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CONTRIBUTIONS TOWARD A
FLORA OF NEVADA. NO. 16.

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JUNCACEAE OF NEVADA

by

F. J. HERMANN

December 1, 1940

Issued by

The Division of Plant Exploration and Introduction,
Bureau of Plant Industry,
U. S. Department of Agriculture,
Washington, D. C.

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Work Projects Administration of Nevada,
Projects, O. P. 65-2-04-13, W. P. 658;
O. P. 165-2-04-21, W. P. 752.

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Collaborator

University of Nevada.

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JUNCACEAE OF NEVADA

By F. J. Hermann

Grass-like herbs with small, regular and hypogynous, persistent flowers. Inflorescence usually compound or decompound, paniculate, cymose or umbelloid; flowers inserted singly, or loosely clustered, or aggregated into spikes or heads. Flowers perfect, with or without bractlets. Perianth 6-parted, glumaceous. Stamens 6 or 3 with 2-celled, introrse anthers. Pistil of 3 carpels; stigmas 3, filiform; ovary 1-celled or 3-celled with 3 parietal placentae forming a loculicidal capsule. Seeds 3-many, often appendaged.

KEY TO GENERA

- Capsule 1- or 3-celled, with very numerous minute seeds; leaf-sheaths open; plants glabrous - - - - - 1. Juncus.
- Capsule 1-celled, with 3 large seeds; leaf-sheaths closed; plants hairy, arachnoid or glabrous - - - - - 2. Luzula.

1. JUNCUS L. Rush.

Chiefly perennials, usually of wet habitats. Stems pithy or hollow and simple (rarely branching), leaf-bearing or scapose. Leaf-blades terete, flat or wanting. Flowers greenish or brown, borne either singly and with 2 bractlets, or in heads and with-

out bractlets, but each in the axil of a bract. Ovary 1-celled or by the intrusion of the placentae 3-celled. Seeds usually distinctly reticulated or ribbed, often tailed.

KEY TO SPECIES

1. Inflorescence apparently growing from the side of the stem, the involucrel bract terete, erect, appearing like a continuation of the culm; leaves all basal or nearly so, never septate.
2. Seeds tailed; flowers few (1 to 5); low alpine plants (5 to 20 cm. high).
3. Uppermost leaf-sheath bearing a well-developed blade; capsule acute - - - - - 1. J. Parryi.
3. Uppermost leaf-sheath bristle-tipped, the blade reduced to a mere rudiment; capsule retuse.
 2. J. Drummondii.
2. Seeds not tailed; flowers numerous; plants usually taller, not alpine.
4. Stems slender, scarcely rigid; flowers inserted singly on the branches of the inflorescence, each with 2 bracteoles at the base in addition to the bractlet at the base of the pedicel.
5. Leaf-blades absent or rudimentary; stems terete.
 3. J. balticus var. montanus.
5. Leaf-blades usually present; stems strongly flattened - - - - - 4. J. mexicanus.
4. Stems very coarse, stout and rigid; flowers in head-like

clusters arranged in open panicles, each flower from the axil of a single bractlet but without bracteoles.

6. Capsule oblong, acute, about equalling the perianth; perianth-segments acute and rigid at the apex.

5. J. Cooperi.

6. Capsule obovoid, about twice the length of the perianth; perianth-segments obtuse or retuse and scarious at the apex.

6. J. acutus var. sphaerocarpus.

1. Inflorescence obviously terminal or, if not, the leaves septate and the involucre bracts flat or channelled along the upper side.

7. Leaf-blades transversely flattened (inserted with the flat surface facing the stem), involute or hollow, not septate.

8. Flowers borne singly on the branches of the inflorescence (not in heads), each with a pair of bracteoles at the base in addition to the bract at the base of the pedicel.

9. Low annuals; inflorescence more than half the height of the plant; capsule obtuse.

10. Perianth 4-6 mm. long; capsule oblong, 3-4.5

mm. long - - - - - 7. J. bufonius.

10. Perianth 3-4 mm. long; capsule subglobose to broadly obovoid, 2-3 mm. long.

8. J. sphaerocarpus.

9. Perennials; inflorescence much less than half the height of the plant; capsule retuse.

9. J. confusus.

8. Flowers in heads, not bracteolate (i.e. with only the bract at the base of the pedicel).

11. Perianth-segments minutely roughened on the back, the inner usually exceeding the outer.

10. J. orthophyllus.

11. Perianth-segments smooth and shining, the inner equalling or shorter than the outer.

11. J. longistylis.

7. Leaf-blades terete or ensiform (flattened and inserted with one edge facing the stem), not transversely flattened, septate.

