

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)

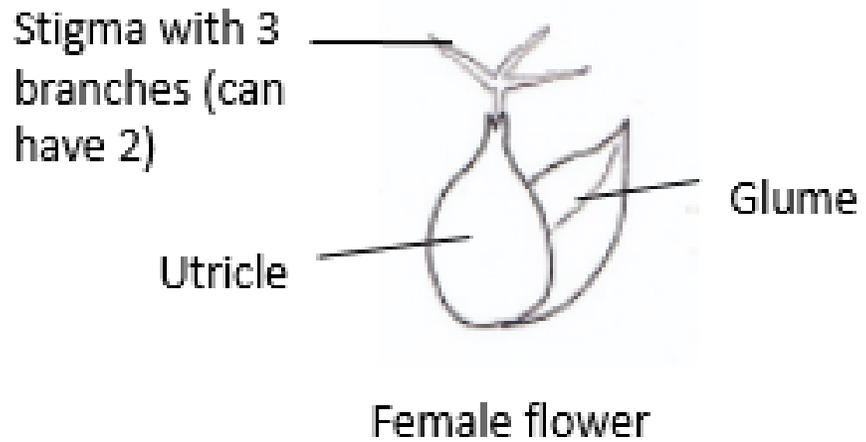
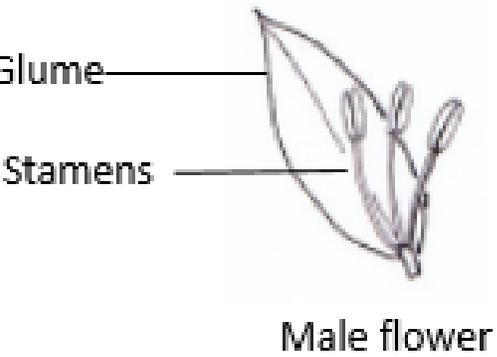
Flowers have one glume (scale) at base of flower

Two broad groups of sedges:

1. True sedges (*Carex* spp.)

Separate male and female flowers

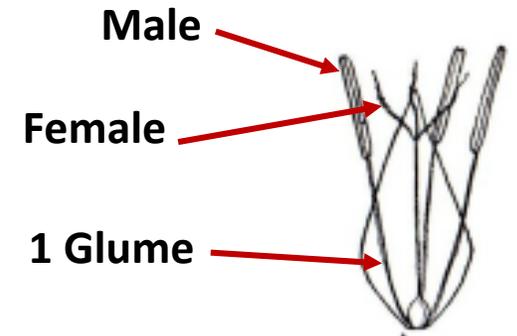
Seed **enclosed in utricle**



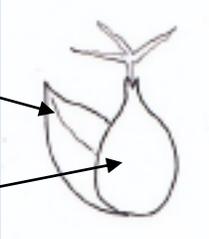
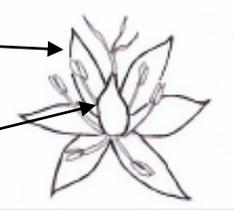
2. Other sedges (variety of genera):

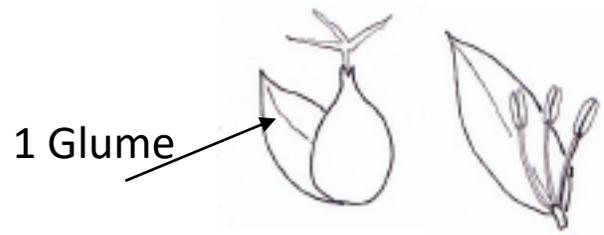
Flowers with both male and female within the same flower

Seed **not** enclosed within a utricle



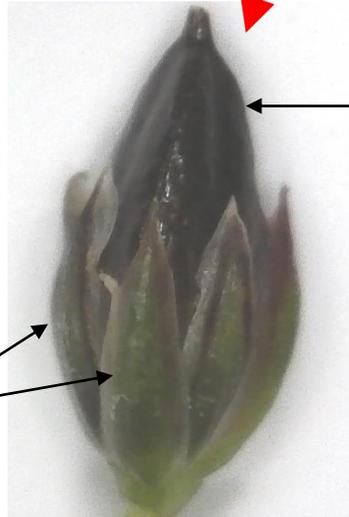
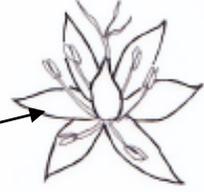
Grass, sedge or rush?.....Look at flowers (hand lens)

Feature	Sedges (Cyperaceae)	Rushes (Juncaceae)	Grasses (Poaceae)
Stem	Often triangular in section Almost always solid Sedges have edges 	Almost always rounded in section Solid or if hollow may be sectioned internally 	Never triangular in section Almost always hollow between nodes 
Ligule	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 
Flowers	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 
Fruits	Single lens shaped or three angled achene per flower 	Fruit capsule bearing numerous seeds 	Single grain-like seed per flower 



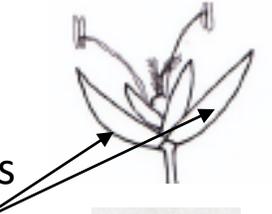
SEDGE

6 Segments

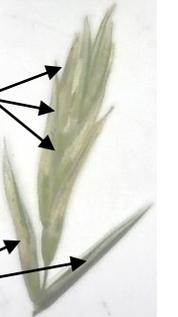


RUSH

2 Glumes



Florets



GRASS

How many Irish Species?

