



The Ecology and distribution of Irish Charophytes

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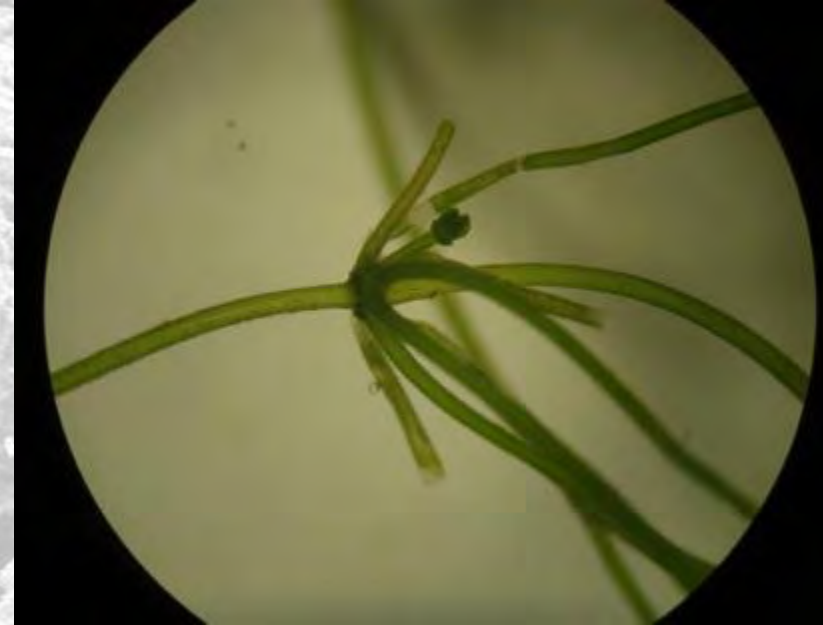
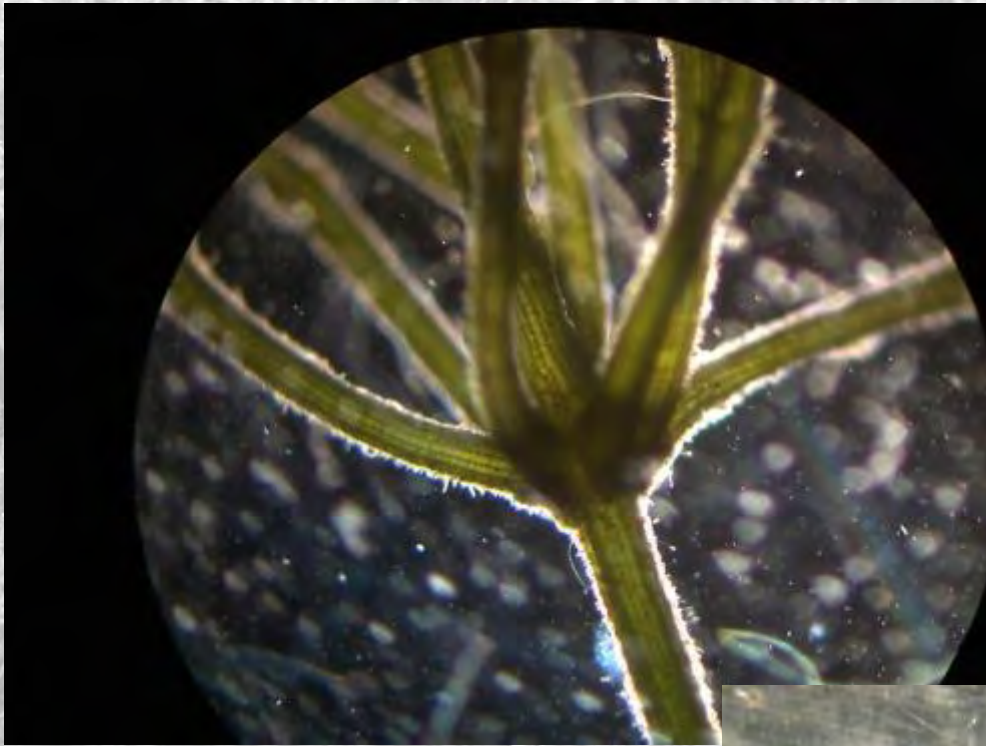
What are Charophytes?

