

# Introduction to Sedge Identification



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An Roinn Cultúir,  
Oidhreacht agus Gaeltachta  
Department of Culture,  
Heritage and the Gaeltacht



National Parks & Wildlife Service



**CEDaR**  
Centre for Environmental  
Data and Recording

# Plan for this Webinar

**TODAY:**

## **Brief Introduction-**

What is a sedge? What types of sedges are there? How many species? What do I need?

## **Brief outline of key and guides**

**Sedge parts, floristic features, vegetative features for sedge identification**

**Tips for ID and some example species you can identify in the field**

# What is a sedge?

A graminoid (grass-like plant)

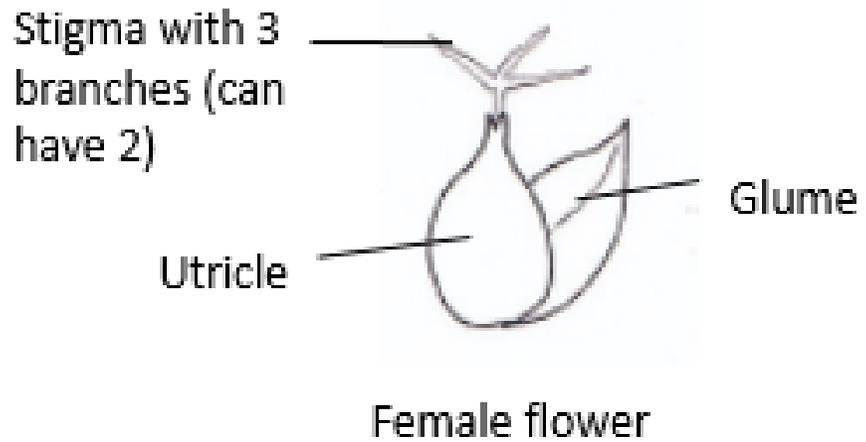
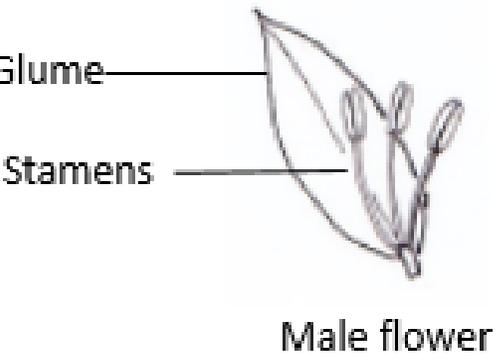
Flowers have one glume (scale) at base of flower

## Two broad groups of sedges:

### 1. True sedges (*Carex* spp.)

Separate male and female flowers

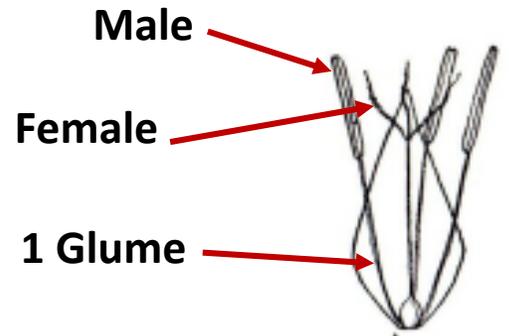
Seed **enclosed in utricle**



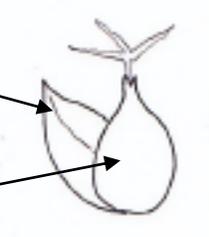
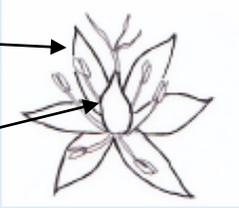
### 2. Other sedges (variety of genera):

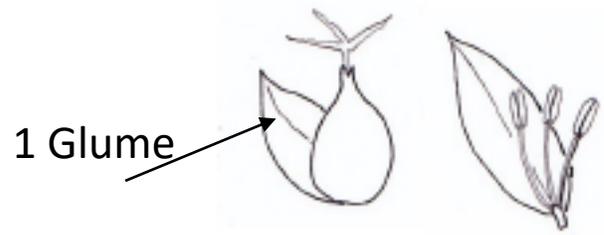
Flowers with both male and female within the same flower

Seed **not** enclosed within a utricle



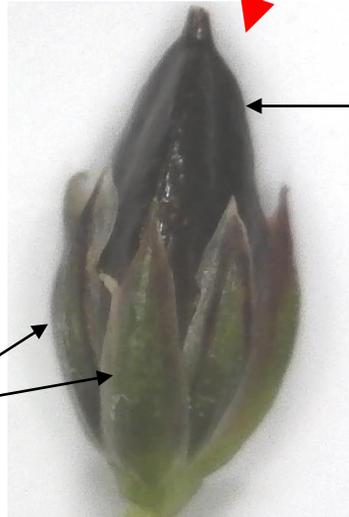
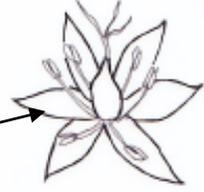
# Grass, sedge or rush?.....Look at flowers (hand lens)

Feature	Sedges (Cyperaceae)	Rushes (Juncaceae)	Grasses (Poaceae)
<b>Stem</b>	Often triangular in section Almost always solid <b>Sedges have edges</b> 	Almost always rounded in section Solid or if hollow may be sectioned internally 	Never triangular in section Almost always hollow between nodes 
<b>Ligule</b>	Ligule often fused to leaf along most of its length 	Often have none	Ligule (hairs or membranous) attached at base and free along its length 
<b>Flowers</b>	Single glume-like scale at base of each flower 	Six flower segments surrounding each flower 	Two scales, the lemma and palea surrounding each floret Pair of outer glumes at base of each spikelet 
<b>Fruits</b>	Single lens shaped or three angled achene per flower 	Fruit capsule bearing numerous seeds 	Single grain-like seed per flower 



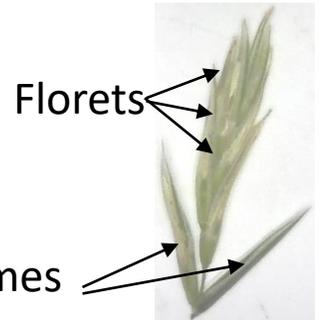
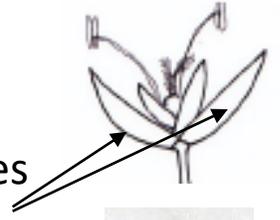
**SEDGE**

6 Segments



**RUSH**

2 Glumes



**GRASS**

# How many Irish Species?

There thought to be  
**77** species

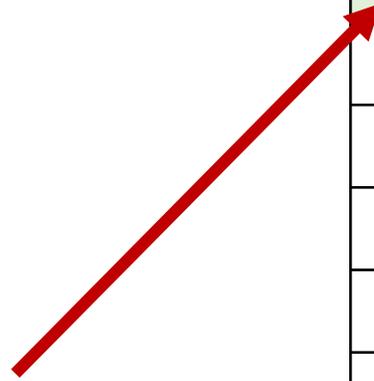
<b>SEDGES</b>	<b>77</b>
<i>Carex</i>	50
<i>Eriophorum</i>	4
<i>Trichophorum</i>	2
<i>Eleocharis</i>	6
<i>Isolepis</i>	3
<i>Cladium</i>	1
<i>Schoenus</i>	1
<i>Rhynchospora</i>	2
<i>Blysmus</i>	1
<i>Schoenoplectus</i>	3
<i>Cyperus</i>	2
<i>Bolboschenus</i>	1
<i>Scirpus</i>	1

