

CYPERUS

Description: Annual or perennial herbs, tufted or rhizomatous, rarely tuber-bearing. **Culms** triquetrous to terete, nodeless. **Leaves** sometimes reduced to sheaths; ligule present or absent. **Inflorescence** simple or compound, umbel-like or head-like, rarely reduced to one spikelet; involucre bracts mostly leaf-like.

Spikelets many- or few-flowered, flattened or terete, spicate or digitate at the ends of the ultimate branches or sometimes occupying the whole of the ultimate branches. **Rachilla** straight or flexuous, often bordered by hyaline or coloured membranous wings. **Glumes** distichous (very rarely spiral), concave or keeled, keel usually green, all except the lowest 2 or 1 subequal and containing bisexual flowers or the terminal one sometimes male. **Hypogynous bristles** absent. **Stamens** 1-3. Style 2- or 3-fid, continuous with ovary, not thickened at base, deciduous. **Nut** trigonous or lenticular, glabrous, smooth or punctulate, rarely coarsely reticulate or transversely elongated.

Distribution and occurrence: World: c. 600 species, cosmopolitan. Australia: c. 150 species (c. 50 species endemic), all States.

This genus is taken here in the broad sense to include species sometimes assigned to segregate genera such as *Kyllinga* and *Pycreus*. The tribe Cyperae is undergoing further study to assess whether segregate genera (including *Lipocarpha*) should be accepted.

Key to the genus <i>Cyperus</i>		
1	Style 3-fid; nut 3-angled in cross-section (more or less trigonous)	2
	Style 2-fid; nut lenticular, biconvex, plano- or concavo-convex	106
2	Dwarf annuals smelling of fenugreek (at least when dried)	3
	Annuals or perennials but not smelling of fenugreek	4
3	Spikelets flattened, with glumes arranged distichously; nut a third to half as long as glume	<i>Cyperus squarrosus</i>
	Spikelets more or less angular, with glumes arranged spirally; nut about two-thirds as long as glume	<i>Cyperus hamulosus</i>
4	Spikelets with 4 or more flowers, flattened and with glumes overlapping at least a quarter the length of the glume immediately above on the same side of the rachilla and often spreading widely (at least at maturity)	5
	Spikelets 1–3-flowered, or up to 16-flowered but then terete and with glumes remote (i.e. with glumes not or scarcely overlapping the glume immediately above on the same side of the rachilla) and closely appressed to rachilla	95
5	Spikelets arranged spicately on the rachis of the ultimate branches of the inflorescence, in very short to elongated spikes	6
	Spikelets digitately or subdigitately clustered, in clusters sometimes dense on a much reduced rachis, sometimes very few in number or solitary and then often appearing lateral when the lowest bract is erect	36
6	Culms 2–5 m high; inflorescence with 100–250 primary branches of similar length	<i>Cyperus papyrus</i>
	Culms less than 2 m high; inflorescence with fewer than 15 primary branches, usually of varying length	7
7	Rachilla of the spikelet distinctly winged, the wings sometimes falling later	8
	Rachilla not winged or with very narrow wings	26
8	Involucre bracts (and associated branches) distinctly separated on axis from neighbouring bracts by up to 3 mm; perennial producing numerous globose, bulb-like tubers with deciduous stiff, smooth, shining, blackish coats	<i>Cyperus bulbosus</i>

	Involucral bracts and branches inserted very closely together; perennials, rarely producing tubers (and these grey-brown, oblong or ellipsoid or globose, with more or less persistent fibrous, dull, yellow-brown to grey-brown coats)	9
9	Spikelets fewer than 20 per spike	10
	Spikelets usually more than 20 per spike, numerous to very numerous	20
10	Spikelets more than 1.5 mm wide in side view, more or less flattened; plants often with tuber-bearing rhizomes	11
	Spikelets 1–1.5 mm width/diam., flattened to terete; rhizome, if present, not tuber-bearing	19
11	Perennials with short rhizome, not tuber-bearing; glumes pale red-brown with broad white or yellowish margins or yellow-brown to dark golden brown or straw-coloured tinged red-brown; spikelets suberect or spreading in loose hemispherical to globose clusters	12
	Perennials with slender, creeping rhizomes producing fibrous-coated tubers 5–10 mm diam.; glumes orange-brown to dark red-brown or yellow-brown, with narrow hyaline or whitish margins; spikelets spreading in short, broad-cylindrical spikes	16
12	Glumes pale red-brown with broad white or yellowish margins; spikelets suberect and held close to rachis in long, narrow-cylindrical spikes; leaves not septate-nodulose	<i>Cyperus nutans</i>
	Glumes yellow-brown to dark golden brown or straw-coloured tinged red-brown; spikelets spreading in loose hemispherical to globose clusters; leaves often septate-nodulose	13
13	Spikelets 1.2–2 mm wide in side view; inflorescence compound; nut very narrow-ellipsoid	<i>Cyperus betchei</i>
	Spikelets 2–4.5 mm wide in side view; inflorescence simple or with a few secondary branches; nut obovoid or narrow-obovoid to broad-ellipsoid	14
14	Nut grey to black; glumes with excurved mucro 0.3–0.8 mm long	<i>Cyperus clarus</i>
	Nut yellow-brown; glumes with straight mucro	15
15	Glumes with mucro 0.1–0.3 mm long; perennial; leaf and involucral bract margins with more or less irregularly spaced and shaped prickles; on sandy-loam soils	<i>Cyperus fulvus</i>
	Glumes with mucro 0.2–0.5 mm long; annual or short-lived perennial; leaf and involucral bracts with more or less regular antrorsely aculeate prickles; on clayey soils	<i>Cyperus isabellinus</i>
16	Culms terete below, trigonous near the apex; leaves rarely half as long as culms; lowest involucral bract erect, very much exceeding the inflorescence, usually pushing it to one side; nut when mature 2–3 times as long as broad; freely fruiting	<i>Cyperus victoriensis</i>
	Culms trigonous throughout their length; leaves mostly a half to three-quarters as long as culms; inflorescence symmetrical; nut either c. 1.5 times as long as broad or rarely maturing	17
17	Rachis of spikes often spinulose; spikelets 5–12 mm long, obtuse; glumes yellow to dark golden brown, 3–5-nerved on each side, very obtuse; tubers globose to ovoid, with grey tomentum at maturity; rhizomes yellow-brown	<i>Cyperus esculentus</i>