There thought to be
77 species

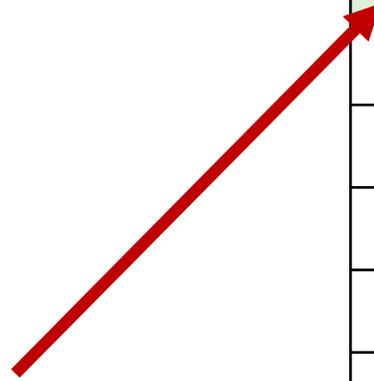
SEDGES	77
<i>Carex</i>	50
<i>Eriophorum</i>	4
<i>Trichophorum</i>	2
<i>Eleocharis</i>	6
<i>Isolepis</i>	3
<i>Cladium</i>	1
<i>Schoenus</i>	1
<i>Rhynchospora</i>	2
<i>Blysmus</i>	1
<i>Schoenoplectus</i>	3
<i>Cyperus</i>	2
<i>Bolboschenus</i>	1
<i>Scirpus</i>	1

Sedges: 13 Genera

What types of sedges are there?



True sedges

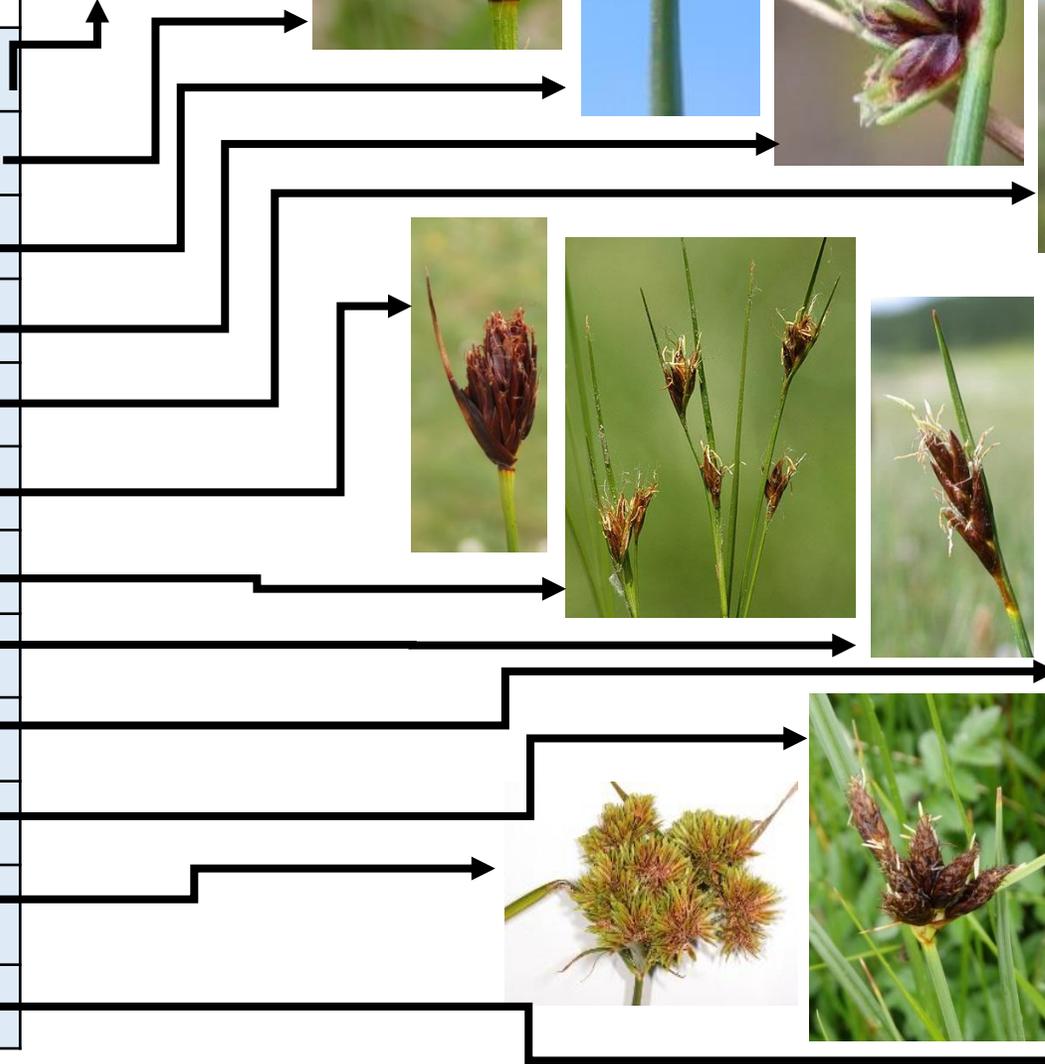


We will concentrate on these today

SEDGES	77
<i>Carex</i>	50
<i>Eriophorum</i>	4
<i>Trichophorum</i>	2
<i>Eleocharis</i>	6
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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

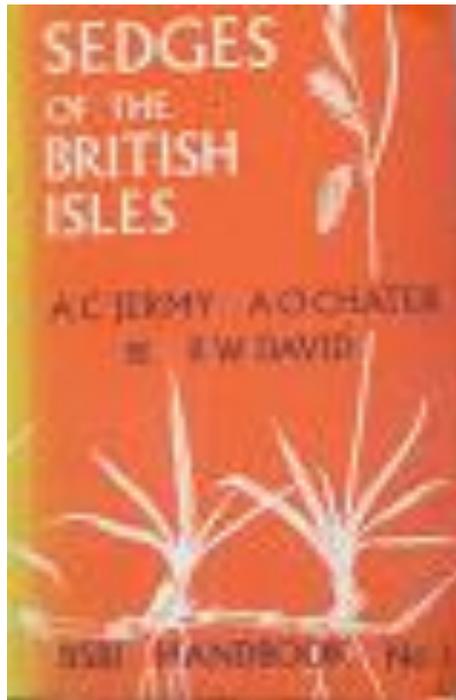
Many keys will have rulers along page margins or at the back but handy to use a little ruler