12. Leaf-blades terete, the septa complete.

13. Capsule subulate, exceeding the perianth.

14. Leaf-blades erect or ascending; flowers 3-4 mm. long; inner perianth-segments equalling or exceeding the outer; plant 1-4 dm. high - - - - - 12. J. nodosus.

14. Leaf-blades divaricate; flowers 4-5 mm. long; inner perianth-segments shorter than the outer; plant 4-10 dm. high.

13. J. Torreyi.

13. Capsule oblong to ovoid, equalling or shorter than the perianth.

15. Perianth light green, the segments obtuse,
with broad scarious margins.

14. J. chlorocephalus.

15. Perianth dark brown, the segments acute to
acuminate.

16. Stems densely tufted, from matted
rootstocks; head usually solitary,
densely many-flowered, becoming
spherical; anthers rarely longer
than the filaments.

15. J. Mertensianus.

16. Stems somewhat tufted, from creeping
rootstocks; heads 1-10, few- to
many-flowered; anthers longer than
the filaments - - 16. J. nevadensis.

12. Leaf-blades ensiform, the septa incomplete.

17. Bract ensiform, usually more than half the
length of the inflorescence; stamens 3.

17. J. ensifolius.

17. Bract relatively narrow, less than half the
length of the inflorescence; stamens 6.

18. Perianth-segments equal in length, very
narrow and thin, often shorter than
the oblong, acute capsule, spreading,
imbricate only near the base, thus

exposing most of the capsule; blades of the larger leaves 7-12 mm. wide.

18. J. xiphioides.

18. Perianth-segments unequal, the inner ones shorter, the segments broader, firmer in texture, usually exceeding the oblong-obovoid capsule, appressed, imbricate most of their length, thus exposing little of the capsule; blades of the larger leaves seldom more than 5 mm. wide.

19. Seeds tailed; styles long-exserted.

19. J. Tracyi.

19. Seeds not tailed; styles little if at all exserted.

20. Inflorescence composed of few (seldom more than 10) heads, averaging 7-10 mm. in diameter, many (15 to 25)-flowered.

20. J. saximontanus.

20. Inflorescence composed of numerous (usually more than 10) heads, averaging 5-6 mm. in diameter, few (5 to 12)-flowered.

20a. J. saximontanus f. brunnescens.

1. JUNCUS FARRYI Engelm., Trans. St. Louis Acad. 2: 446. 1866.

Juncus Drummondii var. longifructus St. John., Proc. Biol. Soc. Wash. 44: 29. 1931.

Stems densely tufted, 10-30 cm. high, from matted rootstocks; only the uppermost leaf-sheath bearing a blade; inflorescence 1-3-flowered; lowest leaf of inflorescence 1.5-6 cm. long; perianth 5-7 mm. long, usually shorter than the capsule; stamens 6, scarcely half the length of the perianth; anthers much longer than the filaments; seeds about 2 mm. long, caudate.

Rocky slopes in the Arctic-Alpine and Hudsonian Zones, British Columbia to Montana, southward to Colorado and southern California.

Nevada: Washoe County.

2. JUNCUS DRUMMONDII E. Meyer in Ledeb. Fl. Ross. 4: 235. 1853.

Juncus compressus var. subtriflorus E. Meyer, Linnaea 3: 368. 1828.

Juncus subtriflorus Coville, Contr. U. S. Nat. Herb. 4: 208. 1893.

Stems densely tufted, 20-45 cm. high, from matted rootstocks; leaf-sheaths basal, bladeless or with rudimentary blades; inflorescence 1-5-flowered; lowest leaf of inflorescence averaging 2-3 cm. long; perianth 6 mm. long, equalling or slightly shorter than the capsule; stamens 6, half the length of the perianth or less; anthers longer than the fila-

ments; seeds about 2 mm. long, caudate.

Rocky slopes in the Arctic-Alpine and Hudsonian Zones, Alaska southward to California and New Mexico.

Nevada: Washoe County.

3. *JUNCUS BALTICUS* Willd. var. *MONTANUS* Engelm., Trans. St. Louis Acad. 2: 441. 1866.

Juncus balticus of American authors, not Willd.

Stems slender, 2-8 dm. high, 2-3 mm. thick, from stout horizontal rootstocks; leaves basal, reduced to loose brownish sheaths; lowest leaf of inflorescence 3-20 cm. long; perianth 4-5 mm. long, purplish brown, the segments lanceolate, acute or acuminate; stamens 6, shorter than the perianth; anthers much longer than the filaments; capsule equalling or exceeding the perianth, narrowly ovoid, mucronate; seeds 0.8-1 mm. long, ecaudate.

