

Carex (Sedge) Identification with Dr. Anton Reznicek

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This episode of [All Things Wetland Plants](#) focuses on easily observable morphological features that distinguish the two subgenera of the genus *Carex*. Common National Wetland Plant List (NWPL) *Carex* from each subgenus are discussed in detail.

Morphology of the Genus *Carex*

Species in the genus *Carex* are herbaceous, perennial, grass-like plants in the botanical order Poales. *Carex* spp. are distinguished from grasses and rushes by the presence of a perigynium, a modified bract that wraps around the developing nutlet (fruit), enclosing it in a leafy sac (Figure 1a). *Carex* also have unisexual flowers, either male or female

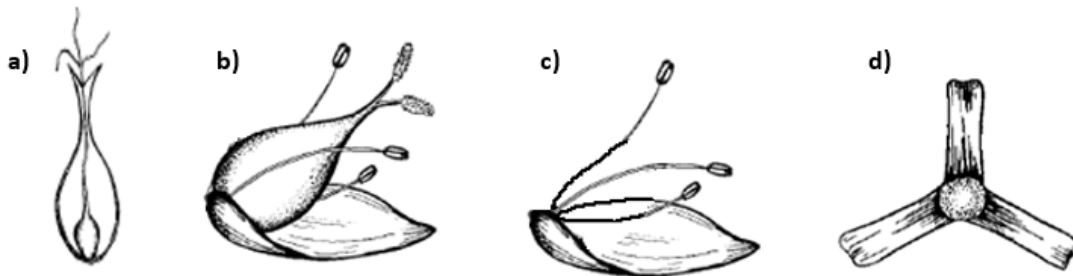


Figure 1. Characteristics of species in the genus *Carex*, a) perigynium, b) female flower, c) male flower and d) three-ranked leaves viewed from above.

(Figure 1b & c), that are arranged in groups commonly called spikes. *Carex* leaves are three-ranked, arranged at 120° angles around the stem. This characteristic is best seen from the top of the plant, looking down towards the roots (Figure 1d).

Morphology of the Subgenus *Carex*

Most *Carex* identification keys pose two seemingly difficult questions regarding plant morphology. The first is “Where are the male flowers located?” Female flowers are easy to spot because they develop into (relatively) large perigynia after pollination. Male flowers are more difficult because the stamens fall off after pollination occurs, leaving only an empty scale. The second is “How many stigma do the female flowers have?” These questions are easily answered using the characteristics of two subgenera within the genus *Carex*.

Species in the subgenus *Carex* are characterized by elongate spikes. Spikes are sexually specialized, meaning they contain either male or female flowers. Male flowers are easy to locate because the thin, male spikes look very different from the plump female spikes, even when flowering (Figure 2a). Species in subgenus *Carex* are also recognized by their long, leafy bracts and triangular nutlets (Figure 2b). Female flowers **usually** have three stigmas, although there are some exceptions. *C. stricta* and *C. nebrascensis* are two commonly occurring exceptions. Several NWPL species in subgenus *Carex* are covered in detail in this video, including *C. lasiocarpa*, *C. lurida*, *C. stricta*, and *C. utriculata*.

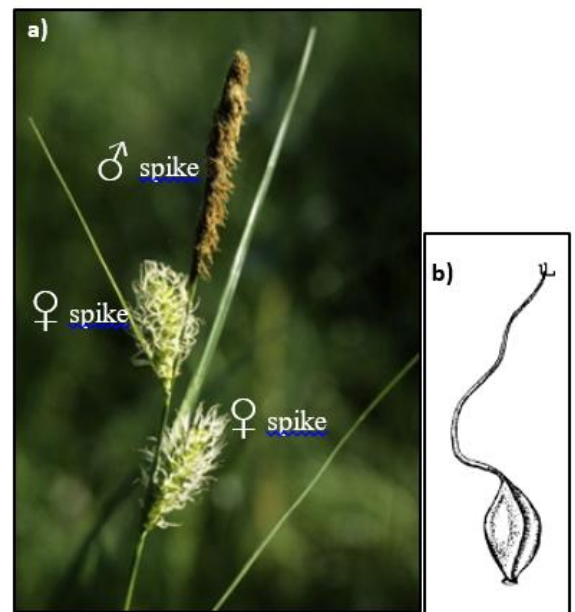


Figure 2. Some characteristics of species in the subgenus *Carex*, a) sexual specialization of male and female spikes, b) a triangular nutlet with three stigmas.