- o Aquatic macro algae 5-150 cm in size.
- o Closely related to land plants.
- o Tissue of very large multi nucleate tubular cells.
- o Reproduce by means of oospores, capable of dormancy.
- o Some species spread by rhizoids or tubers.



Chara hispida

Charophyte morphology



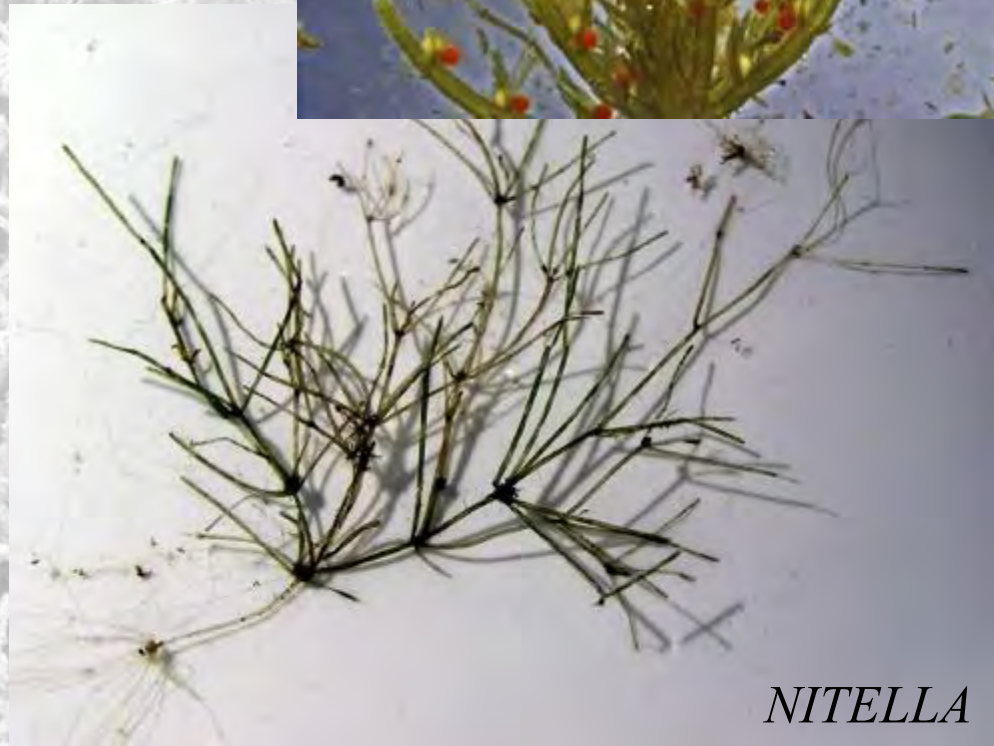
With or without cortex,
oospores



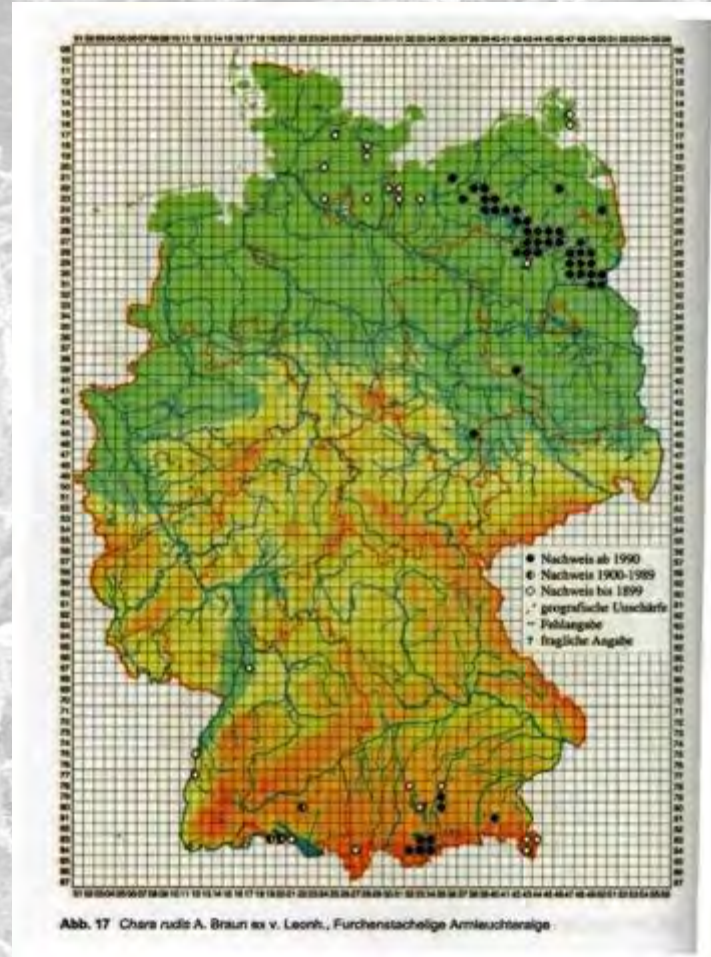