Moist places in the Transition and Sonoran Zones, Alaska to western Kansas, New Mexico and southern California.

Nevada: Washoe, Clark, Storey, Lander and Humboldt Counties.

4. *JUNCUS MEXICANUS* Willd. in Room. & Schult. Syst. 7: 178. 1829.
Juncus balticus var. *mexicanus* Kuntze, Rev. Gen. Pl. 3: 320. 1893.

Stems 2-6 dm. high, usually 2-3 mm. thick, distinctly compressed, from stout creeping rootstocks; leaves basal, reduced

to loose brown or stramineous sheaths, except the uppermost which usually bears a well-developed blade; lowest leaf of inflorescence 3-15 cm. long; perianth 5 mm. long, pale brown, the segments lanceolate, acuminate; stamens 6, about half the length of the perianth; anthers much longer than the filaments; capsule equalling or exceeding the perianth, narrowly ovoid, mucronate; seeds 0.7-0.8 mm. long, ecaudate.

Moist places especially in slightly saline soils in the Upper and Lower Sonoran Zones, southern California and Nevada southward to Lower California and Mexico.

Nevada: Clark County. An immature specimen from Washoe County probably belongs here.

5. *JUNCUS COOPERI* Engelm., Trans. St. Louis Acad. 2: 590. 1868.

Stems erect, rigid, 6-8 dm. high, densely tufted, from short, stout, much-branched rootstocks; basal leaf-sheaths with stiff, terete, spinescent blades; lowest leaf of the inflorescence spinescent, 6-10 cm. long; perianth pale green or stramineous, 5-6 mm. long, the segments oblong-lanceolate, broadly scarious-margined, the outer conspicuously cuspidate and longer than the inner; stamens 6, about equalling the inner segments; anthers longer than the filaments; capsule slightly exceeding the perianth, narrowly oblong, acute, rigidly coriaceous; seeds with short, broad appendages.

In alkaline soils in the Lower Sonoran Zone, southern California and southern Nevada.

Nevada: Stone's Ferry (Clark County?).

6. JUNCUS ACUTUS L. VAR. SPHAEROCARPUS Engelm., Rep. U. S. Geog. Surv. West 100 Merid. 6: 376. 1878.

Stems stout, rigid, spinescent, 6-12 dm. high, densely tufted; basal leaf-sheaths bearing terete, elongate blades; lowest leaf of the inflorescence 5-15 cm. long, stout and spinescent; flower clusters 2-4-flowered; perianth 3-4 mm. long, pale brown, the outer segments broadly lanceolate, obtuse, with broad scarious margins, the inner shorter, retuse, the apex scarious-margined; stamens 6, nearly equalling the perianth; anthers longer than the filaments; capsule broadly obovate or sub-globose, apiculate, 5 mm. long; seeds acute or minutely appendaged.

Salt marshes in the Upper and Lower Sonoran Zones, southern California and Nevada to Lower California.

Nevada: Clark County.

7. JUNCUS BUFONIUS L. Sp. Pl. 328. 1753.

Juncus Congdoni S. Wats., Proc. Amer. Acad. 22: 480.

1887.

Juncus bufonius var. congestus Wahl. Fl. Gothoburg. 38.

1820.

Juncus bufonius var. halophilus Fern. & Buch., Rhodora 6:

39. 1904.

Branching annual, seldom over 20 cm. high; inflorescence about half as high as the plant, with blade-bearing leaves at the lower nodes; flowers inserted singly on the branches; perianth 4-5 mm. long, segments lanceolate, acuminate; stamens 6 (rarely 3), seldom half as long as the perianth; anthers shorter than the filaments; capsule oblong, obtuse, mucronate, 3-celled, shorter than the perianth; seeds broadly oblong, ecaudate.

Moist places, mostly in the Upper Sonoran and Transition Zones; nearly cosmopolitan.

Nevada: Washoe, Mineral and Lincoln Counties.

8. *JUNCUS SPHAEROCARPUS* Nees in Funk, Flora 1: 521. 1818.

Branching annual, 5-20 cm. high; inflorescence usually over half the height of the plant; flowers inserted singly on the branches; perianth 3-4 mm. long; segments lanceolate, acuminate, spreading in fruit; stamens 6; anthers shorter than the filaments; capsule sub-globose to broadly ovoid, obtuse, 3-celled, shorter than the perianth; seeds oblong, ecaudate.

