

JUNCUS

Description: Perennial or annual herbs. **Culms** terete or occasionally compressed. **Leaves** basal or occasionally 1-3 cauline; blade flat, terete, channelled, compressed or reduced to mucro on sheath, internally septate or hollow or filled with loose pith; auricles often present. Lowest 1 or 2 involucre bracts leaf- or culm-like. **Flowers** bisexual or rarely unisexual, clustered or solitary, with 1 papery bract, with or without 2 papery bracteoles. Outer whorl of tepals exceeding to shorter than inner whorl. Stamens 3-6. Ovary 1- or 3-locular or incompletely 3-septate. **Capsule** smooth, shining; seeds numerous, mucilaginous when wet, occasionally tailed.

Flowering: Generally flower spring–summer or after rain, but capsules remain on the plant for many months.

Distribution and occurrence: World: c. 300 species, cosmopolitan. Australia: 68 species (31 species endemic, 21 species naturalized), all States.

Key to the genus <i>Juncus</i>		
1	Leaves numerous, flat, involute, canaliculate, terete, or filiform, spread along the culms or all basal (if terete, leaves septate or spread along culms); inflorescence obviously terminal (rarely apparently lateral)	2
	Leaves reduced to basal sheathing cataphylls or 1 or 2 well-developed terete basal leaves similar to culms, not septate; inflorescence apparently lateral or obviously terminal, with the lowest involucre bract well-developed and appearing superficially to be a continuation of the culm	27
2	Leaves not septate, solid	3
	Leaves septate (if filiform, septa not very obvious), spread along culms, hollow or with very loose pith between septa	15
3	Flowers subtended by 2 bracteoles, solitary or loosely clustered (densely clustered in <i>Juncus bufonius</i> (occasionally) and in <i>J. homalocaulis</i>); leaves basal or both basal and cauline; auricles present or absent	4
	Flowers without bracteoles, more or less densely clustered; leaves all basal (except in <i>Juncus falcatus</i>); auricles absent	10
4	Annuals; auricles absent but often with hyaline margins narrowing abruptly at top of sheath; both cauline and basal leaves present on a plant	<i>Juncus bufonius</i> ACT, ST
	Perennials; auricles present; leaves all basal	5
5	Leaves flat (may be inrolled when dried)	6
	Leaves canaliculate or terete or filiform	7
6	Anthers 0.3–0.6 mm long, shorter than or equalling filaments; tepals 3.0–4.5 mm long	<i>Juncus tenuis</i> * ACT, ST
	Anthers 1.2–2.0 mm long, longer than filaments; tepals 4.5–5.7 mm long	<i>Juncus revolutus</i>
7	Tepals no more than 3.0 mm long; base of plant with persistent fibrous remains of leaf sheaths; culms 0.2–0.5 mm diam	<i>Juncus capillaceus</i>
	Tepals more than 3.0 mm long (rarely as short as 2.8 mm in <i>Juncus cognatus</i> but then no fibrous remains persisting at base of plant); culms 0.5–2 mm diam	8
8	Flowers in more or less stellate, dense clusters; stamens mostly 3, occasionally 4 to 6; outer tepals 5–6(–7.5) mm long, much longer than inner (by 0.5–1 mm)	<i>Juncus homalocaulis</i> ACT, ST
	Flowers solitary, evenly spread along ultimate branches of inflorescence; stamens 6; outer tepals 2.8–4.2 mm long, equalling or exceeding inner tepals by less than 0.5 mm	9

9	Capsule much longer than tepals (by 1–2 mm); anthers 0.7–1.1 mm long	<i>Juncus imbricatus</i>
	Capsule about as long as tepals (slightly shorter than to slightly exceeding them); anthers 0.3–0.6 mm long	<i>Juncus cognatus</i>
10	Perennials (but often flowering in first year)	11
	Annuals	<i>Juncus capitatus*</i> ACT, ST
11	Tepals less than 3.5 mm long (rarely 3.5 mm long in <i>Juncus antarcticus</i> , and then leaves 0.2–0.5 mm wide); leaves 0.2–11 mm wide	12
	Tepals longer than or equalling 3.5 mm long; leaves 1–3 mm wide	14
12	Plants dwarf, mat-forming, with a slender rhizome; culms 0.5–6 (rarely to 12) cm long; stamens 3 or rarely 6	<i>Juncus antarcticus</i> , ST
	Plants tufted, not mat-forming, with or without a rhizome; culms mostly 15–60 cm long (occasionally as short as 5 cm); stamens 3 or 6	13
13	Stamens 3; leaves 1.5–11 mm wide; tepals with more or less narrow hyaline margins; anthers 0.3–0.5 mm long, usually shorter than filaments; capsule exceeding or occasionally equalling outer tepals	<i>Juncus planifolius</i> , ACT, ST
	Stamens 6; leaves 1–2 (rarely to 2.5) mm wide; inner tepals with broad whitish margins; anthers 0.4–0.8 mm long, more or less equalling filament length; capsule shorter than or equalling outer tepals	<i>Juncus caespiticus</i>
14	Inflorescence of 1 or 2 (rarely 4) heads; culms, bracts and tepals more or less scaberulous; capsule longer than or equalling tepals, short-apiculate; often 1 or 2 cauline leaves present as well as basal	<i>Juncus falcatus</i> , ACT, ST
	Inflorescence diffuse, with 8–25 clusters at apex of branches; culms, bracts and tepals smooth; capsule much shorter than tepals, long-beaked; leaves all basal	<i>Juncus capensis</i>
15	Leaves unitubulose (i.e. with transverse septa only - determined by carefully splitting the culm) or leaves less than 1 mm diam. (and therefore not easy to determine position of septa)	16
	Leaves pluritubulose	26
	Seeds 0.3–0.7 mm long, not tailed	17
16	Seeds 1.3–1.9 mm long, tailed at both ends	<i>Juncus canadensis</i>
17	Stamens 3	18
	Stamens 4–6	19
18	Slender plants with culms 6–30 cm long; leaves more or less filiform, 0.3–0.7(–1.2) mm diam., pluritubulose but septa not obvious; inflorescence 2–7 cm long	<i>Juncus bulbosus*</i> ST
	Moderately robust plants with culms 25–60 cm long; leaves 1–2.6 mm diam., clearly unitubulose; inflorescence 9–18 cm long	<i>Juncus acuminatus</i>
19	Dwarf plants with culms no more than 10 cm long at maturity (rarely to 14 cm in <i>Juncus sandwithii</i>); leaves more or less filiform, usually less than 1.0 mm diam.; with septa often not obvious	20
	Plants with culms mostly 20–80 cm long (occasionally longer; if shorter, then with more or less numerous clusters and more or less numerous flowers, or inflorescence with more than 3 clusters, each with more than 4 flowers); leaves broader than filiform, 1–4 mm diam., with transverse septa usually obvious	22