How many species in Ireland

- Four Genera
- Chara with 16 species
- Nitella with 8 species
- Tolypella with 4 species
- Lamprothamnion with 1 species

There are about 50 species from Europe as a whole- so Ireland has perhaps 60% of the total.



Charophyte Biogeography



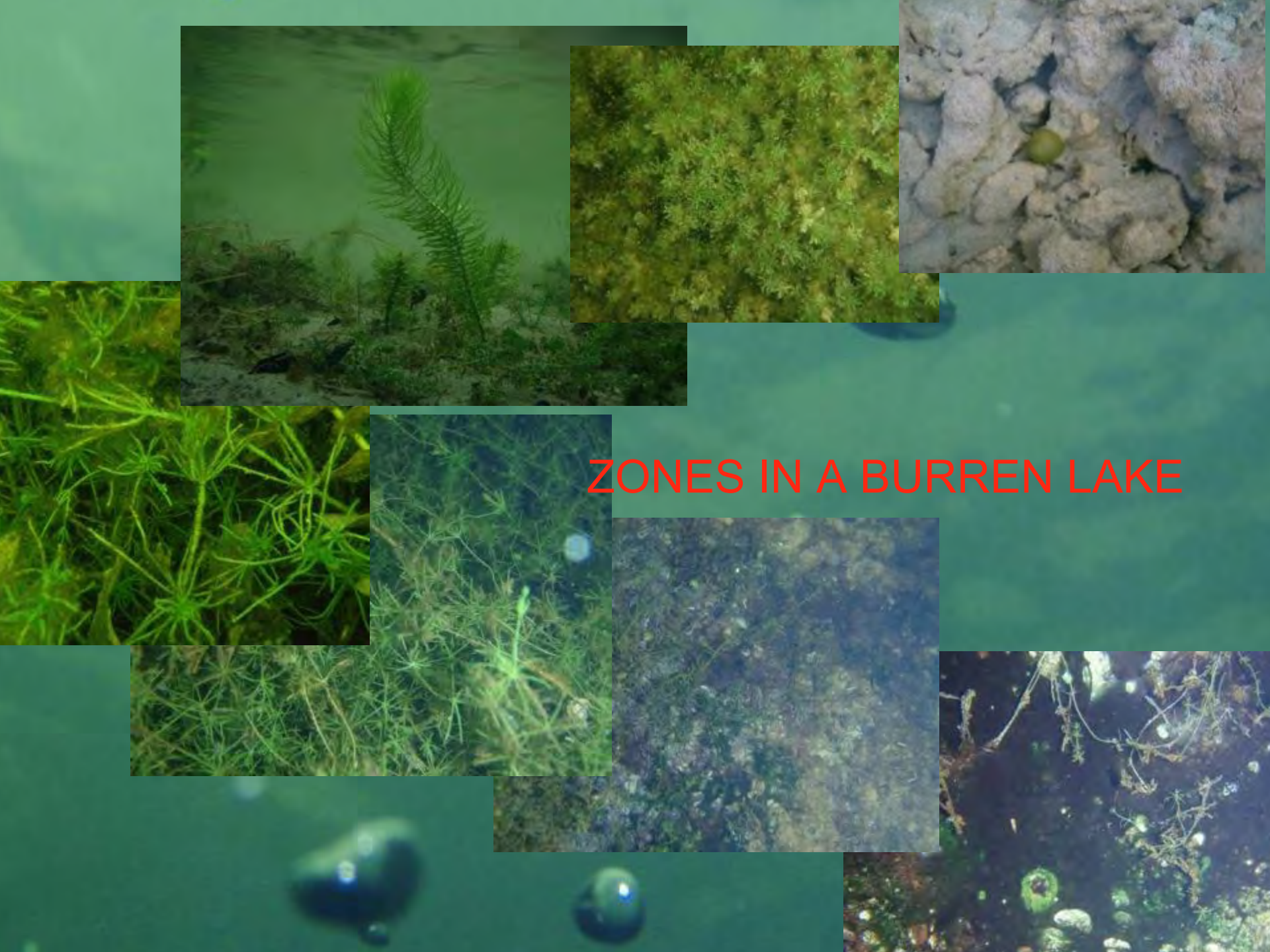
- Many species are more widespread in Ireland, e.g. *Chara rudis*

