

Identification Key to Sedges of the Pacific Northwest

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Items in red are revised

- 1. Spike one per culm Key A, p. _____
- 1' Spikes two or more per culm
 - 2. All spikes entirely ♂; no perigynia present Key B, p. _____
 - 2' Some or all spikes with ♀ flowers; perigynia present
 - 3. Perigynia hairy Key C, p. _____
 - 3' Perigynia glabrous (may have cilia on beak margins)
 - 4. Stigmas 3; achenes 3-sided in cross section
 - 5. Perigynia open on one side, exposing the achene; plants short, densely cespitose; habitat high elevation bogs, meadows, and rock fields *Kobresia*, Key D, p. _____
 - 5' Perigynia closed, hiding the achene; habit and habitat various
 - 6. Styles persistent; perigynia usually inflated....Key E, p. _____
 - 6' Styles deciduous; perigynia usually tight against the achenes .
..... Key F, p. _____
 - 4' Stigmas 2; achenes 2-sided in cross section
 - 7. Some spikes entirely ♂; spikes often > 1.5 cm long
 - 8. Foliage normally orange-brown; ♀ scales white hyaline throughout except midrib; plants of disturbed places, rarely escaping cultivation W of Cascades . *C. buchananii*, p. _____
 - 8' Foliage normally green or glaucous; ♀ scales not hyaline throughout; habitat various
 - 9. Perigynia winged; habitat disturbed sandy sites in Portland
..... *C. arenaria*
 - 9' Perigynia not winged; habitat various Table G, p. _____
 - 7' Every spike with at least some ♀ flowers; spikes usually < 1.5 cm long
 - 10. Perigynia unwinged (may be flat-edged on beak); spikes gynecandrous, androgynous, pistillate, or mixed
 - 11. Spikes androgynous, ♀, or with ♂ and ♀ flowers mixed
..... Key H, p. _____
 - 11' Spikes gynecandrous, or occasionally with terminal spike gynecandrous and lateral spikes ♀ Key I, p. _____
- 10' Perigynia winged (flat-edged) at least on distal part of body
 - 12' Plants cespitose; spikes gynecandrous or pistillate
.....Key J, p. _____
 - 12. Plants rhizomatous; spikes staminate, androgynous, or pistillate
 - 13. Perigynia with broad wings especially at base of beak; ♀ scales usually longer than the perigynia; introduced in sandy soils at Portland, OR *C. arenaria*

- 13' Perigynia with a narrow wing about 0.1 mm wide; ♀
scales shorter than or about as long as the perigynia;
native to dry pine savanna and grassland in E WA
.....*C. siccata*

Key A: Inflorescence consisting of a single spike

- 1. Spike entirely ♂; no perigynia present Key A1, p. _____
- 1' Spike entirely or partially ♀; perigynia present
 - 2. Perigynia pubescent or puberulent, at least at base of beak
..... Key A2, p. _____
 - 2' Perigynia glabrous (sometimes minutely papillose; sometimes serrulate on the edges of the beak)
 - 3. Perigynia linear to narrowly elliptic, length (including stipe) > 3 times the width, AND beakless or tapering gradually to a poorly defined beak
..... Key A3, p. _____
 - 3' Perigynia elliptic to ovate, length < 3 times the width, and/or tapering to a distinct beak
 - 4. Stigmas 2; achenes lenticular Key A4, p. _____
 - 4' Stigmas 3; achenes trigonous
 - 5. Perigynia open on one side, exposing the mature achene; remnants of previous year's leaf sheaths dark brown, shiny, and abundant at base of plant; leaves to 0.5 mm wide *Kobresia myosuroides*
 - 5' Perigynia closed; remnants of previous year's leaf sheaths absent or various including dark brown, shiny, and abundant at base of plant; leaves 0.2-6.0 mm wide
 - 6. Perigynia beakless, blunt, green to tan Key A5, p. _____
 - 6' Perigynia beaked, sometimes tapered gradually to the beak, usually tan to brown
 - 7. Lowest inflorescence bract leaf-like, much longer than inflorescence, much > 2 cm long *C. cordillerana*
 - 7' Lowest inflorescence bract not leaf-like, usually < 2 cm long
 - 8. Spike ♀ or gynecandrous *C. idahoa*
 - 8' Spike androgynous Key A6, p. _____

Key A1: Spike 1 (-4), entirely ♂

- 1. Leaves 0.4-0.9 mm wide *C. gynocrates*
- 1' Leaves 1-5 mm wide
 - 2. Some ♂ scales minutely ciliate on edges, at least at tip
 - 3. Plants in SW OR
 - 4. Flowering April-early May; ligules forming a triangular shape on the leaf blade that is wider than long *C. serpenticola*
 - 4' Flowering June-August; ligules forming a rounded to triangular shape on the leaf blade that is longer than wide
 - 5. Widest leaves 2.8-4 mm wide; plants +/- caespitose; substrate serpentine *C. scabriuscula*

- 5' **Widest** leaves <3 mm wide; plants sometimes rhizomatous; substrate serpentine or not.... *C. scirpoidea* ssp. *pseudoscirpoidea*
- 3' Plants elsewhere in the PNW *C. scirpoidea* (with 3 subspecies)
- 6. Fertile culms phyllopodic; plants ± rhizomatous *C. s. ssp. pseudoscirpoidea*
- 6' Fertile culms aphyllopodic; plants ± cespitose
- 7. Habitat wet *C. s. ssp. stenochlaena*
- 7' Habitat mesic to dry *C. s. ssp. scirpoidea*
- 2' ♂ scales entire to erose, not ciliate
- 8. ♂ scales entirely brown; range Olympic Peninsula *C. anthoxanthea*
- 8' ♂ scales with distinct hyaline margin; range SW OR or E of Cascades
- 9. Mouth of leaf sheath minutely ciliate; culm 10-20 cm long; range SW OR *C. serpenticola*
- 9' Mouth of leaf sheath entire; culm 15-45 cm long; range E of Cascades *C. idahoa*

Key A2: Spike 1 (-3); perigynia pubescent at least at base of beak

- 1. Leaves involute, 0.3-0.7 mm wide; spike androgynous *C. filifolia* var. *filifolia*
- 1' Leaves flat or V-shaped in cross section, 2.8-4 mm wide; spike ♀ or with some ♂ flowers mixed among the ♀ ones
- 2. Plants occurring in SW OR
- 3. Perigynia green to tan at maturity, round in cross section, thick enough to push the ♀ scales away from the axis of the spike, the spike therefore with a jagged outline; perigynium bases tapered; flowering April to May; range Josephine and Curry cos., OR, and Del Norte Co., CA; substrate serpentine *C. serpenticola*
- 3' Perigynia black, brown, or tan at maturity, thinner and not pushing the ♀ scales away from the axis of the spike, the spike therefore with a smooth, cylindrical shape; perigynium bases tapered or truncate; flowering June to August; range and substrate various, including serpentine
- 4. ♀ scales narrower than the mature perigynia; perigynia ± flat *C. scabriuscula*
- 4' ♀ scales wider than or equal to the perigynia; perigynia trigonous *C. scirpoidea* ssp. *pseudoscirpoidea*
- 2' Plants occurring elsewhere in the PNW...*C. scirpoidea* (with 3 subspecies)
- 5. Perigynia lanceolate to elliptic, (2.8-)3-4+ mm long, mostly > 2.5 times as long as wide; ♀ scales lanceolate, 3.5 mm long *C. s. ssp. stenochlaena*
- 5' Perigynia ovate, (1.3-)2-2.8(-3) mm long, < 2.5 times as long as wide; ♀ scales ovate, 2.5-3 mm long
- 6. Fertile culms phyllopodic; plant ± rhizomatous *C. s. ssp. pseudoscirpoidea*
- 6' Fertile culms aphyllopodic; plant ± cespitose *C. s. ssp. scirpoidea*

Key A3: Spike 1; perigynia linear to narrowly elliptic, 3-9 times as long as wide

- 1. Perigynia virtually beakless, ± rounded at the tip *C. leptalea*
- 1' Perigynia beaked
 - 2. Plants densely caespitose
 - 3. Perigynia 5-9 times as long as wide, with faint fine veins that are longer than the achenes *C. circinata*
 - 3' Perigynia 3-4.5 times as long as wide, with two marginal ribs but otherwise veinless or with veins only near the base
 - 4. Leaf bases from previous year not persistent; perigynia spreading to reflexed at maturity, with margins and beaks smooth ...*C. micropoda*
 - 4' Leaf bases from previous year persistent; perigynia ascending at maturity, with margins and beaks ± serrulate *C. nardina*
- 2' Plants rhizomatous to loosely caespitose
 - 5. Perigynia veinless but with two lateral ribs; leaves (1.5-)2-4 mm wide*C. nigricans*
 - 5' Perigynia with veins on the faces as well as two lateral ribs; leaves 0.5-2.5 mm wide
 - 6. Perigynia 3-4.3 mm long *C. anthoxanthea*
 - 6' Perigynia 4.5-8 mm long
 - 7. Perigynia 5.9-8 mm long, reflexed at maturity; ♀ scales falling before the perigynia *C. pauciflora*
 - 7' Perigynia 4.5-6 mm long, ascending; ♀ scales persistent*C. circinata*

Key A4: Spike 1; perigynia elliptic to ovate; stigmas 2; achenes lenticular

- 1. Plants densely caespitose
 - 2. Perigynia ovate to orbicular, sessile *C. capitata*
- 2' Perigynia elliptical, stipitate
 - 3. Leaf bases from previous year not persistent; perigynia spreading to reflexed at maturity, with margins and beaks smooth *C. micropoda*
 - 3' Leaf bases from previous year persistent; perigynia ascending at maturity, with margins and beaks ± serrulate *C. nardina*
- 1' Plants rhizomatous or stoloniferous
 - 4. Perigynia reflexed when mature; plant rhizomatous *C. gynocrates*
 - 4' Perigynia ascending when mature; plant stoloniferous.....*C. choddorrhiza*

Key A5: Spike 1; perigynia elliptic to ovate, nearly beakless; stigmas 3

- 1. **Inflorescence with leaf-like lowest inflorescence bract AND with lower ♀ scales leaflike, 10+ mm, much longer than the perigynia; leaves 1.5-6 mm wide *C. cordillerana***
- 1. **Inflorescence lacking lowest inflorescence bract (or bract very reduced and scale-like; ♀ scales scale-like or leaf-like, to _____ mm long; leaves 0.4-3.5 mm wide**

- 2. Leaves and culms delicate, leaves 0.4-1.3 mm wide; perigynia 2.4-4.9(-5.4) mm long; habitat wetlands *C. leptalea*
- 2' Leaves and culms tough; perigynia (3.6-)4-8.5 mm long; habitat uplands
- 3. Culms sharply triangular; leaves >= culms; plants loosely cespitose to short-rhizomatous; widespread *C. geyeri*
- 3' Culms +/- cylindric **to rounded triangular**; leaves shorter than culms; plants densely cespitose; SW OR
- 4. Perigynia 2-3.5 mm wide; **widest at or above middle**; culms smooth; anthers 2.1-4 mm long; elevation 1200-6500 ft *C. multicaulis*
- 4' Perigynia 1-1.9 mm wide; **widest near middle**; culms usually scabrous; anthers 1.1-2(4) mm long; elevation 5500-7700 ft *C. minicaulis* (ined.)