In contrast, species in the subgenus *Vignea* are characterized by short, compact, bisexual spikes. The spikes all look alike because they contain both male and female flowers (Figures 3a and 3b). Some species have branched inflorescences (Figure 3b). Species in subgenus *Vignea* are also recognized by their lenticular nutlets, which are flat and disc-shaped (Figure 3c). Unlike subgenus *Carex*, these species do not have long leafy bracts. The female flowers in subgenus *Vignea* have two stigmas.

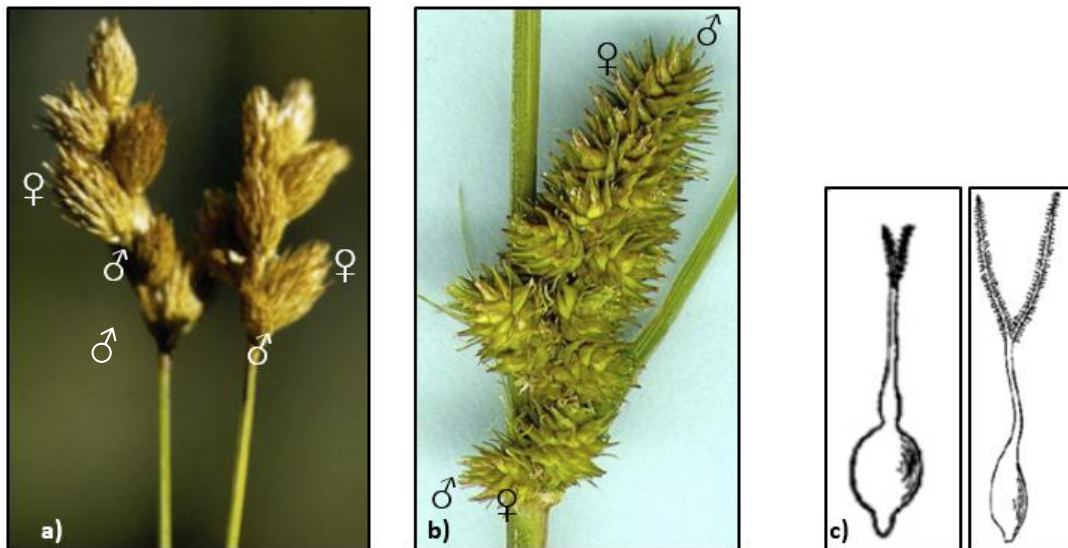


Figure 2. Characteristics of species in the subgenus *Carex*, a) a species with gynaecandrous spikes in which the female flowers are located above male flowers, b) a species with androgynous spikes in which the male flowers are located above the female flowers, c) lenticular nutlets with two stigma.

In subgenus *Vignea* there are two different ways that male and female flowers are positioned within a spike. In an androgynous arrangement, male flowers, or empty scales, are at the apex of the spike and female flowers are on the bottom (Figure 3b). In a gynaecandrous arrangement, male flowers, or empty scales, are on the bottom and female flowers are at the apex of the spike (Figure 3a). If you can't find the male flowers after examining an inflorescence, they are usually at the apex of the spike. Several NWPL species from subgenus *Vignea* are covered in detail in this video, including *C. canescens*, *C. echinata*, and *C. stipata*.

If you have questions about *Carex*, email us at nwpl@usace.army.mil