

Var. *mājor*, Bailey. Culm much stouter (often over 2° high), thick and very sharply angled; leaves stout and channelled or involute; staminate spikes short-stalked; the pistillate 1-5, darker, mostly longer and larger; scale varying from wholly obtuse to acutish. — Outlet of Moosehead Lake (Porter), and northward.

Var. (?) *aūrea*, Bailey. Taller and mostly stouter than the type; pistillate spikes one or two, often staminate at top, yellow or stramineous; perigynium longer, gradually produced into a conspicuous and more or less toothed beak, prominently few-nerved, yellow, broader and usually longer than the blunt scale. (C. *pulla*, and var. *miliaris*, last ed.) — Outlet of Moosehead Lake (Smith), and northward.

++ Spikes much larger, cylindrical.

= Scales all, or all but the very lowest, smooth.

11. *C. utriculāta*, Boott. Very stout and robust, 3-4° high; leaves broad (4-6") and flat, very prominently nodulose, particularly below; spikes 3-4, 3-6' long, very thick and dense above but usually more or less attenuate below, erect or nearly so, all but the lowest sessile or very short-stalked; perigynium ovate, only moderately inflated, rather abruptly contracted into a short toothed beak, at maturity usually squarrose, rather prominently few-nerved, the upper longer than the sharp scale, the lower shorter than or only equalling the sharper or awned scale. (C. *rostrata*, Bailey, etc.) — Swamps, everywhere; common. Passes imperceptibly into var. *minor*, Boott, which is distinguished by its much smaller size, spikes 2½' long or less, smaller perigynium, blunt scales, and narrower and little nodulose leaves. With the type.

12. *C. monile*, Tuckerm. Rather slender but erect, 2-3° high, the culm sharply angled and usually rough above; pistillate spikes 2-3, the lowest one or two short-stalked, erect or spreading, 1-3' long, narrowly cylindrical; perigynium turgid, prominently beaked, about 10-nerved, ascending, longer than the very sharp scale. (C. *Vaseyi*, Dewey.) — Meadows and swales; common. — In var. *monstrōsa*, Bailey, the plant is very slender throughout, and the terminal spike more or less pistillate, while the remaining spikes are reduced to one or two which are very small and loosely flowered and usually on very long filiform peduncles. E. Mass. (Swan).

13. *C. Tuckermāni*, Dewey. Differs from the last chiefly in the comparatively shorter (1-2' long) spikes, which are much thicker (usually ½' or more); perigynium greatly inflated and very thin and papery, the body broader than long (about 3" thick); scale thin and narrow, acute, all but the very lowest less than half the length of the perigynium. — Swamps, W. New Eng. to N. J., and west to Minn.; frequent.

14. *C. bullāta*, Schkuhr. (Pl. 6, fig. 15-20.) Slender, 1-2° high; culm very sharply and roughly angled, thin but stiff; leaves narrow, rough-edged, stiff; spikes 1 or 2, remote, short and thick (rarely 1½' long), sessile or the lower short-peduncled, more or less spreading; perigynium turgid but very firm, dull straw colored and shining as if varnished, prominently few-nerved, the long beak usually minutely roughened; scale membranaceous and blunt, about ½ as long as the perigynium. — Swamps from E. Mass. to N. J. and E. Penn., and southward; frequent.

*C. bullāta* × *utriculāta*, Bailey. Perigynium considerably smaller and more spreading, less shining; scales longer and sharper. (C. Olneyi, Boott.) — Providence, R. I. (Olney).

15. *C. retrōrsa*, Schwein. Stout, 2-3° high; culm obtusely angled and smooth or nearly so; leaves broad and soft, roughish, much longer than the culm; spikes 3-5, approximate near the top of the culm or the lowest remote, all but the lowest 1 or 2 sessile, 1-2' long and very compactly flowered, erect or spreading; perigynium very thin and papery, much inflated, prominently nerved, strongly reflexed; scale very short and small. — Swamps, from Penn. northward; common. — In var. *HARTII*, Gray, a common monstrous form, the spikes are more or less scattered and peduncled, loosely flowered, and the perigynium less reflexed or spreading.

= Scales all rough-awned.

16. *C. lūrida*, Wahl. Variable in size, mostly ranging from 1½-3° high, stout; culm rather obtusely angled and smooth; leaves long and loose, rough; spikes 2-4, variously disposed, the 1 or 2 upper sessile, nearly erect or often drooping, very densely flowered; perigynium thin and turgid, often somewhat shining, rather lightly about 10-nerved, very long and slenderly beaked, ascending; staminate spike single, scales linear, half as long as the perigynium or more. (C. *tentaculata*, Muhl.) — Swamps, N. Eng. to S. Ill., and southward; abundant eastward. Very variable. — Var. *GRACILIS*, Bailey. Plant more slender; spikes 2-3, very small and narrowly cylindrical (1' long or less, and 3" broad or less): Mts. of Vt., Penn., and Tenn.

Var. *flaccida*, Bailey. Lower, scarcely exceeding 12-15' in height; spikes 2-4, all sessile and approximate at the top of the culm, small and straight (1' long or less), dull brown or reddish-brown, loosely flowered and entirely lacking the dense and comose appearance of the type; perigynium very thin and much inflated, the body usually larger than in the type and more gradually contracted into the beak. — N. Y. to N. J.; apparently scarce.

*C. lūrida* × *lupulina*, Bailey. Very like *C. lūrida*, but the spikes usually all approximate or only the lowest separated, erect or spreading, all sessile, green or greenish, often curved; perigynium very long-beaked and ascending; staminate spike one, sessile or very nearly so, strongly resembling that of *C. lupulina*. (C. *tentaculata*, var. *altior*, Boott.) — Mass., Conn., and N. Y.; little known. *C. lupulina* × *retrōrsa* is distinguished from this by its yellow or straw-colored more scattered spikes which are shorter and always straight, and the loose, larger and more inflated perigynia.

\* 1. — 4. *Pseudocypère*.

++ Spikes all erect or ascending.