Key A6: Spike 1, androgynous; perigynia elliptic to ovate; stigmas 3

- 1. Perigynia 1-3, 5-7+ mm long; habitat montane *C. geyeri*
- 1' Perigynia 5-20, 2-7 mm long; habitat subalpine to alpine
- 2. Plants densely cespitose
- 3. Leaf bases from previous year not persistent; perigynia spreading to reflexed at maturity, with margins and beaks smooth *C. micropoda*
- 3' Leaf bases from previous year persistent; perigynia ascending at maturity, with margins and beaks ± serrulate *C. nardina*
- 2' Plants loosely cespitose to long rhizomatous, sometimes with shoots arising in clusters from long rhizomes
- 4. Perigynia finely veined on the faces, with veins extending to above the achene *C. obtusata*
- 4' Perigynia lacking veins on the faces or with veins present at the base but not extending to above the achene, often with two marginal ribs
- 5. Perigynia 2.5-3.9 mm long, only somewhat larger than the achene; spikes narrower, often 4-5 mm wide, 2.5-3 times as long as wide *C. subnigricans*
- 5' Perigynia (3.5-)4-7 mm long, much larger than the achene; spikes oval, often 6-12 mm wide, 1.2-2.5 times as long as wide
- 6. ♀ scales with 3-5 veins, and with wide, whitish central portion; perigynia broadly elliptic to orbicular with short veins .. *C. breweri*
- 6' ♀ scales with 1 vein and with narrow, yellow-brown to light brown central portion; perigynia elliptic, veinless..... *C. engelmannii*

Key B: Inflorescences normally entirely ♂

- 1. Terminal spike much longer than the lateral spikes; lateral spikes usually 1-3 and very easy to distinguish Key A1, lead 3, p. _____
- 1' Terminal spike similar in length to lateral spikes; lateral spikes many, all or most of them crowded and difficult to distinguish
- 2. Widest leaves 4-8 mm wide; habitat sandy soils, near the coast or along the lower Willamette and Columbia Rivers Key F2, p. _____
- 2' Widest leaves 0.3-4 mm wide; habitats various, including sandy soils

- 3. Widest leaves 0.3-0.7(-1) mm wide; rhizomes not more than 1 mm wide, mostly without persistent vestigial leaf sheaths; leaf sheaths at base of culms and on rhizomes not or scarcely fibrous; plants delicate, growing in moss mats in bogs and fens *C. gynocrates*
- 3' Widest leaves 1+ mm wide; rhizomes mostly > (0.8-)1 mm wide, covered with persistent vestigial leaf sheaths; leaf sheaths at base of culms and on rhizomes disintegrating into coarse persistent fibers; plants not delicate; habitats various but usually alkaline or sandy, not growing in moss mats
- 4. Rhizomes < 2.1 mm thick, brown; leaf blades flat with involute tips or involute throughout
- 5. Inflorescence 1.5-2.6 cm long; anthers with awn 0.2-0.4 mm long; common E of Cascades *C. douglasii*
- 5' Inflorescence 0.9-1.3 cm long; anthers awn < 0.1 mm long; rare and local E of Cascades, last collected there in 1919 *C. duriuscula*
- 4' Rhizomes > 2 mm thick, brown to blackish; leaf blades flat or V-shaped in cross section
- 6. Habitat coastal sands; longest anther awns 0.2-0.4 mm long; filaments generally hidden behind the ♂ scales *C. pansa*
- 6' Habitat various but not coastal sands; longest anther awns 0.1-0.2 mm long; filaments generally exerted from the ♂ scales
- 7. Plant bases dark brown to black; anther awns usually hairy (at 20X), the tip tapered or obtuse; habitat meadows, prairies, roadsides, seasonally wet but dry at rhizome depth in summer *C. praegracilis*
- 7' Plant bases pale to brown; anther awns glabrous (at 20X), the tip obtuse; plant bases gray brown to medium or dark brown; habitat wet meadows, marshes, wet stream banks, where the soil is wet at rhizome depth all year *C. simulata*

Key C: Perigynia hairy

- 1. Inflorescence entirely ♀ or with ♂ flowers scattered in mainly ♀ spikes Key A2, p. _____
- 1' Inflorescence with terminal spike ♂ (or rarely gynecandrous)
- 2. Lateral ♀ spikes 1-3(-4), < 1.5 cm long; inflorescence (excluding any basal spike) usually < 4(-6) cm long Key C1, p. 44 _____
- 2' Lateral ♀ spikes 1-many, usually > 2 cm long; inflorescence > 4 cm long
- 3. Leaf sheath fronts pubescent at least toward top; leaf blades usually hairy Key C2, p. _____
- 3' Leaf sheath fronts glabrous; leaf blades glabrous Key C3, p. _____

Key C1: Perigynia hairy; small upland plants with short inflorescences, and short spikes; section *Acrocystis* except as noted

- 1. Plants with basal spikes nestled among the plant bases, as well as spikes at the top of the culms; lowest inflorescence bract longer than the inflorescence (except in strictly coastal *C. brevicaulis*)
 - 2. Perigynia several-veined to at least mid-body; leaves glaucous (occasionally green); lower surface of leaf blades densely papillose (at 20X; papillae look like white speckles when leave are fresh); range SW OR *C. brainerdii*
 - 2' Perigynia veinless except for 2 ribs (or somewhat veined only at the base); leaves usually green; lower surface of leaf blades smooth or sparsely papillose; range various, including SW OR
 - 3. Habitat sandy soils at the immediate coast; lowest inflorescence bract often shorter than the inflorescence; leaves strongly arching *C. brevicaulis*
 - 3' Habitat various, including non-coastal sites and coastal headlands but not coastal sands; lowest inflorescence bract equaling or longer than the inflorescence; leaves not strongly arching
 - 4. Perigynia from non-basal spikes with beaks 0.4-0.8 mm; culms relatively smooth except near inflorescence; habitat montane *C. deflexa* var. *boottii*
 - 4' Perigynia from non-basal spikes with beaks 0.9-1.6 mm; culms definitely scabrous; habitat various, including montane *C. rossii*
- 1' Plants lacking basal spikes; lowest inflorescence bract shorter than the inflorescence
 - 5. Stigmas 4, warty (at 15X); achenes quadrangular at base; section *Clandestinae* *C. concinnoides*
 - 5' Stigmas 3, plumose (at 15X); achenes trigonous at base
 - 6. ♀ scales dark purple to black; substrate serpentine; range SW OR *C. serpenticola*
 - 6' ♀ scales brown or reddish brown; substrate non-serpentine; not in SW OR except for *C. inops* in E Jackson Co.
 - 7. ♂ spikes 1-2.5 cm long; lowest inflorescence bract > 1 cm long; perigynium beak 0.5-1.5 mm long *C. inops* ssp. *inops*
 - 7' ♂ spikes 0.3-0.7 cm long; lowest inflorescence bract < 1 cm long; perigynium beak to 0.5 mm long; section *Clandestinae* *C. concinna*

Key C2: Perigynia hairy; leaf sheath fronts pubescent at least toward top; leaf blades usually hairy

- 1. Perigynium beak teeth < 0.8 mm; perigynia 2.5-5.3 mm long; style deciduous; range widespread
 - 2. Leaf blades hairy, especially below, 3-12 mm wide; spikes usually overlapping; terminal spike gynecandrous or staminate ... *C. gynodynamis*

- 2' Leaf blades glabrous, 2.2-4.5(-6) mm wide; spikes usually distant; terminal spike staminate *C. pellita*
- 1' Perigynium beak teeth 0.5-3 mm; perigynia 4.8-12 mm long; style persistent (see illustration p. _____); range E of Cascades or disturbed places in Portland
 - 3. Perigynium beak teeth (1.2-)1.5-3 mm long; perigynia sparsely pubescent *C. atherodes*
 - 3' Perigynium beak teeth (0.4-)0.6-1.7 mm long; perigynia densely pubescent
 - 4. Upper ♂ scales with spreading white hairs and with apex short-awned; introduced to disturbed areas around Portland *C. hirta*
 - 4' Upper ♂ scales glabrous or with appressed hairs near tip, and with apex lacking awns; native E of the Cascades *C. sheldonii*

Key C3: Perigynia hairy; leaf sheath fronts glabrous to scabrous; leaf blades glabrous

- 1. Perigynium beak teeth (1.2-)1.5-3 mm long *C. atherodes*
- 1' Perigynium beak teeth < 1 mm long
 - 2. Perigynia with only a few scattered hairs; plant caespitose to short-rhizomatous *C. luzulina*
 - 2' Perigynia densely hairy; plant distinctly rhizomatous
 - 3. Habitat excessively drained soils, usually pumice, in the Cascades; fertile culms phyllopodic *C. halliana*
 - 3' Habitat diverse wetlands, widespread; fertile culms aphyllopodic
 - 4. Leaves 2-4.5 mm wide at mid-length, with midvein forming a distinct keel on the lower surface; habitat diverse wetlands including bogs and fens *C. pellita*
 - 4' Leaves 0.2-2(-2.2) mm wide at mid-length (measured as naturally folded), with midvein forming an inconspicuous keel; habitat bogs and fens *C. lasiocarpa*

Key D: Kobresia; perigynia open on one side; short, caespitose plants of high elevations

- 1. Inflorescences simple, unbranched; basal leaf sheaths bladeless *K. myosuroides*
- 1' Inflorescences branched; basal leaf sheaths with remains of dead blades attached *K. simpliciuscula*

Key E: Styles persistent; perigynia usually ± inflated

- 1. Perigynia corky thickened; introduced to disturbed sandy soils in Portland, OR *C. pumila*, p. _____
- 1' Perigynia not corky-thickened; range and habitat various
 - 2. Perigynium beaks 0.3-0.8 mm long *C. saxatilis*
 - 2' Perigynium beaks 1-4.5 mm long
 - 3. Lower lateral spikes nodding on drooping stalks

