

*Sisyrinchium* L. BLUE-EYED GRASS

*Sisyrinchium bellum* S. Watson, WESTERN BLUE-EYED GRASS. Perennial herb, clonal, geophytic, rhizomatous, fibrous-rooted, many-stemmed at base, clumped and densely cespitose with shoots ascending to spreading (erect) from vertical rhizome segments, each shoot having a terminal inflorescence, 30–60 cm tall, to 75 cm long; shoots with to 5 basal and 1–2 leaflike bracts (also termed cauline leaves), strongly 2-ranked and flattened, each leaf sharply folded base to tip and appressed lengthwise along midrib (replicate) and with overlapping leaf bases (equitant), hidden lower portion white, with axillary bud for each basal leaf, glabrous, sometimes glaucous and somewhat bluish green; rhizome vertical, compact, to 5 mm long, 2–3 mm diameter, each segment connected laterally at base to adjacent rhizome segment, bearing brown, fibrous remnants of former (outer) basal leaves from previous growing season at each shoot base, decomposing into tufts of parallel fibers; adventitious roots descending to 120 mm long, to 1.5 mm diameter, often having fleshy cortex with slender vascular core (stele). **Stem (peduncle):** flat, winglike and leaflike, to midplant, (30–) 150–360 × 3–4 mm (to first bract of inflorescence), tough, green and photosynthetic sometimes slightly glaucous but white at base where covered by basal leaves, common slowly twisting 180°, essentially entire with scattered, minute papillate teeth especially approaching node of the lowest cauline leaf, parallel-veined, sometimes cauline node somewhat purplish. **Leaves:** alternate distichous, simple and sheathing at base; sheath open and slightly overlapping (first leaves) and closed to 5 mm long (upper 2 basal leaves and principal bract); blade of basal leaves linear, strap-shaped, and equally folded from base, 100–460 × 2–7.5 mm (folded width), the longest basal leaf often = peduncle internode, tough, sides parallel most of length, asymmetric approaching tip, narrowly colorless on and essentially entire on margins and along keel but having minute papillate teeth, acuminate at tip, parallel-veined with flat surface, keel not thickened. **Inflorescence:** compound umbel-like cyme, strongly 2-dimensional flattened side-to-side (rhipidium), 3–4 nodes long, with ascending bract at first node, second nodes, and sometimes third nodes having a dominant, lower nodes with 2–4 unequal, continuing axes (rays) and a bract subtending rays except the largest (= continuation of inflorescence), inflorescence axis jointed, often conspicuously bent at nodes (geniculate), at ultimate node having flowers arising from within a pair of bracts forming a narrowly ellipsoid involucre enclosing 7–11 unopened flowers and bractlets subtending pedicels, at anthesis flowers exerted from involucre and opening sequentially, glabrous; primary bract at the first node of inflorescence (spathe) resembling cauline leaf, replicate and equally folded, 70–170 mm long (= cauline leaf if near base of plant), with a closed green sheath to 25 mm long, spathe reduced upward at successive nodes and closed portion also shorter; secondary bract subtending a ray keeled and unequally folded, to 53 mm long (scaling with internode length), green with parallel veins + membranous margins having a wider margin base to tip on the wider side, shorter secondary bracts with less green tissue; internodes long and winged like stem, reduced upward in width; prophyll present on minor ray at each node, folded, narrow, mostly to 20(–35) mm long, << distichous bract, larger ones green and membranous and 2-veined reduced to fully membranous and 1-veined. **Involucre:** narrowly ellipsoid, outer bract closed at base and folded base to tip fully concealing inner bract, outer bract 13–31 mm long, green with membranous margins, inner bract to 22 mm

long, slightly < outer bract and open at base; bractlet subtending pedicel included, alternate distichous, mostly entirely membranous or with 1–several green stripes, 1-veined and unequally folded, 2.5–17 × 2–3.2 mm, reduced to youngest flower; pedicel cylindrical and flexible, at anthesis 19–24 × 0.25–0.5 mm increasing in fruit, light green aging reddish, glabrous. **Flower:** bisexual, radiate, 15–32 mm across, rotate, unscented; **perianth** 6-lobed (tepals), tepals in 2 whorls; tube cup-shaped, 0.4 mm long, glossy bright yellow; lobes obovate to oblanceolate, 8.2–17 × 2.5–5.5 mm, lobes of outer whorl wider than of inner whorl, dark violet, blue-violet, or pale blue (white), paler on lower surface, when violet having darker purple, fine-line margins and (3)5 radiating veins arising from ovate glossy bright yellow spot at base, tip truncate rounded or with shallow shoulders and an acuminate to lizardlike tip, short-ciliate only on margins at tip; **stamens** 3, fused into cylindrical column, filament column exerted, straight, ± 4 mm × 0.45 mm, yellow-orange tinge at base changing to white at top, lower 1/3 with transparent yellow-orange, stalked glandular hairs, 3-branched with free portion 0.15 mm long; anthers dorsifixed, dithecal, ascending, oblong, 1.3–1.5 mm long, vivid yellow, longitudinally and outwardly dehiscent; pollen vivid yellow; **pistil** 1, ca. 6 mm long; ovary inferior, spheroid to obovoid, 1.4–1.5 × 1.1–1.2 mm, green, smooth, with radiating glandular hairs, 3-chambered, each chamber with 10–12 ovules attached to center in two stacks; style 4.2 mm long, slender within filament column, whitish, swollen at top of filament column before tapered and 3-branched, the branches stigmatic, erect and appressed, ca. 0.4 mm long, tapered to narrowly acute at tip, appearing like a cranesbill barely exerted above anthers, white. **Fruit:** capsule, loculicidal, 10–35-seeded, 3-lobed subspheroid, 4–5.5 mm, with ± bulging seeds. **Seed:** ± spheroid or with 1 or 2 flattened faces, 1.2–2 mm, blackish brown, hilum a straight ridge ca. 1 mm long. Mid-March–mid-June.

Native. Perennial herb found throughout the range in grassland or grassy habitat bordering shrubland, especially in clay soil. *Sisyrinchium bellum* has the flattened shoots characteristic of the iris family, including each blade and bract folded, and in this species the flattened stems are slowly twisted. The inflorescence of blue-eyed grass is difficult to describe, and is categorized as a rhipidium, a flattened cyme that probably is best compared with a compound umbel. At a node is formed a principal bract (spathe), which is also described as a cauline leaf. The spathe has a closed sheath, and from that node arise two to four branches, basically primary rays. The largest ray from each node functions as the continuation of the peduncle while the others are new branches. Each new branch is subtended by a bract, often hidden from view, and often a smaller second bract, best referred to as a prophyll. At node three or four two bracts are produced, the equivalent of an involucre, with the outer bract concealing the inner bract. The involucre surrounds the pedicellate flower buds, each subtended by a membranous bractlet, and the flowers are exerted sequentially from the involucre as each pedicel elongates. After flowering, one can observe old pedicels and exposed fruits above the involucre. In range flowers of *S. bellum* exhibit various shades of violet, but also a mutant has been observed with white a perianth while retaining the bright yellow at the base.

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