Borders of ponds and streams in the Transition and Sonoran Zones, Idaho and Oregon southward to California and Arizona.

Nevada: Washoe County.

9. JUNCUS CONFUSUS Coville, Proc. Biol. Soc. Wash. 10: 127. 1896.

Somewhat cespitose, 4-5 dm. high; leaves basal, two-thirds the length of the stems, the blades almost filiform, the auricles scarious, produced above the insertion of the blade; inflorescence compact, more or less capitate; perianth 3.5-4 mm. long, the segments subulate, acute, straw-colored with a fuscous stripe on each side of the midrib, the margins broadly scarious; stamens 6, anthers shorter than the filaments; capsule oblong, firm, slightly shorter than the perianth, trigonous and retuse at the apex, completely 3-celled; seeds apiculate.

Moist habitats in the Transition Zone, Montana and Washington southward to Missouri and California.

Nevada: Washoe County.

10. JUNCUS ORTHOPHYLLUS Coville, Contr. U. S. Nat. Herb. 4: 207. 1893.

Juncus longistylis var. latifolius Engelm., Trans. St.

Louis Acad. 2: 496. 1868.

Juncus latifolius Buchenau in Engler Bot. Jahrb. 18: 425.

1890, not Wulf, 1789.

Stems 2-4 dm. high, from creeping rootstocks; basal leaves grass-like, one-third to nearly as long as the stem, 3-5 mm. wide, without auricles; stem leaves 0-2; inflorescence usually of 2 (rarely 1) heads, these usually 8-10-flowered; perianth 6 mm. long, the segments with the green midrib bordered

by brown, scarious-margined, minutely roughened on the back; stamens 6, about two-thirds the length of the perianth, anthers longer than the filaments; capsule oblong-ovoid, obtuse mucronate, scarcely equalling the perianth; seeds obovate, apiculate.

Mountain meadows in the Canadian and Transition Zones, Washington southward to Utah and California.

Nevada: Washoe County.

11. *JUNCUS LONGISTYLIS* Torr. Bot. Mex. Bound. 223. 1859.

Stems 2-4 dm. high, loosely caespitose; basal leaves flat, grass-like, one-third to one-half as long as the stem, 1.5-4 mm. wide, with well-developed auricles; stem leaves 1-3; inflorescence of 2-8 heads, these 3-8-flowered; perianth 5-6 mm. long, the segments greenish brown with hyaline margins; stamens 6, one-half to two-thirds as long as the perianth, anthers longer than the filaments; capsule oblong, obtuse, mucronate, about equalling the perianth; seeds oblong, conspicuously apiculate.

Moist meadows in the Canadian Zone, Nebraska to British Columbia, southward to New Mexico and California.

Nevada: Mineral, Esmeralda, Nye and Clark Counties.

12. *JUNCUS NODOSUS* L. Sp. Pl. ed. 2. 466. 1762.

Stems slender, 1-4 dm. high, arising singly from a slender rootstock; basal leaves with long, erect blades, stem leaves

2-4, their blades erect; heads spherical, 7-12 mm. in diameter; perianth 3-5 mm. long, the segments lanceolate-subulate, the outer shorter than the inner; stamens 6, about half as long as the perianth; anthers equalling the filaments; capsule lanceolate-subulate, trigonous, 1-celled, exceeding the perianth; seeds oblong, apiculate.

Wet habitats in the Upper Sonoran and Transition Zones, Nova Scotia to British Columbia, southward to Virginia and Nevada.

Nevada: Elko and Clark Counties.

13. *JUNCUS TORREYI* Coville, Bull. Torrey Bot. Club 22: 303. 1895.

Juncus nodosus var. *megacephalus* Torr. Fl. N. Y. 2: 326.