Where do they occur?



- Clear low nutrient still water is the commonest habitat
- They also occur in flushes, temporary pools, turloughs and even some rivers.

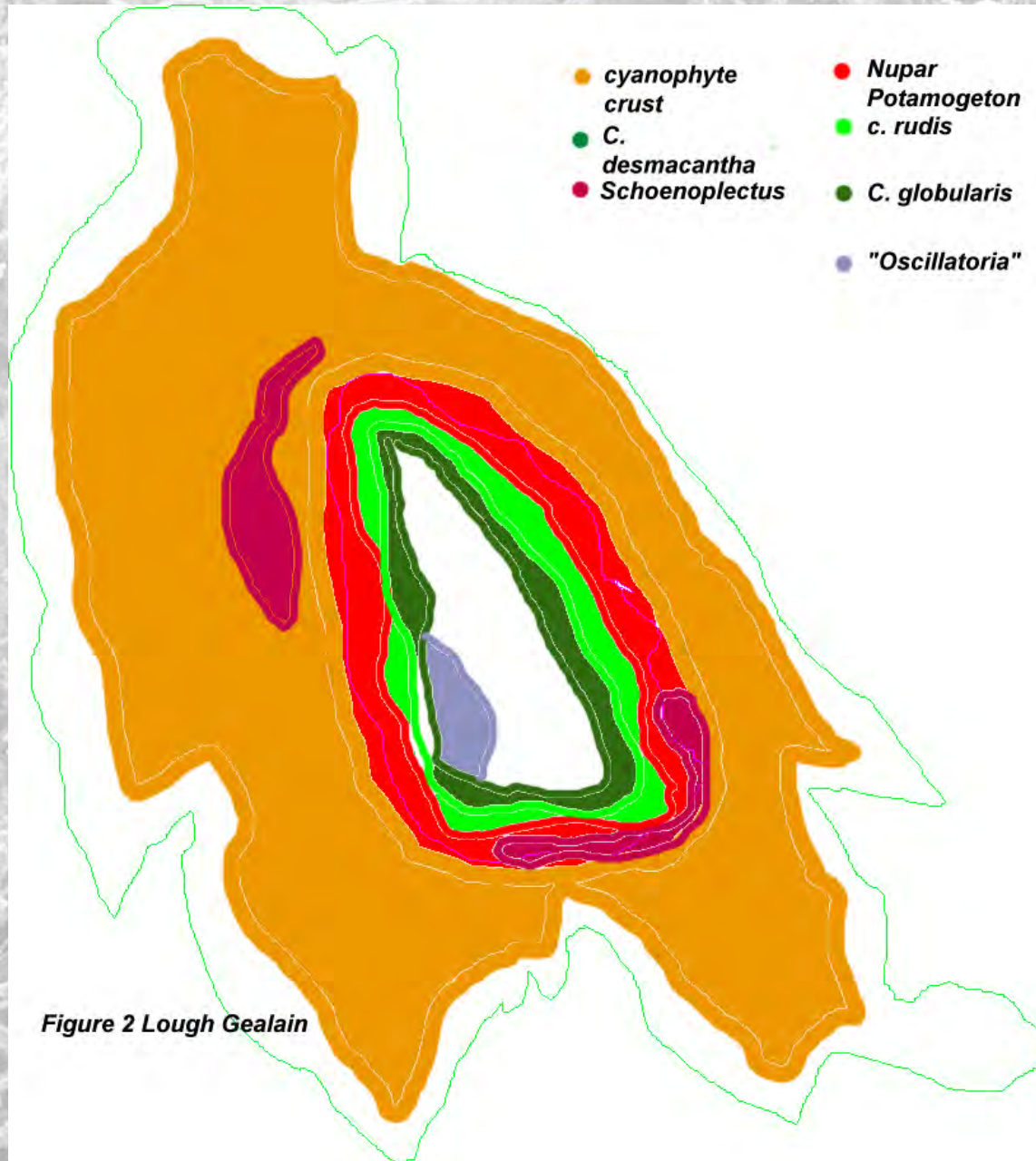