- 4. Perigynium beak teeth spreading or strongly curved, 1.3–2.8 mm long; stem base brown *C. comosa*
- 4' Perigynium beak teeth erect, straight, 0.3–0.9 mm long; stem base red-purple *C. hystericina*
- 3' Lower lateral spikelets generally erect, stalks sometimes 0
- 5. Spikes crowded, overlapping, except sometimes the lowest *C. retrorsa*
- 5' Spikes well separated
- 6. Leaves hairy at least at top of leaf sheath front *C. atherodes*
- 6' Leaves glabrous
- 7. Perigynia not inflated; plants cespitose; **red weed near Columbia River** *C. distans*
- 7' Perigynia inflated; plants cespitose or rhizomatous
- 8. **Most mature perigynia spreading at right angles from the spike axis; dorsal surfaces of basal leaf sheaths with many, regularly spaced crosswalls between the veins, giving the appearance of brickwork; plants rhizomatous**
- 9. Foliage green; upper surface of leaf blades smooth to scabrous, not papillose at 20X; widespread and abundant in the PNW *C. utriculata*
- 9' Foliage strongly glaucous; upper surface of leaf blades densely papillose at 20X; rare and local in montane bogs and wet meadows of NE Washington *C. rostrata*
- 8' **Mature perigynia ascending to somewhat spreading; dorsal surfaces of basal leaf sheaths with few, irregularly spaced crosswalls between the veins; plants cespitose to short-rhizomatous** (Immature plants and those near the crest of the Cascades often can't be keyed to one or the other of the following species.)
- 10. Longer perigynia 4.0-7.5(-8.2) mm long; perigynia contracted to the beak; range mainly E of crest of Cascades ..*C. vesicaria*
- 10' Longer perigynia 7.5-10.1 mm long; perigynia tapering gradually to the beak; range mainly W of crest of Cascades *C. exsiccata*

Key F: Stigmas 3; perigynia not pubescent; styles deciduous.

Although the length of the sheath of the lowest inflorescence bract is usually a diagnostic trait, it is occasionally inconsistent. If your plant can't be keyed to a plausible species, try going the other way at lead 5.

- 1. Lateral spikes each with a single perigynium Key A5, p. ____
- 1' Lateral spikes each with 2+ perigynia
- 2. Leaf blades hairy Key F1, p. ____
- 2' Leaf blades glabrous
- 3. Perigynia 9-15 mm long; inflorescences consisting of a single, dense, much-branched head with many spikes; female inflorescences at least 2 cm wide; habitat sandy soil, usually near coast Key F2, p. ____

- 3' Perigynia to 8 mm long; inflorescences consisting of separate spikes not crowded into a single head, < 1.5 cm wide; habitats various
 - 4. Lowest ♀ scales leaf-like and green, similar to the leaf-like lowest inflorescence bract, 10+ mm long *C. cordillerana*
 - 4' Lowest ♀ scales not leaf-like, < 10 mm long
 - 5. Lowest inflorescence bract with a +/- loose sheath > 4 mm long Key F3, p. 49
 - 5' Lowest inflorescence bract lacking a sheath or with a sheath < 4 mm long
 - 6. Leaves 8-23 mm wide
 - 7. Perigynia strongly flattened *C. mertensii*
 - 7' Perigynia ± round or trigonous in cross section, not flat *C. amplifolia*
 - 6. Leaves 1-8 mm wide
 - 8. Perigynia with conspicuous beak 0.8-2.7 mm long Key F4, p. _____
 - 8' Perigynia beakless or with a short beak up to 0.6 mm long
 - 9. Terminal spike ♂, androgynous, or with male and female flowers mixed Key F5, p. _____
 - 9' Terminal spike gynecandrous or ♀ Key F6, p. _____

Key F1: Stigmas 3; leaf blades hairy

- 1. Perigynia beakless or nearly so, rounded at tip
 - 2. Terminal spike staminate or if gynecandrous then less than 1/4 of the flowers pistillate *C. pallescens*
 - 3. Terminal spike gynecandrous with at least 1/2 of the flowers pistillate *C. hirsutella*
- 1' Perigynia with a distinct beak
 - 3. Leaf blades hairy throughout; lowest inflorescence bract with sheath < 5 mm long *C. whitneyi*
 - 3' Leaf blades mostly glabrous, sparsely hairy at base or along margins; lowest inflorescence bract with sheath > 5 mm long.....*C. mendocinensis*

Key F2: Stigmas 3; perigynia and inflorescences very large; sandy habitats; section *Macrocephalae*

- 1. Culms sharply angled, serrate on at least one angle; perigynia with 7-9 ventral nerves; perigynium beak at least half as long as perigynium, with sharp teeth; anthers 2.5-5 mm; native at the coast..... *C. macrocephala*
- 1' Culms bluntly angled, smooth; perigynium with ± 12 ventral nerves; perigynium beak 1/3 or less as long as perigynium; anthers 4-6.5 mm; introduced, from Portland to the coast *C. kobomugi*

Key F3: Stigmas 3; sheath of lowest inflorescence bract > 4 mm long, usually +/- inflated

- 1. Leaves broad, 6-18 mm wide

- 2. Spikes 3-20+ cm long, drooping; plants 90-200+ cm tall *C. pendula*
- 2' Spikes 1-3(-4) cm long, erect; plants to 60 cm tall
 - 3. Terminal spike 3-8 mm wide; perigynium beaks straight; perigynia green with reddish or purple spots, or all purplish; habitat moist montane meadows and bogs *C. luzulina*
 - 3' Terminal spike 2-2.7 mm wide; perigynium beaks usually curved toward the dorsal side; perigynia green; habitat lowland to mid-montane mesic forests *C. hendersonii*
- 1' Leaves narrower, mostly (0.2-)1.5-7 mm wide
 - 4. One or more of the inflorescence bracts widely spreading, elongate and conspicuously longer than the inflorescence (usually more than twice as long); spikes crowded, stiffly ascending; perigynia widely spreading or reflexed, distinctly beaked; plants densely cespitose
..... Key F4, lead 5, p. _____
 - 4' Inflorescence bracts not widely spreading, usually not conspicuously longer than the inflorescence (sometimes up to twice as long); other characters various
 - 5. Leaves 0.2-1 mm wide
 - 6. ♀ scales awnless, hyaline or green; ♀ spikes with 1-6 perigynia; native plants along rivers in NE WA *C. eburnea*
 - 6' ♀ scales awned, brown; ♀ spikes mostly with 10-20+ perigynia; ornamental plants occasionally escaped from cultivation
..... *C. comans*, p. _____
 - 5' Leaves mostly 1.5-7 mm wide
 - 7. Perigynium beaks approximately as long as perigynium bodies; introduced in Seattle *C. sylvatica*
 - 7' Perigynium beaks shorter than perigynium bodies; range various, widespread
 - 8. Perigynia strongly flattened, ovate, AND much larger than the achene; terminal spike gynecandrous
 - 9. Plants montane; spikes dangling on delicate peduncles
..... *C. mertensii*
 - 9' Plants alpine or subalpine; spikes ascending to erect, though the entire culm may nod as the perigynia mature *C. heteroneura*
 - 8' Perigynia ± trigonous, not much larger than the achene; terminal spike ♂ or androgynous
 - 10. Plants densely to loosely cespitose
 - 11. Perigynia blunt and essentially beakless, 2.3-3 mm long
..... *C. pallescens*
 - 11' Perigynia beaked, though the beak may be short if perigynia are small
 - 12. Terminal spike 4-10 mm long, 0.7-1.4 mm wide
 - 13. Culms 10-60 cm tall; perigynia 2.2-3.5 mm long; plants of montane to subalpine bogs; Wallows and N WA
..... *C. capillaris*

- 13' Culms 5-15 cm tall; perigynia 1.5-2.1 mm long; plants of alpine wetlands; Steens Mt. *C. tiogana*
- 12' Terminal spike 11-66 mm long, 1.2-8 mm wide
 - 14. Lateral spikes (4)5-7(8) mm wide *C. luzulina*
 - 14' Lateral spikes 1.5-4 mm wide
 - 15. Largest lateral spikes > (2.5-)3.0 cm long; range SW OR *C. mendocinensis*
 - 15' Largest lateral spikes 1-2.5(-3) cm long; introduced in Umatilla Co., OR *C. distans*
- 10' Plants rhizomatous
 - 16. Perigynium beak 0.5-1.5 mm long
 - 17. Perigynia gradually tapered to the beak; leaves green or yellow-green; fertile shoots phyllopodic; plants short-rhizomatous *C. luzulina*
 - 17 Perigynia abruptly contracted to the beak; leaves glaucous; fertile shoots aphyllopodic; plants long-rhizomatous *C. californica*
 - 16' Perigynium beak 0-0.4 mm long
 - 18. Foliage green; spike with 15-50 perigynia; perigynia often with reddish speckles; lower spikes arising below the middle of the culm; substrate limestone *C. crawei*
 - 18' Foliage glaucous; spike with 5-15 perigynia; lacking reddish speckles but sometimes brown-blotched distally; lower spikes arising only well above the middle of the culm (or rarely with one basal spike); substrate not limestone
 - 19. Perigynia spindle-shaped, widest in the middle and tapering to both ends, 3-5 mm long; beak straight; habitat montane and coastal bogs, substrate not serpentine *C. livida*
 - 19' Perigynia ovate or obovate, widest above the middle, 1.9-3.6 mm long; beak often curved toward the back; habitat various, meadows and wetlands, including bogs, substrate often on serpentine
 - 20. Half or more of filled perigynia with 2 stigmas (filled perigynia have well-developed, hard achenes); **perigynia widest above middle, with beaks usually curved back** *C. hassei*
 - 20' 90% or more of filled perigynia with 3 stigmas (unfilled perigynia may have 2 stigmas); **perigynia widest near or above middle, with beaks straight or curved back** *C. klamathensis*

Key F4: Stigmas 3; perigynia with a conspicuous beak 0.8-2.7 mm long

- 1. Perigynia thick-walled and corky; plants strongly rhizomatous; habitat disturbed sandy soil, introduced in Portland *C. pumila*, p. _____

- 1' Perigynia not thick-walled; plants cespitose to rhizomatous; habitat various including coastal sandy wetlands
- 2. ♀ scales with awns 1-3+ mm long; perigynia ascending *C. macrochaeta*
- 2' ♀ scales obtuse to acuminate or with a tiny awn much < 1 mm long; at least lower mature perigynia spreading to reflexed
- 3. Perigynia veinless or obscurely veined, not exceeding the achenes; styles persistent; habitat bogs *C. saxatilis*
- 3' Perigynia distinctly veined; styles deciduous; habitat various
- 4. ♀ scales brown with pale midrib; terminal spike often gynecandrous, sometimes ♂ *C. serratodens*
- 4' ♀ scales pale; terminal spike ♂ or androgynous
- 5. Perigynia mostly 2.2-3.3 mm long, spreading, straight or nearly so; leaves narrow and channeled, mostly to 3 mm wide; widespread but local including N WA *C. viridula ssp. viridula*
- 5' Perigynia mostly 3.7-6.2 mm long, most of them strongly recurved; leaves wider and flat, mostly 2.5-5 mm wide; rare and local in N WA *C. flava*

