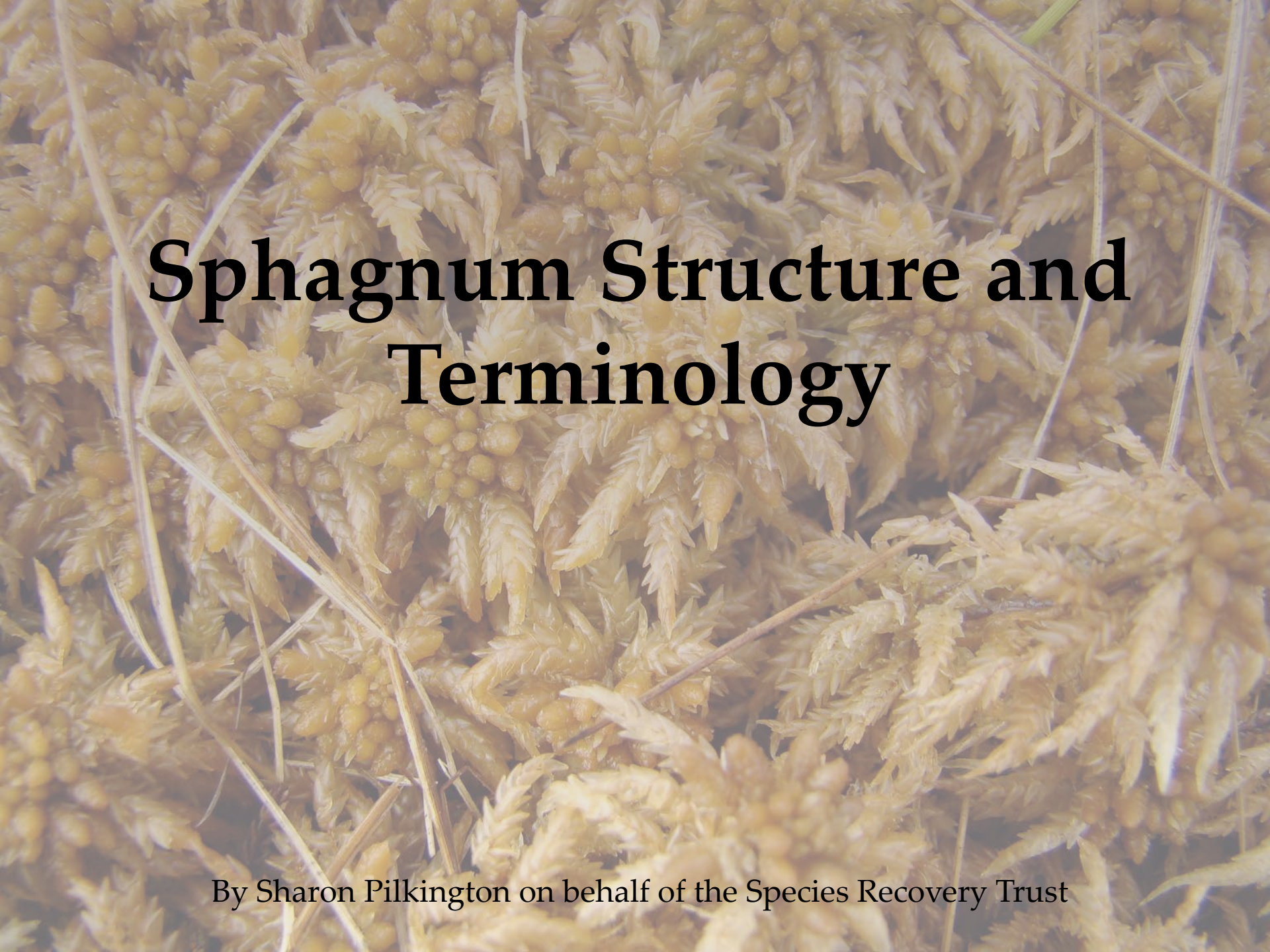


# Sphagnum Structure and Terminology

By Sharon Pilkington on behalf of the Species Recovery Trust

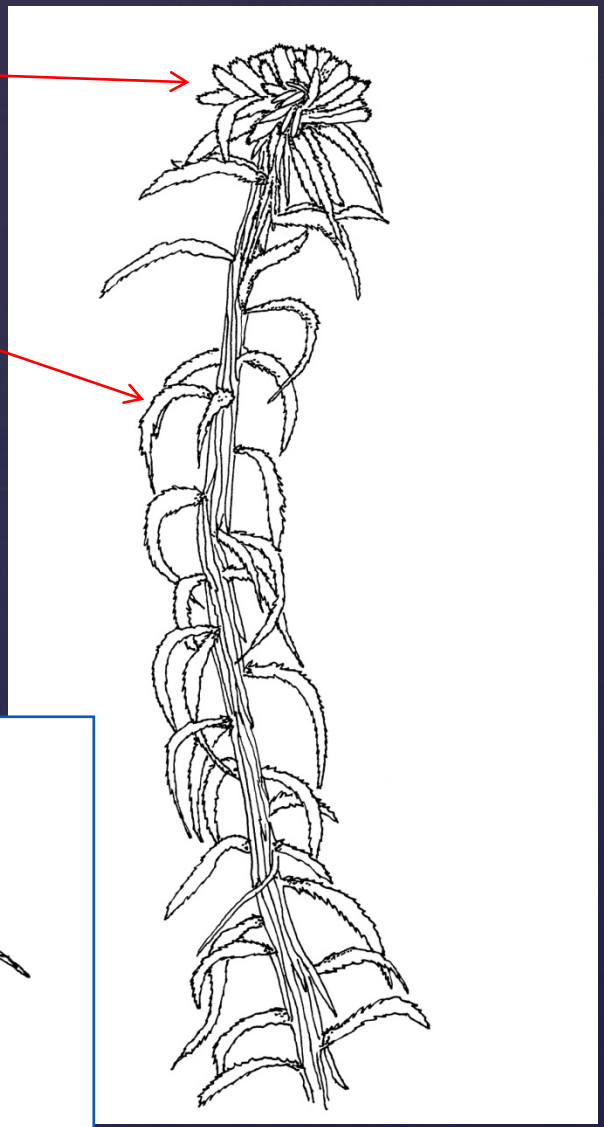
Capitulum

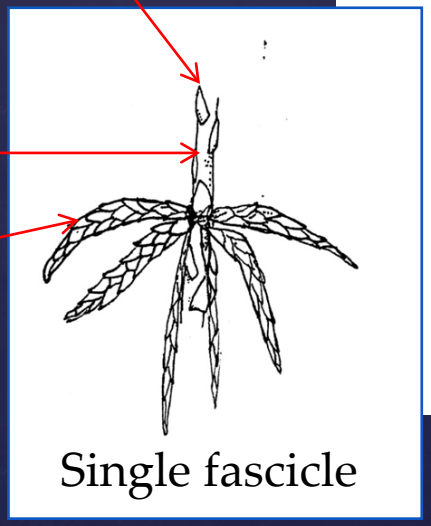