17. *C. Schweinitzii*, Dewey. Soft but erect, 1-2° high, stoloniferous, yellowish-green and becoming straw-colored in drying; culm flattish and smooth; leaves broad (3-4"), the radical longer than the culm, the others mostly short; spikes 3-4, the lower one or two short-peduncled, narrowly long-cylindrical (1½-3' long, 4" broad); perigynium thin and somewhat inflated, prominently few-nerved, the long beak short-toothed, ascending; scale awned and commonly rough at the tip, a little shorter than the perigynium. — Swamps, W. New Eng. to N. J., and west to Mich.; local.

→ → Spikes widely spreading or drooping.

18. *C. hystricina*, Muhl. Slender but erect, 1-2° high; culm very sharply angled and rough, at least above; leaves rather narrow, roughish; spikes 1-3, borne near the top of the culm, the upper one often sessile, the remainder on more or less filiform stalks, short (rarely 1½' long) and compactly flowered; perigynium greenish, very strongly 15-20-nerved, the very slender beak strongly toothed; scale linear and rough-awned, nearly or quite as long as the perigynium. — Swales, throughout; frequent. Often confounded with n. 16.

Var. *Dudleyi*, Bailey. Taller; spikes larger and slimmer (1½-2½' long), light straw-colored, all secund and widely divaricate or nodding; perigynium stronger toothed; scales usually more prominent. — Swales, Conn. (*Wright*), Ithaca, N. Y. (*Dudley*), Wisc. (*Lapham*).

19. *C. Pseudo-Cyperus*, L. Tall and stout, 2-3° high; culm thick and very sharply triangular, rough throughout; leaves very long, rough-margined; spikes 3-5, all slenderly peduncled and more or less drooping, all somewhat contiguous, long (mostly 2-3') and narrowly cylindrical, very compactly flowered; perigynium elliptic-lanceolate, more or less 2-edged, many-costate, the beak shorter than the body, with erect short teeth, strongly reflexed; scale very rough-awned, about the length of the perigynium. — Swamps and lake-borders, N. Eng. to Penn., and Mich.; rare. (Eu.)

Var. *Americana*, Hochst. Mostly stouter, the leaves broader (about ½'); spikes thicker and commonly more drooping; perigynium longer, the beak mostly longer than the body and the teeth long and prominently spreading. (*C. comosa*, *Boott*.) — Swamps; common.

\* 1. — + 5. *Squarrosæ*.

20. *C. stenolepis*, Torr. Stout and very leafy, 1-2° high; culm obtusely angled, very smooth; leaves about 3" broad, rough on the nerves, the upper and the bracts very much longer than the culm; terminal spike often pistillate at top; other spikes 3-5, the uppermost sessile on the zigzag rachis, short (1-1½' or less) and evenly cylindrical, often staminate at top; perigynium very abruptly contracted into a short but slender toothed beak, shorter than the long-linear and rough scale. — Swamps and meadows, central Penn., to N. Ohio, west and southward; frequent.

21. *C. squarrosa*, L. Cespitose, 2-3° high; culm sharply angled, more or less rough above; leaves broad and weak, roughish, exceeding the culm; bracts much less prominent than in the last; spikes 1-3, thick, the terminal always two-thirds pistillate or more, the remainder more or less stalked, erect or slightly nodding, globular or oblong-cylindric, brown, exceedingly densely flowered; perigynium larger, the beak rough; scale short and usually invisible. — Bogs, throughout; infrequent.

\* 2. TRACHYCHLENÆ. — + 1. *Shortiana*.

22. *C. Shortiana*, Dewey. Tall and slender but strict, in small clumps, 2-3° high; leaves about ½' broad, flat, rough on the nerves; spikes 3-5, somewhat approximate near the top of the culm, the lowest 2 or 3 short-peduncled, erect, small (1' long or less, and 2" wide), evenly cylindrical, exceedingly densely flowered; perigynium small, circular or round-ovate, flat,

sharp-edged, nerveless, the orifice entire, perfectly squarrose; scale thin and blunt, about the length of the perigynium. — Wet meadows, S. Penn. and Va. to Ill.; rare eastward.

\* 2. — + 2. *Andralæ*.

23. *C. scabrata*, Schwein. Tall and rather stout, very leafy, 1-3° high; culm sharply and very roughly angled; leaves broad and flat, very rough; spikes 3-5, scattered, the upper 1 or 2 sessile, the remainder often long-peduncled and sometimes nodding, 1-2' long, narrowly cylindrical and compactly flowered; perigynium broadly ovate, prominently few-nerved, rough, the beak nearly as long as the body and slightly toothed; scale acute and rough-tipped, green-nerved, about as long as the body of the perigynium. — Wet meadows and glades, as far west as Mich.; common eastward.

\* 2. — + 3. *Hirtæ*.

24. *C. vestita*, Willd. Stout and stiff, 2-3° high; culm sharply angled, smooth or somewhat rough; leaves narrow and rather short, roughish; staminate spike 1, rarely 2, sessile or nearly so; pistillate spikes 2-5, approximate and sessile, or rarely the lowest sub-radical, often staminate at top, oblong or short-cylindric (rarely 1' long), compactly flowered; perigynium ovate, nerved, stiffly hairy, short-beaked, the beak often purple, and white-hyaline at the orifice, which becomes more or less split with age; scale thin and blunt or acute, shorter than the perigynium. — Tufted in sandy soils, from N. Eng. to N. Y., and southward; frequent.

25. *C. striata*, Michx., var. *brevis*, Bailey. Stiff, 1½-2½' high; culm sharply angled, smooth or slightly rough above, mostly exceeding the leaves; leaves narrow and stiff, becoming involute; spikes 1-2, mostly closely sessile, considerably separated when two, short (rarely 1½' long) and rather thick, erect; perigynium broad-ovate with impressed nerves, smooth, ascending, short-beaked and very short-toothed; scale thin, obtuse or acutish, mostly about ½ as long as the perigynium. — Pine-barren swamps, N. J., and southward; local.