**Sedges: 13 Genera**

# What types of sedges are there?



**True sedges**

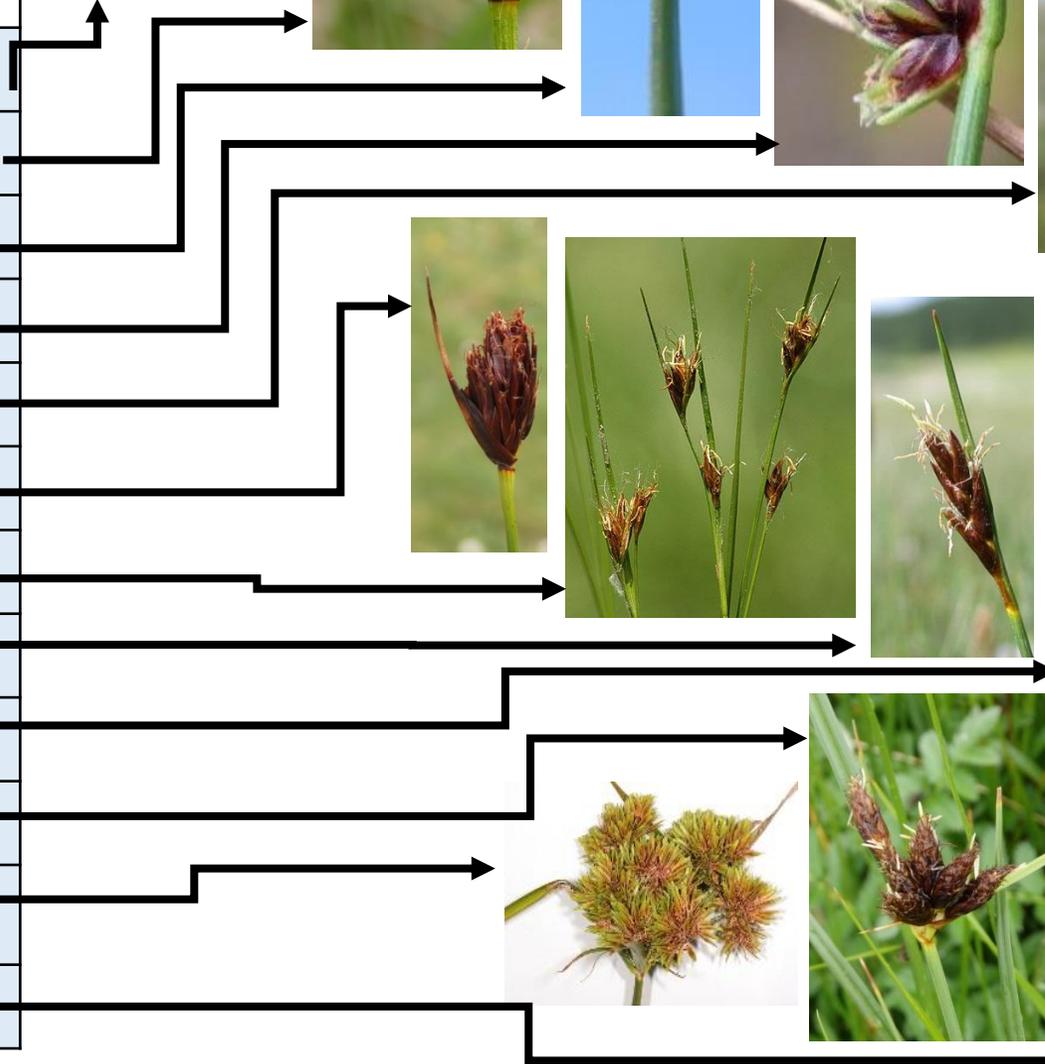


**We will concentrate  
on these today**

<b>SEDGES</b>	<b>77</b>
<b><i>Carex</i></b>	<b>50</b>
<i>Eriophorum</i>	4
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<i>Schoenoplectus</i>	3
<i>Cyperus</i>	2
<i>Bolboschenus</i>	1
<i>Scirpus</i>	1

# Sedges other than *Carex* (27 species)

	SEDGE GENERA	77 species
1	<i>Carex</i>	50
2	<i>Eriophorum</i>	4
3	<i>Trichophorum</i>	2
4	<i>Eleocharis</i>	6
5	<i>Isolepis</i>	3
6	<i>Cladium</i>	1
7	<i>Schoenus</i>	1
8	<i>Rhynchospora</i>	2
9	<i>Blysmus</i>	1
10	<i>Scirpus</i>	1
11	<i>Bolboschenus</i>	1
12	<i>Cyperus</i>	2
13	<i>Schoenoplectus</i>	3



## What you will need:

### 1. Hand lens:

x 10 magnification

(handy to get one with X10 and x20 lenses)



### 2. Transparent 6 inch ruler

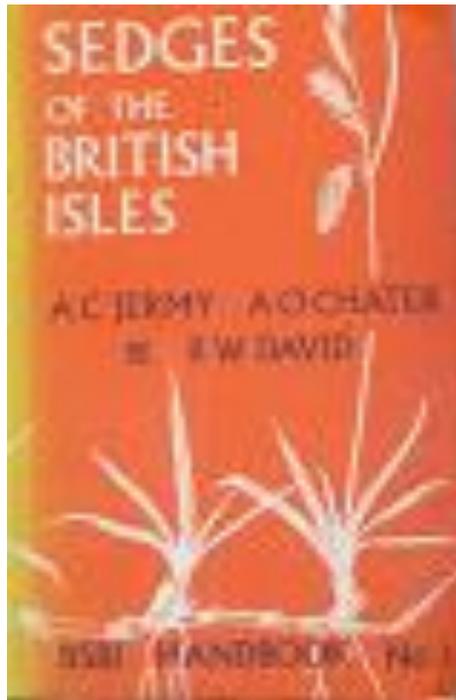
Many keys will have rulers along page margins or at the back but handy to use a little ruler



