely to densely branched at base. Stipules partly fused with leaf base and sheathing stem; sheaths 0.6–4 cm, on vegetative branches 0.3–1.8 mm in diam., connate, tubular toward base at least when young, appearing as a closed ellipse when transversely dissected, persistent; leaves sessile, filiform, 3–18 cm × 0.2–1.2(–1.6) mm, 3-veined, lateral veins inconspicuous, with air channels bordering midvein, apex obtuse to bifurcate. Spikes terminal, with 3–6 whorls of opposite flowers, markedly distant even at anthesis; peduncles 4–20 cm, slender. Carpels 4. Fruit obovoid, 1.9–2.6(–3) mm, abaxial keel indistinct, obtuse, beak very short, verruciform. Fl. and fr. Jul–Oct. 2*n* = 78.

Lakes, ponds, marshes. Gansu, Nei Mongol, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [Afghanistan, Bhutan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan, Uzbekistan; SW Asia, Europe, North and South America].

3. Stuckenia pamirica (Baagøe) Z. Kaplan, Folia Geobot. 43: 194. 2008.

长鞘菹草 chang qiao zu cao

Potamogeton pamiricus Baagøe, Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn 1903: 182. 1903; *P. recurvatus* Hagström.

Plants perennial, submerged. Rhizomes terete, slender to robust. Stems terete, slender. Stipules partly fused with leaf base and sheathing stem; sheaths 1.8–5 cm, convolute, appearing as a short spiral when transversely dissected, usually dark green to blackish with creamy yellowish to whitish margins; ligule whitish, 1–2.3 cm, persistent; leaves sessile, dark green or mostly conspicuously dark brown to blackish when dried, older ones discolored, creamy whitish or grayish to bright white, blade occasionally recurved at top, linear, 7–26 cm × 0.3–1.7 mm, 3-veined, with air channels bordering midvein, apex obtuse. Spikes terminal, with 4–6 whorls of opposite flowers; peduncles 2.5–3.5 cm. Fruit obovoid, 3.5–4.2 × ca. 2 mm, abaxial keel obtuse, with a very short, verruciform or cusped beak.

Submersed in lakes. Qinghai, Xizang [Kyrgyzstan, Tajikistan].

The species here called *Stuckenia pamirica* was generally treated under the name *Potamogeton recurvatus*. The name *P. pamiricus* was widely misapplied to broad-leaved forms of *S. filiformis*, and for this reason, all records in the literature are doubtful.

4. Stuckenia pectinata (Linnaeus) Börner, Fl. Deut. Volk, 713. 1912.

蓖齿眼子菜 bi chi yan zi cai

Potamogeton pectinatus Linnaeus, Sp. Pl. 1: 127. 1753; *Coleogeton pectinatus* (Linnaeus) Les & R. R. Haynes; *P. bracteatus* Y. D. Chen; *P. erhaiensis* Y. D. Chen; *P. interruptus* Kitaibel; *P. intramongolicus* Y. C. Ma; *P. leptanthus* Y. D. Chen; *P. miniatus* Y. D. Chen; *P. nanus* Y. D. Chen; *P. pectinatus* var. *diffusus* Hagström; *P. pectinatus* var. *interruptus* (Kitaibel) Ascherson.

Plants perennial, submerged. Rhizome slender to robust, terete, usually developing apical buds. Stems sparsely to densely branched, filiform to slender, terete, 0.5–4 mm in diam. Stipules partly fused with leaf base and sheathing stem; sheaths 1–6.5 cm, convolute, appearing as a short spiral when transversely dissected, persistent, usually green with greenish to pale brownish margins; leaves sessile, usually olive-green to dark green, mostly ± straight, filiform to linear, 2–12 cm × 0.2–4 mm, 3–5-veined, lateral veins inconspicuous, usually with air channels bordering midvein, apex acuminate to acute, occasionally obtuse or rounded with short mucro. Spikes cylindric, 1–6 cm, with 3–7 whorls of opposite flowers, contiguous at first, later inconspicuously or conspicuously distant; peduncles elongated, slender, ca. as thick as stem. Carpels 4. Fruit obovoid, 3.4–4.2 mm, abaxial keel indistinct, with short beak. Fl. and fr. May–Oct. 2*n* = 78.

Submerged in fresh water or brackish lakes, ponds, rivers, channels, and marshes. Anhui, Fujian, Gansu, Guizhou, Hainan, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [Afghanistan, Bangladesh, India, Indonesia (Sumatra), Japan, Kazakhstan, Korea, Kyrgyzstan, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Russia, Sri Lanka, Tajikistan, Turkmenistan, Uzbekistan; Africa, SW Asia, Australia, Europe, North and South America, Pacific islands].

Stuckenia pectinata is an extremely polymorphic species with numerous forms depending on geographical and ecological circumstances.