Key F5: Stigmas 3; terminal spike ♂, androgynous, or with male and female flowers mixed

- 1. Terminal spike 1.5-3.5 mm wide, ♂; perigynia ± round to trigonous in cross section
- 2. At least the upper lateral spikes erect to ascending, sessile or on short peduncles; young roots lacking dense yellow hairs
- 3. Scales blackish or dark purplish
- 4. Perigynia flat and much longer and wider than the achenes *C. paysonis*
- 4' Perigynia not flat, little longer or wider than the achenes
- 5. Styles persistent; perigynia dark brown or blackish at least above (rarely green), 2.2-5.5 mm; plants rhizomatous *C. saxatilis*
- 5' Styles deciduous; perigynia green, gray, yellow-brown, or orange-brown, 1.9-4.4 mm; plants densely to loosely cespitose
- 6. Perigynia (3-)3.3-4.4 mm long, yellow-brown, orange-brown, or gray; habitat dry *C. raynoldsii*
- 6' Perigynia 1.9-3.3 mm long, greenish; habitat bogs *C. stylosa*
- 3' Scales white-hyaline to medium brown
- 7. Perigynia beakless or nearly so *C. pallescens*
- 7' Perigynia with a beak 0.2-1.3 mm long
- 8. Leaves 0.2-0.9(-1) mm wide; perigynia erect *C. eburnea*
- 8' Leaves 1.0-3.1(-4.5) mm wide; perigynia widely spreading *C. viridula ssp. viridula*
- 2' All lateral spikes spreading to dangling on long, thin peduncles; young roots with dense yellow hairs (section *Limosae*)
- 9. ♀ scales much narrower than the perigynia, 1.2-2 mm wide, with awns often greater than 1 mm long, making the spike look shaggy

- *C. magellanica ssp. irrigua*
- 9' ♀ scales wider than the perigynia and wrapped around them, or not much narrower, 2-3.5 mm wide, acute to slightly pointed, rarely awned, the spikes not shaggy
- 10. ♀ scales blackish, wrapping around perigynia at base; lowest inflorescence bract bristle-like, inconspicuous, shorter than the subtended peduncle *C. pluriflora*
- 10' ♀ scales medium brown or reddish, not wrapping around perigynia at base; lowest inflorescence bract usually leaf-like and 2+ cm long *C. limosa*
- 1' Terminal spike 3.5-6 mm wide, ♂, androgynous, or with irregularly arranged male and female flowers; perigynia strongly flattened, round, or trigonous in cross section
- 11. Achenes nearly filling the perigynia; plants strongly rhizomatous
- 12. Terminal spike ♂; lateral spikes nodding on long peduncles, ♀ *C. magellanica ssp. irrigua*
- 12' Terminal spike ♂, ♀, or with male and female flowers mixed; lateral spikes sessile and ascending, ♂, ♀, or with male and female flowers mixed *C. idaho*
- 11' Achenes much smaller than the perigynia; plants caespitose or short-rhizomatous, forming clumps
- 13. Longest ♀ scale awns 1.6-3+ mm long *C. macrochaeta*
- 13' Longest ♀ scale awns < 1.5 mm long
- 14. Perigynia ovate, well over half as wide as long
- 15. Ribs of perigynia at the margins *C. heteroneura*
- 15' Ribs of perigynia displaced from the margins
- 16. Spikes 2-4, erect; habitat subalpine and alpine meadows; Wallows and Elkhorns *C. paysonis*
- 16' Spikes 4-6(-9), drooping gracefully; habitat lowland to montane meadows and forest edges; widespread.....*C. mertensii*
- 14' Perigynia elliptical, up to about half as wide as long
- 17. Terminal spike ♂; inflorescence looser, the lower spikes usually stalked and somewhat drooping *C. spectabilis*
- 17' Terminal spike gynecandrous; inflorescence dense, the lower spikes usually short-stalked and ascending, although the entire culm may nod *C. heteroneura*

Key F6: Stigmas 3; terminal spike gynecandrous or ♀; section *Racemosae*, mostly

- 1. Perigynia tapering to a beak about 0.5-1 mm long, the beak bidentate, the teeth 0.2- 0.4 mm long, minutely bristly; SW OR *C. serratodens*
- 1' Perigynia beakless, minutely beaked, or abruptly beaked, the beak 0.2-0.5 mm long; beak teeth absent or short; range various
- 2. Plants strongly rhizomatous, often forming large stands or turf

- 3. Leaf sheath fronts ladder-fibrillose; perigynia whitish or pale greenish and strongly papillose *C. buxbaumii*
- 3' Leaf sheath fronts hyaline, not breaking into fibers; perigynia yellowish to brown or blackish, smooth or minutely papillose
 - 4. Lateral spikes \pm erect to ascending; peduncles approximately 1.5 mm long *C. idaho*
 - 4' Lateral spikes dangling on long, slender peduncles much >1.5 mm long; section *Limosae* *C. pluriflora*
- 2' Plants caespitose to short-rhizomatous, forming clumps
 - 5. Perigynia dark gold with darker beaks *C. atosquama*
 - 5' Perigynia brown, dark purplish, or green and yellow
 - 6. Achene nearly filling the perigynium; culms 10-40 cm tall
 - 7. Inflorescence typically all dark except for whitish hyaline margins of ♀ scales; perigynia dark brown *C. albonigra*
 - 7' Inflorescence with contrasting light and dark; perigynia green or straw-colored except for dark beak *C. media*
 - 6' Achene filling half or less of perigynium; culms 25-100 cm tall
 - 8. Habitat montane but not subalpine, to 5500 feet elevation; spikes usually 1-4 cm long, all drooping *C. mertensii*
 - 8' Habitat subalpine to alpine, 5700-9000+ feet elevation; spikes 0.7-2.7 cm long, erect to spreading (though the culm itself may nod)
 - 9. Perigynia dark reddish brown, shiny; spikes 0.7-1.0 cm long, sessile to short-pedunculate, crowded *C. pelocarpa*
 - 9' Perigynia yellow-green to dark brown, dull to shiny; spikes 0.7-2.7 cm long, pedunculate, less crowded..... *C. heteroneura*

Table G. Stigmas 2; achenes lenticular; spikes usually > 1.5 cm; terminal spike usually entirely ♂. Use this conspectus table to decide if you should use Key G1 or G2 to identify your plant. One unambiguous matching character is sufficient to indicate which key should be used.

Trait	Go to Key G1 (section <i>Bicolores</i>), p. ____	Go to Key G2 (section <i>Phacocystis</i>), p. ____
Culm height	< / = 0.5 meter	< or > 0.5 meter
Habit	rhizomatous	rhizomatous or densely cespitose
Rhizome diameter	~ 1 mm	1.5-6 mm
Plant base color	pale or dull medium brown	pale, dull medium brown, reddish, chestnut, or blackish
Leaf sheath fronts	hyaline	hyaline or ladder-fibrillose
Leaf sheath fronts, color	white or transparent	white, coppery, or densely red-dotted
Lateral spikes, longest length	1.8(-2.3) cm	(1-)2-15 cm
Sheath of lowest inflorescence bract	(2-)4+ mm long, often inflated	0-2 (rarely to ~5) mm long
♂ spikes	0-1	1-several
Perigynium texture (when fresh)	succulent (at least at base) or dry	dry
Perigynium apex	angled to one side or straight	straight (unless bent during collection)
Perigynia per 5 mm on spike	(3-)4-10(-14); not or less crowded	(12-)18-25; crowded

Key G1: Stigmas 2; section *Bicolores*. Two species seem to exist in the PNW, but the taxonomy is unsettled. Immature plants and even some mature ones cannot be identified to species. Such plants can be reported as *Carex* section *Bicolores*.

1. Terminal spike 0.9-2 mm wide; proximal ♂ scales 2-3.5(-4) mm long; mature perigynia succulent throughout, divergent, yellow or orange in life (dark brown and waxy-looking when dry); ♀ scales divergent in mature fruit *C. aurea*
- 1' Terminal spike (1.8-)2-3.5 mm wide; proximal ♂ scales 3- 6(-15) mm long; mature perigynia dry or succulent only at base, ± ascending, green, tan, or whitish in life (similar in color or faded when dry); ♀ scales ± ascending in mature fruit *C. hassei*

Key G2: Stigmas 2; section *Phacocystis*, mostly.

- 1. Perigynia very thick-walled and hard, resisting puncture, brown or yellow-brown; achene often with an indentation like a dented beer can on one or both margins; range mainly W of the Cascades
- 2. Spikes shorter (the lowest 1.8-5 cm long), brown, blunt at the base, straight but dangling on a peduncle 2-8 cm long; leaf sheath fronts hyaline; leaves dying in winter; habitat coastal salt marshes, also fresh water along lower Columbia River *C. lyngbyei*
- 2' Spikes longer (the lowest 2.5-15 cm long), dark brown to blackish, tapering at the base, drooping and sessile or on a straight peduncle to 3 cm (rarely to 9 cm) long; leaf sheath fronts ladder-fibrillose; leaves evergreen; habitat fresh or brackish water*C. obnupta*
- 1' Perigynia membranous or papery to somewhat tough, generally green or tawny, with or without red or purple pigments; achene not indented; range various
- 3. Perigynia veinless or very faintly veined on both faces (but with 2 ribs) Key G3, p. _____
- 3' Perigynia distinctly veined on at least one face (in addition to the 2 ribs)
- 4. Plants rhizomatous
 - 5. ♀ scales with a **small but distinct**, scabrous awn (at least in the lower part of the spike); perigynia often somewhat tough
 - 6. Leaf sheaths densely **speckled with red ro tan dots that may be faint** and **usually ±** coppery-colored, usually ladder-fibrillose; lowest inflorescence bract much longer than the inflorescence; range SW Oregon, California..... *C. barbarae*
 - 6' Leaf sheaths usually white-hyaline (occasionally sparsely red-dotted, sometimes coppery), not ladder-fibrillose; lowest inflorescence bract subequal to the inflorescence; widespread E of Cascades, occasionally introduced in W Cascades *C. nebrascensis*
 - 5' ♀ scales lacking a scabrous awn, acute, acuminate, or with a short point; perigynium traits various
 - 7. Perigynia (1-)1.5-2.1 mm long, green; widely spaced at base of lowest spike; habitat in sandy soil at margins of fast-flowing rivers and streams in and west of the Cascades*C. interrupta*
 - 7' Perigynia 2.2-5.5 mm long, brownish, straw-colored, or green, not widely spaced at base of lowest spike; habitat in other substrates (rarely sand) in wet meadows, ditches, and streams
 - 8. Leaves 2-4.5 mm wide, minutely papillose on the upper surface; ♀ scales shorter than perigynia; beak 0-0.2 mm long; introduced to SW BC, to be looked for in NW WA*C. nigra*, p. _____
 - 8' Leaves 3-12 mm wide, smooth and often shiny on the upper surface; ♀ scales shorter or longer than perigynia; beak 0.2-0.6 mm long; E of Cascades, occasionally introduced in W Cascades