### 3. Key/ID guide:

A variety to choose from

# Keys and guides



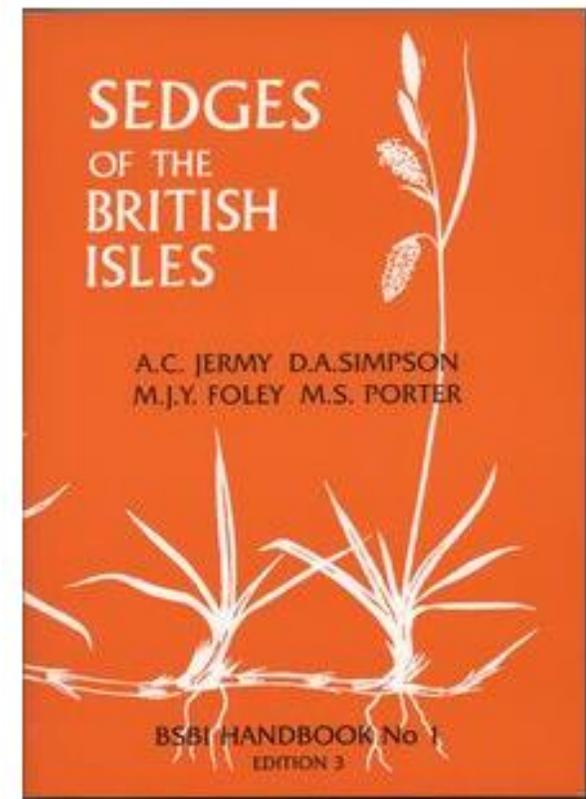
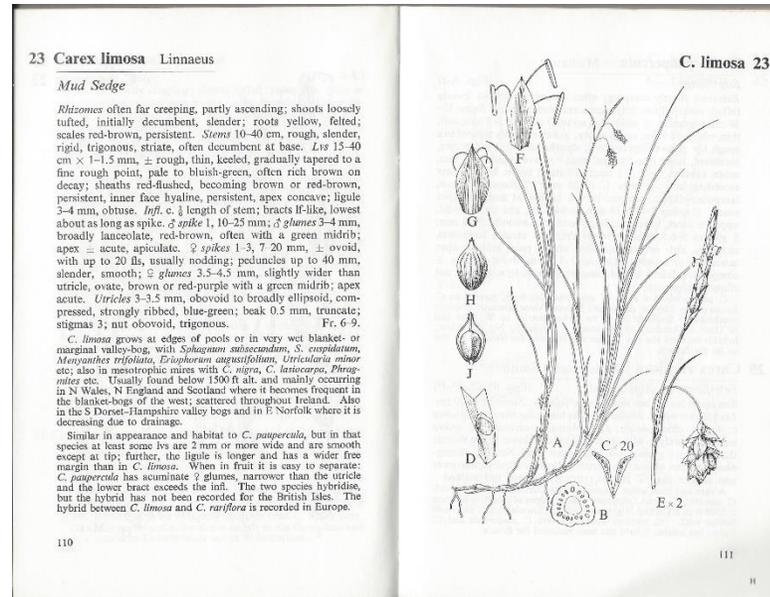
Second edition 1982

## Pros:

- Floristic & Vegetative keys (Carex)
- Small and thin for fieldwork
- Great diagrams
- Detailed descriptions

## Cons:

- Only True sedges (Carex)
- Outdated names



Third edition 2007

## Pros:

- Floristic keys to ALL sedges
- More up to date names and classification
- Great diagrams
- Detailed descriptions

## Cons:

- Thick book for fieldwork
- Floristic keys only

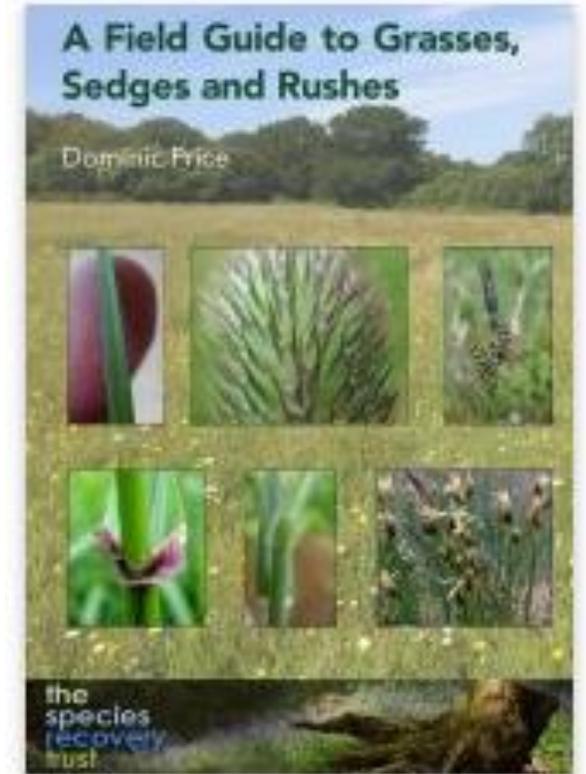
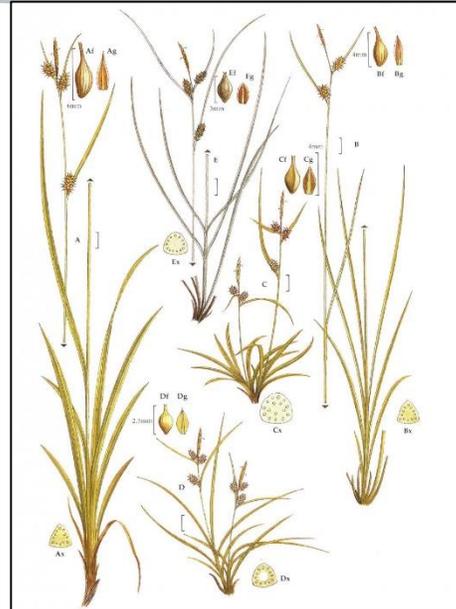
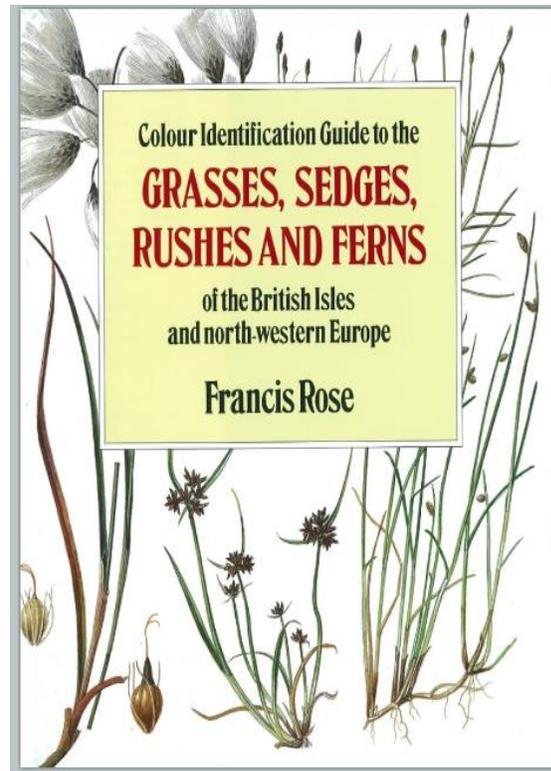
# Keys and guides

## Pros:

Floristic keys to ALL sedges  
Diagrams to help throughout key  
Coloured diagrams of sedge species

## Cons:

Large book for fieldwork  
Contains grasses sedges rushes  
ferns – less detail on species



Not so familiar with this one  
Someone may like to comment  
Nice photos  
Select no. of species, not all

# Keys and guides



Sedge and Rush guide is planned for Christmas 2020  
National Biodiversity Data Centre:  
For anyone a fan of NBDC's grass guide (Irish species)

**B** Creeping rhizomes

*Carex disticha* (Brown Sedge)



paul



2-7cm long

Bract

Lynda Weekes

- Spikes brown, 2-7cm long
- Female glumes brown with brown midrib and pale margin
- Lowest bract shorter than inflorescence