20	Auricles 1–2 mm long; capsule obtuse, shortly apiculate; tufted	<i>Juncus bulbosus</i> * ST
	Auricles c. 0.5 mm long; capsule acuminate, long- or short-beaked; shortly rhizomatous, mat-forming	21
21	Outer tepals slightly exceeding to slightly shorter than inner tepals; inner tepals acute, with more or less narrow hyaline margins; stamens shorter than tepals; capsule longer than tepals by 0.7–1.5 mm	<i>Juncus sandwithii</i> , ACT, ST
	Outer tepals shorter than inner tepals by up to 0.5 mm; inner tepals obtuse to broad-acute, with broad hyaline margins; stamens longer than or equalling tepals; capsule equalling or exceeding tepals by up to 0.5 mm	<i>Juncus thompsonianus</i> , ACT, ST
22	Capsule tapering evenly from base into long beak, longer than tepals by 1–2 mm	<i>Juncus fockei</i> , ACT, ST
	Capsule with short or long beak but not tapering evenly from base (body of capsule ovate, oblong or obovate in outline, contracting more or less abruptly to a beak)	23
23	Anthers longer than or equalling filaments; auricles 0.7–1.5 mm long	24
	Anthers shorter than filaments; auricles 1.5–3.5 mm long	25
24	Rhizome robust, 2–5 mm diam.; outer tepals usually shorter than inner; tepals with long-acuminate apices strongly reflexed at maturity	<i>Juncus acutiflorus</i>
	Rhizome absent or slender (less than 2 mm diam.); outer tepals usually longer than or equalling inner; tepals with acute to obtuse or acuminate apices erect or only slightly reflexed	<i>Juncus articulatus</i> *, ACT, ST
25	Capsule red-brown at least near apex, obtuse, usually shorter than tepals; tepals with usually broad whitish margins; seeds 0.3–0.4(–0.5) mm long	<i>Juncus microcephalus</i>
	Capsule golden brown, acute, subequal to tepals; tepals with broad hyaline to yellowish margins; seeds 0.4–0.6 mm long	<i>Juncus holoschoenus</i> , ACT, ST
26	Leaves terete or canaliculate, 0.3–1.2 mm diam.; anthers longer than or equalling filaments; capsule obtuse, apiculate	<i>Juncus bulbosus</i> * ST
	Leaves flattened, 1.3–3.2 mm wide; anthers shorter than filaments; capsule tapering more or less evenly to long-acuminate apex	<i>Juncus prismatocarpus</i> , ACT, ST
27	Flowers without bracteoles; leaves and bracts pungent; 1 or 2 terete leaves similar to culms present, as well as several cataphylls	28
	Flowers subtended by 2 bracteoles; leaves and bracts acute but not pungent; leaves all reduced to cataphylls on flowering plants (vegetative shoots are long, terete leaf-like)	29
28	Capsule much longer than tepals, golden brown to chestnut-brown; anthers 1.2–1.7 mm long; seeds tailed at both ends, 1.3–1.8 mm long; inner tepals with broad whitish margins (readily deciduous) near apex	<i>Juncus acutus</i> , ST
	Capsule slightly exceeding to slightly less than tepals, golden brown to red-brown to blackish; anthers 0.5–1.0 mm long; seeds not tailed, 0.5–0.8 mm long; inner tepals with more or less narrow hyaline margins near apex	<i>Juncus kraussii</i>
29	Inflorescence branches, upper culms and mid-region of tepals finely scabrous	<i>Juncus radula</i>
	Plants not scabrous	30
30	Plants unisexual (rudimentary parts of the other sex present)	31
	Plants bisexual	32

31	Culm striations 35–60; culms 65–125 cm long, 1.6–3.2 mm diam.; stomates sunken below surface of culm	<i>Juncus psammophilus</i>
	Culm striations 100–200; culms 120–400 cm long, 4–9 mm diam.; stomates superficial	<i>Juncus ingens</i>
32	Pith continuous (may be dense or more loose, but without distinct lacunae) at least in middle portion of culms	33
	Pith interrupted (with obvious lacunae in the pith) at least in middle portion of culms	50
33	Stamens usually 6 (occasionally fewer in some flowers in an inflorescence)	34
	Stamens usually 3 (occasionally more in some flowers in an inflorescence)	38
34	Culm striations greater than 40; culms greater than or equalling 2.5 mm diam.; cataphylls more or less lax	35
	Culm striations 40 or less; culms less than 2.5 mm diam.; cataphylls more or less tight	36
35	Capsule without red-brown flecks on adaxial surface, usually exceeding tepals (occasionally equalling them); flowers loosely clustered or solitary and spread out along the branches of the inflorescence (rarely densely clustered but if so then not in several discrete clusters)	<i>Juncus pallidus</i>
	Mature capsule with red-brown flecks on adaxial surface, usually shorter than tepals (occasionally equalling them); flowers in dense, distant clusters at apex of branches	<i>Juncus vaginatus</i> ACT, ST
36	Flowers in dense distant clusters at apex of branches; culms 1.5–4.5 mm diam.; mature capsule with red-brown flecks adaxially	<i>Juncus vaginatus</i> , ACT, ST
	Flowers solitary and spread out along the branches of the inflorescence; culms 0.5–1.7 mm diam. (rarely to 2.5 mm in <i>Juncus pauciflorus</i>); capsule without red-brown flecks adaxially	37
37	Outer tepals 2.0–2.8 mm long; culms mid-green, very glossy	<i>Juncus pauciflorus</i> , ST
	Outer tepals 2.9–3.1 mm long; culms grey-green, dull	<i>Juncus dolichanthus</i>
38	Striations 10–20; culms 15–45 cm long, 0.6–1.2 mm diam.; inflorescence shorter than or equalling 3 cm long and flowers in 1–several dense discrete clusters	<i>Juncus filicaulis</i> , ACT, ST
	Striations 20–120; culms 50–170 cm long, 1.3–8.5 cm diam.; inflorescence longer than 3 cm long (occasionally culms and inflorescences slightly smaller in <i>Juncus usitatus</i> but then flowers solitary and spread along branches, and culms yellow-green to mid-green)	39
39	Inflorescence reddish overall (capsules red-brown to dark red-brown and tepals with red-brown sides)	<i>Juncus phaeanthus</i> ACT, ST
	Inflorescence straw-coloured to golden brown overall (although either capsules or tepals may occasionally be red-brown)	40
40	Inflorescence with flowers in discrete dense clusters at apex of branches	41
	Inflorescence with flowers solitary and spread along the branches or loosely clustered towards apex of branches	44
41	Stomates deeply sunken below culm surface in straight-sided pits	<i>Juncus australis</i> , ACT, ST
	Stomates superficial or slightly sunken below culm surface	42

42	Culms yellow-green to mid-green, not glaucous	<i>Juncus alexandri</i> , ACT, ST
	Culms grey-green to blue-green, often glaucous	43
43	Culms 55–110 cm long, 2.2–5 mm diam.; stomates slightly sunken	<i>Juncus firmus</i>
	Culms 90–160 cm long, 3.5–8.5 mm diam.; stomates superficial	<i>Juncus semisolidus</i>
44	Culms grey-green to blue-green, often glaucous	45
	Culms yellow-green to mid-green, not glaucous	46
45	Culms 55–110 cm long, 2.2–5 mm diam.; stomates slightly sunken	<i>Juncus firmus</i>
	Culms 90–160 cm long, 3.5–8.5 mm diam.; stomates superficial	<i>Juncus semisolidus</i>
46	Cataphylls coppery to dark golden brown adaxially, lax or tightly enclosing culm; culms soft or more or less hard	47
	Cataphylls silvery to pale golden brown adaxially, more or less tightly clasping culm; culms more or less soft	49
47	Cataphylls dull, tightly enclosing culm; culms soft; capsule mostly shorter than outer tepals	<i>Juncus effusus</i> , ST
	Cataphylls glossy at least near base, lax; culms more or less hard; capsule mostly exceeding outer tepals	48
48	Pith usually slightly interrupted near apex or base; cataphylls usually dark yellow-brown to dark red-brown abaxially, rarely black at very base	<i>Juncus laeviusculus</i> , ST
	Pith always continuous; cataphylls mostly dark red-brown but usually black at very base	<i>Juncus alexandri</i> , ACT, ST
49	Cataphylls yellow to dark yellow-brown abaxially; striations 35–80	<i>Juncus continuus</i> , ST
	Cataphylls red-brown or occasionally golden brown; striations 20–40	<i>Juncus usitatus</i> , ACT, ST
50	Culms no more than 2.5 mm diam. (about halfway along culm)	51
	Culms more than 2.5 mm diam. (about halfway along culm)	75
51	Culm striations less than 25	52
	Culm striations at least 25	56
52	Culms grey-green to blue-green, occasionally glaucous	53
	Culms yellow-green to mid-green, never glaucous	55
53	Stomates sunken in sloping-sided pits; cataphylls golden brown to coppery adaxially, usually dark red-brown to black abaxially; striations widely spaced; inflorescence 6–15 cm long	<i>Juncus sarophorus</i> , ACT, ST
	Stomates superficial; cataphylls silvery to pale golden brown adaxially, straw-brown to dark yellow-brown abaxially; striations closely packed; inflorescence mostly 1.5–7 cm long	54
54	Inflorescence head-like or occasionally with 1 or 2 extra dense clusters; striations longer than or equalling 0.1 mm wide; tepals frequently red-tinged	<i>Juncus filicaulis</i> , ACT, ST
	Inflorescence with flowers spread out along the branches or clustered; striations mostly less than 0.1 mm wide; tepals occasionally red-tinged	<i>Juncus subsecundus</i> , ACT, ST
55	Cataphylls red-brown to golden brown abaxially; culms more or less soft	<i>Juncus usitatus</i> ,