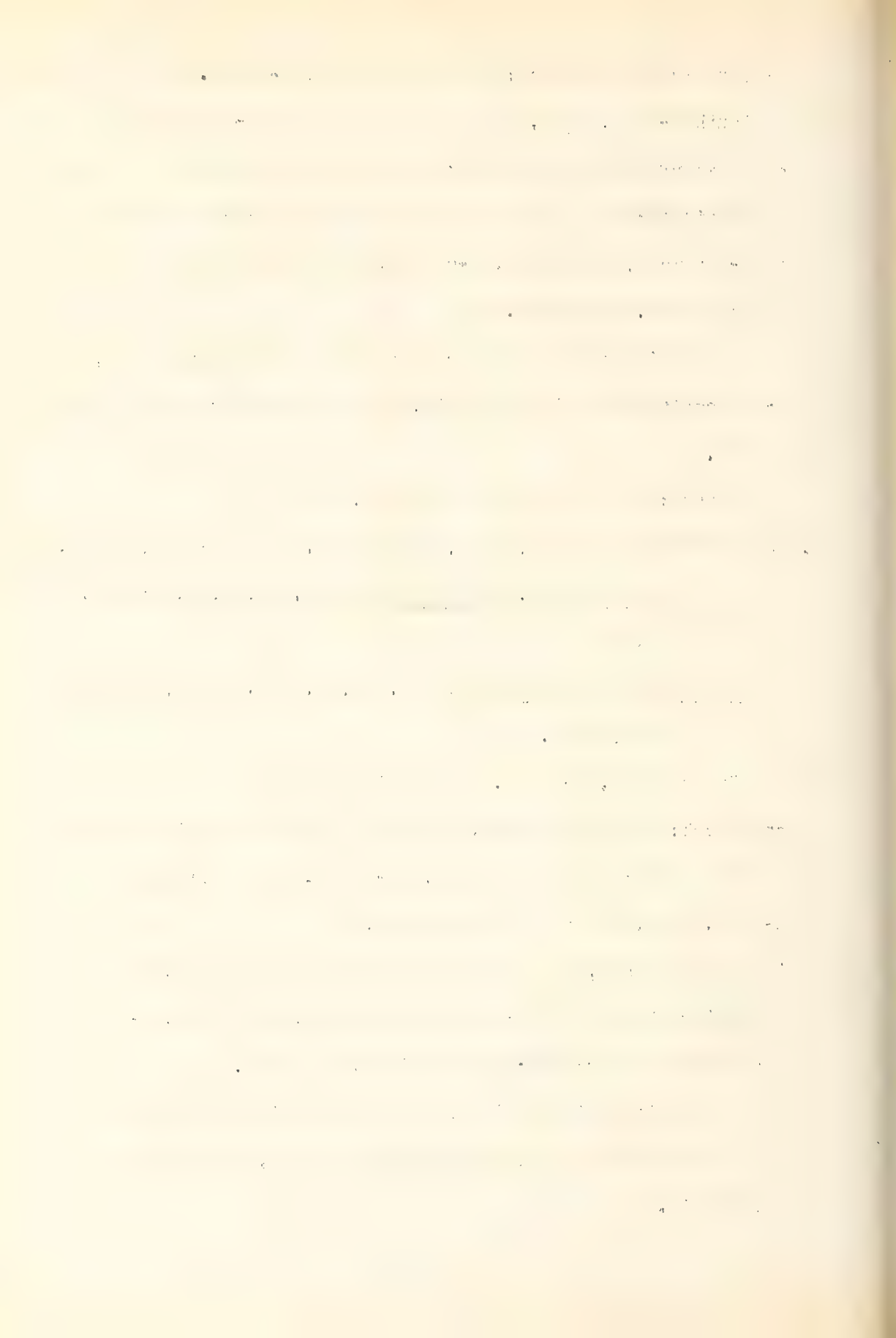
1843.

Juncus megacephalus Wood, Bot. ed. 2. 724. 1861, not

Curtis, 1835.

Stems stout, 2-10 dm. high, arising singly from a slender rootstock; stem leaves 1-4, their blades abruptly divergent from the stem; heads spherical, 10-15 mm. in diameter; perianth 4-5 mm. long, the segments subulate, the outer longer than the inner; stamens 6, about half as long as the perianth, anthers equalling the filaments; capsule subulate, trigonous, 1-celled, exceeding the perianth; seeds oblong, ecaudate.

Wet habitats in the Sonoran and Transition Zones, Massachusetts to Washington, southward to Alabama, Texas and California.



Nevada: Eureka County.

14. *JUNCUS CHLOROCEPHALUS* Engelm., Trans. St. Louis Acad. 2: 485.
1868.

Stems very slender, caespitose, 2-6 dm. high from slender matted rootstocks; basal sheaths bladeless, stem leaves 3-4, the blades scarcely 1 mm. in diameter; heads solitary or in few-headed panicles, few-many-flowered; perianth 4 mm. long, light green with broad scarious margins, the segments equal, oblong-lanceolate, obtuse, stamens three-fourths the length of the filaments; anthers longer than the filaments; capsule oblong, obtuse, two-thirds the length of the perianth; seeds oblong-ovoid ecaudate.

Mountain meadows in the Canadian Zone, California and western Nevada.

Nevada: Douglas County.