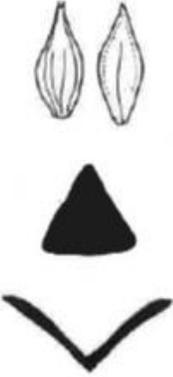
**Flowering period:** May-June

**Size:** Up to 75cm

**Habitat:** Marshes, fens, ditches, lake-shores, wet grassland

**Distribution:** Rare along the entire west coast but common and widespread elsewhere

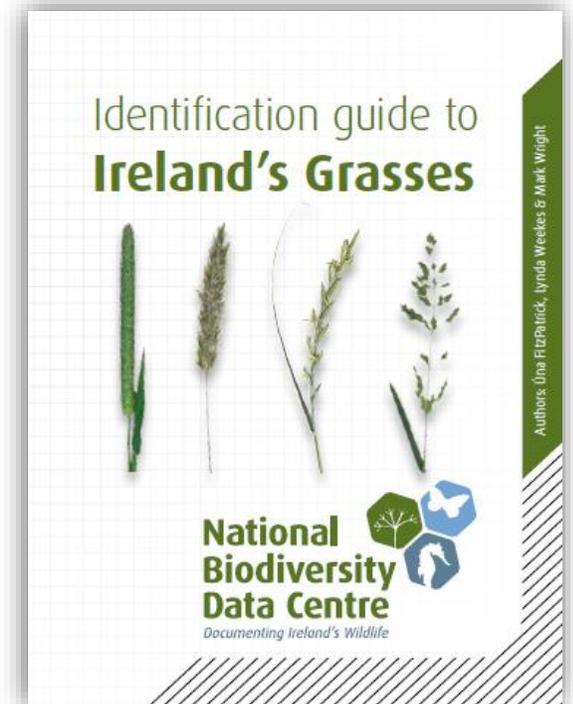
**Notes:** Stems >2mm wide. Leaves usually flat.



Wetland plant, spike 2-7cm long

Lynda Weekes

**B**



Similar format to the  
Grass Guide.

# Keys and guides

Anything free to start with??

A great beginners guide to all sedges found in Hampshire England

Covers a lot of the Irish ones and those found elsewhere in UK

**KEY TO SEDGES IN HAMPSHIRE**

**DISTINGUISHING SEDGES FROM SIMILAR BROWN AND GREEN FLOWERED PLANTS**

**Sedges and Rushes**

All the Rush family (*Juncaceae*) have bisexual flowers, with a conventional surrounding floral structure made up of 6 petal-like **tepals**. In the Sedge family (*Cyperaceae*) the surrounding floral structure is absent, or reduced to a tuft of bristles. Instead, each flower sits at the base of a bract-like **glume**.

Rush family seeds are borne in a capsule containing many seeds (true Rushes, *Juncus*) or three seeds (Wood-rushes, *Luzula*). Sedge family seeds are borne singly, either as an exposed nut or (in *Carex*) encased in a flask-like structure usually called the **utricle**.

Many members of the Sedge family have triangular stems. Only one Rush family member in Britain (Saltmarsh Rush, *Juncus gerardii*) has triangular stems.

These characters should be enough to distinguish flowering and fruiting rushes from the rush-like members of the sedge family such as Club-rushes (*Scirpus* and other genera).

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[www.hantsplants.org.uk](http://www.hantsplants.org.uk)

## REMEMBER:

Features are **small, some tiny** – need a hand lens

To use a hand lens correctly – check out Youtube video

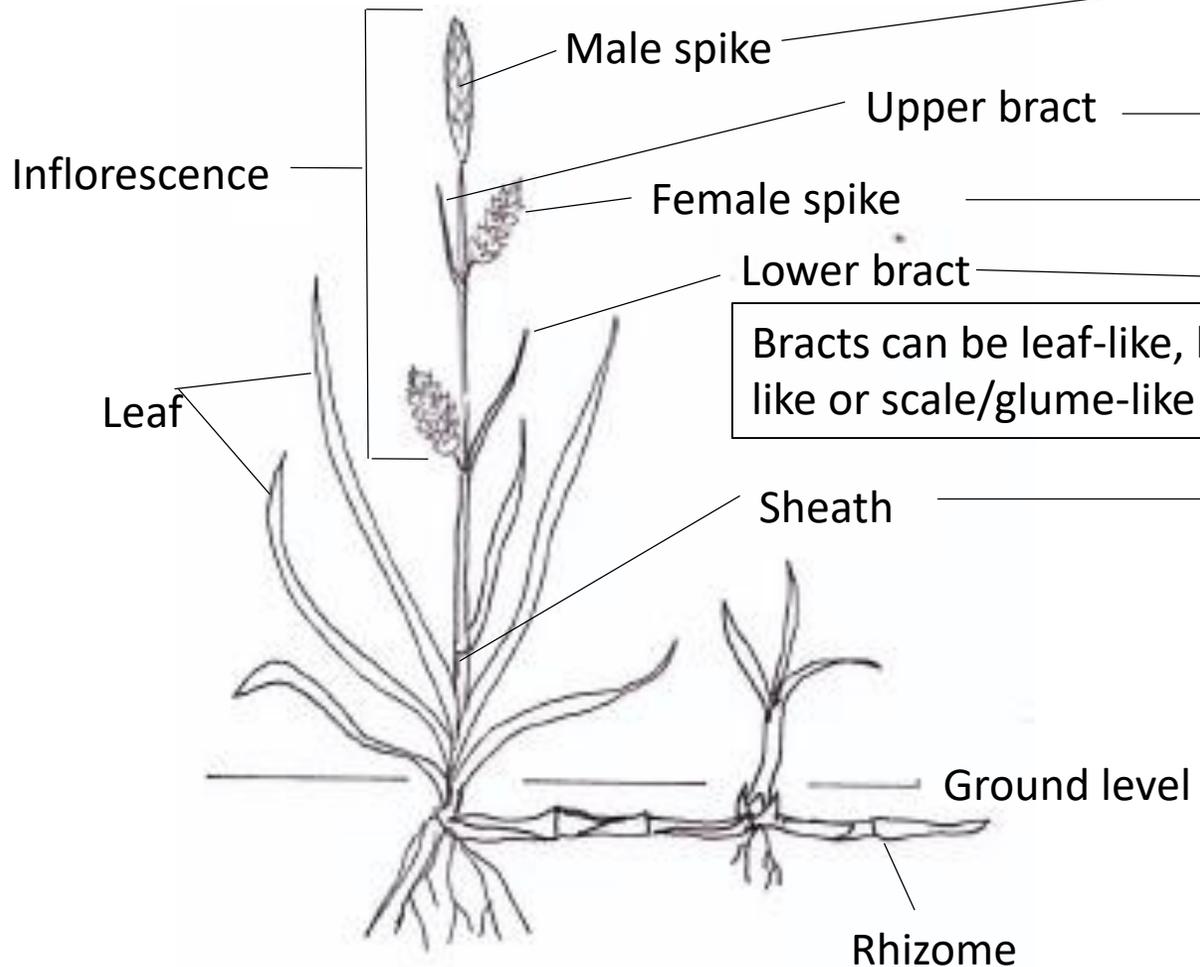
<https://www.youtube.com/watch?v=IFz004WI28E>