	Rachis of spikes usually not spinulose (occasionally sparsely so); spikelets 10–30 mm long, acute or obtuse; glumes red-brown to dark red-brown, with up to 3 nerves on each side, obtuse or acute; tubers more or less ellipsoid, without tomentum; rhizomes purplish to dark brown	18
18	Lowest involucral bract shorter or not much longer than the inflorescence; spikelets c. 2 mm wide when mature; glumes usually dark red-brown, obtuse; the midrib faintly curved and recurved in side view from base to apex; fruit rarely maturing; fibrous coats of tubers soon disintegrating, not usually persisting beyond the first year	<i>Cyperus rotundus</i> * ACT, ST
	Lowest bract much exceeding the inflorescence; spikelets 2.5–3 mm wide in side view when mature; glumes various shades of brown, rarely very dark, acute; midrib straight in side view from immediately above the base to the apex; nut c. 1.5 times as long as broad, obovate to elliptic-obovate; freely fruiting; fibrous coats of tubers often persisting into the second year	<i>Cyperus bifax</i> ST
19	Inflorescence compound; glumes yellow-brown; nut 1.9–2.2 mm long, nearly as long as glume	<i>Cyperus betchei</i>
	Inflorescence simple; glumes red-brown or greenish tinged red-brown; nut 1.2–1.7 mm long, about half as long as glume	<i>Cyperus subulatus</i>
20	Glumes 1–1.5 mm long	<i>Cyperus exaltatus</i>
	Glumes 2–6.5 mm long	21
21	Leaves and bracts septate-nodulose (often only obvious when dried)	22
	Leaves not septate-nodulose	24
22	Terminal spikes cylindrical or ovate-cylindrical, laterals smaller, divergent or deflexed	23
	Terminal spikes hemispherical to globose, usually dense, 1–2 cm wide in side view; glumes 2–2.5(–3) mm long	<i>Cyperus gunnii</i> ACT, ST
23	Glumes 4–6.5 mm long, red-brown; spikelets 4–10-flowered	<i>Cyperus lucidus</i> ACT, ST
	Glumes 2.5–4 mm long, pale brown; spikelets 2–5-flowered	<i>Cyperus vorsteri</i>
24	Spikelets 10–28 mm long, 8–24-flowered; tufted perennial, often apparently annual, often without any rhizome	<i>Cyperus congestus</i> * ACT, ST
	Spikelets 6–15 mm long, 7–14-flowered; rhizomatous perennial; rhizome short and thick	25
25	Glumes pale red-brown, with midrib green, 2–2.5 mm long; spikelets suberect, 1.5–2.0 mm wide in side view	<i>Cyperus nutans</i>
	Glumes whitish to pale brown on the sides, 3–3.5 mm long; spikelets spreading, 2–2.5 mm wide in side view	<i>Cyperus rigens</i>
26	Glumes obtuse in side view but sometimes apparently acute because of the presence of a short mucro	27
	Glumes more or less acute in side view	30
27	Glumes 1–2 mm long; spikelets flattened; tufted annual	<i>Cyperus iria</i>
	Glumes 2–3.5 mm long; spikelets flattened or terete; rhizomatous perennials	28
28	Glumes without broad whitish margins, short-mucronate; bracts and leaves septate-nodulose in the dried state, thick-textured; spikes rather dense	29

	Glumes with broad whitish margins above; bracts and leaves not septate-nodulose, thin-textured; spikes broad-ovoid, loose	<i>Cyperus procerus</i>
29	Nut red-brown, minutely tuberculate; leaves to 12 mm wide	<i>Cyperus alterniflorus</i>
	Nut yellow-brown, smooth to colliculate; leaves to 7 mm wide	<i>Cyperus gunnii</i> ACT, ST
30	Rachis minutely and densely hispid	<i>Cyperus pilosus</i>
	Rachis not hispid	31
31	Glumes white to dark golden brown or straw-coloured tinged red-brown	32
	Glumes red-brown	35
32	Glumes with excurved mucro 0.3–1 mm long	33
	Glumes without mucro, or mucro straight and no more than 0.3 mm long	34
33	Nut less than half as long as glume; annual with thin-textured leaves and bracts, not septate-nodulose	<i>Cyperus compressus</i>
	Nut at least half as long as glume; slender perennial with tough-textured leaves and bracts, often obviously septate-nodulose when dried	<i>Cyperus clarus</i>
34	Nut yellow-brown, nearly as long as glume; glumes 2–3 mm long; leaves and bracts tough-textured, often obviously septate-nodulose when dried	<i>Cyperus fulvus</i>
	Nut dark red-brown, less than half as long as glume; glumes 3–3.5 mm long; leaves and bracts thin-textured, not septate-nodulose	<i>Cyperus rigens</i>
35	Leaves and bracts tough-textured, flat or folded, margins and midribs scabrous; lowest involucre bract suberect; rhizomatous perennial with solitary culms	<i>Cyperus lhotskyanus</i> ACT, ST
	Leaves and bracts thin-textured, flat or with revolute margins; lowest involucre bracts spreading; tufted perennial, often apparently annual and without a rhizome	<i>Cyperus congestus</i> * ACT, ST
36	Involucre bracts all much shorter than inflorescence; plant resembling miniature papyrus	<i>Cyperus prolifer</i>
	One to 22 involucre bracts longer than inflorescence; plants not resembling miniature papyrus	37
37	Involucre bracts 6–22 exceeding inflorescence (rarely only as long as inflorescence)	38
	Involucre bracts 1–5 exceeding inflorescence	45
38	Leaves all or mostly reduced to sheaths	39
	Leaves with well-developed blade	41
39	Involucre bracts 12–22 exceeding inflorescence; glumes c. 2 mm long	<i>Cyperus involucreatus</i>
	Involucre bracts 6–9 exceeding or as long as inflorescence; glumes 1–2.5 mm long	40
40	Glumes 2–2.5 mm long	<i>Cyperus vaginatus</i>
	Glumes 1–1.3 mm long	<i>Cyperus filipes</i>
41	Inflorescence with few (1–9, rarely to 15 in <i>Cyperus vaginatus</i>) spikelets per loose cluster	42
	Inflorescence with numerous spikelets per dense globose cluster	44
42	Leaves with 2 prominent, whitish (at least when dried) lateral veins; glumes	<i>Cyperus albostrigatus</i>