15. *JUNCUS MERTENSIANUS* Bong., Mem. Acad. St. Petersb. VI. 2:
167. 1832.

Juncus Mertensianus var. *filifolius* Suksd., Deutsch. Bot.
Monatss. 19: 92. 1901.

Stems slender, caespitose, 1.5-4.5 dm. high, from slender, matted rootstocks; stem leaves 2-3, somewhat compressed, 1-3 mm. wide, the septa often obscure; heads usually solitary, densely many-flowered, becoming spherical; perianth 4 mm. long, deep castaneous, the segments nearly equal, lanceolate, acute

to acuminate; stamens 6, nearly equalling the perianth, anthers usually shorter than the filaments; capsule oval, obtuse or emarginate, mucronate, equalling the perianth; seeds ovate-lanceolate, ecaudate.

Mountain meadows in the Hudsonian and Arctic-Alpine Zones, Alaska to New Mexico and California.

Nevada: Washoe, Humboldt and Elko Counties.

16. JUNCUS NEVADENSIS S. Wats., Proc. Am. Acad. 14: 303. 1879.

Juncus phaeocephalus var. gracilis Engelm., Trans. St. Louis Acad. 2: 473. 1868.

Stems very slender, more or less caespitose, 1.5-6 dm. high, from slender, creeping rootstocks; leaf-blades somewhat compressed, 1-1.5 mm. wide, the septa often obscure; heads 1-2 and much congested or 4-10 and few-flowered; perianth 3.5 mm. long, dark brown, the segments about equal, lanceolate, acuminate; stamens 6, anthers longer than the filaments; capsule oblong, abruptly acute and mucronate, scarcely equalling the perianth; seeds apiculate at each end.

Mountain meadows in the Canadian Zone, Washington and Idaho, southward to California and Nevada.

Nevada: Washoe and Ormsby Counties.

17. *JUNCUS ENSIFOLIUS* Wikstr., Kongl. Vet. Akad. Handl. 2: 274.

1823.

Juncus xiphioides var. *triandrus* Engelm., Trans. St. Louis

Acad. 2: 482. 1868.

Stems compressed and 2-edged, 3-6 dm. high, arising from creeping rootstocks; leaves flattened laterally and equitant, without auricles, the blades 2-5 mm. wide; heads 2-7 and many-flowered or numerous and 3-6-flowered; perianth 3 mm. long, the segments equal, narrowly lanceolate, acuminate; stamens 3, about two-thirds the length of the perianth, anthers shorter than the filaments; capsule oblong, obtuse, mucronate, slightly exceeding the perianth; seeds ecaudate.

Wet places in the Transition and Canadian Zones, Saskatchewan to Alaska, southward to Arizona and California.

Nevada: Elko County.

18. *JUNCUS XIPHIOIDES* E. Meyer Syn. Junc. 50. 1822.

Juncus ensifolius var. *major* Hook. Fl. Bor. Amer. 2: 191.

1840.

Juncus xiphioides var. *littoralis* Engelm., Trans. St.

Louis Acad. 2: 481. 1868.

Juncus xiphioides var. *auratus* Engelm., Trans. St. Louis

Acad. 2: 481. 1868.

Stems compressed and sharply 2-edged, 6-8 dm. high, from thick, creeping rootstocks; leaves flattened laterally and equitant, without auricles, the blades 3-10 mm. wide; heads

numerous, 3-20-flowered; perianth 3 mm. long, the segments equal, lanceolate, acuminate; stamens 6, half as long as the perianth, anthers shorter than or nearly equalling the filaments; capsule oblong, acute and mucronate, slightly exceeding the perianth; seeds ovate-lanceolate, ecaudate.

Wet habitats in the Transition and Upper Sonoran Zones, Utah, Arizona and Nevada to California and Lower California.

Nevada: Washoe, Elko, Clark and White Pine Counties.

19. *JUNCUS TRACYI* Rydb. Fl. Rocky Mts. 155. 1917.

Juncus utahensis Martin, Rhodora 40: 69. 1938.

Stems compressed, winged, 3-6 dm. high; leaves flattened laterally and equitant, the blades 2-4 mm. wide, sheaths with a scarious margin usually produced into a short auricle; heads few and many-flowered or many and few-flowered; perianth 3-4 mm. long, the segments subequal, lanceolate, acute; stamens 6, about half the length of the perianth, anthers equalling the filaments; capsule oblong, obtuse, mucronate, shorter than the perianth; seeds oblong, 0.8 mm. long, conspicuously caudate.