- 9. *Mature* perigynia with 5-9 veins, thicker and somewhat tough; perigynium beak minutely bidentate; lower leaf sheaths not ladder-fibrillose *C. nebrascensis*
- 9' *Mature* perigynia with 1-3 weak veins, thinner and not tough; perigynium beak not bidentate; lower leaf sheaths usually ladder-fibrillose *C. angustata*
- 4' Plants cespitose
 - 10. Plant bases blackish or dark reddish; leaf sheath fronts strongly ladder-fibrillose; perigynia sessile and widest above middle; habitat boulders and cobbles in the scour zone of fast-moving, seasonally flooding rivers, also irrigation ditches *C. nudata*
 - 10' Plant bases greenish or brownish; leaf sheath fronts hyaline; perigynia stipitate and widest at or below middle; habitat silts, sands, or gravels at edges of slow-moving or still water, including drawdown zones of reservoirs..... *C. kelloggii* (with 3 varieties)
 - 11. Habitat mostly coastal wetlands and ditches (rarely introduced inland); ♀ spikes 4-6 mm wide, crowded, the lower ones much longer than the internodes between them *C. k. var. limnophila*
 - 11' Habitat non-coastal, mainly montane to subalpine; pistillate spikes 2-4 mm wide, usually less crowded
 - 12. Perigynium bodies green throughout, 5-7 veined on each face; beak purple-brown at very tip only (or occasionally with a little dark brown farther down the tip), stipe > 0.2 mm long *C. k. var. kelloggii*
 - 12' Perigynium bodies spotted purple-brown on apical half, 1-3 veined on dorsal surface; beak entirely purple-brown (or occasionally with some green on the tip), stipe < 0.2 mm long *C. k. var. impressa*

Key G3: Stigmas 2; perigynia lacking veins, or with very faint veins; section *Phacocystis*, mostly

- 1. Plants densely cespitose Key G2, lead 10, p. _____
- 1' Plants rhizomatous to loosely cespitose
 - 2. Perigynia inflated toward the top, loosely enveloping the achene
 - 3. Perigynia (3-)3.5-5.5 mm long, usually dark purplish, sometimes greenish, not speckled with red; style persistent; section *Vesicariae* *C. saxatilis*
 - 3' Perigynia 2.5-2.8 mm long, olive-green, olive-brown, or orangish, with reddish speckles; style deciduous; section *Phacocystis*..... *C. aperta*
 - 2' Perigynia flattened and more tightly enveloping the achene
 - 4. Perigynia (1-)1.5-2.1 mm long, green; widely spaced at base of lowest spike; habitat in sandy soil at margins of fast-flowing rivers and streams in and west of the Cascades *C. interrupta*
 - 4' Perigynia 2.0-4 mm long, brownish, often with red or black spots, not widely spaced at base of lowest spike; habitat and range various

- 5. Spikes crowded, with lowest internode 0.3-3.5(-4) cm long and lowest two internodes collectively 0.5-4.2(-4.7) cm long *C. scopulorum* (with 2 varieties)
- 6. Basal leaf sheaths bladeless and to 15 cm long; culms 35-90 cm long; perigynia ± acute distally; NE WA .. *C. s. var. prionophylla*
- 6' Basal leaf sheaths with blades or if bladeless, then to 5 cm long; culms 11-65 cm long; perigynia rounded distally; widespread *C. s. var. bracteosa*
- 5' Spikes not crowded, with lowest internode 3-20 cm long and lowest two internodes collectively 4.3-26 cm long *C. aquatilis* (with 2 varieties)
- 7. Spikes erect, the lower ones usually entirely ♀, on peduncles up to 4 cm long; beak of the perigynia tawny, up to 0.2 mm long; mainly E of Cascade crest *C. a. var. aquatilis*
- 7' Spikes drooping, the lower ones usually androgynous, on peduncles up to 11 cm long; beak of the perigynia generally purplish brown, 0.3-0.4 mm long; mainly W of Cascade crest *C. a. var. dives*

KEY H: Stigmas 2; perigynia unwinged; spikes androgynous, entirely ♀, or with ♂ flowers mixed irregularly among the ♀ flowers. Two versions of Key H are presented. Key H1 emphasizes perigynium traits. Key H2 (p. _____) emphasizes vegetative traits. No matter which key you choose, you will need both perigynia and shoots to identify your specimens.

Key H1: Emphasizing perigynium traits

- 1. Mature perigynia swollen with pithy tissue, usually at the base, sometimes on the ventral surface (stick a pin in the base to detect the spongy pith.)
- 2. Perigynia long-tapered, so that the distinction between beak and body is unclear Key H3, p. _____
- 2' Perigynia short-tapered or abruptly narrowed to a distinct beak
- 3. Lowest inflorescence node producing 2+ spikes or a branch with 2+ spikes Key H4, p. _____
- 3' Lowest inflorescence node producing a single spike
- 4. Leaf sheath fronts red-dotted
 - 5. Perigynia 2.3-2.5(-2.9) mm long; native plant of bogs *C. diandra*
 - 5' Perigynia 3.5-5.5 mm long; ornamental plant occasionally escaping in NW WA *C. divulsa*
- 4' Leaf sheath fronts white-hyaline, lacking red dots
- 6. Perigynium beaks very short, 0.2-0.6 mm long, usually < 1/4 the length of the perigynium body *C. simulata*

- 6' Perigynium beaks longer, usually 1/3 or more the length of the perigynium body
 - 7. Perigynia with 5-11 dark veins on each surface; perigynium beaks with smooth margins *C. jonesii*
 - 7' Perigynia veinless or nearly so (or often longitudinally wrinkled in *C. douglasii*), the beak margins serrulate Key H5, p. _____
- 1' Mature perigynia lacking pithy tissue
 - 8. Perigynia 1-3 per spike, much longer than subtending ♀ scales, the perigynium walls hyaline and fragile; spikes remote, the distance between them usually longer than the spikes *C. disperma*
 - 8' Perigynia > 3 per spike, shorter to somewhat longer than the subtending scales, the perigynium walls membranous to somewhat tough; spikes overlapping
 - 9. Plants alpine; inflorescence a tight, globose head barely longer than wide *C. vernacula*
 - 9' Plants of low to high elevations, rarely alpine; inflorescence usually longer than wide
 - 10. Plants long-stoloniferous and inconspicuously rhizomatous; habitat montane bogs, also introduced to coastal cranberry bogs *C. chordorrhiza*
 - 10' Plants caespitose or rhizomatous but not stoloniferous; habitats various
 - 11. Inflorescence branched at the lowest node or with 2+ spikes that appear to originate at the lowest node Key H4, p. _____
 - ~~12. Inflorescence loose and interrupted; lowest inflorescence branch somewhat elongated; leaf sheath front coppery or brown, red or rusty dotted *C. cusickii*~~
 - ~~12' Inflorescence not interrupted; lowest inflorescence branch short, so that two or more spikes appear to arise at the lowest node; leaf sheath front white hyaline to dingy brownish *C. densa*~~
 - 11' Inflorescence not branched, producing only a single spike at each node
 - 13. Plants densely to loosely caespitose
 - 14. Perigynia hidden by the ♀ scales which are as long as and wider than the perigynia; inflorescence usually angled to one side; range entirely W of the Cascades *C. tumulicola*
 - 14' Perigynia exposed by the ♀ scales, either because the perigynia are spreading or because the scales are shorter or narrower than the perigynia; range E or W of the Cascades
 - 15. Perigynia with 5-11 strong veins on each face *C. jonesii*
 - 15' Perigynia veinless, but with two marginal ribs
 - 16. Perigynia uniformly brown and shiny, bulged so that lateral ribs are displaced to the ventral surface

- *C. vallicola*
- 16' Perigynia green with copper-colored center (maturing light brown with dark brown center), dull or ± shiny, backs not bulged, lateral ribs not displaced to the ventral surface *C. hoodii*
- 13' Plants rhizomatous
 - 17. Range W of the Cascades, not on sandy or serpentine substrates; marginal ribs often displaced to the ventral surface; inflorescence axis often bent to one side..... *C. tumulicola*
 - 17' Range E of the Cascades or IF W of the Cascades, then on sandy or serpentine substrates; perigynia not bulging, the marginal ribs not displaced to the ventral surface; inflorescence axis usually erect
 - 18. Perigynium beaks 1.2-2.1 mm long AND inflorescence 6-7 mm wide, usually more than 3 times as long as wide; range Chelan and Kittitas cos., E WA *C. siccata*
 - 18' Perigynium beaks 0.25-1.9 mm long, IF more than 1.2 mm long, then with the female inflorescences not more than 2.5 times as long as wide; widespread..... Key H5, p. _____

Key H2: Emphasizing vegetative traits

- 1. Leaf sheath fronts strongly cross-corrugated
 - 2. Leaf blades (4-)5-11 mm wide; culm approximately 6 mm wide at mid-length, winged; perigynia 3.6-5.2 mm long *C. stipata* var. *stipata*
 - 2' Leaf blades 1-7 mm wide; culm approximately 1.5-3 mm wide at mid-length, not or only slightly winged; perigynia 2-4 mm long
 - 3. Inflorescence elongate, > 2 times as long as wide, dense or interrupted, gold to light or dark brown; leaf sheath front white-hyaline, dotted with red or pale brown, and/or coppery-tinged..... Key H4, p. 60
 - 3' Inflorescence ovoid, 1.5-2 times as long as wide, dense, greenish to dark brown; leaf sheath front white-hyaline *C. neurophora*
- 1' Leaf sheath fronts smooth, rarely very weakly cross-corrugated
 - 4. Leaf sheath fronts minutely dotted red, brown, or yellow; plants cespitose Key H4, p. _____
 - 4' Leaf sheath fronts white-hyaline to green; plants cespitose or rhizomatous
 - 5. Plants long-stoloniferous and inconspicuously rhizomatous; habitat montane bogs, also introduced to coastal cranberry bogs *C. chordorrhiza*
 - 5' Plants cespitose or rhizomatous but not stoloniferous; habitat various
 - 6. Habitat alpine; inflorescence dark brown, dense, and globose, the individual spikes not distinguishable *C. vernacula*
 - 6' Habitat low elevation to subalpine; inflorescence dark to pale, the individual spikes readily distinguishable to somewhat obscure
 - 7. Plants densely to loosely cespitose