	straw-coloured to pale brown, 1–1.5 mm long; rachilla winged; leaf sheaths purplish red at base	
	Leaves with only midvein prominent; glumes red-brown to blackish; rachilla not winged; leaf sheaths purplish red or pale yellow-brown at base	43
43	Nut ellipsoid; leaf sheaths purplish red at base; glumes very dark red-brown to blackish, 1.5–2 mm long	<i>Cyperus tetraphyllus</i>
	Nut ovoid; leaf sheaths pale yellow-brown at base; glumes red-brown, 3–3.5 mm long	<i>Cyperus rupicola</i>
44	Inflorescence with numerous branches; culms 25–90 cm high	<i>Cyperus eragrostis</i> * ACT, ST
	Inflorescence head-like; culms 1–20 cm high	<i>Cyperus pygmaeus</i>
45	Leaves all or mostly reduced to sheaths with a rudimentary blade	46
	Leaves with well-developed blade	48
46	Culms and involucre bracts firm to rigid; culms terete to trigonous	47
	Culms and involucre bracts soft-textured (easily compressed between the fingers); culms triquetrous	<i>Cyperus haspan</i>
47	Involucre bracts mostly 5–8 in number, always more than 5 cm and up to 15 cm long, flat, firm-textured, not pungent; inflorescence simple to compound with 4–12 branches to 6 cm long, bearing hemispherical clusters of spikelets, or occasionally loosely head-like	<i>Cyperus vaginatus</i>
	Involucre bracts 2–4, usually less than 5 cm long, very rigid and pungent with incurved margins; inflorescence head-like or with 1–3 short branches to 2 cm long, bearing globose clusters of spikelets	<i>Cyperus gymnocaulos</i>
48	Nut trabeculate and striate	<i>Cyperus mirus</i>
	Nut smooth or minutely roughened	49
49	Glumes less than 2 mm long (excluding any long mucro)	50
	Glumes 2 mm or more long (excluding any long mucro)	73
50	Glumes with sides evenly red-brown to dark red-brown or blackish (midribs mostly green)	51
	Glumes uniformly green or with sides hyaline, white, pale brown, yellow or golden brown, occasionally with a red-brown patch (midribs mostly green)	59
51	Rachilla winged	<i>Cyperus rigidellus</i>
	Rachilla not winged	52
52	Spikelets numerous in the dense globose clusters	53
	Spikelets few (1–12) in the loose, ovoid to hemispherical clusters	55
53	Glumes 0.6–0.9 mm long	<i>Cyperus difformis</i> ACT, ST
	Glumes at least 1.0 mm long	54
54	Glumes 1.5–2 mm long	<i>Cyperus reflexus</i>
	Glumes 1.0–1.4 mm long	<i>Cyperus castaneus</i>
55	Annual	<i>Cyperus castaneus</i>

	Perennial	56
56	Glumes red-brown	<i>Cyperus haspan</i>
	Glumes dark red-brown to blackish	57
57	Inflorescence compound; nut c. 0.5 mm long, less than half as long as glume	<i>Cyperus concinnus</i> ACT, ST
	Inflorescence simple; nut 1.3–1.5 mm long, nearly as long as glume	58
58	Glumes acute, dorsally straight in side view	<i>Cyperus disjunctus</i>
	Glumes obtuse, shortly mucronate, dorsally strongly curved in side view	<i>Cyperus tetraphyllus</i>
59	Inflorescence compound to decompound with numerous clusters of spikelets; glumes evenly yellow to golden brown; leaves strongly septate-nodulose, thick-textured; robust perennial	<i>Cyperus dactyloides</i>
	Inflorescence simple with 1–8 clusters of spikelets; glumes not evenly yellow to golden brown (occasionally with yellowish patches); leaves not or rarely slightly septate-nodulose but then thin-textured; slender perennials or annuals	60
60	Glumes with 2–6 nerves on each side	61
	Glumes with 1 nerve or no nerves on each side	66
61	Spikelets with upper flowers female, lower flowers male	<i>Cyperus semifertilis</i>
	Spikelets with all flowers usually bisexual	62
62	Involucral bract 1, erect; inflorescence of 1–4 spikelets; dwarf annual	<i>Isolepis levynsiana</i>
	Involucral bracts 2–4, erect to spreading; inflorescence with 1–25 spikelets; small perennials or annuals	63
63	Spikelets 2.5–4 mm wide in side view; nut pale brown	<i>Cyperus rigidellus</i>
	Spikelets 2–2.5 mm wide in side view; nut dark brown	64
64	Glumes strongly excurved; inflorescence of 1–5 spikelets	<i>Cyperus sculptus</i>
	Glumes dorsally slightly incurved in side view to slightly excurved; inflorescence of 12–25 spikelets	65
65	Nut broad-obpyriform to broad-obovoid, with globose bulge near base of persistent style base	<i>Cyperus enervis</i>
	Nut ellipsoid to broad-ellipsoid, without persistent dilated style base	<i>Cyperus eglobosus</i>
66	Keel of glumes a broad band about as wide as thinner-textured side of glume	67
	Keel of glumes a narrow band, much narrower than sides of glume	70
67	Tufted annuals; midrib of glumes with larger, more isodiametric cell outlines than on sides	68
	Perennials, shortly rhizomatous, often with fibrous remains of leaf sheaths at base; midrib and sides of glumes with similar cell outlines	69
68	Spikelets 2–2.5 mm wide in side view; glumes 1–1.5 mm long	<i>Cyperus flaccidus</i>
	Spikelets c. 3 mm wide in side view; glumes 1.5–2 mm long	<i>Cyperus aquatilis</i>
69	Glumes c. 1.5 mm long, longer than broad; stamens 3	<i>Cyperus trinervis</i>
	Glumes 1–1.3 mm long, about as long as broad; stamens 2	<i>Cyperus stradbokensis</i>