Most features shown in photos or diagrams today are **magnified many times**

So think small – need to **get in really close** with sedge specimen

# True sedge structure and terminology

*Carex* spp. – flowers unisex



Inflorescence

Leaf

Male spike

Upper bract

Female spike

Lower bract

Bracts can be leaf-like, bristle like or scale/glume-like

Sheath

Ground level

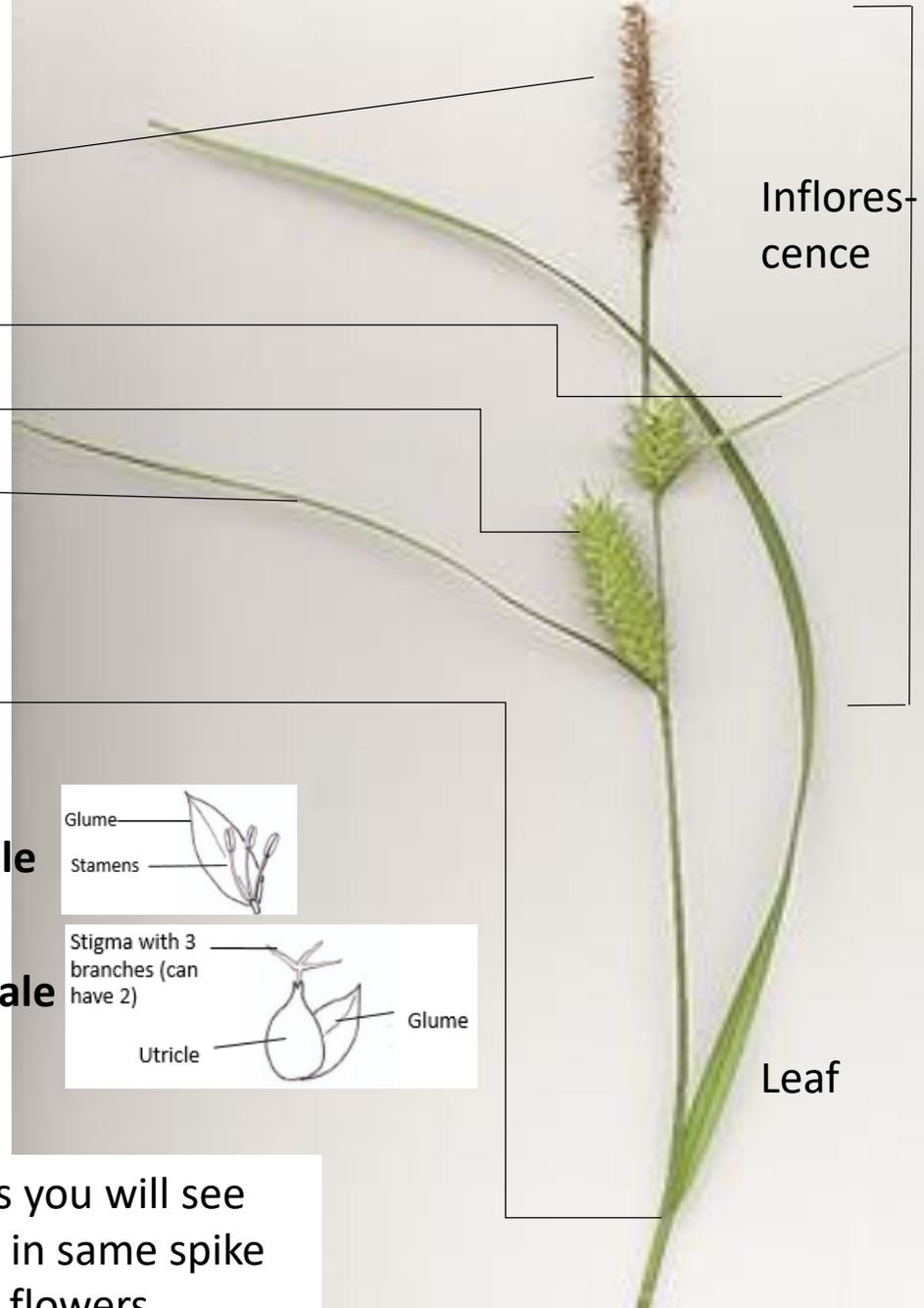
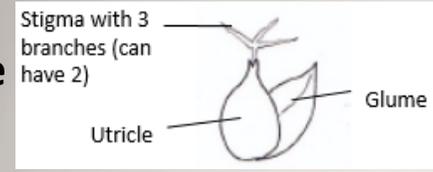
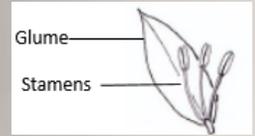
Rhizome

Typical sedge



Male

Female



Inflorescence

Leaf

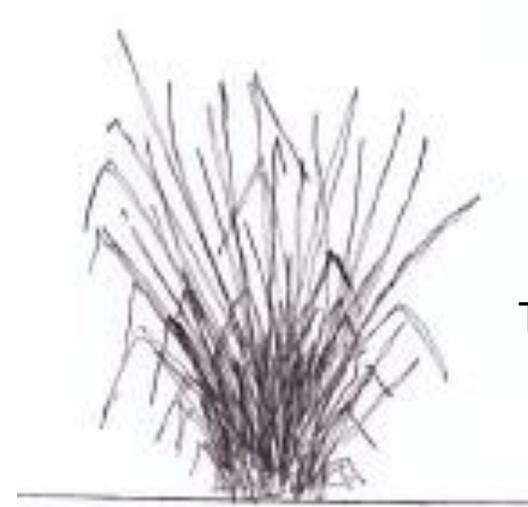
**Note:** Sometimes you will see male and female in same spike but still separate flowers

# If Rhizomes very short



*Carex paniculata*

M Storey



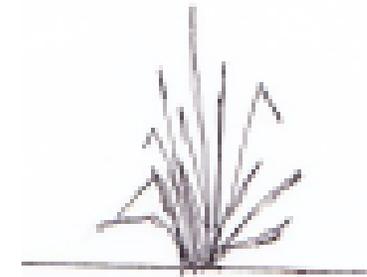
Tussock



*Carex remota*



*Carex leporina*



Tufted growth

# What features should I examine?

**1. Inflorescence** – determine if male and female flowers in single spike or separate spikes

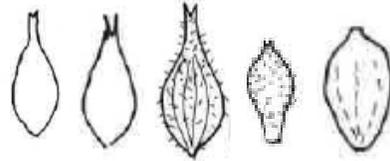
- If single – 3 species

- If several separate spikes – if same in appearance – 15 species; If different in appearance – 32 species

**Female spikes** – shape and distance from each other, presence & length of bracts

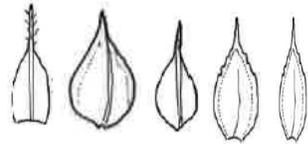
## 2. Utricles

Shape, hairy/hairless, no. of stigma (ways to tell)