3. Key/ID guide:

A variety to choose from

Keys and guides



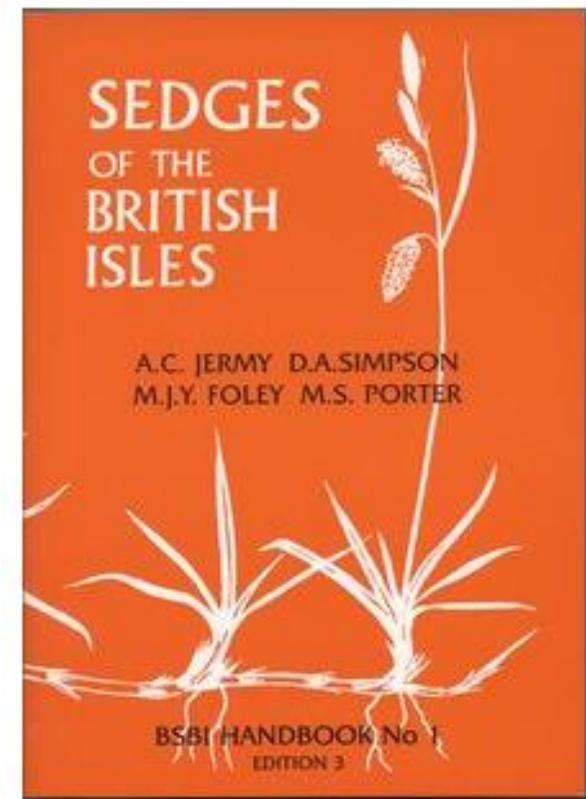
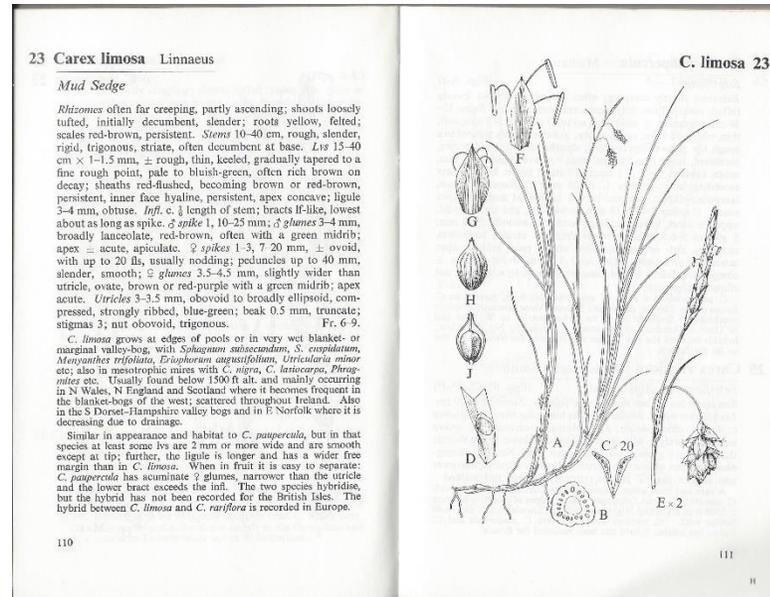
Second edition 1982

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

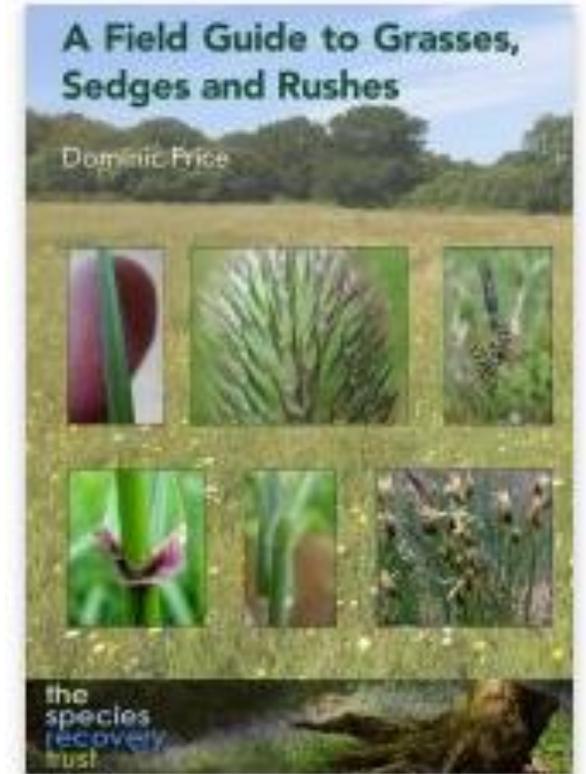
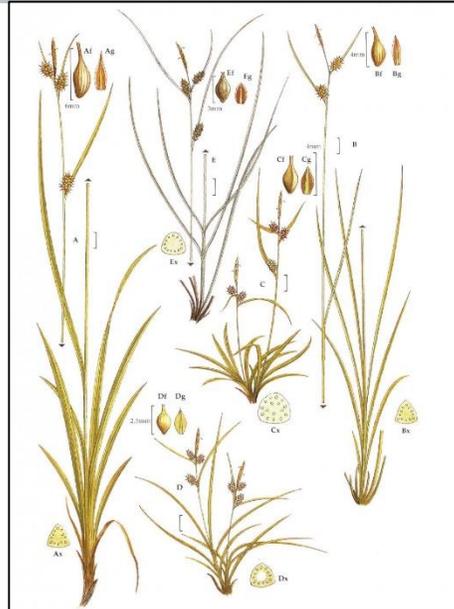
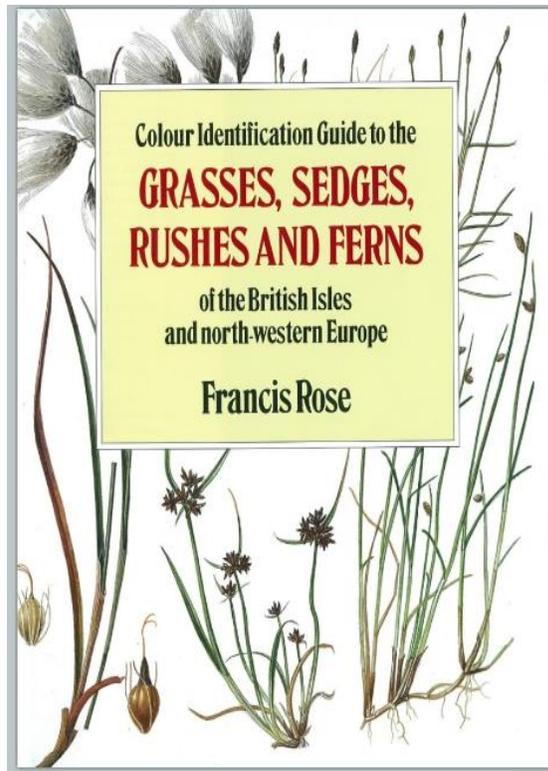
Keys and guides