ZONES IN A BURREN LAKE

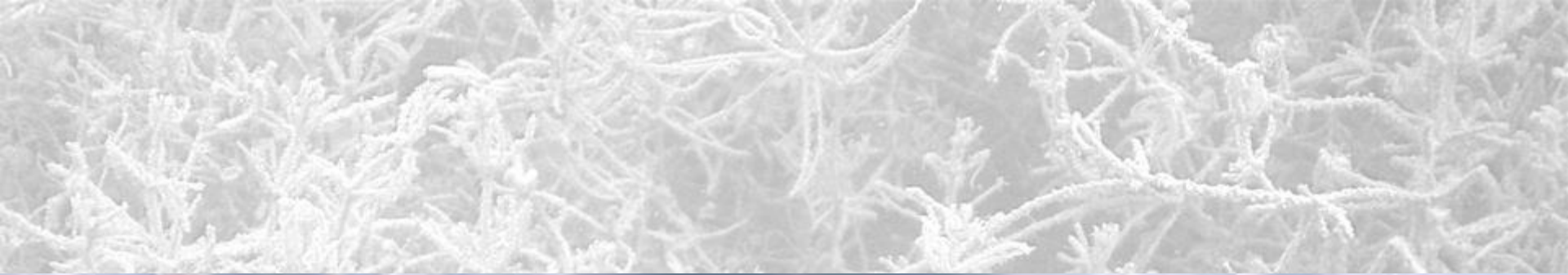


Lough Gealain



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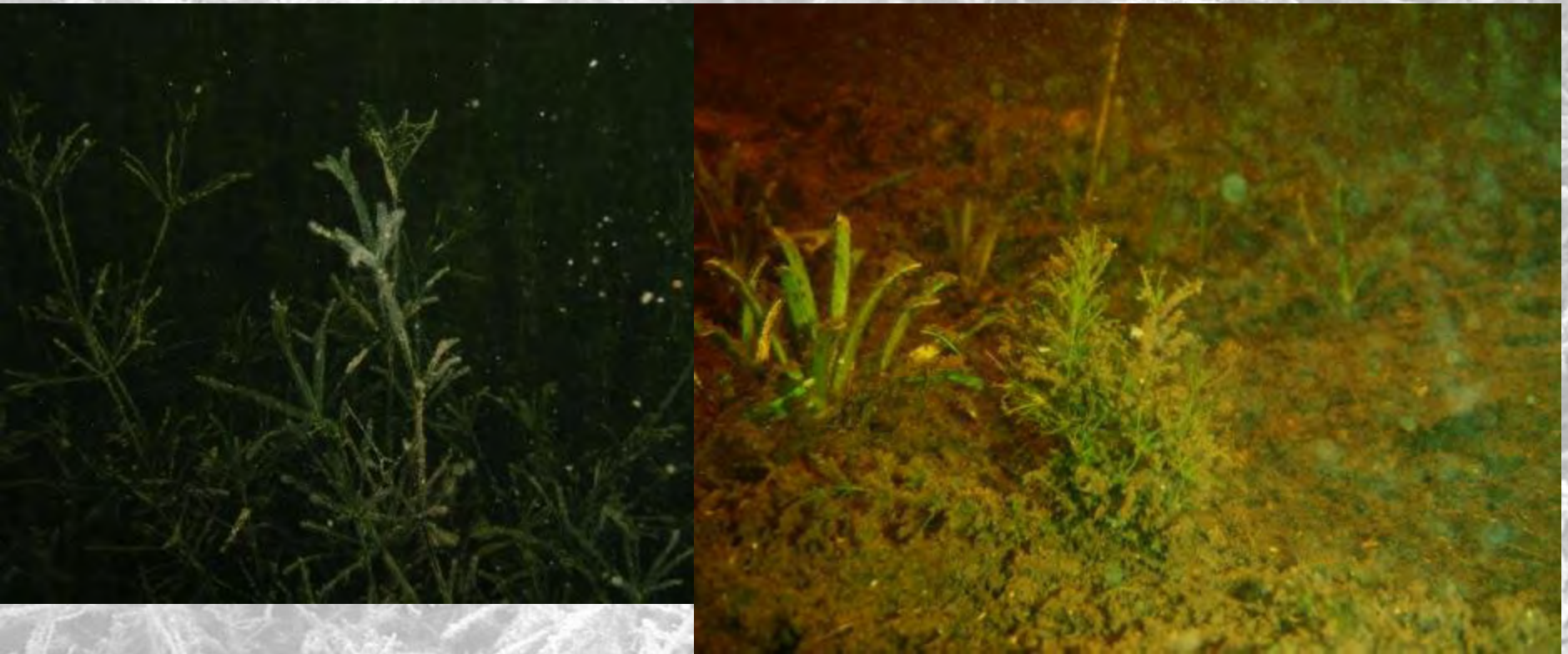
•the view from the ground