- 8. Habitat wetlands, marshes, wet meadows; perigynia lance-triangular, long-tapered to a poorly defined beak Key H3, p. _____
- 8' Habitat mesic to dry grasslands; perigynia short-tapered or abruptly narrowed to a distinct beak
- 9. Perigynia bulging dorsally; marginal ribs displaced onto the ventral surface; range E of Cascades *C. vallicola*
- 9' Perigynia not or slightly bulging; ribs not displaced onto the ventral surface (except sometimes in *C. tumulicola*); range E or W of Cascades
- 10. Inflorescence a dense, ovoid head, the spikes not easily distinguished; perigynia green with copper-colored center (maturing light brown with dark brown center) .. *C. hoodii*
- 10' Inflorescence elongate, the lower spikes overlapping but easily distinguished; perigynia brown, sometimes with narrow green margins, not darker over the achene *C. tumulicola*
- 7' Plants rhizomatous
 - 11. Perigynia with wings 0.1 mm wide or wider; rhizomes with loose, pithy cortex, easily detached when dry; range Chelan and Kittitas cos., E WA *C. siccata*
 - 11' Perigynia without wings, or with flat margins < 0.1 mm wide; rhizomes with tight cortex, not detaching when dry; widespread
 - 12. Plants soft, delicate, with rhizomes 1 mm in diameter, dull gray-brown or medium brown; habitat usually shaded; inflorescence linear and much interrupted, the spikes well separated from each other, usually 5 mm long or less with 1-3 perigynia; perigynium beak to 0.25 mm long *C. disperma*
 - 12' Plants coarser, tougher, with rhizomes > 1 mm in diameter, pale brown to blackish; habitat usually sunny; inflorescence dense, though sometimes elongated, the spikes ± closely aggregated, often > 5 mm long, usually with > 3 flowers; perigynium beak > 0.25 mm long..... Key H5, p. _____

Key H3: Stigmas 2; spikes androgynous; perigynia lance-triangular; section *Vulpinae*

- 1. Inflorescence > 3 cm long; widest leaves 5-10 mm wide *C. stipata var. stipata*
- 1' Inflorescence < 2 cm long; widest leaves up to 5 mm wide
 - 2. Leaf sheath fronts with a thick, white rim at mouth, not cross-corrugated; perigynia 3-4.5 mm; SW OR and N CA *C. nervina*
 - 2' Leaf sheath fronts lacking thick rim at mouth, sometimes cross-corrugated; perigynia 2.5-4 mm long; widespread

- 3. Leaves crowded near base of culm; leaf sheath front usually not cross-corrugated, mouth usually lacking tongue-like extension; margins of perigynium beaks and upper bodies entire (or very nearly so) *C. jonesii*
- 3' Leaves generally not clustered near culm base; leaf sheath front often cross-corrugated, mouth with tongue-like extension; margins of perigynium beaks and upper bodies usually serrate on at least one side*C. neurophora*

Key H4: Stigmas 2; spikes androgynous; inflorescence branched at the lowest node, producing a side branch that may be so short that 2+ spikes appear to originate at the node; leaf sheath fronts white-hyaline, dotted red, brown, or yellow, and sometimes also cross-corrugated; plants caespitose

- 1. **Lowest inflorescence node usually with a distinct branch with 5-12 spikes;** leaf sheath fronts coppery-tinged toward the mouth, also red-dotted; **plants often forming large tussocks** *C. cusickii*
- 1' **Lowest inflorescence node with 2+ spikes or with a short branch with 2-5 spikes;** leaf sheath fronts white-hyaline or red-dotted, not coppery-tinged; **plants caespitose but not forming large tussocks**
 - 2. Leaf sheath fronts cross-corrugated, white-hyaline
 - 3. Inflorescence usually interrupted; perigynia 2-3.2 mm long; range mainly E of the Cascades *C. vulpinoidea*
 - 3' Inflorescence dense, not interrupted; perigynia 2.8-4 mm long; range entirely W of the Cascade crest*C. densa*
 - 2' Leaf sheath fronts not cross-corrugated, either white-hyaline or red-dotted
 - 4. Perigynia 2.3-2.5(-2.9) mm long; native plant of bogs *C. diandra*
 - 4' Perigynia 3.5-5.5 mm long; introduced ornamental plant of uplands, occasionally escaping *C. divulsa*

Key H5: Stigmas 2; spikes androgynous, ♀, or mixed; plants rhizomatous, plants mostly dioecious; section *Divisae*

- 1. Perigynia short and squat, 1.8-2.8 mm long, shiny, dark, the beak generally < 1/4 the length of the perigynium body; habitat wetlands with soil submerged or moist at rhizome depth all year long*C. simulata*
- 1' Perigynia longer, 2.6-4.2 mm long, shiny or dull, the beak > 1/3 the length of the perigynium body; habitat uplands to seasonal wetlands that dry out at rhizome depth in summer
 - 2. Rhizomes < 2.1 mm thick, brown; leaf blades flat with involute tips, or involute throughout
 - 3. Perigynia 3.5-4.6 mm long, beaks 0.9-1.8 mm long, ± equal to the body; stigmas persistent, styles exerted from perigynia; inflorescences on ♀ plants 1.5-3.5 cm long, 1.3-2.7 cm wide; widespread E of Cascades *C. douglasii*

- 3' Perigynia 2.5-3.5 mm long, beaks 0.4-1(-1.2) mm long, shorter than body; stigmas deciduous, styles not exerted from perigynia; inflorescences on ♀ or bisexual plants < 2 cm long, < 1 cm wide; rare and local E of Cascades *C. duriuscula*
- 2' Rhizomes > 2 mm thick, dark brown to blackish; leaf blades flat or V-shaped in cross section
 - 4. Habitat coastal sands; ♀ scales usually dark and shiny; ♀ inflorescences usually 1-2 cm wide, ovate; perigynia generally shiny; longest anther awns 0.2-0.4 mm *C. pansa*
 - 4' Habitat inland (but within a few miles of the coast in SW Oregon), in ± alkaline or serpentine soils, including sand; ♀ scales usually tan or dull pale brown; ♀ inflorescences usually < 1(-1.5) cm wide, elliptic or elongate; perigynium ± dull; longest anther awns 0.1-0.2 mm *C. praegracilis*

Key I: Stigmas 2, spikes gynecandrous; perigynia unwinged

- 1. Spikes crowded in a single, dense head, not easily distinguished Key I1, p. _____
- 1' Spikes remote to overlapping, but individual spikes easily recognized
 - 2. Plants rhizomatous
 - 3. Beak (or top of perigynium; it may be virtually beakless) curved; perigynium surface often papillose at least near beak; sheath of lowest inflorescence bract (0-)2-5+ mm long *C. hassei*
 - 3' Beak not curved; perigynium surface smooth; sheath of lowest inflorescence bract 0-1 mm long
 - 4. ♀ scales not hyaline, usually blackish to green or brown, usually narrower and/or shorter than the body of the perigynium; spikes ± stalked, 1-5+ cm long section *Phacocystis*; Key G2, p. _____
 - 4' ♀ scales hyaline, white with green midvein, subequal to or longer than the body of the perigynium; spikes all sessile, crowded together, 0.4-0.9 cm long; Okanagan Co., WA..... *C. tenuiflora*
 - 2' Plants caespitose
 - 5. Spikes 3+ times as long as wide, usually stalked
 - 6. Perigynium beaks 0.9-2.5 mm long, 28-60% of perigynium length section *Deweyanae*; Key I2, p. _____
 - 6' Perigynium beaks 0.1-0.6 mm long, < 20% of perigynium length section *Phacocystis*; Key G2, p. _____
 - 5' Spikes < 3 times as long as wide, sessile
 - 7. Mature perigynia strongly spreading to reflexed
 - 8. Perigynium beak short, 0.5-1.2 mm long, beak length 20-44% of perigynium length
 - 9. Perigynia +/- gradually tapered to the beak; wider leaves 2-4 mm wide *C. arcta*
 - 9' Perigynia abruptly narrowed to the beak; wider leaves 1-2.4(-2.7) mm wide *C. interior*

- 8' Perigynium beak long, (0.85-)0.95-2 mm long, beak length (35-38-60% of perigynium length; perigynium tapering gradually to the beak; widest leaves 1-3.3+ mm wide
..... *C. echinata* (with two subspecies)
- 10. Inflorescences more open, lowest internode longer than lowest spike *C. e. ssp. echinata*
- 10' Inflorescences dense, lowest internode shorter than lowest spike
- 11. Perigynia 2.9-3.6(-4) mm long, ventral surface usually veinless; widest leaves 1-2.4(-2.7) mm wide; widespread but not coastal..... *C. e. ssp. echinata*
- 11' Perigynia larger (3.1-)3.5-4.8 mm, ventral surface usually with 2-12 veins; widest leaves (1.7-)2.3-3.3 mm wide; coastal *C. e. ssp. phyllomanica*
- 7' Mature perigynia appressed to ascending (sometimes seemingly spreading because the beaks are bent back)
- 12. Perigynia 3.3-5.3 mm long Key I2, p. _____
- 12' Perigynia 1.5-3(-3.5) mm long
- 13. Spikes crowded, overlapping, the lowest internode no longer than the lowest spike
- 14. Perigynium beakless or nearly so; range Okanogan Co, WA
..... *C. tenuiflora*
- 14' Perigynium with a distinct beak; range various
- 15. Perigynium beaks smooth on margins
- 16. Beak to 0.5 mm *C. praeceptorum*
- 16' Beak 1-1.6 mm *C. integra*
- 15' Perigynium beaks serrulate on margins
- 17. Inflorescence green to tan; perigynia +/- spreading when ripe, exposed by the ♀ scales, 2-3(-3.5) mm long, 1.2-1.5 mm wide *C. arcta*
- 17' Inflorescence brown (with green perigynia when young), perigynia appressed, +/- hidden by ♀ scales, 3.5-4.2 mm long, 1-1.2 mm wide *C. leporinella*
- 13' At least lower spikes remote, the lowest internode longer than the lowest spike
- 18. Perigynium beaks 0.4-1.1(-1.3) mm long.....*C. laeviculmis*
- 18' Perigynium beaks up to 0.5 mm long
- 19. Dorsal suture darker than the surrounding perigynium surface; ♀ scales light brown with lighter center and hyaline edges *C. praeceptorum*
- 19' Dorsal suture about the same color as the surrounding perigynium surface; ♀ scales white-hyaline (often tinged brownish with age) with green center
- 20. Leaves obviously glaucous
.....*C. canescens ssp. canescens*