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

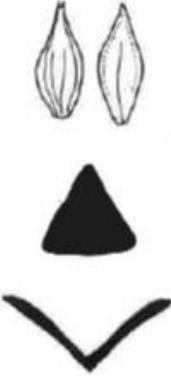
Flowering period: May-June

Size: Up to 75cm

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

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

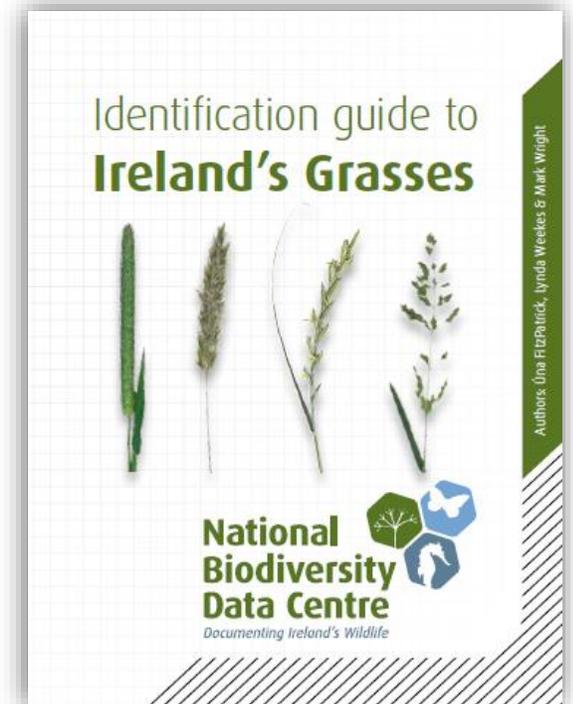
Notes: Stems >2mm wide. Leaves usually flat.



Wetland plant, spike 2-7cm long

B

Lynda Weekes



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).

Page 1 of 45

www.hantsplants.org.uk

REMEMBER:

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

To use a hand lens correctly – check out Youtube video

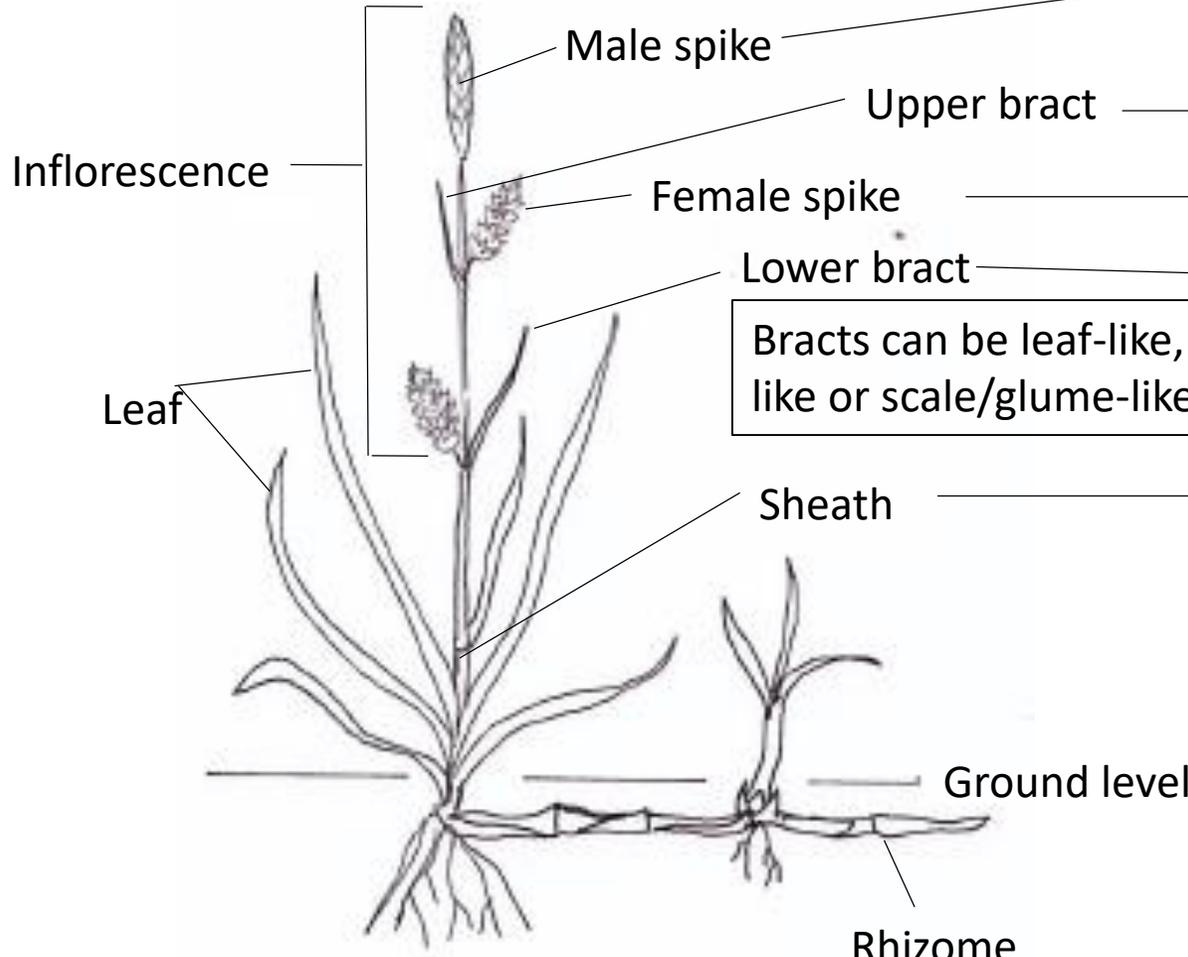
<https://www.youtube.com/watch?v=IFz004WI28E>