26. *C. Houghtonii*, Torr. Stiff, 1-2° high, extensively creeping; culm rather sharply angled, rough, exceeding the leaves; leaves flat and very sharp-pointed; spikes 1-3, sessile or the lowest short-stalked, erect, varying from nearly globular to cylindric (1½' long), compact; perigynium short-ovate, stiffly pubescent, prominently nerved and toothed; scale thin-margined, acute or awned, shorter than the perigynium. — Sandy knolls and banks from Maine to Minn. along our northern borders, and northwestward; rather local.

27. *C. filiformis*, L. Tall and very slender but erect, 2-3° high; culm obtuse, smooth; leaves very long, involute-filiform, rough; spikes 1-3, sessile, somewhat scattered, erect, short and thick (rarely over 1' long); perigynium very short-ovate, the teeth very short, the few nerves obscured by the dense stiff hairs; scale thin and blunt, about as long as the perigynium. — Bogs, throughout, north of Penn.; frequent. (Eu.)

Var. *latifolia*, Boeckl. Culm mostly rough above; leaves flat, 1-2" broad; spikes usually somewhat slimmer and scales often sharper and longer. (*C. lanuginosa*, Michx.) — Swales and low meadows, throughout; common.

*C. hirta*, L. Variable in size (½-2° high), widely creeping; culm rather slender but erect, obtuse and smooth or slightly rough above; leaves soft and

flat, generally sparsely hairy and the sheaths very hirsute, rarely smooth; spikes 2-3, distant, more or less shortly-peduncled, erect or nearly so,  $1\frac{1}{2}$ ' long or less and rather loose; perigynium long-ovate, nerved, soft-hairy, the prominent beak slenderly toothed; scale thin and green-nerved, awned, mostly a little shorter. — E. Mass. to central N. Y. and Penn. (Nat. from Eu.)

\* 2. — + 4. *Paludosa*.

++ *Teeth slender, mostly spreading.*

28. *C. trichocarpa*, Muhl. Stout and tall, 2-3° high; culm sharply angled, rough above; leaves very numerous, flat and very rough, but not hairy, much exceeding the culm; spikes 2-5, scattered, the lower stalked and more or less spreading, long and heavy (1-4') but loosely flowered at base; perigynium long-ovate, many-costate, sparsely short-hairy, about twice as long as the membranaceous, acute or acuminate scale. — Marshes; frequent. — Var. *imbérbis*, Gray. Mostly smaller throughout; perigynium smooth; scales usually sharper and longer. Drier places, N. Y. to Mo.; infrequent.

Var. *Deweyi*, Bailey. Leaves narrower, often becoming somewhat involute, smoother; spikes short (seldom over  $1\frac{1}{2}$ ' long), all but the lowest one sessile; perigynium smooth, thick in texture, becoming polished with age, the nerves impressed; scales sharp, mostly a little shorter than the perigynium. — Dakota (*Seymour*), and northwestward. Resembles small forms of n. 29.

Var. *aristata*, Bailey. Mostly stouter; leaves more or less hairy on the under surface and sheaths; perigynium usually longer, smooth, the teeth longer and more spreading. (*C. aristata*, R. Br.) — N. Eng. to Minn.; rare eastward.

++ *Teeth short, erect or very nearly so.*

29. *C. riparia*, W. Curtis. Very large and stout, 2-4° high, stoloniferous; leaves mostly broad, flat, rough, glaucous, much longer than the sharply angled culm; spikes 2-4, scattered and all more or less peduncled, the lowest often very long-stalked, varying from almost globular in starved plants to 3-4' long, erect or the lower somewhat drooping, loosely flowered below; perigynium ovate-lanceolate, coriaceous, rather lightly many-nerved, becoming polished, the beak short and thick; scale varying from blunt to awned, shorter or longer than the perigynium. — Swales; common. (Eu.)

*C. acutiformis*, Ehrh. Stout, 2-3° high; culm thick and sharp, mostly smooth; leaves broad, flat and glaucous, much prolonged; spikes 3-5, all but the uppermost peduncled, spreading or drooping, narrowly cylindric (2-3' long), loosely flowered below; perigynium ovate, very strongly many-nerved, the short beak slightly toothed; scale rough-awned and longer than the perigynium. (*C. paludosa*, Gooden.) — Swales, Dorchester, and New Bedford, Mass (Nat. from Eu.) The former station has been recently destroyed.

\* 3. *Microrhynchæ*. — + 1. *Atrata*.

++ *Alpine; plant small.*

30. *C. alpina*, Swartz. Small and slender,  $\frac{1}{2}$ -2° high; culm thin and obtuse, smooth or roughish, naked above; leaves narrow and flat, shorter than the culm; spikes commonly 3, sometimes 2 or 4, aggregated, globular and very small, all closely sessile or rarely the lowest exceedingly short-stalked; perigynium orbicular or obovate, nerveless or nearly so, the short beak slightly notched, a little longer than the ovate and black mostly obtuse scale. — Isle Royale, L. Superior. (Eu.)

31. *C. atrata*, L., var. *ovata*, Boott. Very slender but erect, 1-2° high; culm rather sharp, roughish above; leaves narrow but flat, shorter than the culm; spikes 3-5, all but the terminal one on slender stalks  $\frac{1}{2}$ -2' long, drooping when mature, 1' long or less, ovate-oblong or short-cylindric, reddish-brown; perigynium broadly ovate, thin and punctulate, very short-beaked, the orifice slightly notched; scale blunt, thin-margined, about as long as the perigynium. (*C. atrata*, Man.) — White Mountains, N. H., Smugglers' Notch, Vt. (*Brainerd*), and northward.

++ *Paludose; plant larger.*

32. *C. fusca*, All. Rather slender but stiff, 1-3° high; culm sharp, roughish above; leaves very narrow, rough, mostly shorter than the culm; spikes 2-4, the terminal rarely all staminate, all sessile and approximate or the lowest sometimes very short-stalked, varying from globular to narrowly cylindric (often becoming  $1\frac{1}{2}$ ' long), dark brown or variegated; perigynium elliptic and beakless, whitish and granular, nearly nerveless, the orifice entire; staminate scales very long-lanceolate, the pistillate lance-ovate and very sharp, conspicuously longer than the perigynium. (*C. Buxbaumii*, Wahl.) — Bogs, throughout; frequent. (Eu.)

