

Hordeum murinum L., SMOOTH BARLEY [subsp. *glaucum* (Steud.) Tzvelev], HARE BARLEY [subsp. *leporinum* (Link) Arcang.]. Annual, fibrous-rooted, several-stemmed at base, ascending, 10–50(–110) cm tall; shoots with cauline leaves, glaucous (subsp. *glaucum*) or not, glabrous to sparsely pilose. **Stems (culms):** cylindrical, to \pm 3 mm basal diameter, striped green and light green; internodes hollow. **Leaves:** alternate distichous, simple with sheath; sheath open, typically < internodes exposing dark nodes, glabrous (sometimes glaucous), dark green but whitish on narrow margins, with lobes (auricles) at top, auricles narrowly triangular (absent), aching, 1–3(–4) mm long, whitish to light tan; ligule membranous, jagged truncate, 1.2–2.3 mm long; blade narrowly triangular to linear, 40–300 \times 4.5–7 mm, keeled, entire but minutely toothed approaching tip, parallel-veined. **Inflorescence:** spikelets, in terminal, dense “spike,” spike cylindrical, 30–80 \times 12–18 mm (including awns), with 26–29 nodes, spikelets in alternate distichous appressed clusters of 3, with spikelets in 6 vertical rows (6-ranked), long-awned, spikelet with 1 floret, bracteate, awned; peduncle glabrous, not scabrous, terminated by conspicuous rim; rachis strongly flattened (slightly concave), edges and inner face just above node densely ascending-pubescent along edges, glabrous and glossy on outer faces and beneath fruits; fragmenting above each node at maturity. **Spikelet:** central spikelet > lateral spikelets, stalk of central spikelet in range 0.6–0.9(–1.4) mm long, stalk of lateral spikelets 0.5–0.6 mm long, on inner side, breaking above glumes; **glumes** 2, on central spikelet both formed on outer (lemma) side of spikelet so not clearly paired with spikelet, awned, subequal, linear, in range 20.5–23.5(–27) mm long (including awn), basal portion 6–7 \times 0.3–0.4 mm, green between pale greenish yellow midvein and pale greenish yellow marginal vein, long-ciliate; of lateral spikelets dimorphic, inner (lower) glume resembling central glumes but shorter, (11–)17–20.5(–26) mm long, outer (upper) glume awnlike and not expanded and ciliate at base, (14–)22–24.5(–31) mm long, the awns straight, minutely scabrous, rachilla prolonged behind palea as a puberulent axis 4.8–5 mm long (central spikelet) and 2–2.7 mm (lateral spikelets); **lemma** of central spikelet, long-awned, lanceolate, 15–38 mm long (including awn), body ca. 8.5 mm long, rounded on back and 5-veined, dull green but lighter between veins, inrolled and entire on margins, glabrous on both surfaces, the awn to 30 mm long and scabrous; of lateral spikelets narrowly long-awned and lanceolate, (22–)34.5–35.5(–47) mm long (including awn), body ca. 9 mm long, round on back and 5-veined, dull green but lighter between veins, inrolled and entire on margins, pilose on inner surface, the awn 13–2.5.(–38) mm long, glabrous to sparsely pilose on outer surface but scabrous along veins above midpoint, short-pilose on inner surface; **palea** inrolled around flower, later around developing fruit (bisexual florets), lanceolate, 8–9 mm long, green at truncate tip becoming light greenish yellow below midpoint, 2-veined with veins much closer to median than margins, not 2-keeled, surfaces glabrous (central spikelet) or pilose on inner surface and outer surface mostly to midpoint between veins, scabrous along veins above midpoint. **Flower:** bisexual (central floret); **perianth (lodicules)** 2, compressed-lanceoloid, 1.2–1.3 \times 0.3 mm, fleshy at anthesis, glabrous, translucent; **stamens** 3, free, included; filaments threadlike, ca. 1.5 mm long, translucent; anthers dorsifixed, dithecal, oblong, 0.5–0.7 mm long, light greenish yellow with dark purple or blackish dots, becoming purplish on faces, oblique with sacs of different sizes, longitudinally dehiscent; pollen light yellow to whitish; **pistil** 1; ovary superior, weakly 2-lobed obovoid to oblanceoloid compressed side-to-side, ca. 1 mm long, tapered to base, glabrous to

midpoint and pilose above midpoint, 1-chambered with 1 ovule; styles 2, ascending, broadly conic at base, ascending, 0.5–0.7 mm long, colorless, broadly conic at base and above, stigmas feathery (shaggy-plumose) on inner face. **Flower:** staminate or rarely bisexual (lateral spikelet); **perianth (lodicules)** 2, narrowly lanceoloid, ca. 1.5–1.9 mm long, whitish translucent, pilose above midpoint (distal 1/3), whitish translucent; **stamens** 3, free; filaments threadlike, ca 2.5 mm long, translucent; anthers dorsifixed, dithecal, linear, ca. 1.2 mm long, light greenish yellow with dark purple dots becoming purplish on faces, longitudinally dehiscent; pollen light yellow whitish; **pistil** 1, diminutive and sterile, rarely fertile, of fertile pistil ovary superior, 1-chambered, weakly 2-lobed obovoid to oblanceoloid compressed side-to-side, ca. 1 mm long, tapered to base, glabrous to midpoint and pilose above midpoint, 1-chambered with 1 ovule; styles 2, ascending, broadly conic at base, ascending, 0.5–0.7 mm long, colorless, broadly conic at base and above, stigmas feathery (shaggy-plumose) on inner face. **Fruit:** achene (caryopsis), tightly enclosed within straw-colored lemma and palea, compressed-oblanceoloid, ca. 3.5 mm long, orange-brown, tapered to base, pilose at broad tip. Early January–mid-June (subsp. *glaucum*); mid-February–late May (subsp. *leporinum*).

Naturalized. Annual extremely common throughout range in disturbed habitats, in grassland often being the dominant species. *Hordeum murinum*, also called wall barley, is typically treated as subspecies that behave as either winter annuals (subsp. *leporinum*) or summer annuals (subsp. *glaucum*), but in range the subspecies exhibit broadly overlapping flowering times, and the so-called summer annual can be found flowering in early January even before the winter annual forms its inflorescences. Also, subspecies *glaucum* is not always glaucous, so that features traditionally used to identify the subspecies are not reliable, although only individuals of subsp. *glaucum* are ever glaucous.

To be absolutely certain of identification, *H. murinum* subsp. *glaucum* should have the following set of features: the glumes of the central spikelet are longer than glumes of the lateral spikelets; the lemma of the central spikelet is more or less the same length as lemmas of the lateral spikelets; the paleae are pilose, especially below the midpoint; anthers of the central floret are only (0.2–)0.5–0.7 millimeters long, and anthers of the lateral florets are 1.2–1.8 millimeters long.

To be absolutely certain of identification, *H. murinum* subsp. *leporinum* should have the following set of features: the glumes of the central spikelet are shorter than glumes of the lateral spikelets; the lemma of the central spikelet is shorter than lemmas of the lateral spikelets; the paleae are scabrous to midpoint and never pilose; anthers of the central floret are 0.9–3 millimeters long, and anthers of the lateral florets are 1.2–3.2 millimeters long.

If it occurs in range, *H. murinum* subsp. *murinum* should have the following distinguishing features: sessile spikelets; spikelets as in subsp. *glaucum* but paleae almost glabrous; the rachilla is only about 1.5 millimeters long; anthers of lateral florets are 0.8–1.4 millimeters long.

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