Najas lakes

- Meso-oligotrophic.
- Mainly along west coast.
- Not greatly coloured by peat runoff, therefore clear.
- Often contains both *Isoetes lacustris* and *Potamogeton perfoliatus*.
- *Chara muscosa*, *Nitella confervacea*, *Nitella spanioclema*?
Chara virgata.

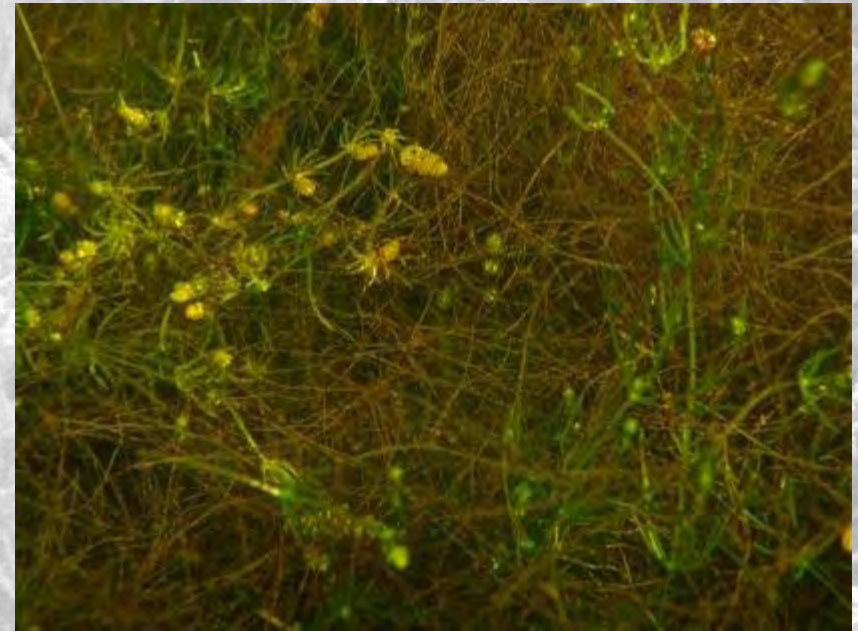
Charophytes of calcium poor Loughs



- Nitella species and Chara virgata occur in Calcium poor clear loughs, dystrophic loughs often lack any any species.

Transitional and coastal water lagoons

Lady's Island Lake



Lamprothamnion papulosum



*Chara
cannescens*



Lough Gill

Lagoonal specialists and taxonomic run arounds



- The late Dr Brenda Healy pioneered lagoon research in Ireland
- She developed the idea of lagoonal specialist species
- *Chara canescens*, *C. baltica*, *Tolypella nidifica* and *Lamprothamnion* are examples
- Problems of taxonomy persist