Branch

Stem leaf

Stem

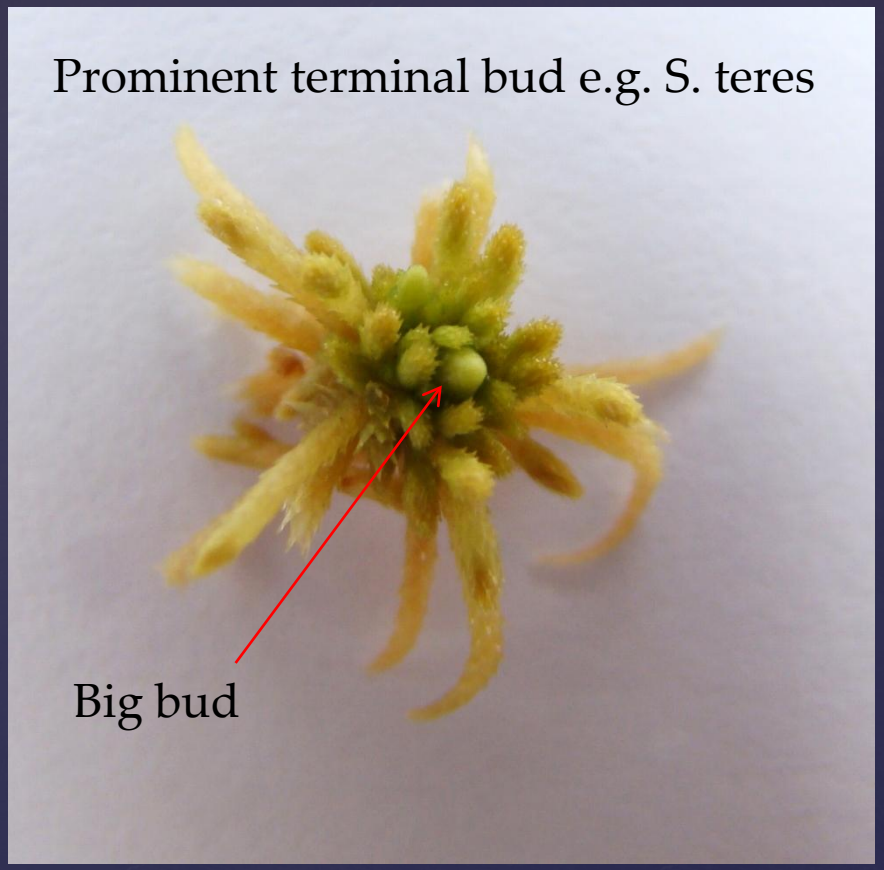
Branch leaf

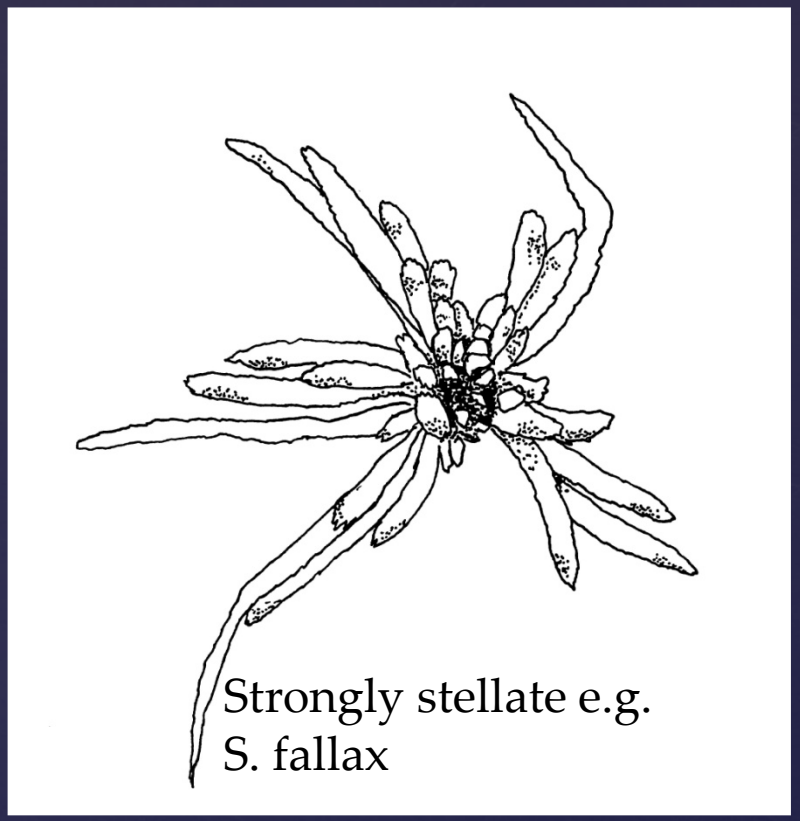




Single fascicle

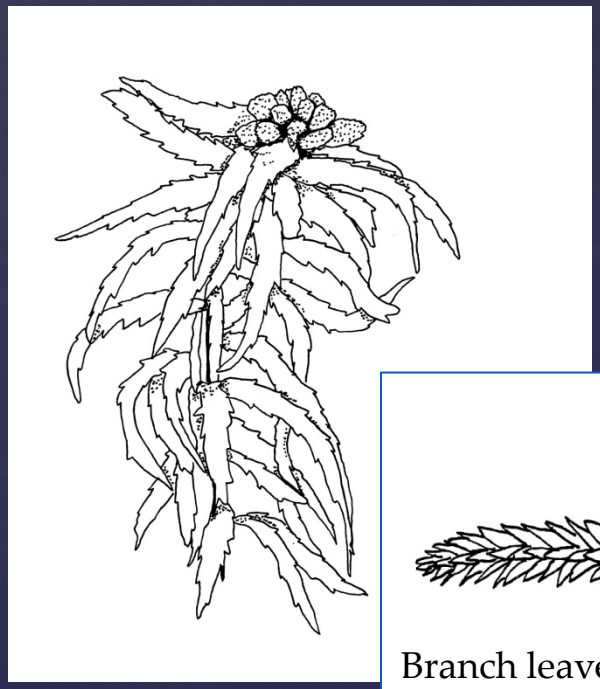
**SPHAGNUM SHOOT**


Prominent terminal bud e.g. S. teres