- 20' Leaves green or intermediate in color
- 21. Inflorescence more compact, sometimes lowest spikes separate; dorsal suture inconspicuous, usually shorter than the beak, 0-0.4(-0.7) mm long; perigynia (5-)10-20+ per spike, appressed, the tips not interrupting the outline of the spike*C. canescens ssp. canescens*
- 21' Inflorescence more elongate, most spikes well separated; dorsal suture readily visible, usually as long as the beak or extending onto the top of the body, usually 0.4-0.8 mm long; perigynia usually 5-10 per spike, slightly more spreading, the tips interrupting the outline of the spike *C. brunnescens ssp. brunnescens*

Key I1: Stigmas 2; spikes gynecandrous; perigynia unwinged; inflorescence a tight head

- 1. Perigynia beakless or nearly so, plants loosely cespitose to rhizomatous; Okanogan Co., WA *C. tenuiflora*
- 1' Perigynia with distinct beak; plants tightly cespitose; range various
 - 2. Longest inflorescence bracts > 3 times as long as the inflorescence; perigynium beak 3-5 mm long, longer than the perigynium body*C. sychnocephala*
 - 2' Longest inflorescence bracts rarely longer than the inflorescence and never twice as long; perigynium beak 1-1.6 mm long, shorter than the perigynium body
 - 3. Inflorescence ovoid to elongate, green to straw-colored or pale brown; spikes 5-15; margins of beaks serrulate *C. arcta*
 - 3' Inflorescence ± pyramidal, globose, or ovoid, dark brown or a mix of green and brown; spikes 3-9; margins of beaks entire
 - 4. Inflorescence black and green or black and brown, compact, the base usually +/- truncate; perigynium wings absent*C. illota*
 - 4' Inflorescence brown or brown and green, elongate, the base usually +/- tapering; perigynium wings very narrow (0.05-0.2 mm wide) *C. integra*

Key I2: Stigmas 2; spikes gynecandrous; perigynia unwinged, 3.3-5.3 mm long; section Deweyanae. Beak length should be measured from the achene top to the beak tip. Immature plants and even some mature ones cannot be identified to species. Unidentified specimens can be reported as *Carex* section *Deweyanae*.

- 1. Ligules on uppermost leaves of fertile culm 0.9-2.2 mm, ± rounded, about as long as wide; anthers (1.8-)1.9-2.2 mm long; longest inflorescence with 2-5 spikes; mountains of NE WA..... *C. deweyana var. deweyana*

- 1' Ligules on uppermost leaves of fertile culm (2.1-)3.1-9.1 mm, ± triangular, much longer than wide; anthers 1.4-1.9(-2.2) mm long; longest inflorescence with (4-)5-9 spikes; widespread in the PNW
- 2. Beaks 0.9-1.5(-1.7) mm, 28-38% of perigynium length; bodies of ♀ scales (2.3)2.7-3.8 mm..... *C. leptopoda*
- 2' Beaks (1.4-)1.6-2.7 mm, 38-50% of perigynium length; bodies of ♀ scales 2.1-2.9(-3.1) mm
- 3. Teeth of perigynium beak 0-0.2(-0.4) mm long *C. infirminervia*
- 3' Teeth of perigynium beak (0.2-)0.3-1 mm long *C. bolanderi*

Key J: Perigynia winged; stigmas 2; section *Ovales* except as noted. Read “Using the *Ovales* Key” (p. _____) before using this key.

- 1. Lowest 1-3 bracts of most inflorescences elongate, at least the lowest as long as or usually much longer than inflorescences; inflorescences dense, head-like Key J1, p. _____
- 1' Lowest 1-3 bracts of most inflorescences usually inconspicuous, shorter than the inflorescences; inflorescences dense or elongate
- 2. Leaf sheath fronts green and veined nearly to the top, often with a short white-hyaline triangle (< 6 mm long) at the top.....Key J2, p. _____
- 2' Leaf sheath fronts white-hyaline for at least 10 mm at the top (often transparent if plant is fresh)
- 3. Longer perigynia (6-)6.3-8.5 mm long Key J3, p. _____
- 3' Longer perigynia 2-5.4(-6) mm long
- 4. Inflorescence a dense, round to slightly oval head, although occasionally the lowest spike or two may be separated
- 5. Heads dark (brown, dark brown, reddish brown, or blackish) OR with contrast of dark ♀ scales and pale perigynia. This is an arm's-length trait Key J4, p. _____
- 5' Heads pale (whitish, green, straw-colored, or tan) without contrasting dark ♀ scales. If you're unsure, it's not paleKey J5, p. _____
- 4' Inflorescence ± elongate, varying from a longer oval with overlapping spikes to a line of separated spikes
- 6. Spikes green to straw-colored AND with a fine texture AND ♀ scales acuminate and revealing acuminate perigynium beaks; beaks winged and ciliate-serrulate nearly to the tip; wings usually narrowed or absent below middle of perigynium; range Willamette Valley, OR, Puget Trough, and coastal and NE WA*C. scoparia* var. *scoparia*
- 6' Spikes dark or if pale, then differing in some way from above
- 7. Inflorescence erect Key J6, p. _____
- 7' Inflorescence bent to one side or nodding Key J7, p. _____

Key J1: Perigynia winged; lower inflorescence bracts usually longer than the inflorescences; inflorescences dense, head-like Late-season shoots with atypical, elongated inflorescence bracts are not keyed here.

- 1. Beak distinctly longer than (sometimes twice as long as) the perigynium body; distance from top of achene to tip of beak 3-5 mm; range E WA and Harney Co., OR *C. sychnocephala*
- 1' Beak little if at all longer than perigynium body; distance from top of achene to tip of beak 1.1-2.5 mm; range E or W of the Cascades
 - 2. Inflorescence angled to one side; lowest inflorescence bract ± leaf-like; range W of the Cascades *C. unilateralis*
 - 2' Inflorescence erect, located symmetrically at the top of the culm; lowest inflorescence bract usually not leaf-like; E or W of the Cascades
 - 3. Beak tip to achene top 1.9-2.5 mm; achenes 0.3-0.4 mm thick; range mainly E of the Cascades, scattered on the W side but not coastal *C. athrostachya*
 - 3' Beak tip to achene top 1.2-1.8 mm; achenes 0.5-0.7 mm thick; range coastal occasionally somewhat inland in SW OR
 - 4. Perigynia with 3-8 strong veins on the ventral surface, extending beyond the top of the achene; perigynia not leathery; near the coast in SW OR *C. harfordii*
 - 4' Perigynia with 0-3 veins on the ventral surface, reaching at most the top of the achene; perigynia +/- leathery; SW OR north along coast to NW WA *C. subbracteata*

Key J2: Perigynia winged; leaf sheath fronts green-veined nearly to the top, often with a triangular white-hyaline area extending at most 6 mm below the top of the leaf sheath front

- 1. Perigynia lanceolate AND wing much narrowed or lacking below middle of body
 - 2. Widest leaves < 3 (rarely 4) mm wide; spike apex acute to rounded *C. scoparia* var. *scoparia*
 - 2' Widest leaves 3-7 mm wide; spike apex rounded *C. tribuloides* var. *tribuloides*
- 1' Perigynia lanceolate to ovate or obovate, wing usually extending to base of perigynium; if wing much narrowed below middle, perigynium elliptic to ovate
 - 3. Perigynia obovate, the body widest above middle, narrowed abruptly to the beak; wing 0.5-0.8 mm wide; introduced to coastal wetlands *C. longii*
 - 3' Perigynia lanceolate to ovate, the body widest near middle, narrowed more gradually to the beak; wing 0.2-0.6 mm wide; native; range various, including coast
 - 4. ♀ scales acuminate; perigynia 4.2-5.5(-6) mm, elliptic, tapering gradually to the beak *C. scoparia* var. *scoparia*

- 4' ♀ scales obtuse to acute; perigynia 3.2-4.2 mm, ovate, tapering more abruptly to the beak *C. feta*

Key J3: Perigynia winged; longer perigynia (6-) 6.3-8.5 mm long

- 1. Perigynia planoconvex or biconvex, 0.5-0.9 mm thick; wing 0.3-0.5 mm wide; habitat low to subalpine
 - 2. Inflorescence a round to oval head, spikes all crowded or sometimes the lowest distinct *C. pachycarpa*
- 2' Inflorescence +/- elongate, spikes overlapping but not crowded
 - 3. Perigynia rarely as much as 6 mm long, with 0-4(-7) ventral veins, these usually shorter than the achene *C. praticola*
- 3' Perigynia usually > 6 mm long, with 4-10 ventral veins, at least 3 of them longer than the achene
 - 4. ♀ scales covering more than half the perigynium beak, white-hyaline or with white-hyaline margin 0.2-0.7 mm wide; uncommon but widespread *C. petasata*
 - 4' ♀ scales covering less than half the perigynium beak, with white-hyaline margin 0-0.2 mm wide; rare and local *C. davyi*
- 1' Perigynia flat except where distended by the achene, 0.25-0.5 mm thick; wing 0.3-0.9 mm wide; habitat subalpine to alpine
 - 5. Perigynia much longer than wide; distal 1 mm or more of beak unwinged, brown, and parallel sided *C. haydeniana*
 - 5 Perigynia little longer than wide; distal 0-0.7 mm of beak unwinged, brown, and parallel-sided *C. straminiformis*

Key J4: Perigynia winged; inflorescence a dense, dark head; section *Ovales*, mostly

- 1. Perigynium wings 0.4-1 mm wide; perigynia 1.8-3.5 mm wide
 - 2. Perigynia planoconvex, 0.5-0.8 mm thick, wings widest on the beak and much narrowed below middle *C. pachycarpa*
- 2' Perigynia flat except where distended by the achene, 0.2-0.5(-0.6) mm thick, wings broad to near the base
 - 3. Perigynia widest near the middle of total length *C. proposita*
 - 3' Perigynia widest below the middle of total length
 - 4. Beak usually winged and ciliate-serrulate almost to the tip, sometimes unwinged, brown, and parallel-sided for the distal 0.5-0.7 mm; inflorescence with spikes easily distinguished, green or brown, often with contrast of dark ♀ scales and paler perigynia *C. straminiformis*
 - 4' Beak unwinged, brown, and parallel-sided for the distal 1+ mm, entire for 0.3-0.6 mm; inflorescence with spikes crowded and hard to distinguish, dark or contrasting green and dark
 - 5. Perigynia 4-6.5 mm long, usually at least (2.3-)2.6 mm from beak tip to achene; at or above timberline *C. haydeniana*

5' Perigynia 3-4.5(-5.2) mm long, usually no more than 2.5 mm from beak tip to achene; montane to near timberline

..... *C. microptera*

1' Perigynium wings 0.1-0.5 mm wide; perigynia 1.1-2.4 mm wide

6. Spikes androgynous; perigynium bodies copper-colored with green margins (maturing dark brown with light brown margins); section

