

Key to most of the Wisconsin species of *Centaurea* (Asteraceae)

1. Flowers yellow; involucre large 4.5–5.5 (–10) cm broad or small (less than 3 cm broad)

2. Heads large; involucre ca. 4.5–5.5 (–10) cm in diameter tipped with no spine.

***C. macrocephala* Willd. [large-headed knapweed]**



2. Heads small; involucre smaller (less than 3 cm broad) tipped with a firm spine much longer than the body of the phyllary (usually at least twice as long)

***C. solstitialis* L. [yellow starflower]**



1. Flowers white to pink, blue, or purple; involucre small (less than 3 cm broad)

3. Cauline leaves (except the uppermost and bracteal ones) deeply pinnatifid or bipinnatifid.

4. Flowers usually pink-purple; phyllaries blackened at the tip, softly fringed with flattened projections; pappus generally well developed (1–6 mm long).

5. Generally many heads per leafy stem; involucre 10-13 mm long; pappus usually present but short (1-2.5 mm long).

***C. stoebe* L. [spotted knapweed] [= *C. biebersteinii* DC; *C. maculosa* Lam.]**



5. Generally single head per leafy stem; involucre 16-13 mm long; pappus present and longer (3-6 mm long).

***C. scabiosa* L. [greater knapweed, hard-heads]**



4. Flowers usually white; phyllaries light yellow-brown at the tip, spinose-fringed with firm rounded projections (the terminal stiff spine longer than at least the lateral ones immediately below it); pappus none or vestigial.

***C. diffusa* Lam. [white-flowered knapweed]**



3. Cauline leaves (except sometimes the basal ones) entire or with a few teeth or small lobes.

6. Middle (and all) phyllaries rounded or tapered to lacerate-toothed apex (without expanded appendage).

7. Enlarged marginal flowers exceeding involucre by ca. 0.9–1.5 cm; involucre ca. (1–) 1.2–1.5 cm long, the phyllaries (at least the outermost) with pale (translucent to pinkish) border; largest leaves less than 1 cm broad.

***C. cyanus* L. [bachelor's-button, cornflower]**



7. Enlarged marginal flowers exceeding involucre by ca. 2–3 cm; involucre ca. 2 cm (or more) long, the phyllaries with prominent blackish brown lacerate-toothed border; largest leaves ca. 2–3 cm broad.

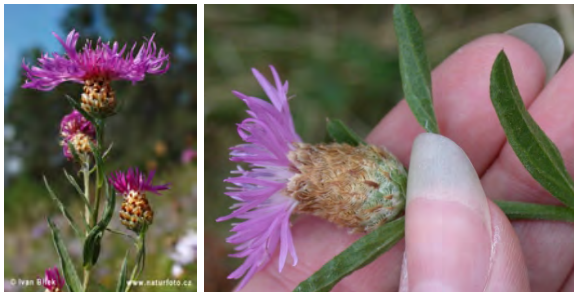
***C. montana* L. [mountain knapweed]**



6. Middle phyllaries with abruptly expanded appendage at the apex (broader than the narrow neck below it).

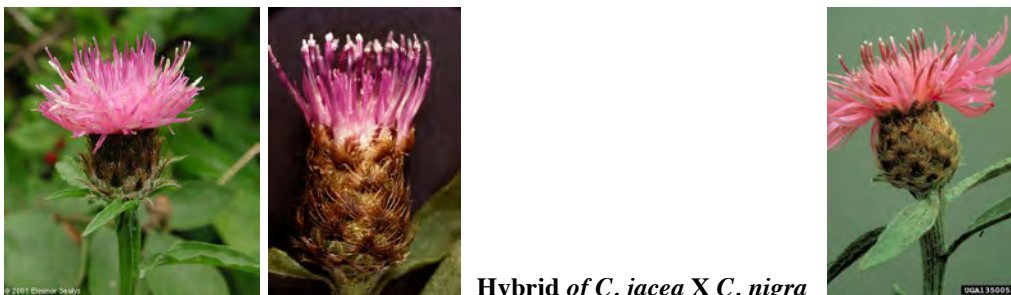
8. Middle and outer phyllaries with appendages light brown, irregularly cleft, erose, or lacerate, or even entire, little if at all ciliate-fringed; pappus none; marginal flowers much larger than others in the head.

***C. jacea* L. [brown knapweed]**



8. Middle and outer phyllaries with appendages blackened, all deeply pectinate-ciliate; pappus ca. 0.5–1.5 mm long; marginal flowers not larger than others in the head [See text for hybrids with *C. jacea*].

***C. nigra* L. [black knapweed]**



Hybrid of *C. jacea* X *C. nigra*