70	One involucre bract longer than inflorescence; base of style inconspicuous (not thickened)	71
	Two to four involucre bracts longer than inflorescence; base of style thickened compared to rest of style and obviously persistent on fruit	72
71	Glumes more or less straight dorsally from shortly above base in side view, 1.7–2 mm long, 0.7–1 mm wide in side view; inflorescence usually a single sessile cluster of spikelets (rarely with 1 or 2 very short branches)	<i>Cyperus laevis</i>
	Glumes strongly curved dorsally in side view, with excurved apex, 1.5–1.7 mm long, c. 0.5 mm wide in side view; inflorescence usually with 1–4 short branches	<i>Cyperus imbecillis</i>
72	Base of style erect; nut broad-obovoid, nearly as long as the glume; glume keel smooth	<i>Cyperus enervis</i>
	Base of style strongly recurved; nut ellipsoid, c. 2/3 as long as glume; glume keel minutely toothed towards apex	<i>Cyperus curvistylis</i>
73	Nut with paler corky, thickened angles	<i>Cyperus platystylis</i>
	Nut without corky, thickened angles	74
74	Nut ovoid	<i>Cyperus rupicola</i>
	Nut obovoid to ellipsoid	75
75	Glumes with sides uniformly yellow to red-brown	76
	Glumes with sides uniformly green, whitish, pale brown, or with red-brown patch	89
76	Glumes with midrib about as wide as sides and with cell outlines larger than on sides, 1-nerved only at edge of midrib	<i>Cyperus eragrostis</i> * ACT, ST
	Glumes with midrib much narrower than sides and with cell outlines similar to those of sides, with 2–4 nerves on each side	77
77	Leaves and bracts strongly curly at least near apex	78
	Leaves and bracts straight to slightly curved	81
78	Anthers 1.3–1.6 mm long; glume mucro no more than 0.1 mm long	<i>Cyperus secubans</i>
	Anthers 0.3–1.2 mm long; glume mucro 0.1–0.8 mm long	79
79	Glumes evenly yellow to golden brown, with mucro 0.3–0.8 mm long (usually excurved); nut grey to black	<i>Cyperus clarus</i>
	Glumes straw-coloured to golden brown and with dull red-brown patches, with straight mucro 0.1–0.3 mm long; nut pale yellow-brown	80
80	Leaf marginal prickles erect, papillose; leaf sheaths pinkish to purple-red; nut tuberculate or colliculate	<i>Cyperus rigidellus</i>
	Leaf marginal prickles either mixed strongly flabellate to erect aculeate or antorsely aculeate; leaf sheaths pale yellowish with red-brown blotches; nut colliculate to smooth and reticulate-areolate	<i>Cyperus fulvus</i>
81	Nut red-brown to black or grey, tuberculate (occasionally smooth in <i>Cyperus gilesii</i>)	82
	Nut yellow-brown to dark golden brown, smooth to colliculate or pitted	84
82	Anthers 1.1–1.8 mm long; nut narrow-ellipsoid to narrow-obovoid, red-brown	<i>Cyperus alterniflorus</i>
	Anthers 0.3–0.8 mm long; nut very narrow-ellipsoid or obovoid, red-brown to	83

	blackish or grey to black	
83	Nut very narrow-ellipsoid, red-brown to blackish; glumes very narrow-elliptic to narrow-ovate	<i>Cyperus gilesii</i>
	Nut obovoid, grey to black; glumes elliptic to ovate	<i>Cyperus clarus</i>
84	Prickles on leaf margins antrorsely aculeate, more or less regularly spaced	85
	Prickles on leaf margins mixed aculeate to papillose, antrorse to erect and flabellate, more or less irregularly spaced	87
85	Glumes dark red-brown or rarely straw-coloured; spikelet clusters dense; leaves exceeding or as long as culms	<i>Cyperus gunnii</i> ACT, ST
	Glumes yellow to dark golden brown; spikelet clusters loose; leaves shorter than to as long as culms	86
86	Glumes 2.5–3.4 mm long; glume spacing 1.6–2.3 mm	<i>Cyperus betchei</i>
	Glumes 1.3–2.1 mm long; glume spacing 0.9–1.3 mm	<i>Cyperus dactyloides</i>
87	Anthers 0.3–1.2 mm long	<i>Cyperus fulvus</i>
	Anthers 1.3–2.0 mm long	88
88	Long-rhizomatous, with culms usually solitary along rhizome; leaves V-shaped in cross section, with midrib obvious abaxially, with marginal prickles irregularly spaced; plants never viscid	<i>Cyperus lhotskyanus</i> ACT, ST
	Very shortly rhizomatous, with culms tufted; leaves canaliculate, with midrib not obvious, with marginal prickles regularly spaced; plants often viscid	<i>Cyperus secubans</i>
89	Spikelets less than 2.5 mm wide in side view	90
	Spikelets 2.5–5 mm wide in side view	92
90	Inflorescence a single cluster of 1–14 spikelets	91
	Inflorescence simple to compound, with 3–8 primary branches and numerous spikelets	<i>Cyperus fulvus</i>
91	Glumes 3- or 4-nerved on each side; apex excurved in side view	<i>Cyperus gracilis</i>
	Glumes 1- or 2-nerved on each side; apex more or less straight in side view	<i>Cyperus enervis</i>
92	Glumes with midrib about as wide as sides and with cell outlines larger than on sides, nerved only at edge of midrib	<i>Cyperus eragrostis</i> * ACT, ST
	Glumes with midrib much narrower than sides and with cell outlines similar to those of sides, with 2–4 nerves on each side	93
93	Nut dark brown to black, less than half as long as glume; leaves never curly; plant never viscid	<i>Cyperus compressus</i>
	Nut pale yellow-brown, three-quarters to seven-eighths as long as glume; leaves often curly towards apex; plants occasionally viscid	94
94	Culms 3–25 cm long; leaves not septate-nodulose; leaf sheaths pinkish to purple-red near base	<i>Cyperus rigidellus</i>
	Culms 25–50 cm long; leaves mostly septate-nodulose; leaf sheaths pale yellowish or straw-coloured with occasional red-brown patches	<i>Cyperus fulvus</i>
95	Inflorescence of 1–6 sessile spikes, rarely with 1–3 short branches to 1.5 cm long	96
	Inflorescence simple or compound with spikes on 3–14 branches to 20 cm long (rarely head-like in <i>Cyperus leiocaulon</i>)	97