\* 3. — + 2. *Rigida*.

33. *C. vulgaris*, Fries. Low and stiff, about 1° or sometimes 18' high; culm sharp, smooth or rather rough above; leaves narrow and stiff, shorter than the culm, glaucous-blue; staminate spike sessile or nearly so; spikes 2-4, all sessile or rarely the lowest very short-stalked, short and erect (1' long or less), very densely flowered or sometimes becoming loose below, the lowest subtended by a bract 1-3' long; perigynium appressed, oval or round-ovate, mostly finely striate toward the base, the beak entire or very nearly so, bright green until over-mature; scale ovate and very obtuse, purple with a faint white nerve, conspicuously narrower and shorter than the perigynium, thus causing the spike in the growing plant to assume a characteristic green-and-black appearance. — Swales and low meadows along the sea-board, from Mass. northward; common. (Eu.)

Var. *strictiformis*, Bailey. Taller ( $1\frac{1}{2}$ -2 $\frac{1}{2}$ ° high) and looser; culms slender; leaves long and narrow, lax, scarcely glaucous; staminate spike longer peduncled; pistillate spikes looser and often longer, mostly brown or tawny-green. (*C. limula*, Man.) — Swales from E. Penn. northward, near the sea-board; frequent. Often confounded with n. 34, but easily distinguished by the non-cespitose habit, sheaths not fibrillose, and the short scales very obtuse.

Var. *hyperborea*, Boott. Somewhat stoloniferous, low, often smaller than the type; spikes shorter and mostly loosely flowered, often becoming very thin; scales generally longer, giving the spikes a darker color; stigmas often 3. (*C. rigida*, var. (?) Bigelovii, Tuckerm.) — Alpine summits of N. H., Vt., and N. Y. (Eu.)

\* 3. — + 3. *Acuta*.

++ *Stigmas 2; scales not conspicuously acute, or if so, divaricate.*

= *Spikes erect, or rarely spreading in n. 34.*

34. *C. stricta*, Lam. Tall and slender but erect, 2-4° high, generally in dense clumps when old, or rarely in small tufts; culm sharp, rough above;

leaves long and narrow, rough on the edges, the lowest sheaths usually becoming prominently fibrillose; 1 or 2 lowest bracts leafy and equalling the culm; spikes 3-5, variable in size and shape, scattered, the lowest usually more or less peduncled and clavate and the others sessile, erect or spreading, oblong or cylindric ( $\frac{1}{2}$ -2' long and 2-3" broad), all compactly flowered above but often attenuate at base (or rarely alternate-flowered throughout), the upper mostly staminate at top, all greenish-purple or pallid; perigynium ovate and small, tawny, mostly lightly few-nerved and somewhat granular, the beak very short and commonly entire; scale obtuse to nearly acute, about equalling the perigynium or a little shorter. — Swales, throughout; abundant and variable.

**Var. angustata.** Stricter; spikes longer and narrower (3-4' long and about  $1\frac{1}{2}$ " broad), never clavate, more approximate and always erect, the staminate portion usually much longer (often 1-2'), rust-colored; scales narrower and sharper, mostly longer than the perigynium. (*C. angustata*, Boott, in part.) — Same range as the type, but less common.

**Var. decora,** Bailey. Usually smaller; basal sheaths rarely fibrillose; spikes shorter (seldom over 1' long), sessile or very nearly so, rarely attenuate at base, spreading, the terminal staminate flowers few, rust-colored; bracts more spreading; scales very sharp and spreading, longer than the perigynium. (*C. aperta*, Man.) — N. Eng. to Wisc.; rather rare.

**C. stricta**  $\times$  **filiformis.** Leaves and culms very slender; spikes short (1' long or less), sessile and compact, the upper 1 or 2 scarcely bracted, pallid; perigynium small, smooth. — Keweenaw Co., Mich. (*Farwell*.) Exactly intermediate between the two species.

35. **C. aquatilis,** Wahl. Large and stout, glaucous, 2-4° high; culm very obtuse and smooth; leaves exceedingly long, broader than in the last, the bracts broad and prolonged far beyond the culm; spikes 3-5, 1-2' long, very compact or the lowest sometimes attenuate below, erect, thick (3" broad or less); perigynium round-ovate or broadly elliptic, nerveless, greenish, imbricated; scale obtuse and much shorter and narrower than the perigynium. — Swamps and lake-margins, N. Eng. to Minn.; not common. (Eu.)

36. **C. lenticularis,** Michx. Rather slender but erect, pale throughout, 1-2° high; culm sharp, usually slightly rough above; leaves very narrow, numerous, much surpassing the culm; spikes 3-6, more or less aggregated or the lowest remote, the terminal androgynous or staminate, mostly sessile, erect; perigynium ovate, minutely granular, brown-nerved, the tip empty and entire; scale pale and obtuse, about  $\frac{1}{2}$  the length of the perigynium. — Gravelly borders of ponds and lakes, northern N. Eng. to Minn.; mostly local.

= = Spikes widely spreading or drooping.

37. **C. torta,** Boott. Slender but erect,  $1\frac{1}{2}$ -2 $\frac{1}{2}$ ° high, in clumps, with exceedingly tough and cord-like roots; culm rather sharp, smooth or roughish above; leaves flat and rather soft, those of the culm very short; spikes 3-5, mostly somewhat approximate or the lower remote, the upper sessile and ascending but the others drooping, long and slender (often 3' long, 2" broad or less); perigynium lance-ovate, thin and green, nerveless, the slim upper half empty and more or less tortuous, the beak entire or erose; scale purple-margined and very obtuse, shorter than the perigynium. — Cold banks and swamps, Vt. to N. C.; infrequent.

++ Stigmas 2; scales long-acute and ascending.