		ACT, ST
	Cataphylls pale yellow to pale golden brown abaxially; culms more or less hard	<i>Juncus ochrocoleus</i>
56	Inflorescence reddish overall (capsules red-brown to dark red-brown and tepals with red-brown sides)	<i>Juncus phaeanthus</i> , ACT, ST
	Inflorescence straw-brown to dark golden brown overall (although either capsules or tepals may occasionally be at least partly red-brown)	57
57	Stomates deeply sunken below surface of culm	58
	Stomates superficial	60
58	Stomates in sloping-sided pits; striations 20–40, widely separated; anthers 0.3–0.5 mm long	<i>Juncus sarophorus</i> , ACT, ST
	Stomates in straight-sided pits; striations 35–90, more or less closely packed; anthers 0.5–1.0 mm long	59
59	Cataphylls dark yellow-brown to red-brown; tepals with narrow hyaline margins	<i>Juncus australis</i> , ACT, ST
	Cataphylls yellow to dark golden brown; tepals with more or less broad hyaline margins	<i>Juncus flavidus</i> , ACT, ST
60	Outer tepals longer than 2.5 mm long	61
	Outer tepals less than or equalling 2.5 mm long	63
61	Culms hard; striations usually 15–30, rarely to 40; inflorescence usually 1–5 cm long	<i>Juncus subsecundus</i> , ACT, ST
	Culms soft; striations 25–115; inflorescence 7–19 cm long	62
62	Cataphylls yellow to dark yellow-brown; capsule shorter than or equalling outer tepals; lowest involucre bract often shorter than inflorescence	<i>Juncus remotiflorus</i> , ACT, ST
	Cataphylls usually pink-brown to red-brown; capsule longer than outer tepals; lowest involucre bract longer than inflorescence	<i>Juncus aridicola</i>
63	Inflorescence of several dense discrete clusters of flowers at the apex of branches	64
	Inflorescence diffuse, with flowers evenly spread along branches or loosely clustered towards the apex of the branches	67
64	Culms yellow-green to mid-green, not glaucous	<i>Juncus gregiflorus</i> , ACT, ST
	Culms grey-green to blue-green, often glaucous	65
65	Cataphylls straw-brown to dark yellow-brown, more or less tight; striations mostly less than 30; culms mostly less than 1.4 mm diam.; outer tepals mostly 2.5–4 mm long	<i>Juncus subsecundus</i> , ACT, ST
	Cataphylls mostly red-brown to black (rarely yellow-brown), more or less lax; striations 30–60; culms mostly 1.4–2.5 mm diam.; outer tepals 1.8–2.6 mm long	66
66	Culms hard; inflorescence 4–15 cm long	<i>Juncus subglaucus</i>
	Culms soft; inflorescence usually 1–5 cm long	<i>Juncus amabilis</i> , ACT
67	Culms grey-green to blue-green, often glaucous	68
	Culms yellow-green to mid-green, not glaucous	71

68	Tepals acute to obtuse; cataphylls adaxially coppery to golden brown	<i>Juncus polyanthemus</i>
	Tepals acuminate to acute, often mucronate; cataphylls adaxially silvery to occasionally golden brown	69
69	Striations mostly 15–30	<i>Juncus subsecundus</i> , ACT, ST
	Striations 35–115	70
70	Culms hard; striations 35–55; inflorescence branches more or less straight	<i>Juncus subglaucus</i>
	Culms soft; striations 40–115; inflorescence branches often strongly flexuous	<i>Juncus aridicola</i>
71	Cataphylls abaxially pale yellow to pale golden brown	<i>Juncus ochrocoleus</i>
	Cataphylls abaxially dark yellow-brown to pink-brown, red-brown or black	72
72	Cataphylls tightly enclosing culms; tepals with broad hyaline margins	73
	Cataphylls lax; tepals mostly with narrow hyaline margins	74
73	Culms less than 2.0 mm diam	<i>Juncus usitatus</i> , ACT, ST
	Culms 2.1–4 mm diam	<i>Juncus mollis</i>
74	Culms hard; inflorescence 3–10 cm long; anthers longer than or equalling filaments	<i>Juncus laeviusculus</i> , ST
	Culms more or less soft; inflorescence 1–5 cm long; anthers shorter than or equalling filaments	<i>Juncus gregiflorus</i> , ACT, ST
75	Inflorescence reddish overall (capsules red-brown to dark red-brown and tepals with red-brown sides)	<i>Juncus phaeanthus</i> , ACT, ST
	Inflorescence straw-brown to dark golden-brown overall (although either capsules or tepals may occasionally be at least partly red-brown)	76
76	Stomates sunken below culm surface	77
	Stomates superficial	79
77	Stomates in sloping-sided pits; striations 20–40, widely separated; anthers 0.3–0.7 mm long	<i>Juncus sarophorus</i> , ACT, ST
	Stomates in straight-sided pits; striations 35–90, more or less closely packed; anthers 0.5–1.0 mm long	78
78	Cataphylls dark yellow-brown to red-brown; tepals with narrow hyaline margins	<i>Juncus australis</i> , ACT, ST
	Cataphylls yellow to dark golden-brown; tepals with more or less broad hyaline margins	<i>Juncus flavidus</i> , ACT, ST
79	Culms grey-green to blue-green, often glaucous	80
	Culms yellow-green to mid-green, not glaucous	82
80	Culms more or less hard; cataphylls abaxially dark red-brown to black	<i>Juncus semisolidus</i>
	Culms more or less soft; cataphylls abaxially pink-brown to red-brown	81
81	Cataphylls golden brown to coppery adaxially; seeds 0.4–0.5 mm long	<i>Juncus polyanthemus</i>
	Cataphylls silvery to pale golden brown adaxially; seeds 0.3–0.4 mm long	<i>Juncus aridicola</i>
82	Inflorescence of discrete dense clusters of flowers at the apex of branches	83

	Inflorescence diffuse, with flowers spread evenly along branches or in loose clusters towards apex of branches	85
83	Culms hard; lowest involucral bract mostly shorter than or equalling inflorescence	<i>Juncus brevibracteus</i> , ACT, ST
	Culms more or less soft; lowest involucral bract mostly longer than inflorescence	84
84	Culms 3–10 mm diam.; striations 65–160; outer tepals 2.0–3.0 mm long, with more or less broad hyaline margins	<i>Juncus procerus</i> ST
	Culms 1–3 mm diam.; striations 30–65; outer tepals 1.6–2.2 mm long, with narrow hyaline margins	<i>Juncus gregiflorus</i> , ACT, ST
85	Cataphylls abaxially pale yellow to pale golden brown	<i>Juncus ochrocoleus</i>
	Cataphylls abaxially dark yellow-brown to pink-brown, dark red-brown or black	86
86	Culms soft	87
	Culms hard	88
87	Flowers in loose to dense clusters; cataphylls lax	<i>Juncus gregiflorus</i> , ACT, ST
	Flowers solitary along branches of inflorescence; cataphylls tightly enclosing culms	<i>Juncus mollis</i>
88	Tepals with narrow hyaline margins	89
	Tepals with broad hyaline margins	90
89	Anthers longer than or equalling filaments; capsule golden brown	<i>Juncus laeviusculus</i> , ST
	Anthers shorter than filaments; capsule dark golden brown to red-brown	<i>Juncus brevibracteus</i> , ACT, ST
90	Capsule longer than or equalling outer tepals; lowest involucral bract mostly shorter than or equalling inflorescence; culms 1.7–2.9 mm diam	<i>Juncus laeviusculus</i> ACT, ST
	Capsule shorter than or equalling outer tepals; lowest involucral bract mostly longer than inflorescence; culms 3–10 mm diam	<i>Juncus procerus</i> , ST

****Juncus acutus* subsp. *acutus*, Sharp Rush**

Description: Tussock-forming, shortly rhizomatous perennial. Culms terete, 30-160 cm long, 2.0-4.0 mm diam. Leaves terete, basal, shorter than culms, pungent; auricles absent; sheath yellow-brown to golden brown, adaxially coppery. Inflorescence terminal or pseudolateral, diffuse, 4-13 cm long; flowers clustered, 1-6 per cluster and 5-50 clusters per inflorescence; involucral bracts 1 or 2, well-developed, 4-25 cm long, shorter than to longer than inflorescence. Tepals straw-brown, often tinged darker chestnut-brown; outer tepals (rarely 2.0) 2.5-3.7 mm long, shorter than or equalling inner tepals, often with narrow whitish margin near apex; inner tepals with broad white margin near apex. Stamens 6. Capsule much longer than outer tepals, ellipsoid to ovoid, acute to acuminate, apiculate, yellow-brown to chestnut-brown; seeds membranous-tailed.