96	Bases of culms bulbously swollen; glumes acute; flowers 1–3 per spikelet	<i>Cyperus aggregatus</i>
	Bases of culms apparently enlarged for some distance because of persistent, whitish, thin-textured leaf sheaths; glumes obtuse; flowers 3–6 per spikelet	<i>Cyperus dubius</i>
97	Culms and axes of inflorescence hispid or papillose-scabrous	98
	Culms and axes of inflorescence smooth	99
98	Culms and rachis of inflorescence hispid-scabrous, green; leaves septate-nodulose	<i>Cyperus scaber</i>
	Culms and rachis of inflorescence papillose-scabrous, greyish; leaves not septate-nodulose	<i>Cyperus conicus</i>
99	Spikelets c. 0.5 mm diam. when mature	100
	Spikelets 0.7–2.5 mm diam. when mature	102
100	Glumes 2.3–2.7 mm long; spikelets 3–6-flowered; base of culms not enlarged	101
	Glumes 3–3.5 mm long; spikelets 1–3-flowered; base of culms bulbously enlarged	<i>Cyperus cyperoides</i>
101	Spikelets spreading at 90–140° from the vertical; culms rigid, erect, 2–4 mm diam.	<i>Cyperus dietrichiae</i>
	Spikelets spreading at 40–90° from the vertical; culms lax, c. 1 mm diam.	<i>Cyperus bowmannii</i>
102	Spikelets breaking up at maturity and dispersing as individual corky internodes of the rachilla with associated glume and nut	<i>Cyperus odoratus</i>
	Spikelet falling as a complete unit at maturity	103
103	Leaves strongly septate-nodulose; robust perennials to c. 170 cm tall; inflorescence compound; involucre bracts (5-)8–13 exceeding inflorescence	104
	Leaves not septate-nodulose; slender perennials to c. 50 cm tall; inflorescence simple; involucre bracts 1–8 exceeding inflorescence	105
104	Glumes 2.5–4 mm long, pale brown; nut 1.8–2.3 mm long, dark yellow-brown; spikelets 2.5–5 mm long, 2–5-flowered	<i>Cyperus vorsteri</i>
	Glumes 4–6.5 mm long, red-brown to dark red-brown; nut 2.5–3 mm long, dark grey-brown to blackish; spikelets 4–20 mm long, 4–10-flowered	<i>Cyperus lucidus</i> ACT, ST
105	Involucre bracts 2 exceeding inflorescence; flowers 5–16 per spikelet	<i>Cyperus subulatus</i>
	Involucre bracts 3–5 exceeding inflorescence; flowers 2–4 per spikelet	<i>Cyperus leiocaulon</i>
106	Spikelets several- to numerous-flowered	107
	Spikelets 1-flowered, but sometimes with a second imperfect flower above, whole spikelet falling as a unit at maturity	115
107	Each spikelet falling as a unit at maturity	<i>Cyperus bracheilema</i>
	Each spikelet with rachilla persistent and glumes falling individually at maturity	108
108	Inflorescence pseudolateral, sessile; lowest involucre bract erect, appearing as a continuation of the rush-like culm	<i>Cyperus laevigatus</i>
	Inflorescence obviously terminal, branched or head-like; involucre bracts not as above	109
109	Nut dorsally flattened with a flat or concave face against the rachilla; inflorescence densely head-like, subglobose, with 5–7 or more involucre bracts exceeding inflorescence	<i>Cyperus pygmaeus</i>

	Nut laterally flattened, with one edge against the rachilla; inflorescence loosely head-like or branched, with 1–4 involucre bracts exceeding inflorescence	110
110	Glumes 3.5–4.5 mm long, acute; spikelets 3.5–5 mm wide in side view	<i>Cyperus unioloides</i> ST
	Glumes less than 3 mm long, obtuse (occasionally broad-acute in <i>Cyperus polystachyos</i>); spikelets 1–3 mm wide in side view	111
111	Glumes with excurved mucro 0.3–0.7 mm long; glume-spacing c. 0.5 mm	<i>Cyperus nervulosus</i>
	Glumes not mucronate or scarcely mucronulate; glume-spacing c. 1 mm	112
112	Glumes incurved dorsally in side view, dark red-brown to blackish, often with a hyaline patch on sides	<i>Cyperus sanguinolentus</i> ACT, ST
	Glumes more or less straight dorsally in side view, yellow to very dark yellow-brown, occasionally red-brown in <i>Cyperus polystachyos</i> and <i>C. flavidus</i> but never with a hyaline patch	113
113	Spikelets suberect, usually densely crowded in obconical subdigitate clusters; rachilla narrowly winged	<i>Cyperus polystachyos</i>
	Spikelets spreading widely, in loose, shortly spicate to subdigitate clusters; rachilla not winged	114
114	Nut with faint whitish transverse wrinkles	<i>Cyperus flavescens</i>
	Nut minutely punctulate	<i>Cyperus flavidus</i> ST
115	Tufted annual or perennial with or without a very short rhizome; inflorescence whitish or very light green; nut black at maturity; stamens 2	<i>Cyperus sesquiflorus</i>
	Perennial with creeping rhizomes, to 30 cm long but occasionally very short; inflorescence greenish or yellow-tinged; nut yellowish becoming brown at maturity	116
116	Inflorescence more or less ovoid, dense, solitary or with 2 smaller ones at the base; spikelets numerous, sometimes 100 in number, 1-flowered; midrib of the glumes usually toothed; stamens 1 or 2 (rarely 3)	<i>Cyperus brevifolius</i>
	Inflorescence globose, loose, always solitary; spikelets not usually more than 50, a second imperfect flower often present; midrib of the glumes usually smooth or nearly so, rarely toothed; stamens 3 (rarely 2)	<i>Cyperus sphaeroideus</i> ACT, ST

Cyperus bifax, Downs Nutgrass

Description: Rhizomatous perennial with slender rhizomes producing ovoid tubers c. 5–10 mm diam., woody, with grey-brown fibrous coat persisting for two years. Culms trigonous, smooth, to 90 cm high, 2–4 mm diam. Leaves not septate-nodulose, mostly half to three-quarters as long as culm, to 4 mm wide. Inflorescence simple or compound, symmetrical (not thrown to one side), with 2–9 primary branches to 12 cm long; spikes ovoid, to 4 cm long, to 3 cm diam.; involucre bracts leaf-like, 1 or 2 much exceeding the inflorescence. Spikelets flattened, 5–10 per spike, to 10–40 mm long, c. 2.5 mm wide in side view, 10–24-flowered; rachilla winged, persistent. Glumes acute, with sides several-nerved, 3.5–4 mm long, pale brown to red-brown, rarely very dark. Stamens 3. Style 3-fid. Nut trigonous, broad-obovoid, c. 1.5 times as broad as long, c. 1.2 mm long, c. 0.8 mm diam., greyish.