Minor habitats



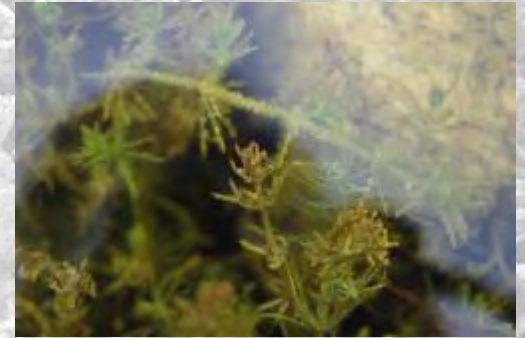
Nitella opaca

- Flushes in the Burren with *Chara vulgaris* or *C.contraria*
- Flushes on Aran with *C.gymnophylla*
- Ponds with *C.vulgaris*
- Limestone puddles with *Nitella opaca*

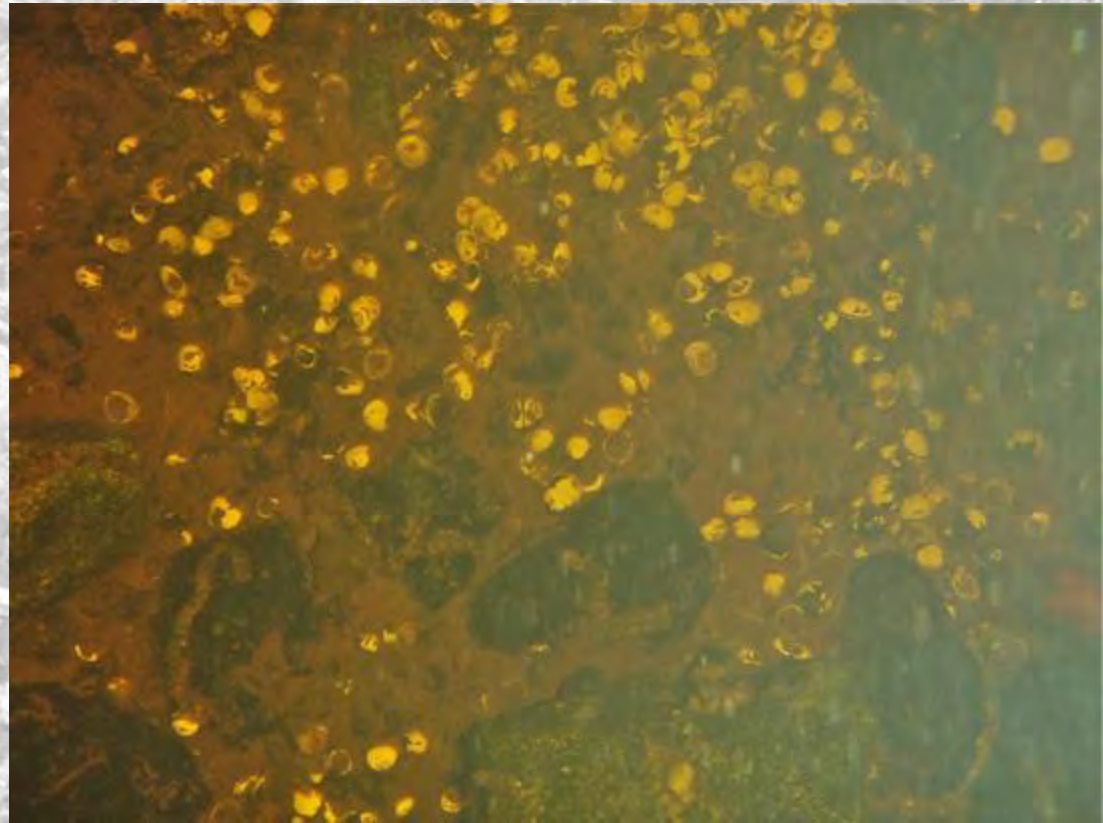
Threats to the Charophytes



Phytoplankton blooms



Peat and sediment deposition



Competition from *Potamogeton* and other vascular plants

Abandoned Pier at Lough



Potamogeton alpinus in Lough Bridget

Future Research

- Distribution and habitat maps would allow more accurate descriptions of sub littoral vegetation.
- Many Irish taxa needs to be compared to European equivalents.
- Charophytes are excellent indicators of clean water, thus their distribution is of general interest
- They dominate highly calcareous lakes with good salmonid fisheries, their ecosystem role is consequently of great Irish interest.

Acknowledgements

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