Moist meadows in the Canadian Zone, Idaho to northern Arizona and eastern Nevada.

Nevada: Clark County.

20. *JUNCUS SAXIMONTANUS* A. Nels., Bull. Torrey Bot. Club 29: 401.
1902.

Juncus xiphioides var. *montanus* Engelm., Trans. Acad. St.
Louis 2: 481. 1902.

Juncus parous Rydb., Bull. Torrey Bot. Club 31: 401. 1904.

Stems compressed and 2-edged, 3-5 dm. high, from stout, creeping rootstocks; leaves flattened laterally and equitant, usually auricled, the blades 2-4 mm. wide; heads 2-12, many-flowered; perianth 2.5-3 mm. long, the outer segments lanceolate, acuminate, the inner acute, shorter than the outer; stamens 6, about two-thirds the length of the perianth, anthers shorter than the filaments; capsule oblong, obtuse, mucronate, equalling the perianth; seeds ecaudate.

Wet meadows in the Transition and Canadian Zones, Colorado to British Columbia, southward to New Mexico, Arizona and Nevada.

Nevada: Washoe, Storey, Mineral, Clark, Elko and Churchill Counties.

20a. *JUNCUS SAXIMONTANUS* f. *BRUNNESCENS* (Rydb.) Hermann, Journ.

Wash. Acad. Sci. 30: 218. 1940.

Juncus brunnescens Rydb., Bull. Torrey Bot. Club 31: 400.
1904.

Similar to the species except in inflorescence; heads numerous, few-flowered.

Nevada: Mineral County.

EXCLUDED SPECIES:

Juncus uncialis Greene is ascribed to Nevada by Coville in Contrib. U. S. Nat. Herb. 25: 114. 1925, but no specimens have been located to substantiate the report.

Vars. exiguus Fern. & Wieg. and pacificus Fern. & Wieg. of Juncus effusus are known from California near the Nevada border and may be expected to occur in Nevada. The general ranges of Juncus Dudleyi Wieg., J. macer S. F. Gray (J. tenuis of authors), J. occidentalis (Coville) Wieg. and J. triformis Engelm. include Nevada, but so far as known they have not yet been collected in the state.

2. LUZULA DC. Woodrush.

Glabrous, pilose or arachnoid perennials. Stems leafy, the leaf-blades grass-like. Inflorescence paniculate, cymose, umbellate or congested. Flowers bracteolate, the bractlets usually lacerate or denticulate. Stamens 6. Ovary 1-celled. Seeds 3, sometimes carunculate but not distinctly tailed.

KEY TO SPECIES

1. Flowers solitary at the ends of the branches of the inflorescence.
2. Rays of the cymes drooping; pedicels erect; perianth and capsule dark purplish brown - - - - 1. L. Wahlenbergii.
2. Rays of the cymes divaricate; pedicels divaricate; perianth and capsule green, tinged with brown - 2. L. divaricata.

1. Flowers crowded in dense clusters.

3. Bract and bractlets ciliate-fimbriate; seeds not carunculate.

3. L. subcongesta.

3. Bracts and bractlets not fimbriate; seeds conspicuously carunculate.

4. Perianth (2.5-3.3 mm. long) and capsule stramineous to ferruginous; inflorescence not congested, at least some of the heads on elongate rays- 4. L. multiflora.

4. Perianth (1.8-2.5 mm. long) and capsule intensely castaneous or almost black; inflorescence congested, the heads sessile, forming usually a single capitate cluster - - - - - 5. L. sudetica.

1. LUZULA WAHLENBERGII Rupr., Beitr. Pflanzenr. Russl. 2: 58.

1845.

Luzula parviflora var. intermedia Wahl. Fl. Suec. 1: 217.

1824.

Luzula spadicca var. Wahlenbergii Buchenau in Engler,

Pflanzenr. 436: 63. 1906.

Juncoides Piperi Coville, Contr. U. S. Nat. Herb. 11: 185.

1906.

Luzula Piperi M. E. Jones, Bull. Univ. Montana, Biol. ser.

15: 22. 1910.

Stems 10-35 cm. high, densely tufted, from matted root-stocks; leaves chiefly basal, linear-lanceolate, 2-4 mm. wide, dull, sparsely pilose on the sheaths and margins; panicle de-

compound, nodding; bractlets brown, lacerate; perianth 1.5-2 mm. long, the segments ovate, acuminate; capsule ovoid, usually slightly exceeding the perianth.

Arctic regions and in western America in the Hudsonian Zone from Montana and Utah to Washington, California and Nevada.

Nevada: Washoe County.