Flowering: spring–summer.

Distribution and occurrence: Grows on floodplains on heavy clay soils; widespread inland. NSW subdivisions: NC, *SC, NWS, CWS, NWP, SWP, NFWP, ST. Other Australian states: Qld Vic. W.A. N.T. It withstands heavy grazing, and its system of rhizomes forms a useful soil-binding agent. Occasionally a weed of cultivation, especially in irrigation areas.

Cyperus concinnus, Trim Flat-sedge

Description: Tufted perennial with very short rhizome. Culms trigonous, scabrous above, slightly swollen at base, 15–65 cm high, 1–3 mm diam. Leaves not septate-nodulose, shorter or a little longer than culms, 1–2 mm wide. Inflorescence compound or decompound with 3–5 primary branches to 4 cm long; digitate clusters to c. 10 mm diam.; involucre bracts leaf-like, 1–3 much exceeding inflorescence. Spikelets flattened, 1–6 per cluster, 4–10 mm long, 1.5–2.5 mm wide in side view, 12–32-flowered; rachilla not winged, persistent. Glumes obtuse or almost acute, with sides nerveless, c. 1.5 mm long, dark red-brown to blackish. Stamens 3. Style 3-fid. Nut trigonous, ellipsoid to ovoid, less than half as long as glume, c. 0.5 mm long, c. 0.4 mm diam., pale brown.

Flowering: spring–summer.

Distribution and occurrence: Grows in seasonally wet sites; mainly inland, extending to Richmond R., Hunter R. and Capertee Valley, probably introduced in Canberra. NSW subdivisions: NC, CT, ?ST, NWS, CWS, SWS, NWP, SWP, NFWP. Other Australian states: Qld Vic. N.T.

**Cyperus congestus*

Synonyms: *Mariscus congestus* (Vahl) C.B. Clarke

Description: Tufted perennial with very short thick rhizome, often apparently annual. Culms triquetrous, smooth, slightly swollen at base, mostly 20–60 cm high, 1–3 mm diam. Leaves not septate-nodulose, shorter or longer than culms, 2–6 mm broad. Inflorescence simple or compound with 2–7 branches to 10 cm, or head-like; spikes dense, broad-cylindrical to hemispherical, 1–5 cm diam.; involucre bracts leaf-like, 2 or 3 longer than inflorescence. Spikelets flattened, numerous per spike, 10–28 mm long, 1–2 mm wide in side view, 8–24-flowered; rachilla winged, persistent. Glumes acute, with sides 3- or 4-nerved, c. 4 mm long, red-brown. Stamens 3. Style 3-fid. Nut trigonous, narrow-obovoid, about half as long as glume, c. 1.5 mm long, c. 0.6 mm diam., dark brown to black.

Flowering: spring–summer.

Distribution and occurrence: Introduced; Northern Tablelands (around Glen Innes, Gibraltar Range, Inverell, Guyra, Walcha); also from Stockton Beach south along the coast to Berrima and Brogo; now in Canberra, too. Native of South Africa. A weed of roadsides and damp ground. NSW subdivisions: *CC, *SC, *NT, *CT, *ST, *NWS. Other Australian states: *Vic. *Tas. *W.A. *S.A.

Cyperus difformis

Description: Tufted annual with reddish roots. Culms triquetrous, smooth, 10–50 cm high, 2–3 mm diam. Leaves not septate-nodulose, shorter than or not much exceeding culms, 2–5 mm wide, sometimes reduced to sheaths. Inflorescence simple or rarely compound with 5–11 primary branches to 5 cm long, sometimes head-like; digitate clusters dense, 8–15 mm diam.; involucre bracts leaf-like, 1 or 2 longer than the inflorescence and usually +/- erect. Spikelets flattened, numerous per cluster, 2.5–5 mm long, c. 1 mm wide in side view, 10–30-flowered; rachilla not winged, persistent. Glumes very obtuse, with 3-nerved midrib, 0.6–0.9 mm long, c. 1 mm wide, very dark red-brown or sometimes paler, with white margins. Stamens 1, rarely 2. Style 3-fid. Nut triquetrous, ellipsoid to obovoid, almost as long as glume, 0.5–0.7 mm long, c. 0.3 mm diam., straw-coloured.

Flowering: spring–summer.

Distribution and occurrence: Widespread. Grows in seasonally wet, open situations, often disturbed; a weed of rice crops. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP, NFWP. Other Australian states: Qld Vic. W.A. S.A. N.T.

**Cyperus eragrostis*

Description: Tufted perennial, with very short rhizome. Culms trigonous, smooth, 25–90 cm high, 2–4 mm diam. Leaves slightly septate-nodulose, as long as culms or shorter, 4–8 mm wide. Inflorescence simple to decompound with up to 12 primary branches to 12 cm long; digitate clusters 10–50 mm diam.; involucre bracts leaf-like, 5–9 exceeding inflorescence. Spikelets flattened, numerous per cluster, to 30-flowered, 5–15 mm long, c. 3 mm wide; rachilla not winged, persistent. Glumes with 3-nerved midrib, 2–2.5 mm long, surface conspicuously isodiametric-reticulate, greenish to white or straw-coloured, tinged yellowish or red-

brown. Stamen 1. Style 3-fid. Nut triquetrous, obovoid, about half as long as glume, 1-1.4 mm long, c. 0.5 mm diam., dark brown to greyish.

Flowering: spring-summer.