Flowering: spring-summer.

Distribution and occurrence: Naturalized, scattered, recorded near Sydney, Kempsey and lower Hunter Valley, near Batemans Bay, Dubbo, Hillgrove, Yass, and along the Murray River valley. Also in all other States. Native of Eur., Medit., SW Asia. NSW subdivisions: *NC, *CC, *SC, *NT, *ST, *CWS, *SWS, *SWP, *SFWP. Other Australian states: *Qld *Vic. *Tas. *S.A. *N.T. *W.A.

Juncus alexandri* subsp. *alexandri

Description: Cataphylls yellow-brown, dark yellow-brown or red-brown (not blackish) towards the base; 'cortical' air-spaces absent from the culms or few or small; tepals acute, mostly 1.6-2.2 mm long; cataphylls 7-14 cm long; lowest involucral bract 3-10 cm long, shorter than to longer than inflorescence; capsule obovoid.

Culms 40-150 cm long, 1.6-2.7 (rarely to 3.5) mm diam.; culm striations 37--55. Tepals with broad hyaline margins. Anthers 0.4--0.5 mm, shorter than or equalling filaments. Capsule occasionally red-brown near apex. **Distribution and occurrence:** South from Captains Flat. NSW subdivisions: ST. Other Australian states: Vic.

Juncus amabilis

Description: Shortly rhizomatous perennial. Culms terete, 50--110 cm long, 1.0--2.5 mm diam., ± soft, grey-green, ± glaucous; culm striations 30--60; pith very interrupted. Cataphylls 10--15 cm long, ± lax, abaxially yellow-brown to very dark red-brown or black at base, adaxially silvery. Inflorescence pseudolateral, diffuse or head-like; 1--5 (occasionally to 10) cm long; flowers numerous, densely to loosely clustered; lowest involucre bract 10--33 cm long, longer than inflorescence. Tepals straw-brown, with broad hyaline margins; outer tepals 1.8--2.5 mm long, longer than or equalling inner tepals. Stamens 3 (rarely to 6), shorter than outer tepals; anthers 0.4--0.7 mm long. Capsule slightly longer than or equalling outer tepals, ellipsoid, obtuse, not or scarcely apiculate, golden brown.

Flowering: spring--summer.

Distribution and occurrence: Grows in damp places; scattered in the Murray R. valley from Albury west to Tooleybuc, introduced in Sydney region. NSW subdivisions: *CC, SWS, SWP, SFWP. Other Australian states: ACT, Vic. Tas. W.A. S.A.

Juncus antarcticus, Cushion Rush

Description: Dwarf shortly rhizomatous, mat-forming, perennial. Culms terete, 0.5-6[-12] cm long, 0.2-0.7 mm diam. Leaves basal with tubular sheaths that extend some distance up short culms, shorter than or equalling or rarely longer than culm; blade +/- flat below to canaliculate or subterete towards apex, 0.2-0.5 mm wide; auricles absent; sheath pale brown. Inflorescence terminal, head-like, c. 1 cm long, 2-10-flowered; involucre bracts 1 or 2, +/- well-developed, 0.2-0.6 cm long, shorter than or equalling inflorescence. Tepals red-brown to very dark red-brown or straw-brown with red tinges, with margins narrow to broad hyaline; outer tepals (rarely 1.9-) 2.5-3.5 mm long, longer than or equalling inner. Capsule shorter than or occasionally equalling outer tepals, narrow-ellipsoid, acute, apiculate, golden brown to very dark red-brown (usually darker near apex).

Flowering: summer.

Distribution and occurrence: Grows in alpine and subalpine bogs and other wet sites, above 1500 m alt. in the Snowy Mtns. NSW subdivisions: ST. Other Australian states: Vic. Tas.

**Juncus articulatus*

Description: Tufted or shortly rhizomatous perennial, often rooting at the nodes. Culms terete, 5-60 cm long, 0.8-1.5 mm diam. Leaves unitubulose, spread along culms, shorter than culms; blade terete or +/- compressed, 1-2 mm diam; auricles 0.8-1.3 mm long. Inflorescence terminal, diffuse, 3-12 cm long; flowers clustered (rarely solitary) at apex of branches, 5-10 (rarely to 30) per cluster and 5--20 (rarely to 80) clusters per inflorescence; involucre bract 1, well-developed, 0.5-1 (rarely to 2) cm long, shorter than inflorescence. Tepals red-brown or straw-brown; outer tepals 2.0-3.0 (rarely to 3.5) mm long, slightly longer than to slightly shorter than inner tepals; inner tepals with broad hyaline margins. Stamens 6, shorter than outer tepals; anthers 0.4-1.0 mm long. Capsule longer than outer tepals by up to 1 mm or occasionally equalling them, narrow-ellipsoid to narrow-ovoid, acuminate (tapering gradually or abruptly) to obtuse, red-brown to dark red-brown, occasionally golden brown.

Flowering: spring--summer.

Distribution and occurrence: Naturalized; in damp situations; widespread. Native of Eur., Asia, N Afr. & N Amer. NSW subdivisions: *NC, *CC, *SC, *NT, *CT, *ST, *NWS, *CWS, *SWS, *NWP, *SWP. Other Australian states: *Qld *Vic. *Tas. *W.A. *S.A.

Juncus australis

Description: Strongly rhizomatous perennial. Culms terete, 50-100 cm long, 1.6-3.3 mm diam., hard, blue-green to grey-green or occasionally dull yellow-green, subglaucous; culm striations 35-75; pith interrupted, rarely continuous. Cataphylls 7-19 cm long, lax, abaxially dark yellow-brown to red-brown at base, adaxially silvery or occasionally pale golden brown. Inflorescence pseudolateral, diffuse or head-like, 2-6 (rarely to 14) cm long; flowers numerous densely to loosely clustered; lowest involucre bract 8-18 cm long, longer than inflorescence. Tepals straw-brown, occasionally tinged red-brown, with +/- narrow hyaline margins; outer

tepals 2.0-2.5 (rarely to 3.0) mm long, longer than inner tepals. Stamens 3, shorter than outer tepals; anthers 0.5-0.9 mm long. Capsule shorter than to longer than outer tepals, obovoid to ellipsoid, obtuse, not or scarcely apiculate, golden brown.

Flowering: spring-summer.

Distribution and occurrence: South from Glen Innes, mainly on the Tablelands, extending to the coastal ranges south from Bilpin and west to near Wellington and Albury. Grows in wet or seasonally wet situations in grasslands and woodlands. NSW subdivisions: CC, SC, NT, CT, ST, NWS, CWS, SWS. Other Australian states: Vic. Tas. S.A.

Juncus brevibracteus

Description: Strongly rhizomatous perennial. Culms terete, 45-125 cm long, 2.1-4.0 mm diam., +/- hard, mid-green; culm striations 42-110; pith finely interrupted. Cataphylls 8-19 cm long, lax, abaxially dark yellow-brown to orange-brown or dark red-brown at base, adaxially coppery. Inflorescence pseudolateral, diffuse or head-like, 3-10 cm long; flowers numerous, loosely to densely clustered; lowest involucral bract 4-16 cm long, slightly shorter than to slightly longer than inflorescence, rarely exceeding it by more than a third of its length. Tepals straw-brown, often with darker bands; outer tepals 1.5-2.2 mm long, longer than inner tepals, with narrow hyaline margins; inner tepals with broad hyaline margins. Stamens 3, shorter than outer tepals; anthers 0.4-0.7 mm long. Capsule longer than outer tepals, ovoid to ellipsoid, obtuse to broad-acute, not or scarcely apiculate, dark golden brown, often red-brown towards apex.