38. **C. salina,** Wahl, var. **cuspidata,** Wahl. Rather stout, 1-2 $\frac{1}{2}$ ° high; culm rather sharp, smooth; leaves narrow but flat; spikes 2-4, somewhat approximate, the lowest 1 or 2 very short-stalked, erect, short ( $1\frac{1}{2}$ ' or less) and rather thick, the lower subtended by leaf-like bracts 3-4' long; perigynium elliptic, somewhat granular, marked with 2 or 3 nerves or nerveless, the minute beak entire; scale brown-margined, produced into a lighter and rough awn much exceeding the perigynium. (*C. salina*, Man.) — Salt marshes, Mass., and along the coast northward; rare in the United States. (Eu.) Anomalous forms, which appear to be hybrids, have been separated as

**C. stricta**  $\times$  **salina,** Bailey. Spikes thinner and more scattered, more inclined to be peduncled; scales blunt or short-awned, little exceeding the perigynium. — Near Boston, Mass., W. Boott, Morong.

+++ Stigmas 3.

39. **C. prasina,** Wahl. Slender, somewhat flexuose,  $1\frac{1}{2}$ -2 $\frac{1}{2}$ ° high; culm rather sharp, smooth; leaves very narrow, soft and flat, rough; spikes 2-3, peduncled and spreading or drooping, somewhat approximate, green, 1-2' long, narrow and loosely flowered; perigynium pale, narrowly triangular-ovate, thin, nearly nerveless, produced into a short but slender entire or minutely toothed beak; scale very thin and acute, nearly colorless, shorter than the perigynium. (*C. miliacea*, Muhl.) — Meadows and bogs, Vt. to Mich., and southward; infrequent.

\* 3. — + 4. *Cryptocarpa*.

40. **C. maritima,** O. F. Mueller. Mostly stout, 1-2 $\frac{1}{2}$ ° high; culm sharp, smooth or rough above; spikes 2-6, scattered, all or all but the upper one on very long weak stalks and pendulous, 1-3' long and thick and bushy, usually staminate at top; perigynium nearly orbicular, pale, few-nerved or nerveless, the beak very short and entire or nearly so; scale produced into a greenish rough awn 3-8 times as long as the perigynium. — Salt marshes of the coast, Mass., Maine, and northward; not common. Leaves smooth, broad and flat. (Eu.)

41. **C. crinita,** Lam. Robust and mostly stout, 2-4° high; culm sharp and rough or sometimes smooth; leaves about 3" broad, flat, more or less rough on the nerves and margins; spikes 3-6, somewhat scattered, all variously peduncled, mostly secund, curved and drooping (or in small forms rarely nearly erect), 1-4' long, narrowly and evenly cylindric, compact or attenuate below, often staminate at top; perigynium ovate, thin and punctulate, obscurely nerved, the minute point entire; scale greenish-brown and rough-awned, 2-3 times as long as the perigynium. (*C. gynandra*, Schwein.) — Swales; common. — **Var. minor,** Boott. Much smaller in all its parts, 10-18" high; leaves narrow; spikes 3-4,  $1\frac{1}{2}$ ' long or less, less drooping; scales less prominent. — Maine to N. Y.; scarce. Somewhat resembles n. 39.

**C. crinita**  $\times$  **torta,** Bailey. More slender than *C. crinita*, the leaves narrower; spikes nearly as slender as those of *C. torta*; scales blunt or simply acute and little longer than the perigynium, or sometimes very short-awned. — Moist meadows near the Glen House, White Mts. (*Brainerd*). Might be mistaken for drooping-spiked forms of n. 34.

\* 3.—+ 5. *Pendulnæ*.++ *Spikes narrowly cylindrical*.

42. *C. littoralis*, Schwein. Somewhat slender but erect, 1-2° high; leaves narrow and rather stiff, flat, glaucous, shorter than the sharp and nearly smooth culm; staminate spikes 1-3, dark purple, 1½ long or less, the scales obtuse; pistillate spikes 2-4, somewhat approximate, on thread-like peduncles, 1-2' long, usually staminate at top; perigynium lance-oval, faintly nerved, the minute beak entire, mostly longer than the obtuse purple scale; bracts prominently purple-auricled. (C. Barrattii, Schwein. & Torr.)—Marshes near the coast, N. J. and southward; rare.

++ *Spikes globular or oblong*.= *Scales very sharp, prominently longer than the perigynium*.

43. *C. Magellanica*, Lam. Slender but erect, 8-18' high; leaves flat and lax, somewhat shorter than the culm; lowest bract as wide as the leaves or nearly so and exceeding the culm; spikes 2-3, approximate, all slenderly stalked and drooping; perigynium orbicular or broad-ovate, nerved in the centre, ½-¾ the length of the scale. (C. irrigua, Smith.)—Deep swamps, throughout, north of Penn.; local. (Eu.)

== *Scales blunt, little exceeding the perigynium*.

44. *C. rariflora*, Smith. Very small but stiff, 4-10' high, somewhat stoloniferous; culm obtuse and very smooth; leaves very narrow, becoming involute, shorter than the culm; spikes 1-2, only 3-10-flowered, drooping, borne in the axil of a minute awl-like and purple-auricled bract; perigynium ovate, nearly pointless, obscurely nerved, mostly a little shorter than the enveloping scale.—Mt. Katahdin, Maine (Goodale). (Eu.)

45. *C. limosa*, L. Slender but rather stiff, 1-2° high, stoloniferous; culm sharp, rough above; leaves very narrow, strongly keeled or involute; spikes 1-2, nodding on short stalks or the upper one erect, oblong, springing from the axil of a very narrow bract which is nearly always shorter than the culm; perigynium very short-pointed, about the length of the broad scale.—Deep swamps, throughout, north of Penn.; local. (Eu.)

\* 4. HYMENOCHLÆNÆ.—+ 1. *Virescentes*.

46. *C. virescens*, Muhl. Slender, erect or spreading, 1-1½° high; leaves very narrow, more or less hairy; spikes 3-5, green, short-oblong, all somewhat stalked and often spreading, compact (1½" thick or less); perigynium ovate and costate, very hairy, longer than the thin and white acute scale.—Var. *COSTATA*, Dewey, usually the commoner form, is taller (often reaching 2½°), with spikes long-cylindric, ½-2' long, and a stronger ribbed perigynium.—Banks and copses, N. Eng. to Mich., and southward; common eastward.