## 3. Glumes (female flowers)

Colour, shape



## 4. Transverse section of stems

Triangular, more rounded, acute angled



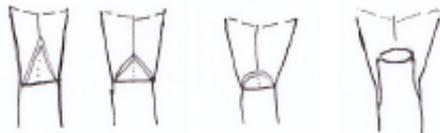
## 5. Leaves

Colour, width, transverse section



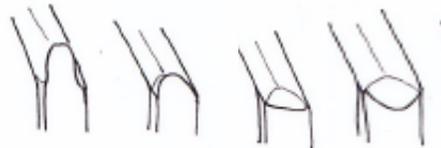
## 6. Ligules

Pointed, rounded, tubular



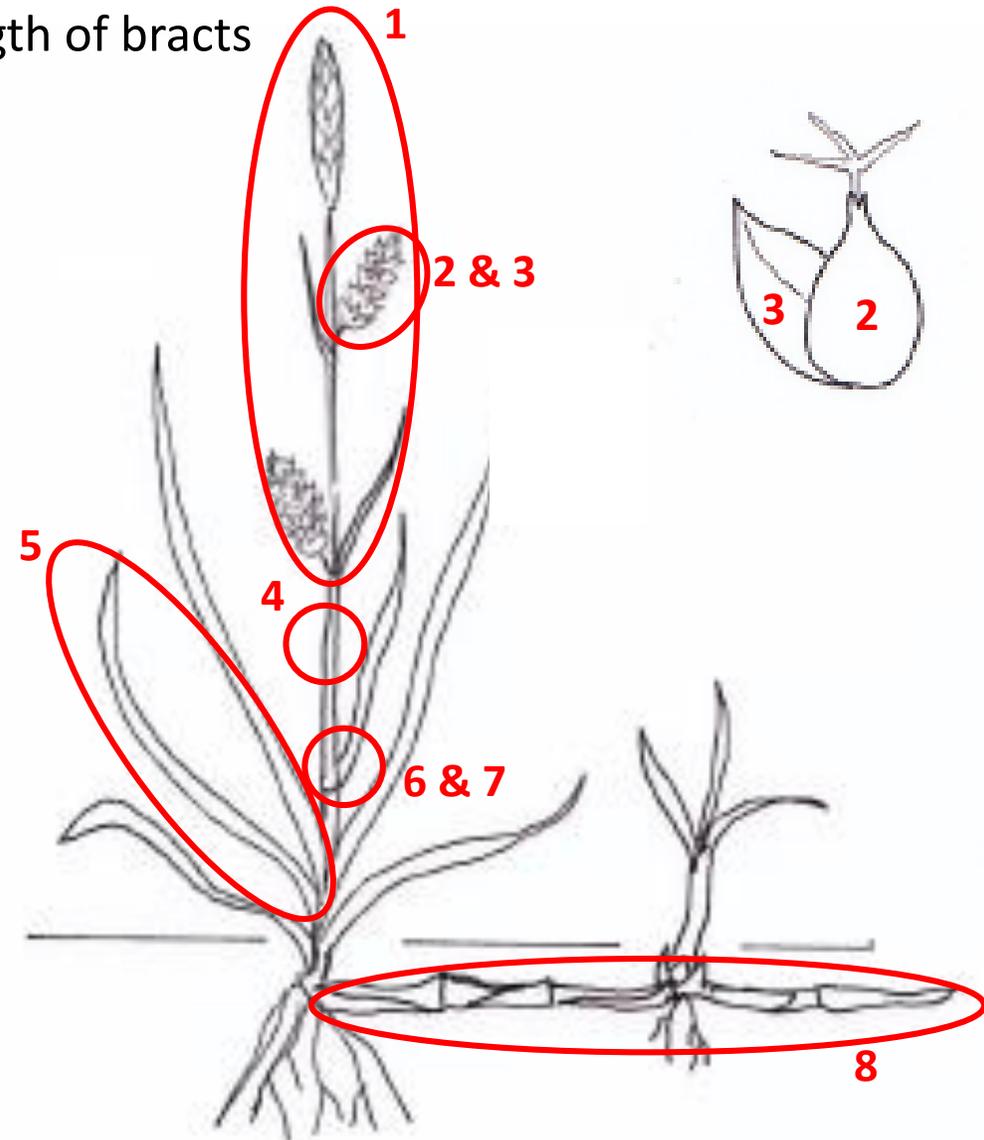
## 7. Sheaths

Colour, shape at top opposite leaf junction



## 8. Rhizomes

Plant looks tufted, tussocky or creeping



# Carex – 50 species (Ireland)

*C. dioica*

*C. pulicaris*

*C. pauciflora*

*C. arenaria*

*C. disticha*

*C. divisa*

*C. paniculata*

*C. appropinquata*

*C. otrubae*

*C. spicata*

*C. elongata*

*C. remota*

*C. divulsa* subsp. *divulsa*

*C. canescens*

*C. muricata* subsp. *pairae*

*C. leporina*

*C. echinata*

*C. diandra*

*C. hirta*

*C. lasiocarpa*

*C. caryophyllea*

*C. pilulifera*

*C. distans*

*C. punctatata*

*C. binervis*

*C. hostiana*

*C. laevigata*

*C. extensa*

*C. demissa*

*C. oederi*

*C. lepidocarpa*

*C. depauperata*

*C. sylvatica*

*C. pseudocyperus*

*C. rostrata*

*C. vesicaria*

*C. acutiformis*

*C. riparia*

*C. bigelowii*

*C. nigra*

*C. acuta*

*C. elata*

*C. aquatilis*

*C. pendula*

*C. strigosa*

*C. flacca*

*C. panicea*

*C. limosa*

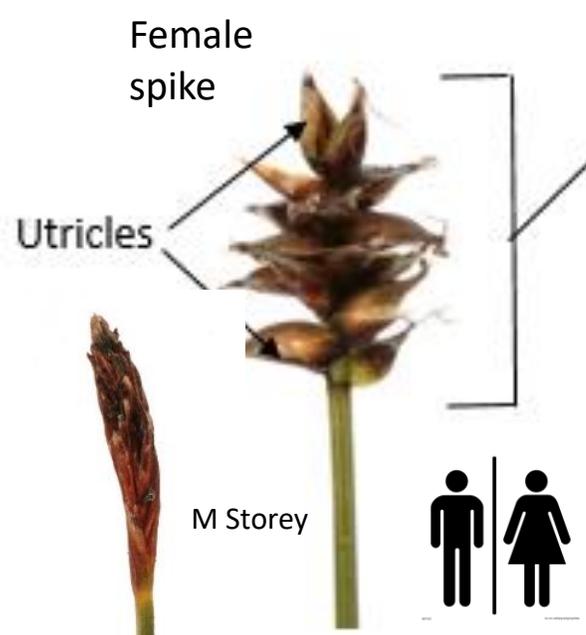
*C. magellanica*

*C. pallescens*

***C. dioica***  
***C. pulicaris***  
***C. pauciflora***

- C. arenaria*
- C. disticha*
- C. divisa*
- C. paniculata*
- C. appropinquata*
- C. otrubae*
- C. spicata*
- C. elongata*
- C. remota*
- C. divulsa* subsp. *div*
- C. canescens*
- C. muricata* subsp. *p*
- C. leporina*
- C. echinata*
- C. diandra*