Phaestoglochin *C. hoodii*

6' Spikes gynecandrous; perigynia usually ± uniformly colored or with body paler than wings; section *Ovales*

7. Perigynium beaks winged to the tip, or with very short (<0.4 mm long) unwinged, brown, parallel-sided tip

8. Perigynia (3.8-)4.4-6 mm long; achenes 1.7-2.4 mm long

..... *C. pachycarpa*

8' Perigynia 2.4-4.3(-4.6) mm long; achenes 1-2 mm long

9. Lowest two internodes of inflorescence collectively < 1/3 of total inflorescence length; habitat moist to wet sites near the coast at 0-3000 feet elevation *C. harfordii*

9' Lowest two internodes of inflorescence collectively > 1/3 of total inflorescence length; habitat mesic to dry sites in mountains, 1200-9000 feet elevation *C. preslii*

7' Perigynium beaks with longer (>0.4 mm long) unwinged, brown, and parallel-sided tip

10. Perigynia with (8-)10-20 veins on the dorsal surface, the veins often sunken; perigynia planoconvex, 0.5-0.8 mm thick, cream-colored to light brown, often with green wings; wings (0.2-)0.3-0.4(-0.5) mm wide but often narrow at and below middle of perigynium body; habitat at mid to high elevations in mountains

..... *C. pachycarpa*

10' Perigynia with 0-9(-13) veins on the dorsal surface; veins, if present, raised; other traits various

11. Perigynia with 3-8 strong veins on the ventral surface, extending above the top of the achene

12. Habitat at low elevations (0-3,000 feet) mainly near the coast; perigynia (0.5-)0.6-0.7 mm thick *C. harfordii*

12. Habitat montane to alpine (4000-9,000+ feet); perigynia 0.3-0.5(-0.6) mm thick

13. Distance from achene top to perigynium beak tip (1.5-)2-2.3 mm; habitat montane to subalpine *C. abrupta*

13' Distance from achene top to perigynium beak tip (2.3-)2.6-3.8 mm; habitat subalpine to alpine *C. haydeniana*

11' Perigynia with 0-8 veins on the ventral surface, the veins if present faint and/or not more than 2 of them extending above the top of the achene

14. Perigynia 4-6.5 mm long, distance from beak tip to top of achene more than (2.3-)2.6-3.8 mm; habitat subalpine to alpine

-*C. haydeniana*
- 14' Perigynia 2.7-4.7(-5.7) mm long; distance from beak tip to top of achene 1-2.5(-2.8) mm; habitat lowland to subalpine
- 15. Perigynium wing entire, 0-0.2 mm wide *C. integra*
- 15' Perigynium wing minutely ciliate-serrulate, 0.2-0.5 mm wide
- 16. Perigynia many, crowded, appressed, and flat except over the relatively small achene, 0.3-0.5 mm thick, thus making the inflorescence more fine-textured; spikes usually green and black..... *C. microptera*
- 16' Perigynia fewer, less crowded, appressed to spreading, planoconvex and +/- filled by the relatively large achene, (0.4)0.5-0.7 mm thick, thus making the inflorescence coarse-textured; spikes usually coppery, brown, or green and black
- 17. Perigynium beaks of 2 kinds in the same inflorescence, some +/- flat and winged nearly to the tip, others with tip cylindrical, unwinged, smooth, brown, and parallel-sided for >0.4 mm; habitat montane to subalpine, +/- dry
.....*C. preslii*
- 17. All perigynium beaks with tips cylindric, unwinged, smooth, brown, and parallel-sided >0.4 mm; habitat at low to mid elevations, moist to mesic
- 18. Perigynia spreading; spikes appearing star-shaped from above; ♀ scales 2.2-3.4(-4.2) mm long; perigynia not leathery; range widespread *C. pachystachya*
- 18' Perigynia +/- ascending, spikes not appearing star-shaped from above; ♀ scales 3.4-4.5(-5.7) mm long; perigynia +/- leathery; range coastal or somewhat inland in SW OR..... *C. subbracteata*

Key J5: Perigynia winged; inflorescence a dense, pale head

- 1. Perigynia 3.5-4.5 times as long as wide
 - 2. Perigynium beaks winged nearly to the tip, perigynia 0.15-0.35 mm thick .
..... *C. crawfordii*
 - 2' Perigynium beak tips unwinged, parallel-sided, and entire for at least 0.4 mm; perigynia 0.35-0.45 mm thick *C. athrostachya*
- 1' Perigynia 1.8-3.5 times as long as wide
 - 3. Inflorescence relatively fine-textured in appearance; perigynia 0.9-1.9 mm wide, 0.3-0.45 mm thick; habitat lowlands to subalpine
 - 4. Perigynia tapering to a distinct beak; inflorescence nearly always oval
.....*C. subfusca*
 - 4' Perigynia tapering more gradually to the tip; inflorescence always a dense, roundish head *C. athrostachya*

- 3' Inflorescence relatively coarse-textured in appearance; perigynia 1.4-3.4 mm wide, 0.3-0.8 mm thick; habitat montane to subalpine
- 5. Perigynium wings 0.4-1 mm wide; perigynia flat except where distended by the achene, 0.3-0.5 mm thick *C. straminiformis*
- 5' Perigynium wings 0.1-0.4(-0.5) mm wide; perigynia planoconvex, 0.5-0.8 mm thick *C. pachycarpa*

Key J6: Perigynia winged; inflorescence slightly to very elongate, erect

- 1. Lowest inflorescence node producing 2+ spikes; ornamental escaping in NW WA; section *Phaestoglochin* *C. divulsa*
- 1' Lowest inflorescence node producing a single spike; widespread natives; section *Ovales*
 - 2. Perigynium wing 0.4-1 mm wide; perigynia 1.8-3.4 mm wide
 - 3. Plants of low elevations, usually below 2000 feet
 - 4. Perigynia 2.3-3.2 mm wide, broadly ovate to orbicular *C. brevior*
 - 4' Perigynia to 2.1 mm wide, lanceolate to ovate *C. leporina*
 - 3' Plants of high elevations, usually above 5000 feet
 - 5. Perigynia widest below middle of entire length *C. straminiformis*
 - 5' Perigynia widest near middle of entire length *C. proposita*
 - 2' Perigynium wing 0.1-0.4(-0.6) mm wide; perigynia 0.9-2.2 mm wide
 - 6. Inflorescences silvery or pale green to tan, 3.5-8 cm long; leaf sheath front rounded to acute at summit, prolonged at least 3 mm above attachment point of the leaf blade; coarse plants usually > 60 cm tall *C. fracta*
 - 6' Inflorescences pale to dark, 1-5 cm long; leaf sheath front often U-shaped at summit, usually not prolonged or prolonged < 2.8 mm above attachment point of leaf blade; coarse or delicate plants usually < 60 cm tall
 - 7. Lowest two inflorescence internodes collectively at least 10 mm long
 - 8. ♀ scales distinctly shorter than the perigynia; perigynia 2-4(-4.3) mm long *C. subfusca*
 - 8' ♀ scales about as long as the perigynia; perigynia 3.4-6 mm long
 - 9. Habitat subalpine to alpine; perigynia widest near middle of total length
 - 10. Ventral surface of perigynia with 3-8 strong veins that extend to the top of the achene; perigynia opaque, somewhat leathery, (3.7-)-4.7-6 mm long *C. tahoensis*
 - 10' Ventral surface of perigynia with 0-4 weak veins; perigynia translucent or brown, not especially tough, 3.8-5.2 mm long *C. phaeocephala*
 - 9' Habitat in lowlands or montane; perigynia widest below middle of total length
 - 11. Tip of perigynium beak white; ventral surface of perigynium usually lacking veins; ♀ scales with white-hyaline margin 0.1-0.3 mm wide *C. praticola*

- 11' Tip of perigynium beak brown; ventral surface of perigynium usually with 3-5+ veins at least as long as the achene; ♀ scales usually lacking white-hyaline margins *C. leporina*
- 7' Lowest two inflorescence internodes collectively 3-10 mm long
 - 12. Spikes globose; mature perigynia light to dark brown, 2.5-3.8 mm long; beak winged to the tip on all perigynia; achenes 1-1.3 mm long, 0.6-0.9 mm wide *C. bebbii*
 - 12' Inflorescence differing in some way from above
 - 13. Inflorescence fine-textured, usually pale, green, whitish, or light brown; achenes 1-1.6 mm long *C. subfusca*
 - 13' Inflorescence coarse-textured and darker brown, reddish-brown, blackish, or sometimes greenish; achenes 1.4-2.4 mm long
 - 14. Perigynia 1-1.2 mm wide, boat-shaped; habitat soggy wet in the spring though often drying later *C. leporinella*
 - 14' Perigynia 1.3-2.3 mm wide, not boat-shaped; habitat mesic to dry
 - 15. Ventral surface of perigynia with 3-8 strong veins that extend to the top of the achene; habitat dry subalpine to alpine slopes *C. tahoensis*
 - 15' Ventral surface of perigynia with 0-4 weak veins; habitat mesic lowlands to dry alpine slopes
 - 16. Habitat dry alpine slopes; perigynia widest near middle, gold to brown *C. phaeocephala*
 - 16' Habitat mesic lowlands to dry subalpine meadows; perigynia widest below middle, brown, coppery, or greenish
 - 17. Perigynium beaks of 2 kinds in the same inflorescence, some +/- flat and winged nearly to the tip, others with tip cylindric, unwinged, smooth, brown, and parallel-sided for >0.4 mm; habitat montane to subalpine, dry *C. preslii*
 - 17. All perigynium beaks with tips cylindric, unwinged, smooth, brown, and parallel-sided >0.4 mm; habitat at low to midelevations, moist to mesic
 - 18. Perigynia spreading; spikes appearing star-shaped from above; ♀ scales 2.2-3.4(-4.2) mm; perigynia not leathery; range widespread *C. pachystachya*
 - 18' Perigynia +/- ascending, spikes not appearing star-shaped from above; ♀ scales 3.4-4.5(-5.7) mm; perigynia +/- leathery; range SW OR and coastal *C. subbracteata*

Key J7: Perigynia winged; inflorescence elongated, nodding

- 1. ♀ scales mostly hyaline, white to pale brown, with green or brown midrib; spikes usually widely separated, 4-10 mm long; rare in N WA

-*C. tenera* var. *tenera*
- 1' ♀ scales not mostly hyaline, brown with paler midrib, with or without white margins; spikes usually overlapping, 8.5-20 mm long; widespread
- 2. Tip of perigynium beak white; ventral surface of perigynia usually lacking veins; ♀ scales with white-hyaline margins 0.1-0.3 mm wide *C. praticola*
- 2' Tip of perigynium beak brown; ventral surface of perigynia usually with 3-5+ veins at least as long as the achene; ♀ scales usually lacking white-hyaline margins *C. leporina*