Distribution and occurrence: Weed of rice crops and ephemerally wet, open, disturbed situations; widespread. Native of N & S Amer. NSW subdivisions: *NC, *CC, *SC, *NT, *CT, *ST, *NWS, *CWS, *SWS, *NWP, *SWP, *SFWP, LHI. Other Australian states: *Qld *Vic. *Tas. *W.A. *S.A.

Cyperus flavidus, Yellow Flat-sedge

Synonyms: *Pycreus flavidus* (Retz.) T.Koyama

Description: Tufted annual or perennial. Culms trigonous, smooth, 5-60 cm high, 1-1.5 mm diam. Leaves not septate-nodulose, shorter or longer than culms, mostly 1-2 mm wide. Inflorescence simple or subcompound with 2-6 primary branches to 5 cm long, or head-like; spikes ovoid to broad-ovoid, to 3 cm diam.; involucre bracts leaf-like, 2-4 exceeding inflorescence. Spikelets flattened, 5-20 per spike, 10-25 mm long, 1.5-2.5 mm wide in side view, 12-50-flowered; rachilla not winged, persistent. Glumes obtuse, with 3-nerved midrib, 1.5-2.5 mm long, 1-1.5 mm wide, yellow-brown to very dark brown with hyaline margins. Stamens 2. Style 2-fid. Nut biconvex, obovate to elliptic, less than half as long as glume, 0.8-1.2 mm long, 0.4-0.6 mm wide, dark brown to black.

Flowering: spring-summer.

Distribution and occurrence: Grows in open swampy situations; widespread but scattered on coast and tablelands, extending to eastern edge of western slopes. NSW subdivisions: NC, CC, NT, CT, ST, NWS, SWS. Other Australian states: Qld Vic.

Cyperus gunnii subsp. *gunnii*

Synonyms: *Mariscus gunnii* (Hook.f.) C.B.Clarke

Description: Tall, tufted perennial with short thick rhizome. Culms trigonous to terete, smooth or occasionally scabrous, to 150 cm high, 1.7-4 mm diam. Leaves septate-nodulose, as long as to exceeding culms, to 6.5 mm wide. Inflorescence simple to compound with 5-8 primary branches to 12 cm long; clusters dense, spicate to subdigitate, globose, to 20 mm diam.; involucre bracts leaf-like, 2 or 3 much longer than inflorescence. Spikelets flattened, numerous per cluster, 6-15 mm long, 1.5-2.5 mm wide in side view, 6-15-flowered; rachilla narrowly to broadly winged; glume spacing 1.2-2.2 mm; spikelet falling as unit, or rachilla persistent. Glumes broad-acute with mucro to 0.2 mm long, with sides 2-4-nerved, 2-2.7 mm long, usually red-brown to dark red-brown. Stamens 3. Style 3-fid. Nut trigonous, narrow-ellipsoid, about three-quarters as long as glume, 1.5-2.2 mm long, 0.5-0.7 mm diam., pale yellow-brown to dark brown.

Flowering: spring-summer.

Distribution and occurrence: From coast west to Nyngan and West Wyalong district. Also in SE Qld, Vic, Tas, SA. Grows in swamps and along streams. NSW subdivisions: NC, CC, SC, NT, ST, NWS, CWS, SWS, NWP, SWP, ?SFWP. Other Australian states: Qld Vic. Tas. S.A.

Cyperus lhotskyanus

Synonyms: *Cyperus rutilans* (C.B.Clarke) Maiden & Betche

Description: Slender perennial with short rhizome. Culms solitary, trigonous to subterete below, smooth, with bases subbulbous occasionally, 20-60 cm high, 1.2-3 mm diam. Leaves occasionally septate-nodulose, shorter than to exceeding culms, to 4 mm wide. Inflorescence simple to compound, with 3-7 primary branches to 11 cm long; clusters spicate to subdigitate, dense, hemispherical to globose, to 25 mm diam.; involucre bracts leaf-like, 1-3 about twice as long as inflorescence. Spikelets flattened, numerous per cluster, 6-15 mm long, 2.5-4 mm wide in side view, 6-12-flowered; rachilla not to broadly winged; glume spacing 1.2-1.8 mm; spikelet falling as unit, or rachilla persistent. Glumes retuse to acute with mucro to 0.5 mm long, with sides 2-4-nerved, 2.6-4 mm long, red-brown. Stamens 3. Style 3-fid. Nut trigonous, narrow-obovoid to narrow-ellipsoid, about three-quarters as long as glume, 1.8-2.2 mm long, 0.6-0.8 mm diam., yellow-brown.

Flowering: spring-summer.

Distribution and occurrence: Grows on stream banks and floodways; south from Tenterfield on tablelands to Newnes and west to Nymagee area. NSW subdivisions: CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP. Other Australian states: Vic. S.A.

Cyperus lucidus, Leafy Flat Sedge

Synonyms: *Cyperus acutus* R.Br.

Description: Robust tussock-forming perennial with short thick rhizome. Culms 30-150 cm high, trigonous, smooth, to 10 mm diam. Leaves strongly septate-nodulose, often longer than culms, 5-40 mm wide. Inflorescence compound or decompound with 6-10 primary branches to 20 cm long; spikes ovoid to cylindrical, 1-3 cm long and diam.; involucre bracts leaf-like, 5-10 much exceeding inflorescence, to 150 cm long. Spikelets terete to flattened, numerous per spike, 4-20 mm long, 1-2.5 mm wide in side view, 4-10-flowered; rachilla broadly winged; spikelet falling as unit. Glumes acute, with sides 2-4-nerved, 4-6.5 mm long, red-brown. Stamens 3. Style 3-fid. Nut trigonous, very narrow-ellipsoid, about two-thirds as long as glume, 2.5-3 mm long, c. 0.7 mm diam., dark grey-brown to blackish.

Flowering: spring-summer.

Distribution and occurrence: Grows in swampy areas and on stream banks; widespread on coast, tablelands and western slopes, west to Pilliga Scrub and Warrumbungle Ra. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, LHI. Other Australian states: Qld Vic. Tas. W.A. S.A.