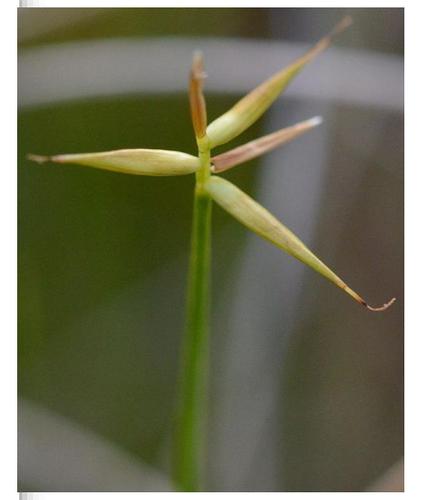
## Single flowering spike - 3 species



**Dioecious sedge**  
***Carex dioica***  
 Occasional  
 Fens and flushes



**Flea sedge**  
***Carex pulicaris***  
 Common  
 Bogs, heaths, mountain pastures



**Few-Flowered sedge**  
***Carex pauciflora***  
 Very rare – found in NI  
 Wet bogs

- C. vesicaria*
- C. acutiformis*
- C. riparia*

*C. dioica*  
*C. pulicaris*  
*C. pauciflora*

*C. hirta*  
*C. lasiocarpa*  
*C. caryophyllea*

*C. bigelowii*  
*C. nigra*  
*C. acuta*

***C. arenaria***  
***C. disticha***  
***C. divisa***  
***C. paniculata***  
***C. appropinquata***  
***C. otrubae***  
***C. spicata***  
***C. elongata***  
***C. remota***  
***C. divulsa* subsp. *divulsa***  
***C. canescens***  
***C. muricata* subsp. *pairae***  
***C. leporina***  
***C. echinata***  
***C. diandra***

## Several spikes but all similar in appearance – 15 species



*C. leporina*



*C. echinata*

Utricles

Spike with several  
utricles

- C. arenaria*
- C. disticha*
- C. divisa*
- C. paniculata*
- C. appropinquata*
- C. otrubae*
- C. spicata*
- C. elongata*
- C. remota***
- C. divulsa* subsp. *divulsa***
- C. canescens*
- C. muricata* subsp. *pairae*
- C. leporina*
- C. echinata***
- C. diandra*

**On the coast look out for: Sand sedge (*Carex arenaria*)**  
**Creeping rhizomes – plants pop up singly and in a line across sand**



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Short bract



**In shady places look out for: Grey sedge (*Carex divulsa* subsp. *divulsa*)**

Tufted, Spikes well separated, glumes translucent papery appearance with green midrib.



**Similar species:**

**Remote sedge *Carex remota***

Bracts leaf-like and long



Jenny Seawright



**In boggy peaty places look out for: Star sedge (*Carex echinata*)**

Densely tufted, Spikes few-flowered narrowly separated, utricles arranged like stars.  
 Female glumes pale red-brown with green midrib and broad translucent margin

*C. dioica*  
*C. pulicaris*  
*C. pauciflora*

*C. hirta*  
*C. lasiocarpa*  
*C. carvophylla*

*C. bigelowii*  
*C. nigra*  
*C. acuta*

Several spikes with two different spikes types – male and female -  
32 species

.....Need a closer look at utricles and other features.....



*C. flacca*



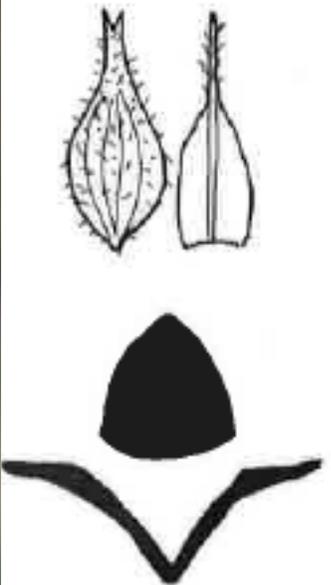
*C. demissa*

Several spikes and of  
two dissimilar forms

*ilis*  
*la*  
*sa*  
*ea*  
*a*  
*llanica*  
*cens*

# Hairy utricles (4 species)

Hairy sedge (*Carex hirta*)



**Obviously hairy utricles, leaves and sheaths (other species have to look more closely)**

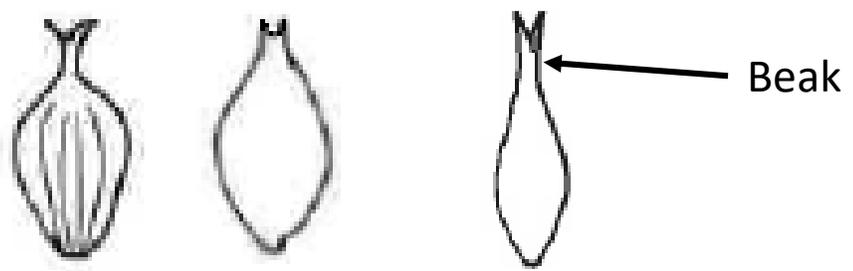
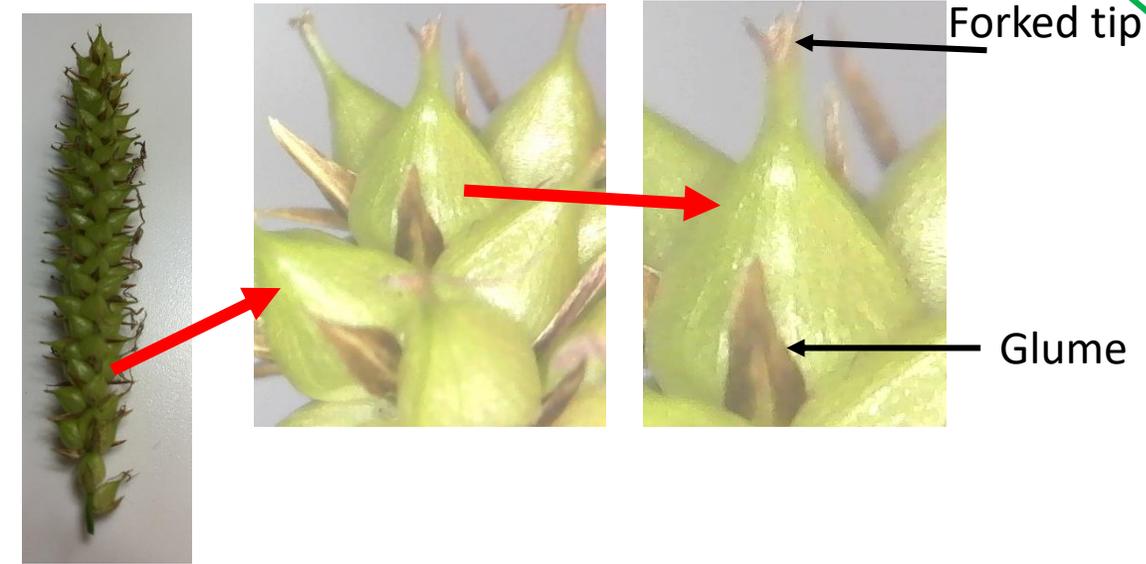
Common  
Damp grassland, disturbed Ground

- C. hirta*
- C. lasiocarpa*
- C. caryophyllea*
- C. pilulifera*

- C. distans*
- C. punctatata*
- C. binervis*
- C. hostiana*
- C. laevigata*
- C. extensa*
- C. demissa*
- C. oederi*
- C. lepidocarpa*
- C. depauperata*
- C. sylvatica*
- C. pseudocyperus*
- C. rostrata*
- C. vesicaria*
- C. acutiformis*
- C. riparia*

- C. bigelowii*
- C. nigra*
- C. acuta*
- C. elata*
- C. aquatilis*
- C. pendula*
- C. strigosa*
- C. flacca*
- C. panicea*
- C. limosa*
- C. magellanica*
- C. pallescens*