2. *LUZULA DIVARICATA* S. Wats., Proc. Amer. Acad. 14: 302. 1879.

Juncoides divaricatum Coville, Contr. U. S. Nat. Herb. 4: 209. 1891.

Luzula spadicea var. *divaricata* Buchenau in Engler, Pflanzenr. 436: 63. 1906.

Stems 10-15 cm. high, caespitose, from matted rootstocks; leaves mostly basal, linear-lanceolate, 3-10 mm. wide; panicle decmpound, diffuse with divaricately spreading branches and pedicels; bractlets entire or occasionally sparsely lacerate; perianth 2-2.5 mm. long, the segments lanceolate, acuminate; capsule ovoid, scarcely equalling the perianth.

Open woods or borders of meadows in the Canadian Zone, Washington to California and western Nevada.

Nevada: Washoe County.

3. *LUZULA SUBCONGESTA* (S. Wats.) Jepson Fl. Calif. 1: 258. 1921.

Luzula spadicea var. *subcongesta* S. Wats. Bot. Calif. 1: 202. 1876.

Luzula parviflora var. *subcongesta* Buchenau Monogr.

Juncac. 110. 1890.

Juncoides subcongestum Coville, *Muhlenbergia* 1: 105. 1904.

Stems 20-50 cm. high, cespitose, from matted rootstocks; leaves mostly basal, 4-9 mm. wide; cyme congested into few or several head-like clusters terminating more or less elongated rays; bractlets fimbriate; perianth 1.5 mm. long, the segments ovate, abruptly acuminate, dark brown except for the hyaline tip; capsule ovoid, nearly equalling the perianth.

Alpine slopes in the Canadian and Hudsonian Zones, California and western Nevada.

Nevada: Washoe County.

4. *LUZULA MULTIFLORA* (Retz.) Lejeune Fl. Envir. Spa 169. 1811.

Juncus campestris L. Sp. Pl. ed. 2. 469. 1762.

Juncus multiflorus Ehrh. Calam., Gram. & Tripet. Exsicc.

ca. 1791.

Juncus multiflorus Retz. Fl. Scand. Prod. ed. 2. 82. 1794.

Juncus intermedius Thuill. Fl. Envir. Paris 178. 1799.

Luzula campestris var. multiflora Celak. Prodr. Fl.

Böhmen. 85. 1869.

Juncoides campestre var. multiflorum Sheld., Minn. Bot.

Stud. 1: 65. 1894.

Juncoides intermedium Rydb., Bull. Torrey Bot. Club 32:

610. 1905.

Luzula intermedia A. Nels. New Man. Rocky Mt. Bot. 109.

1909.

Stems 20-50 cm. high, densely caespitose; leaf-blades 2-7 mm. wide, more or less arachnoid; inflorescence umbelloid, its rays unequal, each terminated by a dense oblong or short cylindric spike; lowest bract often equalling the inflorescence; bractlets acuminate, fimbriate at the apex; anthers longer than the filaments, often twice as long; capsule equalling or shorter than the perianth.

Moist woods in the Canadian and Hudsonian Zones, Newfoundland to Alaska, southward to Pennsylvania, Illinois, New Mexico and California; also in Eurasia.

Nevada: Washoe County.

5. *LUZULA SUDETICA* (Willd.) DC. Fl. Franc. 6: 306. 1815.

Juncus campestris L. Sp. Pl. ed. 2. 469. 1762.

Juncus sudeticus Willd. Sp. Pl. 2: 221. 1799.

Luzula campestris var. *alpina* Gaud. Agrostol. Helv. 247.
1811.

Luzula campestris var. *sudetica* Celak. Prodr. Fl. Böhm.
749. 1881.

Juncoides campestre sudeticum Coville, Contr. U. S. Nat.
Herb. 4: 208. 1893.

Luzula frigida of American authors, not Buchenau.

Plant often more or less reddish tinged; stems 15-30 cm. high, loosely caespitose or solitary; leaf-blades 2-3 mm. wide, sparsely arachnoid; lowest bract usually exceeding the inflorescence; inflorescence small, the heads 1-5, small, ovoid,

usually all sessile or one or two of the lateral short-peduncled; anthers about equalling the filaments; capsule equaling or slightly exceeding the inner perianth segments.

Arctic regions; in western United States known only from the Arctic-Alpine Zone in California and western Nevada.

Nevada: Washoe County.

Luzula spicata (L.) DC., so far not known from Nevada, should be looked for in the Arctic-Alpine and Hudsonian Zones along the western border of the state.

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