Big bud


Strongly stellate e.g.
S. fallax

# Capitulum

# Branch arrangement

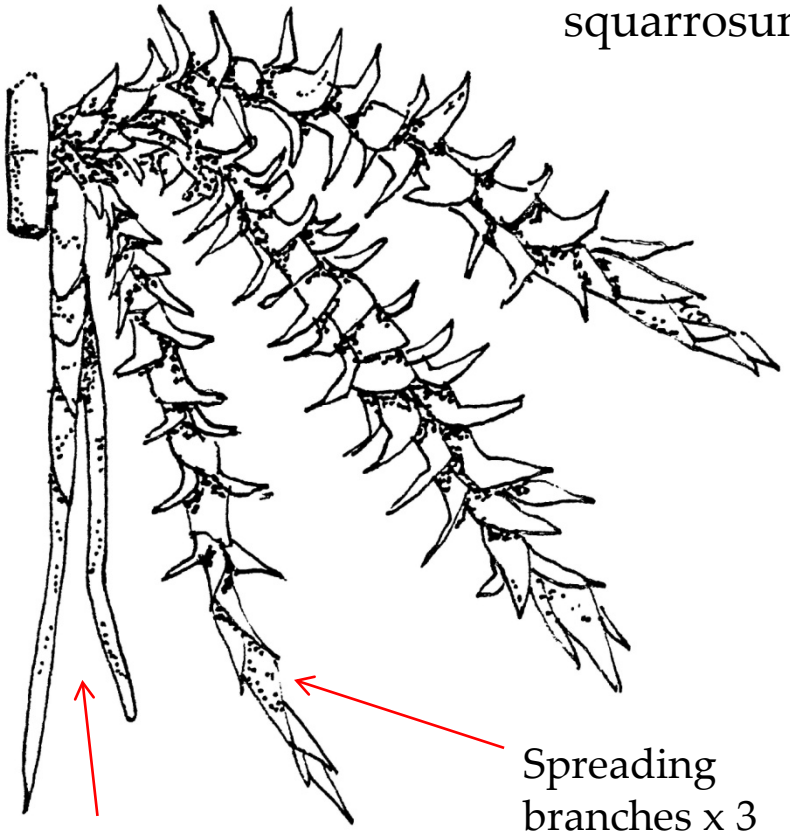


Fascicles undifferentiated e.g. S. palustre



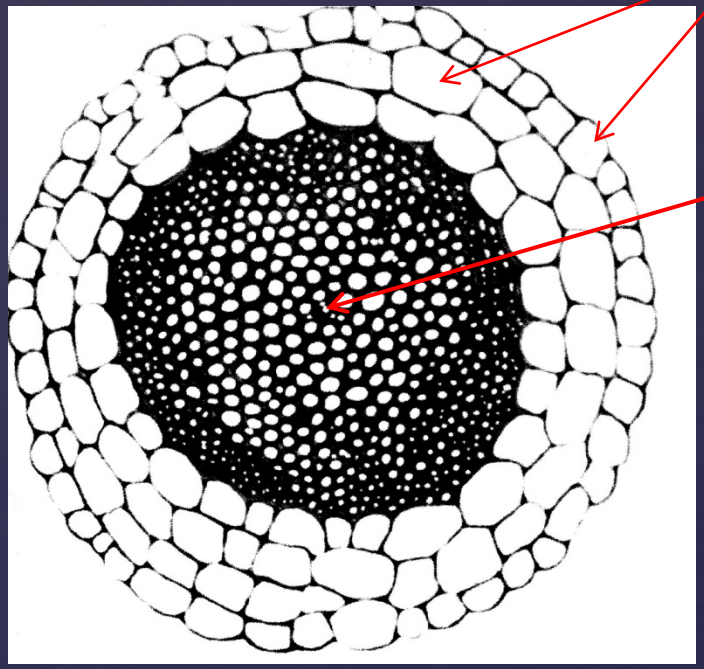
Branch leaves in ranks e.g. S. pulchrum