47. *C. triceps*, Michx., var. *hirsuta*, Bailey. Usually stiffer; leaves hairy; spikes 2-4 (usually 3), all contiguous or occasionally the lowest somewhat removed, sessile, short-oblong or globular, green or brown (2-3" thick); perigynium broad-ovate, flattish, very obtuse, often sparsely hirsute when young but smooth at maturity; staminate scales very sharp; pistillate scales acute or short-awned, about the length of or shorter than the perigynium.—Dry copses and fields, N. Eng. to Mo., and southward; rare northward.—Var.

SMITHII, Porter. Tall, slender, olive-green, the leaves very long, very nearly smooth; spikes small, globular or short-cylindrical (¼ long or less), the lowest often somewhat remote, all more inclined to be peduncled; perigynium globular and turgid, brown, squarrose, giving the spike a characteristic plump appearance.—Fields and woodlands, southern N. J., E. Penn., and southward; also in Ark.; frequent.

\* 4.—+ 2. *Sylvaticæ*.

48. *C. longirostris*, Torr. Very slender but erect, 1½-3° high, growing in stools; leaves narrow, flat, loose; spikes 3-5, 1-2' long, loosely flowered, drooping; perigynium thin, slightly inflated, green, nearly nerveless, spreading, the beak longer than the body, about the length of the awned scale.—Shady banks from N. Eng. to Neb., and northward; frequent.—Var. *MINOR*, Boott. Smaller and slenderer; spikes 9" long or less, very narrow and very loosely or even alternately few-flowered; perigynium smaller. Neb. and westward.

\* 4.—+ 3. *Flexiles*.

49. *C. castanea*, Wahl. Slender but erect, 1-2½° high; leaves broad and flat, hairy, much shorter than the rough culm; spikes 2-4, approximate, widely spreading or drooping on filiform stalks, 1' long or less, rather dense, tawny; perigynium broad-lanceolate, gradually narrowed into a beak ½ as long as the body, thin, with a nerve on each side, longer than the light brown or whitish acute thin scale. (C. flexilis, Rudge.)—Banks, Conn. to Minn.; local.

*C. ARCTATA* × *CASTANEA*, Bailey. Leaves mostly narrower, less hairy or smooth; spikes very slender and loosely flowered (scarcely over 1" wide), erect or drooping, chestnut color; perigynium thin, long-ovate, shorter-beaked, lightly nerved, mostly surpassing the pointed whitish scale. (C. Knieskernii, Dewey.)—Oneida Co., N. Y.; Keweenaw Co., Mich. (Farwell); N. Minn.

50. *C. capillaris*, L. Very slender but erect, 2-12' high; culm smooth, longer than the narrow flat or at length involute leaves; spikes 2-4, either scattered or approximate, all more or less long-peduncled and drooping, borne in the axils of conspicuous sheathing bracts, very small (3-12-flowered); perigynium thin, very small, oblong-ovoid, the beak hyaline-lipped, longer than the very obtuse white scale.—Alpine summits of the White Mts.; Cortland, N. Y., Alcona Co., Mich., and Point de Tour, L. Huron. (Eu.)

\* 4.—+ 4. *Débiles*.++ *Perigynium thin, rarely with more than two prominent nerves*.

51. *C. arctata*, Boott. Slender, erect, 1-2° high; radical leaves much shorter than the culm and very broad (2½-5"), flat; bracts broad and short, long-sheathing; spikes 3-5, all widely spreading or drooping on filiform stalks, 1-3' long and exceedingly slender; perigynium short (2" long or less), abruptly and conspicuously stipitate and abruptly contracted into a beak, 3-cornered, prominently nerved, green, mostly spreading, scarcely longer than the very sharp or cuspidate scale.—Woods and copses, N. Eng. to Penn. and Minn.; common.

Var. *Faxonii*, Bailey. Spikes shorter and usually short-peduncled, erect or nearly so, much more densely flowered, part of them commonly contiguous at the top of the culm, rendering the shorter staminate spike inconspicuous;

perigynium usually larger. — Lisbon, N. H. (*Faxon*); Keweenaw Co., Mich. (*Farwell*); extreme northern Minn. (*Bailey*); also in Canada.

52. *C. debilis*, Michx., var. *Rudgei*, Bailey. Very slender and diffuse, 1-2½ high (or rarely reduced to 3-4!); leaves narrow and lax, longer than the culm; spikes mostly heavier than in the last; perigynium much longer, very gradually narrowed at each end, scarcely angled and not prominently nerved, rusty when ripe, erect, twice longer than the obtuse or acutish scale. (*C. debilis*, of last ed.) — Copses, N. Eng. to N. Mich., and southward; frequent east and southward. — Var. *strictior*, Bailey. Usually taller, strict; leaves broader (about 2" wide) and firmer; spikes stiffer, simply spreading or even erect; perigynium mostly shorter and greener, often little exceeding the scale. White Mts. (*Faxon*). — Var. *pubera*, Gray. Perigynium usually more slender, more nerved and minutely pubescent. Center and Lancaster Counties, Penn. (*Porter, Lumsden*), and Bedford Co., Va. (*Curtiss*).

*C. debilis* × *virescens*, Bailey. Plant slender and very green; leaves flat, rough, mostly longer than the culm; spikes 2-3, 2' long, thin and slender, erect or nearly so, the terminal one bearing a few pistillate flowers at top; perigynium exactly intermediate between the two species, lance-ovate, nerved and slightly hairy, short-beaked, thin, twice longer than the scale. — Revere, near Boston, Mass. (*Faxon*).

→ → Perigynium firm, prominently many-nerved.

53. *C. venusta*, Dewey, var. *minor*, Boeckl. Slender but strict, 1½-2° high; leaves narrow and strict, about as long as the culm; spikes 1-2' long, scattered, the upper usually ascending, the terminal one sometimes staminate at top; perigynium ascending, the very short and stout beak prominently toothed, thrice longer than the rusty narrow scale. (*C. glabra*, Boott.) — Sphagnous swamps, Oneida Co., N. Y., N. J., and southward; local.