**Cyperus rotundus*, Nutgrass

Description: Rhizomatous perennial with slender rhizomes forming ovoid to ellipsoid tubers 5-10 mm diam., woody, with deciduous grey-brown fibrous coat. Culms triquetrous, smooth, 15-30 (occasionally to 60) cm high, 1-2 mm diam. Leaves not septate-nodulose, shorter than culms, 2-6 mm wide. Inflorescence mostly simple with 3-9 primary branches to 10 cm long; spikes short, ovoid, to 2.5 cm long, to 3 cm diam.; involucre bracts leaf-like, 2-4 not or slightly exceeding inflorescence. Spikelets flattened, 3-10 per spike, 10-40-flowered, to 25 mm long, c. 2 mm wide in side view; rachilla broadly winged, persistent. Glumes obtuse, with sides several-nerved, 3-3.5 mm long. Stamens 3. Style 3-fid. Nut rarely maturing, trigonous, narrowly obovoid to ellipsoid, less than half as long as glume, c. 1.5 mm long, c. 0.5 mm diam., dark grey-brown.

Flowering: spring-summer.

Distribution and occurrence: Weed in disturbed situations, mostly around habitation but occasionally infesting crops; widespread but scattered. Native of Afr. & Asia. NSW subdivisions: *NC, *CC, *SC, *ST, *NWS, *CWS, *SWS, *NWP, LHI. Other Australian states: *Qld *Vic. *W.A. *S.A. *N.T.

Cyperus sanguinolentus

Synonyms: *Pycreus sanguinolentus* (Vahl) Nees

Description: Tufted annual or perennial. Culms trigonous, smooth, 5-80 cm high, to 2 mm diam. Leaves not septate-nodulose, equalling or shorter than culms, 1-3 mm wide. Inflorescence simple with 3-5 branches to 5 cm long, or head-like; clusters subdigitate or spicate, hemispherical, to 25 mm diam.; involucre bracts leaf-like, 1-3 exceeding inflorescence. Spikelets flattened, 2-25 per cluster, 5-20 mm long, 2-3 mm wide in side view, 6-36-flowered; rachilla not winged, persistent. Glumes obtuse, with midrib 1-3-nerved, 1.5-2.5 mm long, 1.5-2 mm wide in side view, dark red-brown to blackish, with pale margins and often with a hyaline patch on sides. Stamens 2 or 3. Style 2-fid. Nut biconvex, broad-obovate to circular, a third to half as long as glume, 0.8-1.5 mm long, 0.6-1.2 mm wide, brown to blackish.

Flowering: spring-summer.

Distribution and occurrence: Grows in swamps, on roadsides and stream banks; widespread on coast and tablelands, extending to Pilliga Scrub and Warrumbungle Ra. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP. Other Australian states: Qld Vic. W.A. S.A. ?N.T.

Cyperus sphaeroideus

Synonyms: *Kyllinga intermedia* R.Br

Description: Slender perennial with long slender rhizome. Culms trigonous, smooth, to 50 cm high, c. 1 mm diam. Leaves not septate-nodulose, shorter than culms, 2-3 mm wide. Inflorescence head-like, globose, always solitary, 4-7 mm diam.; involucre bracts leaf-like, 2-4 exceeding inflorescence. Spikelets flattened, from very few to 50 per head, c. 3 mm long, c. 1 mm diam., 1- or 2-flowered, falling as unit. Glumes short-mucronate, with smooth or slightly toothed midrib, with sides several-nerved, 2-3.5 mm long, whitish to pale brown, often tinged golden. Stamens 2 or 3. Style 2-fid. Nut biconvex, obovate, about half as long as glume, 1-1.3 mm long, 0.7-0.8 mm wide, pale brown.

Flowering: spring-summer.

Distribution and occurrence: Usually grows in undisturbed damp habitats, often in woodland; widespread in eastern half of State. NSW subdivisions: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS. Other Australian states: Qld Vic.

****Cyperus tenellus***

Description: Dwarf tufted annual. Culms filiform, trigonous to compressed, 1–8 cm high. Leaves filiform, not septate-nodulose, shorter than culms. Inflorescence a pseudolateral, digitate cluster of 1–4 sessile spikelets; involucre bracts leaf-like, 1 erect, shorter or longer than inflorescence. Spikelets flattened, 4–8 mm long, 2–2.5 mm wide, 4–20-flowered; rachilla not winged, persistent. Glumes obtuse or shortly acuminate, with sides 2–5-nerved, 1.5–1.7 mm long, greenish to pale brown, often tinged red-brown. Stamens 1–3. Style 3-fid. Nut triquetrous, ellipsoid to obovoid, half to two-thirds as long as glume, 0.8–1.0 mm long, 0.6–0.7 mm diam., pale to mid-brown.

Flowering: spring–summer.

Distribution and occurrence: Grows in damp, open situations, often disturbed; sporadically naturalized near habitation, in Sydney region, near Kioloa, and along Murray R. valley. Native of S Afr. NSW subdivisions: *CC, *SC, *CT, *SWS, *SWP. Other Australian states: *ACT *Qld *Vic. *Tas. *W.A. *S.A.

Cyperus unioides

Synonyms: *Pycreus unioides* (R.Br.) Urb.

Description: Tufted perennial, often with short rhizome. Culms triquetrous, smooth or scabrous above, 30–90 cm high, 1–2 mm diam. Leaves not septate-nodulose, usually shorter than culms, 2–4 mm wide. Inflorescence simple with 3–6 branches to 10 cm long or head-like; spikes or subdigitate clusters broad-ovoid, to 40 mm long and diam.; involucre bracts leaf-like, 2–4 longer than inflorescence. Spikelets flattened, 4–12 per spike, 8–18 mm long, 3–5 mm wide in side view, 12–24-flowered; rachilla not winged, persistent. Glumes acute, with 3-nerved midrib, 3.5–4.5 mm long, 2.5–3 mm wide, yellowish to golden brown or dark red-brown with hyaline margins. Stamens 3. Style 2-fid. Nut biconvex, obovate to elliptic, less than half as long as glume, 1–1.5 mm long, 0.8–1 mm wide, grey to blackish.

Flowering: spring–summer.

Distribution and occurrence: Grows in swamps; south to Corindi and Dorrigo (one old record from 'Humes River, 3000 feet'). NSW subdivisions: NC, NT, ?ST. Other Australian states: Qld