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

Male spike

Upper bract

Female spike

Lower bract

Leaf

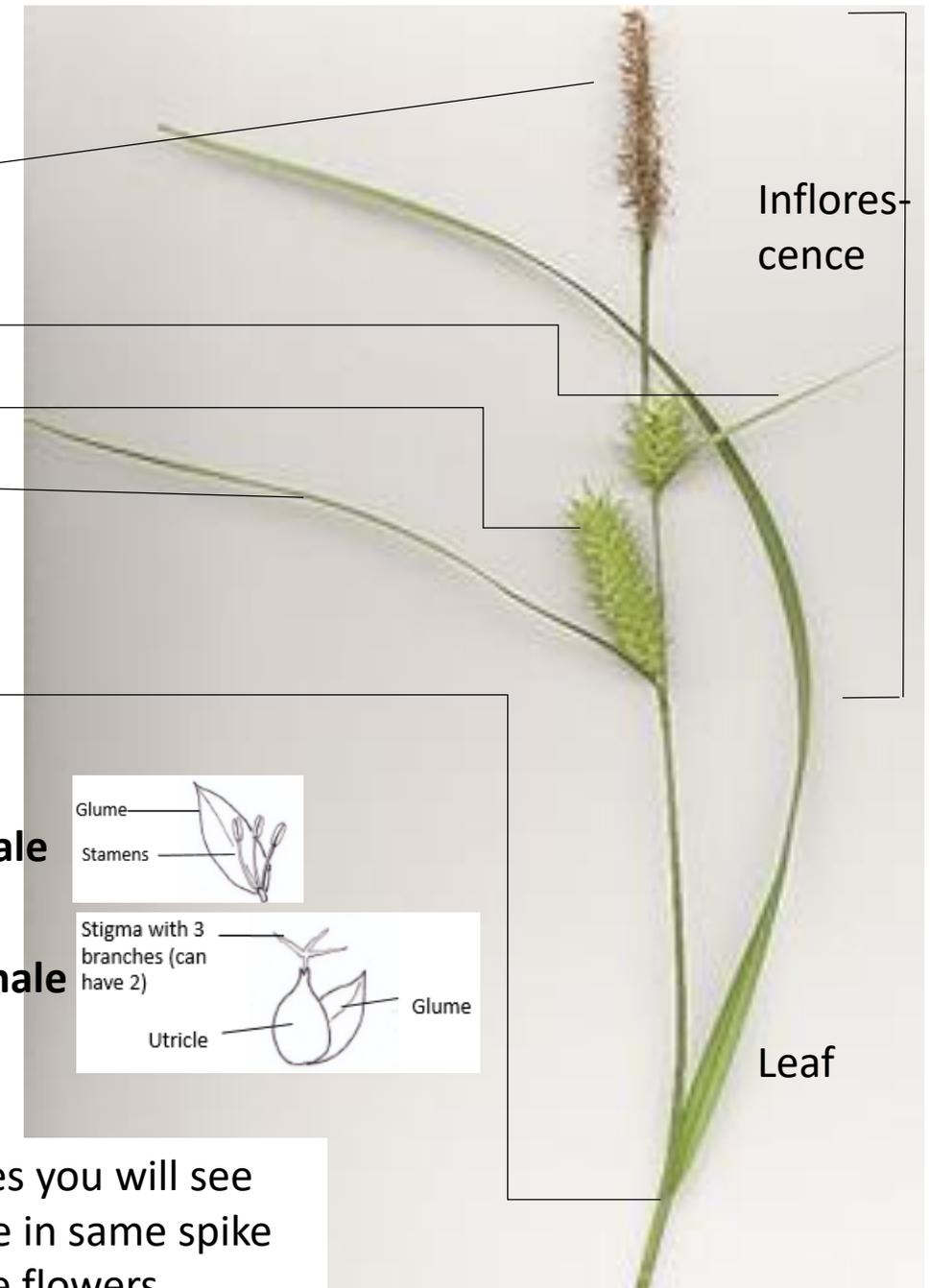
Bracts can be leaf-like, bristle like or scale/glume-like

Sheath

Ground level

Rhizome

Typical sedge

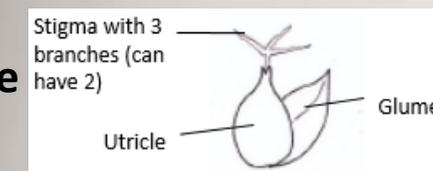
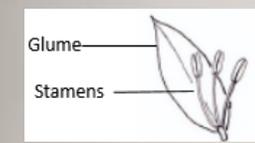