\* 4. — 5. *Gracillima*.

→ Perigynium small, scarcely turgid.

54. *C. æstivalis*, M. A. Curtis. Slender but erect, 1-1½ high; leaves very narrow, flat, shorter than the culm, the sheaths pubescent; spikes 3-4, erect or spreading, 1-2' long and very loosely flowered, all but the lowest short-stalked; perigynium very small, ovate, scarcely pointed and the orifice entire, few-nerved, about twice longer than the obtuse scale. — Saddle Mountain, W. Mass., and southward in the mountains to N. C.; rare.

55. *C. gracillima*, Schwein. Tall and slender, sometimes diffuse, 1½-3° high; leaves broad and flat (the radical about 3" wide), very dark and bright green; spikes 3-4, scattered, the terminal rarely staminate, densely flowered except at base, peduncled and drooping, green; perigynium ovate, thin and slightly swollen, nerved, obtuse, orifice entire, twice longer than the very obtuse scale. — Woodlands and low meadows, throughout; common. — In poorer soil and sunny places, it runs into var. *humilis*, Bailey, and is then smaller, has much narrower leaves and very small erect spikes (2-12-flowered), and mostly smaller perigynia.

*C. gracillima* × *hirsuta*, Bailey. In habit like var. *humilis*; spikes tawny; perigynium like that of *C. triceps*, var. *hirsuta*; plant smooth, or very minutely pubescent under a strong lens. — Philipstown, N. Y. (*Barratt*).

*C. gracillima* × *pubescens*, Bailey. Tall and erect; leaves narrower than in the last, usually slightly hairy; spikes slender, erect or slightly spreading, often staminate at top; perigynium exactly intermediate between the two species, ovate, obscurely nerved, sparsely hairy, beaked, about the length of the ovate ciliate rough-awned scale. (*C. Sullivantii*, Boott.) — Columbus, Ohio (*Sullivan*); Yonkers, N. Y. (*E. C. Howe*); Stanton, Del. (*Commons*).

→ → Perigynium large, prominently inflated.

56. *C. formosa*, Dewey. Slender, erect, 1-2½° high; leaves flat, mostly rather broad, those of the culm very short; spikes 3-5, scattered, oblong or short-cylindrical (1' long or less), compact, all flexuose or drooping; perigynium ovate, punctulate, obscurely nerved, short-beaked with a slightly notched orifice, all but the lowest one or two twice longer than the blunt or cuspidate scale. — Woods and copses, Vt. to Mich.; local.

57. *C. Davisii*, Schwein. & Torr. Always taller; spikes heavier; perigynium more inflated, strongly nerved and prominently toothed, no longer or shorter than the conspicuously awned and spreading scale. — Wet meadows, W. Mass. to S. Minn., and southward; rare east and northward.

\* 4. — 6. *Grisea*.

58. *C. grisea*, Wahl. Stout, 1-2° high; leaves broad (2-3') and slightly glaucous; bracts broad and leaf-like, diverging, very much exceeding the culm; staminate spike small and sessile; pistillate spikes 3-4, short (1' long or less), the highest two usually contiguous to the staminate spike and sessile, the others somewhat remote and peduncled, all erect, compact; perigynium oblong, pointless, marked with impressed nerves, turgid and cylindric, all but the lowest longer than the narrow, cuspidate or blunt, nerved scale. — Moist grounds, throughout, except along our northern borders; common. — Var. *angustifolia*, Boott. Much more slender; leaves scarcely half so wide, the bracts, especially, much narrower and shorter and more erect; spikes slender; perigynium scarcely inflated, triangular-oblong, bearing a sharp beak-like point, 2-ranked; scale nerveless, long-awned and spreading. N. J. to S. Ohio, and southward; common. — Var. *globosa*, Bailey. Low, 3-12' high, often spreading; spikes few-flowered, often with but 2 or 3 perigynia; perigynium short, inflated, very blunt, nearly globose or obovate; scale short, not prominently cuspidate or the upper ones wholly blunt. Mo., Kan., and southward.

Var. (?) *rigida*, Bailey. Rigid; leaves rather narrow, long and erect; staminate spike prominently peduncled; pistillate spikes scattered, all more or less stalked, conspicuously 2-ranked; perigynium triangular-oblong, hard, longer than the cuspidate ascending scale. — Sellersville, Penn., and Del.

59. *C. glaucodea*, Tuckerm. Lax or somewhat strict (6-18' high), densely glaucous; leaves flat, variable in width; spikes as in n. 58; perigynium firm, not inflated, prominently impressed-nerved, glaucous, longer than the short-cuspidate or blunt thin and appressed scale. (*C. flaccosperma*, last ed.) — Meadows and swamps, Mass. to S. Ill., and southward; local.

\* 5. *Spirostachyæ*. — 1. *Granulæres*.

60. *C. granulæris*, Muhl. Erect or spreading, 8'-2° high, somewhat glaucous; leaves flat, various; bracts broad and long, much exceeding the culm; spikes 3-4, scattered, all but the upper peduncled, erect or ascending,

compact, short-oblong to cylindric, never exceeding 1' in length; staminate spike small and usually sessile; perigynium ovoid, very strongly nerved, the nearly entire short beak usually bent; scale thin and pointed, about  $\frac{1}{2}$  the length of the perigynium. — Moist grassy places; common. — Var. *HALEANA*, Porter. Habitually lower and more slender; radical leaves very broad (3-4") and more glaucous; pistillate spikes  $\frac{1}{2}$ ' long or less, thinner; perigynium a half smaller, narrower. Wisc. to Va.; infrequent.

61. *C. Cráwei*, Dewey. Low, strict, stoloniferous (4-12' high); leaves narrow; bracts scarcely exceeding the culm; spikes 2-4, scattered, the lowest radical or nearly so, short-peduncled or the upper sessile, erect, compact, 9" long or less; staminate spike generally peduncled; perigynium ovate, usually resinous-dotted, obscurely or few-nerved, very short-pointed, longer than the obtuse or short-pointed scale. — Moist places, N. Y. to Ill. and Minn.; local, especially eastward.