Flowering: summer.

Distribution and occurrence: Common at higher altitude (including lower subalpine areas), south from the Brindabella Range. Around *Sphagnum* swamps and along swampy creeks. NSW subdivisions: ST. Other Australian states: Vic.

Juncus bufonius, Toad Rush

Description: Tufted annual. Culms terete, 2-20 cm long, 0.4-1.0 mm diam. Leaves basal and cauline, shorter than culms; blade flat or slightly canaliculate, 0.2-1.2 mm wide; sheath pale yellow to occasionally red-brown. Inflorescence terminal, diffuse, 2-20 cm long (often much longer than culm), 4-60-flowered; flowers solitary or clustered (2-4 per cluster) along branches; involucral bracts 2 (occasionally 1), 2.5-17 cm long, generally shorter than or equalling inflorescence. Tepals straw-brown, occasionally with red-brown bands beside midrib, with broad hyaline margins; outer tepals 4.0-8.0 mm long; much longer than inner. Stamens 3, rarely 4-6, shorter than outer tepals; anthers Capsule shorter than inner tepals, obovoid to narrow-ellipsoid, obtuse to acute, umbonate to slightly apiculate, straw-brown to dark red-brown.

Flowering: spring-summer.

Distribution and occurrence: A variable species, apparently a mix of naturalized and native forms, widespread. Cosmopolitan. Mostly in seasonally wet, disturbed habitats. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP, NFWP, SFWP, *LHI. Other Australian states: Qld Vic. Tas. W.A. S.A. N.T.

**Juncus bulbosus*

Description: Tufted perennial, often with slightly bulbous bases, often rooting at nodes or proliferating from inflorescence. Culms terete, 6-30 cm long, 0.5-1.0 mm diam. Leaves pluritubulose but often hard to see in filiform leaves, spread along culms, longer than or equalling culms; blade terete, often slightly canaliculate, 0.3-0.7 (rarely to 1.2) mm diam.; auricles 1-2 mm long. Inflorescence terminal, diffuse, 2-7 cm long; flowers clustered, or occasionally solitary, at apex of branches, 2-10 flowers per cluster and 1-15 clusters per inflorescence; involucral bract 1, well-developed, 0.6-11 cm long, shorter than inflorescence. Tepals straw-brown to red-brown, with ± broad hyaline margins; outer tepals 2.0-3.0 (rarely to 3.5) mm long, slightly shorter than to longer than inner tepals. Stamens 3-6, shorter than outer tepals; anthers 0.5-0.7 mm long. Capsule longer than or equalling outer tepals, ± oblong to narrow-ellipsoid, obtuse, apiculate, golden brown to dark brown. Capsule longer than or equalling outer tepals, ± oblong to narrow-ellipsoid, obtuse, apiculate, golden brown to dark brown.

Flowering: spring-summer.

Distribution and occurrence: Scattered, from Blue Mtns to Budawang Range and the far South Coast. Native of NW Africa, Eur., Iceland, Greenland, Newfoundland. Naturalized in wet situations. NSW subdivisions: *CC, *SC, *CT, *ST. Other Australian states: *Vic. *Tas. *S.A.

****Juncus capitatus***

Description: Tufted annual. Culms terete to compressed, 1-12 (rarely to 15) cm long, 0.2-0.5 mm diam. Leaves basal, shorter than culms; blade flat to canaliculate, 0.2-0.5 mm wide; auricles absent; sheath yellowish or reddish. Inflorescence terminal, head-like to diffuse, 1-2 cm long; flowers clustered, 2-10 per cluster and 1-4 clusters per inflorescence; involucre bracts usually 2, well-developed, 1-4 cm long, longer than inflorescence. Tepals straw-brown to red-brown at least in midrib region or with sides completely hyaline; outer tepals (rarely 2.6-) 4.1-6 mm long, longer than inner tepals, long-mucronate with mucro usually excurved, +/- without hyaline margins if tepals coloured; inner tepals with broad hyaline Capsule shorter than outer tepals, narrow-ellipsoid to narrow-ovoid, acute to obtuse, apiculate, straw-brown to dark red-brown.

Flowering: spring-summer.

Distribution and occurrence: Naturalized, in open disturbed situations, south from Emmaville, more common on the Tablelands and Western Slopes than the Coast, and only just extending west to the SWP in the Murray R. valley. Native of Eur., Medit. & E Africa. NSW subdivisions: *CC, *NT, *CT, *ST, *NWS, *CWS, *SWS, *SWP. Other Australian states: *Vic. *Tas. *W.A. *S.A.

Juncus continuus

Description: Rhizomatous perennial. Culms terete, 35-115 cm long, 1.2-3.0 mm diam., +/- soft, yellow-green; culm striations 35-80; pith continuous, rarely interrupted below. Cataphylls 8-14 cm long, +/- lax, abaxially yellow to dark yellow-brown, adaxially silvery. Inflorescence pseudolateral, diffuse, 2-12 cm long; flowers numerous, solitary or loosely clustered; lowest involucre bract 4-30 cm long, longer than inflorescence. Tepals straw-brown, often with darker band each side of midrib, with +/- broad hyaline margins; outer tepals 1.5-2.2 mm long, longer than or equalling inner tepals. Stamens 3, shorter than outer tepals; anthers 0.4-0.7 (rarely to 1.0) mm long. Capsule longer than or equalling outer tepals, ellipsoid to ovoid, obtuse, not or scarcely apiculate, dark golden brown.

Flowering: spring-summer.

Distribution and occurrence: Usually on sandy, moist soils, widespread along coast and ranges, extending inland to near Texas and Narrabri. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP. Other Australian states: Qld Vic. ?S.A. N.T.

****Juncus effusus***

Description: Strongly rhizomatous perennial. Culms terete, 30-100 cm long, 1.4-4.3 mm diam., soft, mid-green; culm striations 35-65; pith continuous. Cataphylls 7-13 cm long, tight, abaxially orange-brown to dark red-brown, adaxially golden brown to coppery. Inflorescence pseudolateral, diffuse, 2-7 cm long; flowers numerous, solitary or loosely clustered; lowest involucre bract 10-37 cm long, much longer than inflorescence. Tepals straw-brown, with narrow to broad hyaline margins; outer tepals 1.8-2.5 mm long, longer than or equalling inner tepals. Stamens 3(-6), shorter than outer tepals; anthers 0.3-0.5 mm long. Capsule shorter than or equalling or rarely longer than outer tepals, ellipsoid, obtuse to retuse, not apiculate, golden brown to dark golden brown.

Flowering: spring-summer.

Distribution and occurrence: Naturalized, scattered, mostly near towns and other areas of human activity. Native of Eur., Asia & Afr. NSW subdivisions: *CC, *NT, *CT, *ST. Other Australian states: *Vic. *Tas. *S.A.

Juncus falcatus

Description: Rhizomatous perennial. Culms +/- terete to compressed, 5-10-35 cm long, 0.7-2 mm diam. Leaves basal or often with 1 or 2 cauline leaves, shorter than to longer than culms; blade flat, 1-3 mm wide; auricles absent; sheath straw-brown. Inflorescence terminal, head-like or occasionally with 1 subsidiary cluster on a short branch (rarely to 4 clusters), 1-3 cm long, (rarely 5) 10-20 (occasionally to 25) flowers per cluster; involucre bract 1, well-developed, 0.5-1.3 (rarely to 9) cm long, shorter than to longer than inflorescence. Tepals greenish or straw-brown centrally, much darker brown towards margins; outer tepals 3.9-5.0 mm long, longer than or equalling inner tepals, with thin-textured red-brown margins; inner tepals with broad hyaline or white margins. Stamens 6, shorter than outer tepals; anthers 0.9-1.3 mm long. Capsule longer than or equalling (occasionally shorter than) outer tepals, ellipsoid to narrow-ellipsoid, obtuse, depressed, apiculate, dark red-brown, darker near apex.