Inflorescence

Male

Female

Leaf



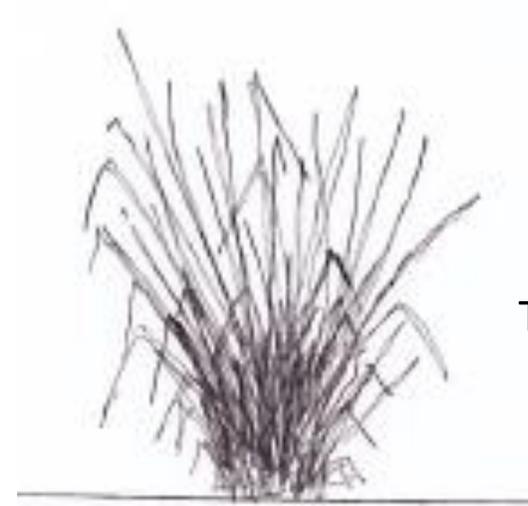
Note: Sometimes you will see male and female in same spike but still separate flowers

If Rhizomes very short



Carex paniculata

M Storey



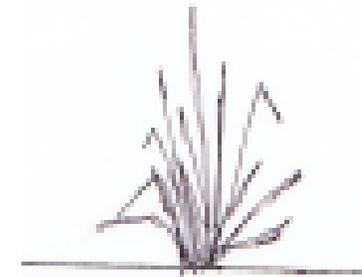
Tussock



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

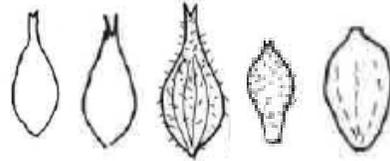
- If single – 3 species

- 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

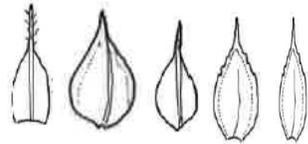
2. Utricles

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



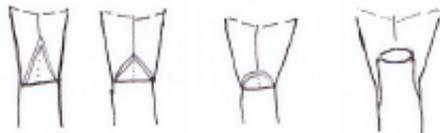
5. Leaves

Colour, width, transverse section



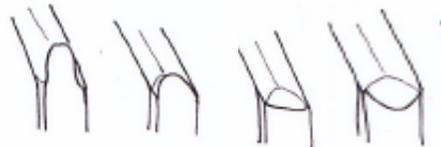
6. Ligules

Pointed, rounded, tubular



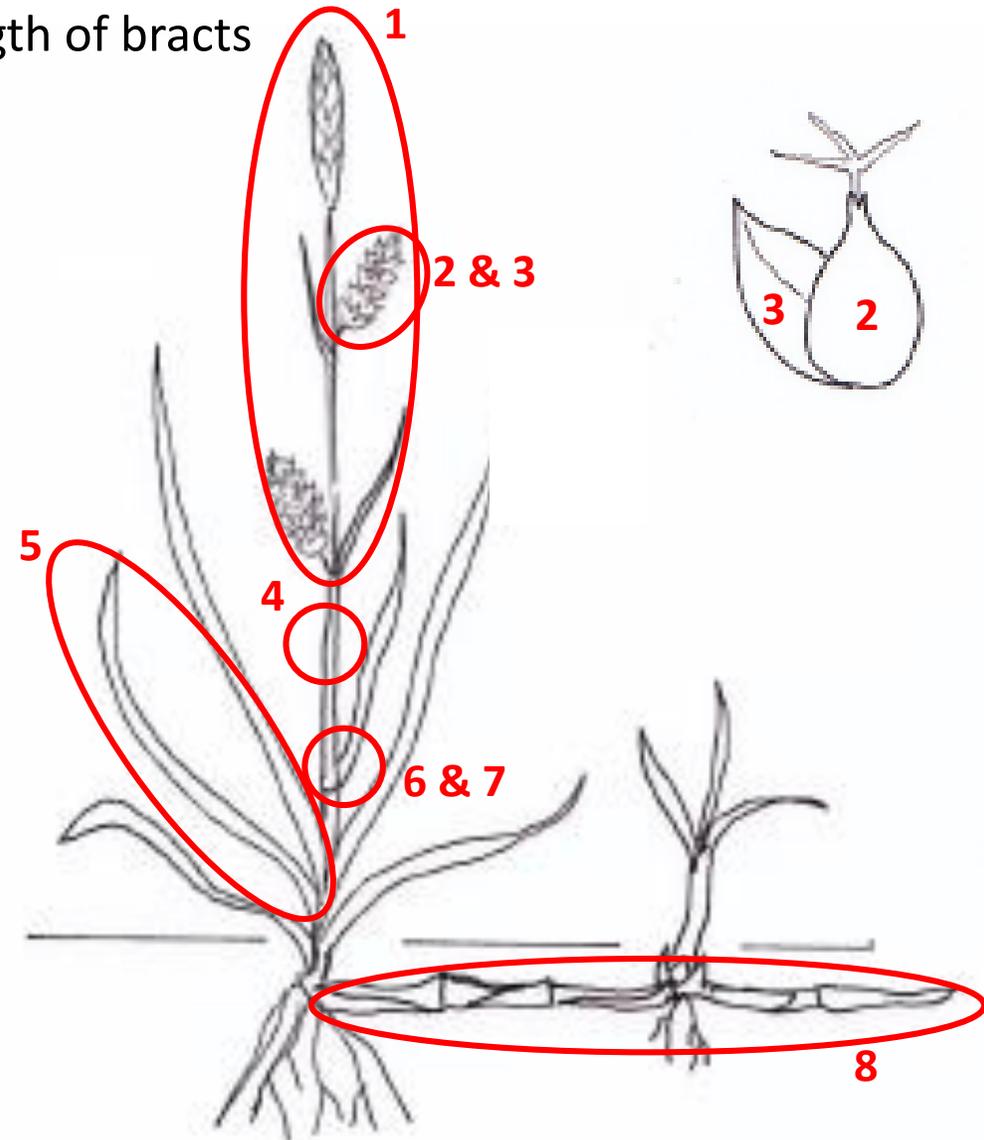
7. Sheaths

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

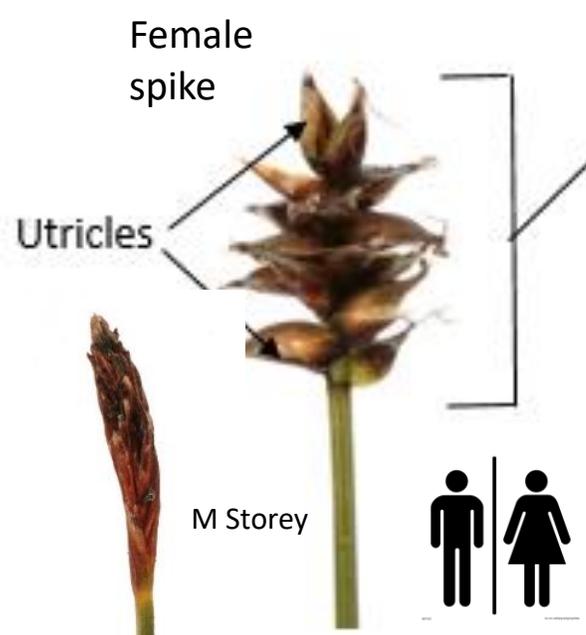