Fascicles strongly differentiated e.g. S. squarrosum



Stem section showing strongly differentiated cortex (S. papillosum)

*From Holzer 2010*

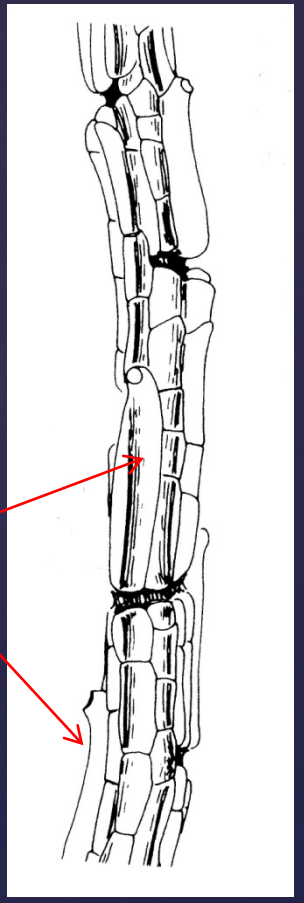


Hyaline cortical cells

Cylinder

Retort cells along branch axis (S. subnitens)

*From Daniels & Eddy 1985*

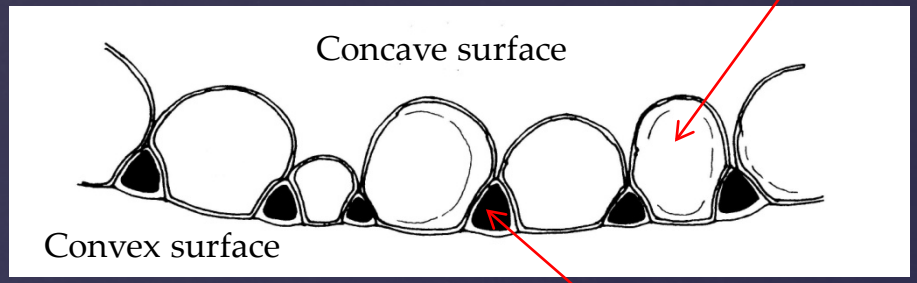


# Stem and branch

# Leaf cells

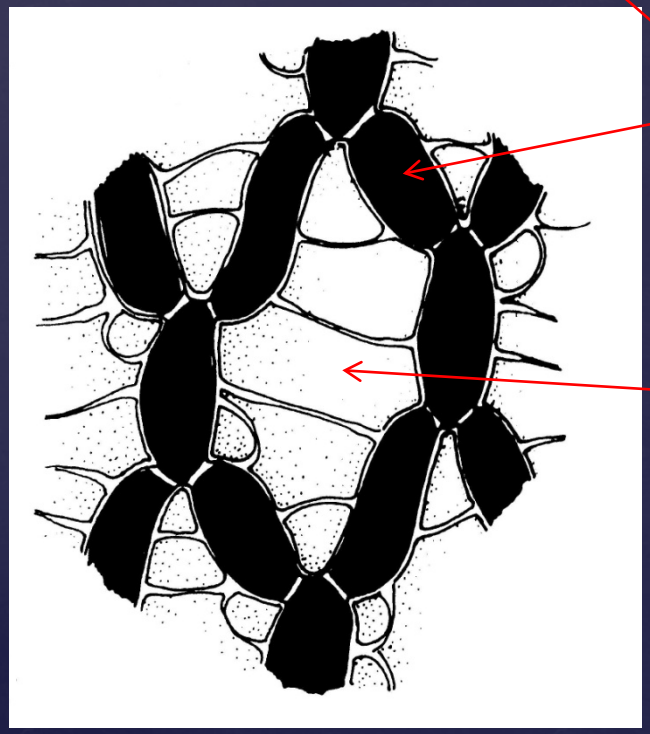
*All from Daniels & Eddy 1985*
*Sphagnum tenellum*