Flowering: summer.

Distribution and occurrence: South from Llangothlin on the tablelands. Grows in high-altitude to alpine swamps. NSW subdivisions: NT, CT, ST. Other Australian states: Vic. Tas.

Juncus filicaulis

Description: Slender, shortly rhizomatous perennial. Culms terete, 15-45 cm long, 0.6-1.2 mm diam., hard, grey-green to blue-green; culm striations 10-20; pith very finely interrupted. Cataphylls 3-6 cm long, +/- tight, abaxially straw-brown to dark yellow-brown at base, adaxially silvery to golden brown. Inflorescence pseudolateral, head-like or diffuse, 0.7-1.5 (occasionally to 3) cm long; flowers numerous, densely clustered; lowest involucral bract 2.5-10 cm long, longer than or occasionally equalling inflorescence. Tepals straw-brown, often red-tinged, with +/- broad hyaline margins; outer tepals 1.8-3.0 mm long, longer than or equalling inner tepals. Stamens 3 (occasionally to 6), shorter than outer tepals; anthers 0.5-0.8 mm long. Capsule longer than or equalling outer tepals, ellipsoid, obtuse, not or scarcely apiculate, golden brown to red-brown near apex.

Flowering: spring-summer. South from Glen Innes district, west to the Warrumbungle Range. Occurs in dryish situations in grassy woodland and cleared grassland. NSW subdivisions: SC, NT, CT, ST, NWS, CWS, SWS. Other Australian states: Vic. Tas. ?W.A.

Juncus flavidus

Description: Strongly rhizomatous perennial. Culms terete, 25-90 cm long, 1.2-3.5 mm diam., +/- hard, yellow-green; culm striations 38-90; pith mostly very interrupted. Cataphylls 7-17 cm long, lax, abaxially yellow to dark golden brown at base, adaxially silvery to golden brown. Inflorescence pseudolateral, diffuse, 3-17 cm long; flowers numerous, loosely to densely clustered or solitary; lowest involucral bract 5-30 cm long, longer than inflorescence. Tepals straw-brown, occasionally red-tinged, with +/- broad hyaline or yellowish margins; outer tepals 2.2-3.5 mm long, longer than inner tepals. Stamens 3 (occasionally to 6), shorter than outer tepals; anthers 0.6-1.0 mm long. Capsule shorter than to occasionally longer than outer tepals, ellipsoid, obtuse, not or scarcely apiculate, golden brown.

Flowering: spring-summer.

Distribution and occurrence: Mainly in inland divisions. Grows in seasonally and briefly wet situations. NSW subdivisions: NC, ?CC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP, SFWP. Other Australian states: Qld Vic. Tas. W.A. S.A.

Juncus fockei

Description: Tufted or shortly rhizomatous perennial. Culms +/- terete, (rarely 4) 8-45 cm long, 0.9-2.0 mm diam. Leaves unitubulose, spread along culms, +/- culms; blade compressed to +/- terete, 0.8-2.3 mm wide; auricles, 1.5-3.0 mm long. Inflorescence terminal, diffuse, 3-18 cm long; flowers clustered at apex of branches, 5-20 per cluster and 3-20 clusters per inflorescence; involucral bract 1, well-developed, 3-23 cm long, shorter than to longer than inflorescence. Tepals straw-brown (often red-brown near apex) or evenly red-brown, with narrow hyaline margins; outer tepals 2.5-4.5 (rarely to 5.0) mm long, shorter than or equalling inner tepals. Stamens 6, shorter than outer tepals; anthers 0.4-0.6 (rarely to 0.9) mm long. Capsule much longer than outer tepals (by 1.5-3 mm), very narrow-ovoid, very long-acute, tapering evenly to long beak, golden brown, often red-brown near apex.

Flowering: spring-summer.

Distribution and occurrence: On the Tablelands and Slopes, west to the Pilliga Scrub, and on the coastal ranges south from Bulga Plateau. Grows in damp situations. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP. Other Australian states: Qld Vic. Tas.

Juncus gregiflorus

Description: Shortly rhizomatous perennial. Culms terete, 50-140 cm long, 1.1-3.0 (rarely to 3.5) mm diam., +/- soft, yellow-green to mid-green; culm striations 30-65 (occasionally to 75); pith interrupted with large lacunae or occasionally continuous above. Cataphylls 10-22 cm long, lax, abaxially dark yellow-brown to dark red-brown at base, adaxially golden brown. Inflorescence pseudolateral, diffuse, 1-5 cm long; flowers numerous, densely or occasionally loosely clustered; lowest involucral bract 5-19 cm long, longer than inflorescence. Tepals straw-brown, with narrow hyaline margins; outer tepals 1.6-2.1 occasionally to 2.5 mm long, longer than inner tepals. Stamens 3, shorter than outer tepals; anthers 0.3-0.6 mm long. Capsule

equalling or slightly longer than outer tepals, ellipsoid, obtuse, not or scarcely apiculate, golden brown or rarely dark golden brown.

Flowering: spring-summer.

Distribution and occurrence: Grows beside streams; south from Lithgow. NSW subdivisions: CC, SC, CT, ST. Other Australian states: Vic. Tas. W.A.

Juncus holoschoenus

Description: Tufted or shortly rhizomatous perennial. Culms +/- terete, 25-75 cm long, 1.1-2.5 mm diam. Leaves unitubulose, spread along culms, +/- equalling culms; blade compressed to +/- terete, 1.3-2.8 mm wide; auricles 1.0-3.0 mm long. Inflorescence terminal, diffuse, 5-22 cm long; flowers clustered at apex of branches, 5-20 (rarely to 40) per cluster and 4-20 (rarely to 45) clusters per inflorescence; involucre bract 1, well-developed, 4-14 cm long, generally shorter than inflorescence, occasionally longer. Tepals straw-brown, usually darker red-brown at apex, with broad hyaline to pale yellowish margins; outer tepals 3.0-4.0 mm long, equalling or slightly shorter than inner tepals. Stamens 6. Capsule slightly shorter than to slightly longer than outer tepals, narrow-ovoid to oblong, acute to obtuse, apiculate, golden brown to dark golden brown.

Flowering: spring-summer.

Distribution and occurrence: Infrequent on damp sandy soils; south from Ilford, mainly on the tablelands, west to Macquarie Marshes and along the Murray River valley to Barham. NSW subdivisions: CC, CT, ST, CWS, NWP, SWS, NWP, SWP. Other Australian states: Vic. Tas. W.A. S.A.

Juncus homalocaulis

Description: Tufted, shortly rhizomatous perennial, often with fibrous remains of leaf sheaths persistent at base. Culms terete to compressed, 5-35 cm long, 0.5-1.2 mm diam. Leaves basal, from shorter than to rarely slightly longer than culms; blade filiform or canaliculate, 0.3-0.9 mm wide; auricles \approx 0.5 mm long; sheath pale yellowish. Inflorescence terminal, diffuse, 2-11 cm long; flowers clustered or occasionally solitary, (1-)5-36 flowers per cluster and 2-4(-8) clusters per inflorescence; involucre bract 1, well-developed, 2-15 cm long, generally longer than or equalling inflorescence but occasionally shorter. Tepals straw-brown, occasionally red-brown, with broad hyaline to pale yellowish margins; outer tepals 5.0-6.0 (rarely to 7.5) mm long, longer than inner tepals. Stamens 3 (occasionally 4-6), shorter than outer tepals; anthers 0.7-1.3 mm long. Capsule shorter than to rarely longer than outer tepals, ovoid to ellipsoid, acute to acuminate, apiculate, golden brown (rarely red-brown).

Flowering: spring-summer.

Distribution and occurrence: Grows in woodland and grassland, common on Tablelands and Western Slopes, rare on NC ranges (Beaury Creek) and in Hunter Valley, and west to Warrumbungle Ra. and Tocomwal area. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, SWP. Other Australian states: Qld Vic. S.A.