# Hairless utricles with beak (long or short) and forked tip



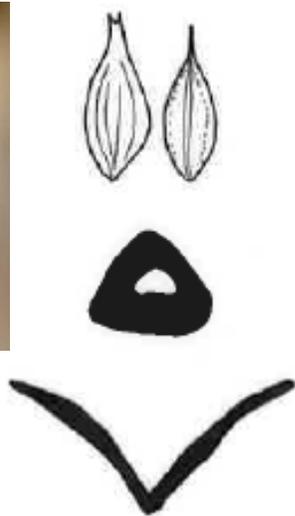
- C. hirta*
- C. lasiocarpa*
- C. caryophyllea*
- C. pilulifera*
- C. distans***
- C. punctatata***
- C. binervis***
- C. hostiana***
- C. laevigata***
- C. extensa***
- C. demissa***
- C. oederi***
- C. lepidocarpa***
- C. depauperata***
- C. sylvatica***
- C. pseudocyperus***
- C. rostrata***
- C. vesicaria***
- C. acutiformis***
- C. riparia***
- C. bigelowii*
- C. nigra*
- C. acuta*
- C. elata*
- C. aquatilis*
- C. pendula*
- C. strigosa*
- C. flacca*
- C. panicea*
- C. limosa*
- C. magellanica*
- C. pallescens*

Hairless utricles with beak (long or short) and forked tip

Sheaths, at least the upper ones, with a tongue-like projection on the inner face



Green-ribbed sedge (*Carex binervis*)



Tongue – like projection on top of sheath

Groove often down stem

Lowest female spike drooping and further down stem

Common

Heaths, upland grassland

*C. hirta*

*C. lasiocarpa*

*C. caryophyllea*

*C. pilulifera*

*C. bigelowii*

*C. nigra*

*C. acuta*

*C. elata*

*C. aquatilis*

*C. pendula*

*C. strigosa*

*C. flacca*

*C. panicea*

*C. limosa*

*C. magellanica*

- C. distans***
- C. punctata***
- C. binervis***
- C. hostiana***
- C. laevigata***
- C. extensa***
- C. demissa***
- C. oederi***
- C. lepidocarpa***
- C. depauperata***
- C. sylvatica***
- C. pseudocyperus***
- C. rostrata***
- C. vesicaria***
- C. acutiformis***
- C. riparia***

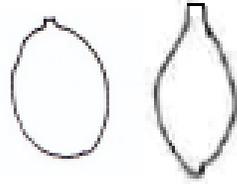
Female spikes oval in shape or very shortly cylindrical. Stalkless or with very short stalks



Female spikes long and either cylindrical in shape or very narrow. With either long or short stalks



**Utricle hairless beakless or if short beak, not forked or notched at tip:**



**Stigmas 2:**

How to tell if not present - biconvex utricles that are oval, flat & cushion-like

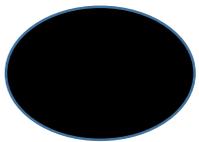


TS Section of utricle



**Stigmas 3:**

How to tell if not present –utricle rounded or trigonous, or flattened on one side only



TS Section of utricle



- C. hirta*
  - C. lasiocarpa*
  - C. caryophyllea*
  - C. pilulifera*
  - C. distans*
  - C. punctatata*
  - C. binervis*
  - C. hostiana*
  - C. laevigata*
  - C. extensa*
  - C. demissa*
  - C. oederi*
  - C. lepidocarpa*
  - C. depauperata*
  - C. sylvatica*
  - C. pseudocyperus*
  - C. rostrata*
  - C. vesicaria*
  - C. acutiformis*
  - C. riparia*
- C. bigelowii***
  - C. nigra***
  - C. acuta***
  - C. elata***
  - C. aquatilis***
  - C. pendula***
  - C. strigosa***
  - C. flacca***
  - C. panicea***
  - C. limosa***
  - C. magellanica***
  - C. pallescens***

Utricle hairless beakless or if short beak,  
not forked or notched at tip:

Stigmas 2:

Common sedge (*Carex nigra*)



Female glumes **blunt and rounded (often egg shaped)**, green midrib and thin pale margin

1-2 male spikes

Leaves **blue-green (glaucous) both sides** (check fresh specimen)



Common

Marshes, wet grassland, riversides

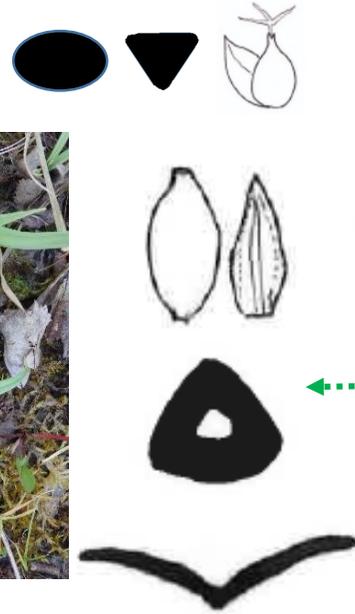
- C. hirta*
- C. lasiocarpa*
- C. caryophyllea*
- C. pilulifera*
- C. distans*
- C. punctatata*
- C. binervis*
- C. hostiana*
- C. laevigata*
- C. extensa*
- C. demissa*
- C. oederi*
- C. lepidocarpa*
- C. depauperata*
- C. sylvatica*
- C. pseudocyperus*
- C. rostrata*
- C. vesicaria*
- C. acutiformis*
- C. riparia*

- C. bigelowii*
- C. nigra*
- C. acuta*
- C. elata*
- C. aquatilis*
- C. pendula*
- C. strigosa*
- C. flacca*
- C. panicea*
- C. limosa*
- C. magellanica*
- C. pallescens*

**Utricle hairless beakless or if short beak, not forked or notched at tip:**

**Stigmas 3:**

**Carnation sedge (*Carex panicea*)**



**1-3 female spikes**

**1 male spike**

**Female glumes purplish-brown with pale midribs and margins**

**Often lower utricle more swollen at base of spike**

**Leaves blue-green (glaucous) both sides (check fresh specimen)**



**Common**

**Marshes, wet heath, grassland, blanket bog**

- C. hirta*
- C. lasiocarpa*
- C. caryophyllea*
- C. pilulifera*
- C. distans*
- C. punctatata*
- C. binervis*
- C. hostiana*
- C. laevigata*
- C. extensa*
- C. demissa*
- C. oederi*
- C. lepidocarpa*
- C. depauperata*
- C. sylvatica*
- C. pseudocyperus*
- C. rostrata*
- C. vesicaria*
- C. acutiformis*
- C. riparia*

- C. bigelowii***
- C. nigra***
- C. acuta***
- C. elata***
- C. aquatilis***
- C. pendula***
- C. strigosa***
- C. flacca***
- C. panicea***
- C. limosa***
- C. magellanica***
- C. pallescens***

## To finish:

DO buy a hand lens (x10 magnification)

DO practise – it takes patience and effort to learn a new skill

DON'T lose heart if it doesn't come naturally to you or you find it challenging

DO seek help and support – join a local naturalists group or better still BSBI

DO record your species and send in records to BSBI and/or Wildlife records centre

e.g. National Biodiversity Data Centre

Your records are important no matter how common the species is

BSBI - <https://bsbi.org/>

NBDC - <https://www.biodiversityireland.ie/>



An Roinn Cultúir,  
Oidhreacht agus Gaeltachta  
Department of Culture,  
Heritage and the Gaeltacht



National Parks & Wildlife Service



**CEDaR**  
Centre for Environmental  
Data and Recording