C. magellanica

C. pallescens

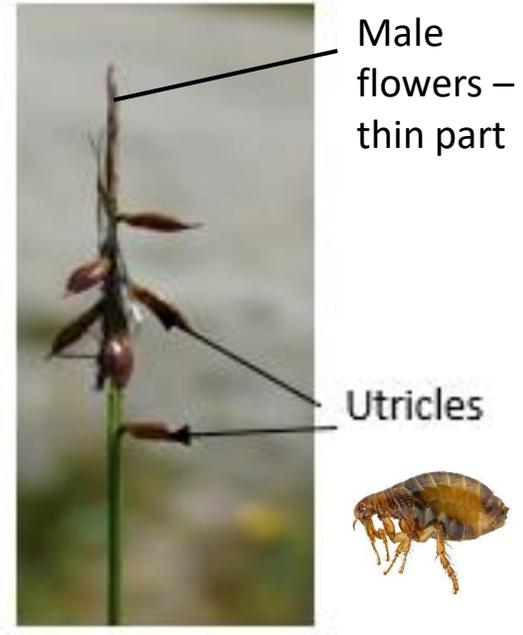
C. dioica
C. pulicaris
C. pauciflora

- 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

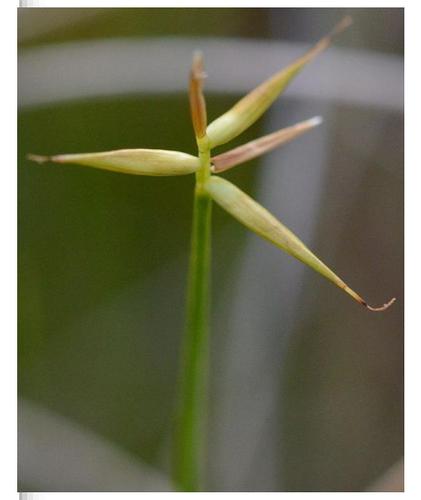


Dioecious sedge
Carex dioica
 Occasional
 Fens and flushes



Flea sedge
Carex pulicaris
 Common
 Bogs, heaths, mountain pastures

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



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

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



Jenny Seawright



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

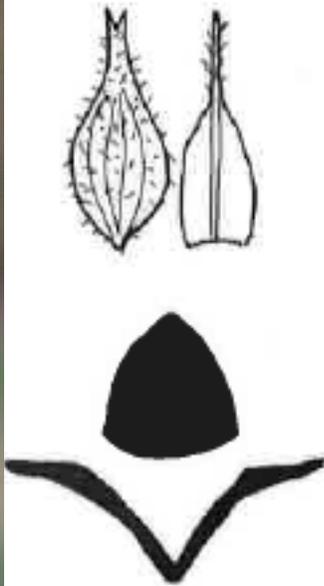
Several spikes and of
two dissimilar forms

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)**

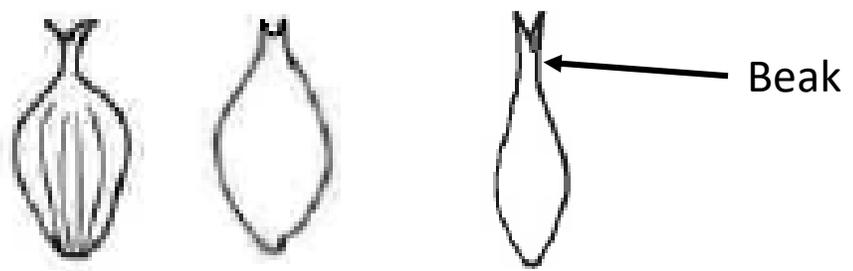
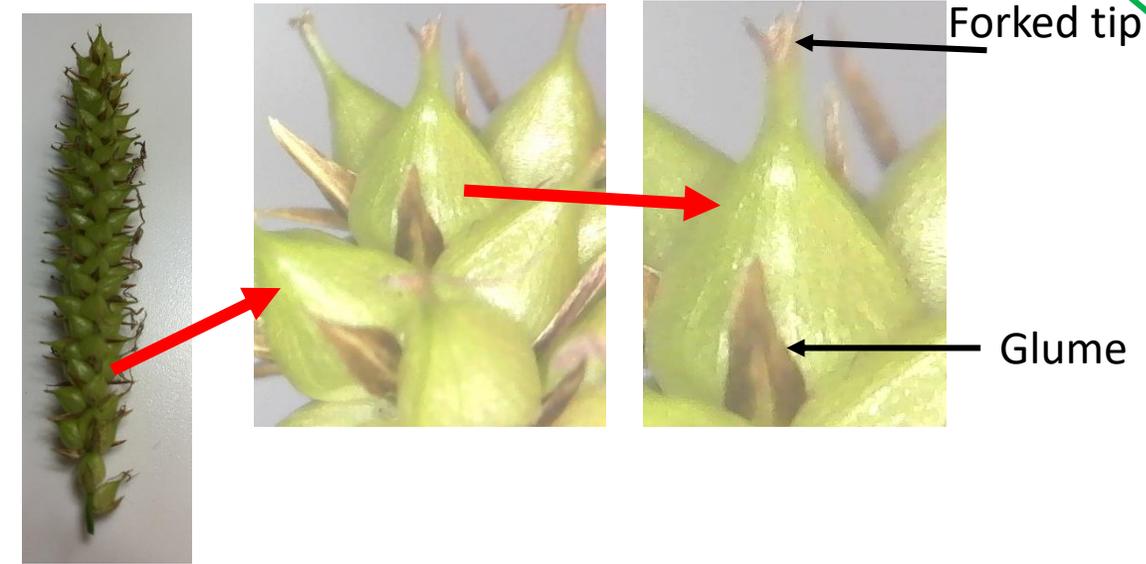
Common
Damp grassland, disturbed
Ground