Hyalocyst




Branch leaf section

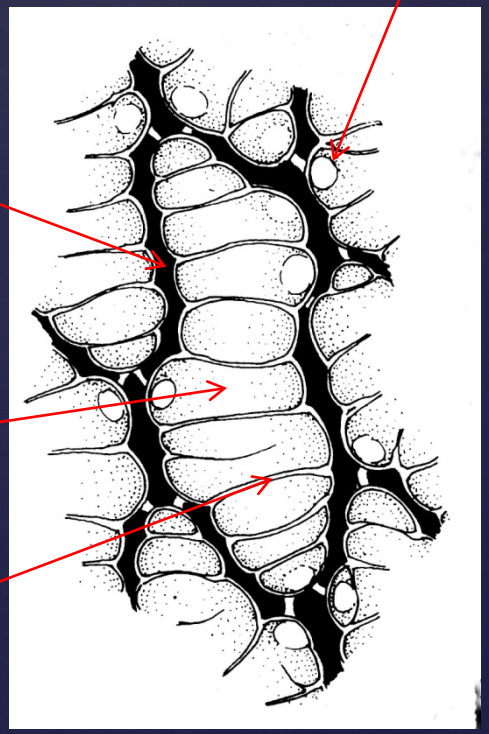
Pore



Photosynthetic (green) cells

Hyaline cells (hyalocysts)

Fibril



Convex surface

Concave surface

# Recognising Sphagnum Sections

**Sections**

Sphagnum – 5 species
Acutifolia – 10 species
Rigida – 2 species
Squarrosa – 2 species
Cuspidata – 11 species
Subsecunda – 5 species

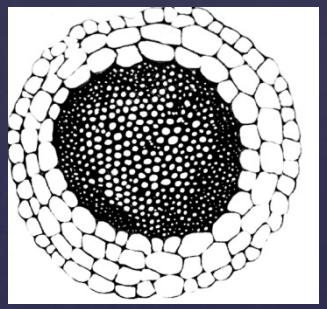
# British Sphagnum sections

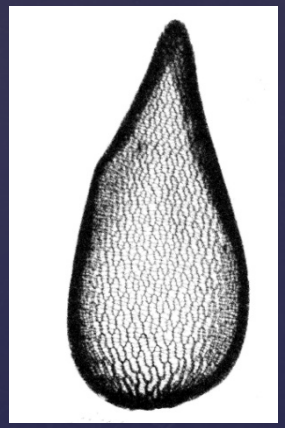
# Section Sphagnum

S. palustre
S. papillosum
S. magellanicum
S. affine (scarce)
S. austinii (scarce)

**Field characters:**

- Plants always robust
- Broad, hooded branch leaves
- Stem cortex > 1/3 stem diameter



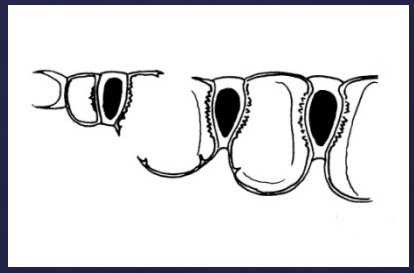


*Both from Holzer 2010*

S. palustre

**Other characters:**

- Cortical cells of branches have spiral fibrils
- Branch leaf apices are minutely rough (resorption furrows)
- No retort cells