\* 5. — 2. *Exténsæ*.

*C. EXTÉNSA*, Gooden. Slender but strict, 1-2° high; leaves involute, spikes about 3, the lowest remote and short-peduncled, the remainder approximate and sessile, short (about  $\frac{1}{2}$ ' long) and compact; perigynium ovate, very strongly nerved, ascending, the short stout beak sharply toothed, longer than the blunt brown-edged scale. — Long Island and Coney Island, N. Y.; Norfolk, Va., McMinn. (Nat. from Eu.)

62. *C. fláva*, L. Very slender but strict and stiff, 1-2° high, yellowish throughout; leaves flat but narrow, mostly shorter than the culm; staminate spike sessile or nearly so, usually oblique; pistillate spikes 2-4, all contiguous or rarely the lowest one remote, all but the lowest sessile, short-oblong or globular, densely flowered, the lowest subtended by a long divaricate bract; perigynium ovate, produced into a deflexed beak as long as the body, strongly nerved, thrice longer than the blunt scale. — Swales and wet meadows, N. Eng. to L. Superior; rare westward. (Eu.) — Var. *GRÁMINIS*, Bailey. Smaller and green, 6-12' high; leaves mostly longer than the culm; bracts erect; perigynium straight or nearly so, the beak often rough. Grassy places, probably common and generally distributed.

Var. *viridula*, Bailey. Small and slender, very strict, green or greenish-white; leaves narrow, equalling or exceeding the culm; bracts long and strictly erect; spikes very small or sometimes becoming cylindric, more closely aggregated; perigynium conspicuously smaller, the beak very short and straight. (C. Oederi, last ed.) — Cold bogs, N. Eng. to Penn., and northwestward; local.

\* 5. — 3. *Pallescentes*.

++ Perigynium wholly beakless.

63. *C. palléscens*, L. Slender, erect, 4'-2° high, tufted; leaves narrow, flat, the lower slightly pubescent, particularly on the sheaths; spikes 2-4,  $\frac{1}{2}$ ' long or less, densely flowered, all but the upper one very shortly peduncled, erect or spreading; perigynium globular-oblong, thin and very nearly nerveless, about the length of the cuspidate scale. — Glades and meadows, N. Eng. to Penn., Wisc. and L. Superior; rare westward. (Eu.)

++ ++ Perigynium very stout-beaked.

64. *C. Torrèyi*, Tuckerm. Stiff, 1-1 $\frac{1}{2}$ ° high; culm and leaves thinly pubescent; spikes all sessile, very short; perigynium obovate, very strongly

many-nerved, retuse, the beak short and straight, equalling or exceeding the mostly cuspidate scale. — Supposed to have been collected, a half-century ago, in N. Y. by Torrey, and in Penn. by Schweinitz. It occurs in the Rocky Mountain region, and high northward.

\* 6. *DACTYLOSTACHYÆ*. — + 1. *Oligocárpeæ*.

++ Sheaths smooth.

65. *C. conoidea*, Schkuhr. Slender but strict, 1-1 $\frac{1}{2}$ ° high; staminate spike long-peduncled or rarely nearly sessile; spikes 2-3, scattered, short-stalked or the upper one sessile (the lowest frequently very long-stalked), oblong (rarely 1' long) and rather loosely flowered, erect; perigynium oblong-conical, impressed-nerved, gradually narrowed to a point, the orifice entire; scale loosely spreading and rough-awned, equalling or exceeding the perigynium. — Moist grassy places, N. Eng. to Ill., and southward; rare westward.

66. *C. oligocárpa*, Schkuhr. Diffuse, 10-18' high; bracts flat and spreading; staminate spike sessile or stalked; spikes 2-4, scattered, stalked or the uppermost sessile, loosely 2-8-flowered, erect; perigynium small, hard, finely impressed-nerved, abruptly contracted into a conspicuous mostly oblique beak, the orifice entire; scale very loosely spreading and rough-awned, longer than the perigynium. — Dry woods and copses, W. New Eng. to Mo., and southward; rare westward. Often confounded with small forms of n. 58.

++ ++ Sheaths pubescent.

67. *C. Hitchcockiana*, Dewey. Erect, 1 $\frac{1}{2}$ -2° high; spikes 2-4, all more or less peduncled, very loosely few-flowered, erect; perigynium triangular-ovate, many-striate, the strong beak prominently oblique, shorter than the rough-awned scale. — Rich woods, W. New Eng. to Ill., and southward to Penn. and Ky.; frequent.

\* 6. — + 2. *Laxifloræ*.

++ Sheaths green.

= Perigynium mostly obscurely triangular, the beak very prominent.

68. *C. laxiflora*, Lam. Slender but mostly erect, 1-2° high; leaves rarely over 2" wide, rather soft; staminate spike peduncled or at least conspicuous; pistillate spikes 2-4, scattered, peduncled or the upper one sessile, loosely flowered, cylindric or sometimes reduced to short-oblong, erect or the lower loosely spreading; perigynium obovate, conspicuously nerved, the short entire beak much bent or recurved; scale thin and white, blunt or cuspidate, mostly shorter than the perigynium. — Grassy places, throughout; common. Exceedingly variable. — Var. *VARIANS*, Bailey. Mostly stouter than the type, the leaves broader; pistillate spikes  $\frac{1}{2}$ -1' long, the two upper more or less contiguous to the staminate spike and sessile or nearly so; bracts leafy and prolonged. — Copses and grassy places, throughout; common. Counterfeits var. *patulifolia*. — Var. *STRÍATULA*, Carey. Diffuse; pistillate spikes rarely over  $\frac{1}{2}$ ' long, the upper sessile and aggregated about the inconspicuous staminate spike, the lowest usually long-exserted. Grassy places, throughout; very common. — Var. *LATIFOLIA*, Boott. Rather low; leaves  $\frac{1}{2}$ ' broad or more; staminate spike sessile or very nearly so; pistillate spikes cylindric and loose, the upper one or two contiguous; bracts very broad. Deep rich woods, E. Mass. (Deane) to Penn. and Mich.; common westward. — Var. *PATULIFOLIA*,