- 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



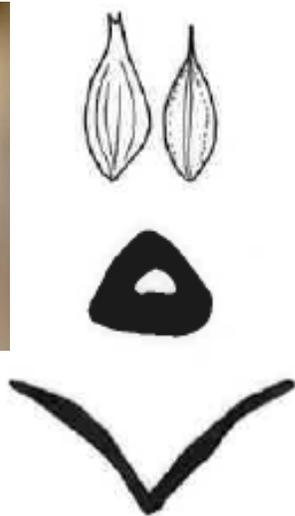
- C. hirta*
 - C. lasiocarpa*
 - C. caryophyllea*
 - C. pilulifera*
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 - C. elata*
 - C. aquatilis*
 - C. pendula*
 - C. strigosa*
 - C. flacca*
 - C. panicea*
 - C. limosa*
 - C. magellanica*
 - C. pallescens*

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

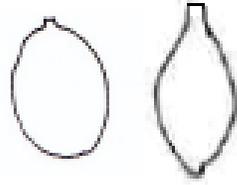
Female spikes oval in shape or very shortly cylindrical. Stalkless or with very short stalks



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

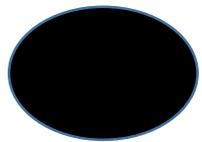


TS Section of utricle



Stigmas 3:

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



TS Section of utricle



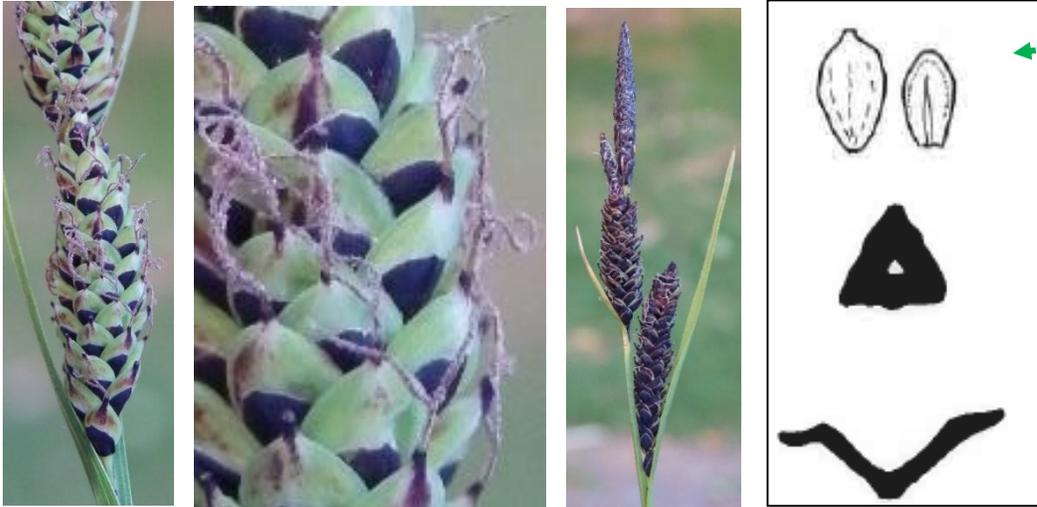
- C. hirta*
 - C. lasiocarpa*
 - C. caryophyllea*
 - C. pilulifera*
 - C. distans*
 - C. punctatata*
 - C. binervis*
 - C. hostiana*
 - C. laevigata*
 - C. extensa*
 - C. demissa*
 - C. oederi*
 - C. lepidocarpa*
 - C. depauperata*
 - C. sylvatica*
 - C. pseudocyperus*
 - C. rostrata*
 - C. vesicaria*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

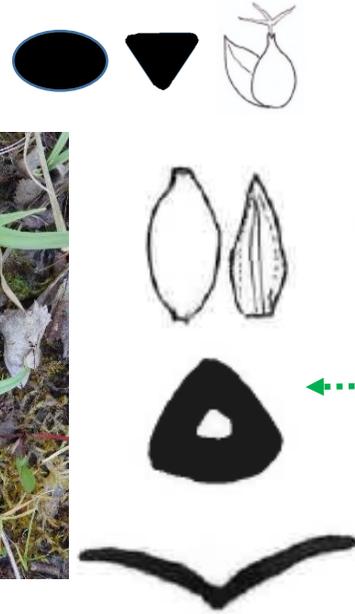
- C. hirta*
- C. lasiocarpa*
- C. caryophyllea*
- C. pilulifera*
- C. distans*
- C. punctatata*
- C. binervis*
- C. hostiana*
- C. laevigata*
- C. extensa*
- C. demissa*
- C. oederi*
- C. lepidocarpa*
- C. depauperata*
- C. sylvatica*
- C. pseudocyperus*
- C. rostrata*
- C. vesicaria*
- C. acutiformis*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