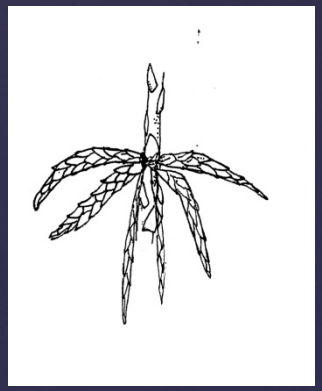
*From Daniels & Eddy 1985*

# Section Acutifolia

S. molle
S. quinquefarium
S. subnitens
S. skyense (rare)
S. fuscum (scarce)
S. fimbriatum
S. girgensohnii
S. russowii
S. warnstorfii (scarce)
S. capillifolium

**Field characters:**

- Stem leaves always erect
- Red pigments often present
- Plants usually small to medium-sized (except S. skyense)



This is a variable group. Plants with red pigments but without hooded branch leaves can comfortably be placed here. S. fimbriatum and S. girgensohnii are always green and other species may have little or no red pigment if growing in shade.

*Beware! S. fallax sometimes has pink branches but is not in this group*

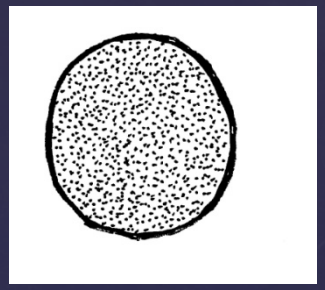
S. russowii

# Section Rigida

S. compactum
S. strictum (rare)

**Field characters:**

- Low-growing plants
- Branch leaves have a cut-off tip
- Minute triangular hanging stem leaves < 0.5 length branch leaves
- S. compactum has crowded, upward-pointing branches concealing very dark stem



Stem section of S. compactum

S. compactum

S. compactum is very common in wet heaths where it forms low mats often with quite bright colours (never red). Leaves look hooded like Section Sphagnum but the plant does not have a visible stem cortex.

# Section Squarrosa

S. squarrosum
S. teres (scarce)

**Field characters:**

- Medium-sized to robust plants
- Large capitulum buds
- Branch leaves slightly to very squarrose when dry
- Stem leaves lingulate (tongue-shaped)

S. squarrosum

S.teres

S. squarrosum is a robust plant of wet woodland and other shady places. It is always distinctly prickly-looking.

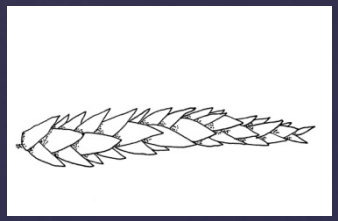
S. teres is restricted to base-rich flushes and wet ground, mostly in the uplands.

# Section Cuspidata

S. tenellum
S. pulchrum (scarce)
S. balticum (rare)
S. lindbergii (rare)
S. riparium (rare)
S. majus (rare)
S. cuspidatum
S. fallax
S. angustifolium
S. flexuosum
S. obtusum (extinct)

**Field characters:**

- Very variable
- Often green or with mustard colours
- Capitula often stellate
- Stem leaves hanging or spreading (not erect)



S. tenellum divergent branch apex

**Other characters:**

- Branches have large retort cells

S. fallax, S. angustifolium and S. flexuosum form the so-called *Sphagnum recurvum complex* and look very similar.

S. tenellum is immediately identifiable due to its small size and divergent branch leaves.

S. flexuosum

# Section Subsecunda

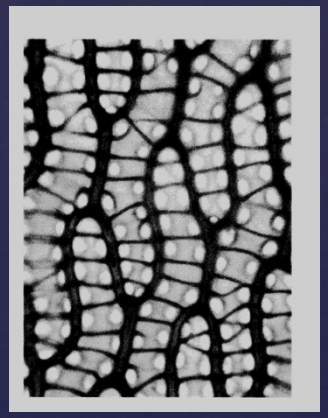
S. contortum (scarce)
S. subsecundum (scarce)
S. inundatum
S. denticulatum
S. platyphyllum (rare)

**Field characters:**

- Branches are often curved to one side (*cow's horns*)
- Plants often have yellow, orange or brown pigments

**Other characters:**

- Branch leaves have numerous small ringed pores along the edge of hyalocysts



S. denticulatum

S. subsecundum

S. inundatum and S. denticulatum can be very variable and cannot always be easily separated.