Juncus laeviusculus subsp. *illawarrensis*

Description: 'Cortical' air-spaces absent from culms or few; small sclerenchyma strands absent or few; pith continuous or slightly interrupted; cataphylls 9-21 cm long; tepals with + broad hyaline margins. Culm striations 35-80, coarser than in type subspecies. Cataphylls abaxially dark yellow-brown to dark red-brown at base. Lowest involucre bract shorter than or equalling (rarely longer than) inflorescence. Tepals occasionally with darker tinges; outer tepals 1.6-2.3 mm long, acute to acuminate; inner tepals acute.

Distribution and occurrence: South from the Wingecarribee area to the Budawang Ra. NSW subdivisions: CC, CT, ST.

Juncus pauciflorus

Description: Slender, shortly rhizomatous perennial. Culms terete, 15-55 (occasionally to 85) cm long, 0.5-1.7 (rarely to 2.5) mm diam., soft, often spreading from base, mid-green; culm striations 17-40; pith continuous. Cataphylls 3-15 cm long, tight, abaxially red-brown to dark red-brown or black at base, adaxially silvery to golden brown. Inflorescence pseudolateral, diffuse, 2-5 (rarely to 10) cm long; flowers numerous, solitary; lowest involucre bract 6-15 (rarely to 32) cm long, longer than inflorescence. Tepals straw-brown, often tinged red-brown, with narrow hyaline margins; outer tepals 2.0-2.8 mm long, longer than or equalling inner tepals. Stamens (rarely 4) 6, shorter than outer tepals; anthers 0.3-0.7 mm long. Capsule longer than outer tepals, ellipsoid to obovoid, golden brown, often red-brown near apex, broad-acute to obtuse, not or scarcely apiculate.

Flowering: spring-summer.

Distribution and occurrence: South from Gloucester Tops on coastal ranges and tablelands. Grows mostly in shady, moist situations. NSW subdivisions: NC, CC, SC, NT, CT, ST. Other Australian states: Vic. Tas. W.A. S.A.

Juncus phaeanthus

Description: Shortly to strongly rhizomatous perennial. Culms terete, 30--100 cm long, 2.0--3.0 mm diam., + hard, mid-green; culm striations 35--60; pith continuous or occasionally somewhat interrupted with small lacunae. Cataphylls 5--15 cm long, + lax, abaxially yellow to dark orange-brown at base, adaxially silvery to golden brown. Inflorescence pseudolateral, diffuse to head-like, 2--10 cm long; flowers numerous, densely clustered; lowest involucral bract 4--20 cm long, longer than inflorescence. Tepals straw-brown centrally with red-brown sides; outer tepals 2.0--2.9 mm long, longer than inner tepals, with narrow hyaline margins; inner tepals with + broad hyaline margins. Stamens 3, shorter than outer tepals; anthers 0.4--0.6 mm long. Capsule longer than or equalling outer tepals, ellipsoid, broad-acute to obtuse, not or scarcely apiculate, red-brown to dark red-brown or occasionally dark golden brown.

Flowering: summer.

Distribution and occurrence: Grows at higher altitude areas, commonly above 1200 m; south from Ebor. In wet situations. NSW subdivisions: NT, CT, ST. Other Australian states: Vic.

Juncus planifolius

Description: Tufted or with short vertical rhizome, annual or perennial. Culms terete to somewhat compressed, (occasionally 5) 13-60 cm long, 1.0-2.0 (rarely to 3.0) mm diam. Leaves basal, shorter than or occasionally equalling culms; blade flat, 1.5-11 mm wide; auricles absent; sheath pale brown, often pinkish tinged.

Inflorescence terminal, diffuse or head-like, 2-12 cm long; flowers numerous, clustered at apex of branches, 5-30 per cluster and 3-20 (rarely to 70) clusters per inflorescence; involucral bract 1, well-developed, to 10 cm long, shorter than inflorescence. Tepals red-brown, mid-rib region often paler or occasionally tepals all straw-brown, with +/- narrow hyaline margins; outer tepals 1.8-2.5 mm long, shorter than or equalling inner tepals; inner tepals often thickened near apex. Stamens 3, shorter than outer tepals; anthers 0.3-0.5 mm long. Capsule longer than or occasionally equalling outer tepals, ellipsoid to narrow-ellipsoid, obtuse to broad-acute, apiculate, golden brown to red-brown.

Flowering: spring-summer.

Distribution and occurrence: Widespread, from coastal districts west to the Pilliga Scrub. In moist, sandy situations. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP. Other Australian states: Qld Vic. Tas. W.A. S.A.

Juncus prismatocarpus

Description: Tufted perennial. Culms +/- flattened, 10-40 cm long, 1.3-3.0 mm diam. Leaves pluritubulose, spread along culms, shorter or equalling culms; blade compressed, 1.3-3.2 mm wide; auricles 0.3-1.0 mm long. Inflorescence terminal, diffuse, 5-17 cm long; flowers clustered at apex of branches, 5-25 per cluster and 4-40 clusters per inflorescence; involucral bract, 1 well-developed, 3-14 cm long, shorter than or rarely as long as inflorescence. Tepals straw-brown to red-brown, with narrow hyaline margins; outer tepals 2.5-3.5(-4.1) mm long, +/- equalling inner tepals. Stamens 3, shorter than outer tepals; anthers 0.4-0.7 mm long. Capsule longer than outer tepals by up to 3 mm, narrow-ovoid, acuminate, tapering evenly to long beak or narrowing more abruptly at very apex, golden brown.

Flowering: spring-summer.

Distribution and occurrence: Widespread in wet situations; from coastal districts west to the Pilliga Scrub. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, NWP. Other Australian states: Qld Vic. Tas. S.A.

Juncus procerus

Description: Strongly rhizomatous perennial. Culms terete, 65-145 cm long, 3.0-10 mm diam., +/- soft, mid-green; culm striations 65-160; pith interrupted, with large lacunae. Cataphylls 9-35 cm long, lax, abaxially dark red-brown to black at base, adaxially golden brown to coppery. Inflorescence pseudolateral, diffuse, 4-13 cm long; flowers numerous, loosely to densely clustered; lowest involucral bract 9-19 cm long, longer than (rarely shorter than) inflorescence. Tepals straw-brown, with broad hyaline margins; outer tepals 1.9-3.0 mm long, longer than or equalling inner tepals. Stamens 3, shorter than outer tepals; anthers 0.3-0.8 mm long. Capsule

slightly shorter than to equalling outer tepals, ellipsoid, obtuse, not or scarcely apiculate, golden brown, often darker at apex.

Flowering: spring-summer.

Distribution and occurrence: Scattered in moist habitats, south from Gloucester Tops. NSW subdivisions: CC, SC, NT, CT, ST. Other Australian states: Vic. Tas. S.A.

Juncus remotiflorus

Description: Slender, shortly rhizomatous perennial. Culms terete, 15-70 cm long, 0.9-2.0 (rarely to 2.7) mm diam., very soft (often flattened and splitting when dry), grey-green to blue-green; culm striations 25-60; pith interrupted. Cataphylls 3-13 cm long, +/- tight, abaxially yellow to dark yellow-brown at base, adaxially silvery to golden brown. Inflorescence pseudolateral, diffuse, 7-19 cm long; flowers numerous, solitary, widely separated; lowest involucre bract 3-20 cm long, shorter than to longer than inflorescence. Tepals straw-brown, often red-tinged, with +/- broad hyaline margins; outer tepals 2.5-3.5 mm long, longer than or equalling inner tepals. Stamens 3-6, shorter than outer tepals; anthers 0.5-0.9 mm long. Capsule shorter than or equalling outer tepals, obovoid to ovoid, obtuse, not or scarcely apiculate, golden brown.

Flowering: spring-summer.

Distribution and occurrence: Mainly Tablelands and Western Slopes, extending towards the coast from the southern part of NC to Jervis Bay, and extending west to Narrabri and the Cocoparra Ra. Commonly grows in only temporarily wet situations such as minor watercourses. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP. Other Australian states: Qld Vic.

Juncus sandwithii

Description: Small, shortly rhizomatous perennial, +/- mat-forming. Culms terete, 1-10 (rarely to 14) cm long, 0.3-0.6 mm diam. Leaves unitubulose, spread along culms, longer than or equalling or occasionally much longer than culms; blade terete, 0.2-0.7 mm diam.; auricles c. 0.5 mm long. Inflorescence terminal, diffuse, 1-2 (rarely to 9) cm long; flowers clustered or solitary at apex of branches, 2-4 (rarely to 10) flowers per cluster and 1-4 clusters per inflorescence; involucre bract 1, well-developed, 0.6-3.0 (occasionally to 5.5) cm long, shorter than to longer than inflorescence. Tepals straw-brown, occasionally red-tinged, with broad hyaline margins; outer tepals 2.0-3.0 mm long, slightly longer than to slightly shorter than inner tepals. Stamens 6, shorter than outer tepals; anthers 0.5-0.7 mm long. Capsule longer than outer tepals, ovoid, acuminate, long-beaked, golden brown.

Flowering: summer.

Distribution and occurrence: Grows in damp situations at higher altitudes, south from Bald Rock (Tenterfield district). NSW subdivisions: NT, CT, ST. Other Australian states: Vic. Tas.

Juncus sarophorus

Description: Strongly rhizomatous perennial. Culms terete, 55-170 cm long, 1.3-3.2 mm diam., hard, grey-green to blue-green, subglaucous; culm striations 20-40; pith interrupted, rarely partly continuous. Cataphylls 13-40 cm long, +/- lax, abaxially dark yellow-brown to dark red-brown or blackish at base, adaxially golden brown to coppery. Inflorescence pseudolateral, diffuse, 6-15 cm long; flowers numerous, loosely clustered to solitary; lowest involucre bract 15-30 cm long, longer than inflorescence. Tepals straw-brown, occasionally red-brown along midrib, with broad hyaline margins; outer tepals 1.6-2.5 mm long, longer than inner tepals. Stamens 3, shorter than outer tepals; anthers 0.3-0.6 mm long. Capsule slightly shorter than to longer than outer tepals, narrow-ovoid to ellipsoid, obtuse, not or scarcely apiculate, golden brown.

Flowering: spring-summer.

Distribution and occurrence: South from Ebor on tablelands, extending west to Wellington district and Albury, and on the southern part of the SC. Widespread in damp and swampy situations. NSW subdivisions: SC, NT, CT, ST, CWS, SWS. Other Australian states: Vic. Tas. S.A.

Juncus subsecundus

Description: Slender, shortly rhizomatous perennial. Culms terete, 25-70 (rarely to 90) cm long, 0.6-1.3 (occasionally to 2.2) mm diam., hard, grey-green; culm striations 15-30 (rarely to 40); pith interrupted. Cataphylls 3-11 cm long, +/- tight, abaxially straw-brown to dark yellow-brown at base, adaxially silvery. Inflorescence pseudolateral, diffuse, 1-7 (rarely to 13) cm long; flowers numerous, solitary or loosely to densely clustered; lowest involucre bract 5-20 cm long, longer than inflorescence. Tepals straw-brown, occasionally

red-tinged, with broad hyaline margins; outer tepals 2.0-4.0 mm long, longer than or equalling inner tepals. Stamens 3-6, shorter than outer tepals; anthers 0.5-0.8 mm long. Capsule longer than or equalling or occasionally shorter than outer tepals, obovoid to ellipsoid, obtuse to acute, not or scarcely apiculate, golden brown to dark golden brown or red-brown near apex.

Flowering: spring--summer.

Distribution and occurrence: Widespread; not common on the Western Plains. Grows under wide range of soils and climatic conditions, usually more common on heavy soils in dryish habitats. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP, NFWP. Other Australian states: Qld Vic. Tas. W.A. S.A.

**Juncus tenuis*

Description: Tufted perennial with short rhizome. Culms terete to slightly compressed, 10-50 (rarely to 90) cm long, 0.8-1.5 mm diam. Leaves basal, shorter than to occasionally equalling culms; blade flat to slightly canaliculate, 0.7-1.5 mm wide; auricles 0.5-4 mm long; sheath pale yellowish. Inflorescence terminal, diffuse, 1-9 cm long, usually 4-30-flowered; flowers solitary or loosely clustered towards apex of branches; involucre bracts 2 or 3 (rarely 1), well-developed, with the 2 lowermost bracts generally longer than inflorescence, 5-20 cm long. Tepals straw-brown, often tinged darker yellowish to red-brown, with broad hyaline margins; outer tepals 3.0-4.5 mm long, longer than or equalling inner. Stamens 6, shorter than tepals; Capsule shorter than outer tepals, ovoid, obtuse, apiculate, golden brown.

Flowering: spring-summer.

Distribution and occurrence: Naturalized, scattered, mostly near towns and other areas of human disturbance. Native of N Amer. NSW subdivisions: *CC, *NT, *CT, *ST, *SWS. Other Australian states: *Vic. *Tas.

Juncus thompsonianus

Description: Dwarf, shortly rhizomatous perennial, mat-forming. Culms terete, 0.5-3.5 cm long, 0.3-0.5 mm diam. Leaves unitubulose, spread along culms, longer than (usually much longer than) culms; blade terete, acute, 0.3-0.5 mm diam.; auricles c. 0.5 mm long. Inflorescence terminal, c. 0.5 cm long, 1-3 (rarely to 6)-flowered; flowers clustered (or occasionally solitary) at apex of branches, 2 or 3 per cluster and 1 or occasionally 2 clusters per inflorescence; involucre bract 1, well-developed, 0.2-2 cm long, longer than or equalling (often much longer than) inflorescence. Tepals straw-brown, occasionally red-tinged, with broad hyaline margins; outer tepals 1.7-2.5 mm long, shorter than inner tepals. Stamens 6. Capsule slightly longer than or equalling inner tepals, ovoid, abruptly acuminate, short-beaked, golden brown.

Flowering: summer.

Distribution and occurrence: South from Kiandra district on higher tablelands; may occur on the Brindabella Range. Grows in moist and boggy subalpine and alpine situations. NSW subdivisions: ST. Other Australian states: Vic.

Juncus usitatus

Description: Shortly rhizomatous perennial, densely tufted. Culms terete, 40-110 cm long, 0.5-1.9 (rarely to 2.3) mm diam., +/- soft, mid-green; culm striations 20-40; pith interrupted or occasionally continuous. Cataphylls 6-18 cm long, +/- lax, abaxially golden brown to red-brown at base, adaxially silvery to golden brown. Inflorescence pseudolateral, diffuse, 2-7 cm long; flowers numerous, solitary; lowest involucre bract 10-28 cm long, longer than inflorescence. Tepals straw-brown, with +/- broad hyaline margins; outer tepals 1.3-2.0 (rarely to 2.2) mm long, longer than or equalling inner tepals. Stamens 3 (rarely to 6), shorter than outer tepals; anthers 0.3-0.6 mm long. Capsule longer than outer tepals, ellipsoid, obtuse, not or scarcely apiculate, golden brown.

Flowering: spring-summer.

Distribution and occurrence: Very common on stream banks and other moist places; extending inland to near Dubbo and along the Murray R. valley; probably introduced in irrigation areas near Warren, Griffith and Hay. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP. Other Australian states: Qld Vic. *W.A. *S.A.

Juncus vaginatus

Description: Shortly to strongly rhizomatous perennial. Culms terete, 30-100 cm long, 1.5-4.5 mm diam., +/- soft, yellow-green; culm striations 30-65; pith continuous. Cataphylls 7-24 cm long, +/- lax, abaxially pale yellow to dark yellow-brown, adaxially silvery. Inflorescence pseudolateral, diffuse, usually 7-17 cm long;

flowers numerous, densely clustered; lowest involucral bract 11-40 cm long, longer than inflorescence. Tepals straw-brown, often tinged red-brown, with +/- narrow hyaline margins; outer tepals 2.6-3.2 mm long, longer than or equalling inner tepals. Stamens 6, shorter than outer tepals; anthers 0.5-0.9 mm long. Capsule shorter than to longer than outer tepals, ovoid to ellipsoid, obtuse, not or scarcely apiculate, golden brown.

Flowering: spring-summer.

Distribution and occurrence: Grows in damp to wet situations in the eastern half of the State (confined to the ranges on the NC). NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS. Other Australian states: Qld Vic. Tas. ?W.A. ?S.A.