

# British Native Aquatic and Waterside Plants

Plants growing at the edge of ponds, rivers and streams play a vital role in keeping these habitats healthy. Through their roots they help to maintain water balance and clarity, encouraging wildlife to flourish, and above the water they give shade. These plants provide shelter for breeding frogs, toads, and newts, and for insects with aquatic nymphs, such as dragonflies and damselflies. Fully grown nymphs need to climb stems and leaves of tall marginal plants in readiness to emerge as adults. Birds and mammals use plant cover too, on river banks and waterways, and marginal plants can also prevent the erosion of banks.

Many aquatic and waterside plants have flowers providing a rich source of nectar and pollen, attracting bees and other pollinating insects.

In gardens, ponds can be very beneficial by encouraging wildlife, in addition to having ornamental appeal. Planting at least some native species is desirable, because they support a greater diversity of animal species.

## Cross-pollination strategies

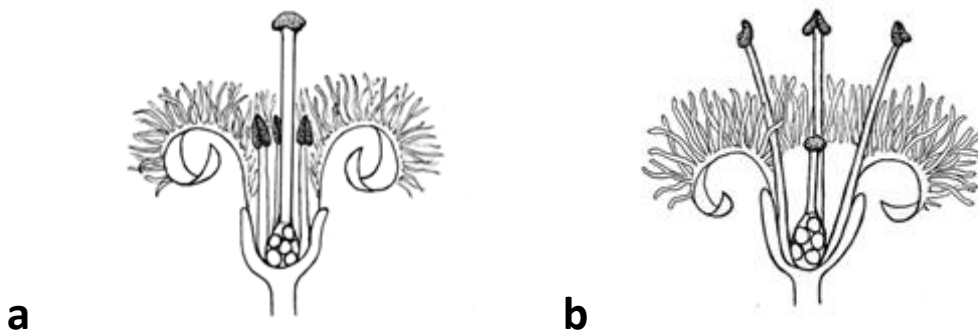
All the six plants illustrated here have cross-pollination strategies, of varying types, and all except *Sparganium erectum* are pollinated largely or exclusively by insects.

- ***Caltha palustris*** is self-incompatible (incapable of self-fertilization), which is probably regulated by several genes.
- The complex flower structure of ***Iris pseudacorus*** ensures that an insect comes in contact with the flower's pollen only after passing the stigma's pollen-receptive surface, thus the pollen cannot be deposited on a stigma until the insect visits another flower.
- ***Sagittaria sagittifolia*** and ***Sparganium erectum*** have male and female flowers on the same plant. The female flowers are situated lower on the stems, and tend to open before the male flowers, reducing the chances of self-pollination. In *Sparganium*, pollination is mainly by wind, although self-fertilisation may occur. Insects may visit male flowers of *Sparganium erectum*, but rarely female ones, and thus are not significant pollinators.
- The two other plants, ***Menyanthes trifoliata*** and ***Lythrum salicaria***, have an unusual strategy promoting cross-pollination: heterostyly.

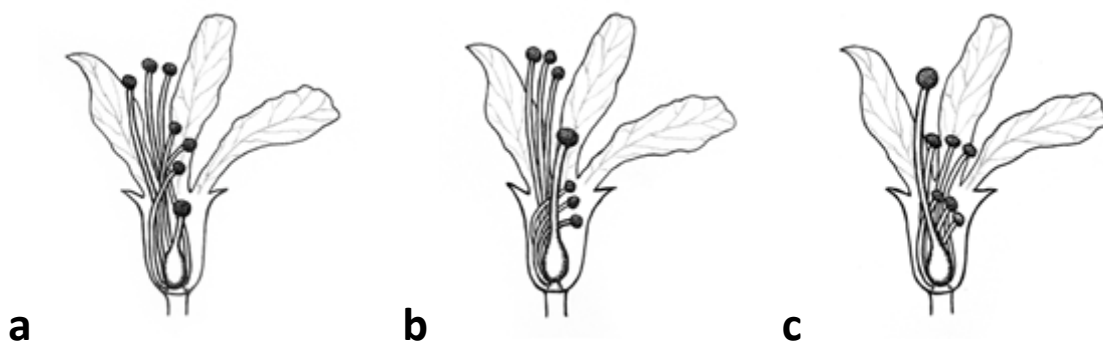
# Heterostyly

Heterostylous plants have flowers which differ in the lengths of the pistil's style relative to the stamens. On each individual plant, all flowers are the same type, and are primarily pollinated by a different type (on another plant).

- ***Menyanthes trifoliata*** has two different flower morphs: **a)** pin (long style with shorter stamens) and **b)** thrum (short style with longer stamens), each on separate plants.



- ***Lythrum salicaria*** has three different flower morphs, with the stamens and style of different lengths: **a)** short style, **b)** medium style, and **c)** long style.



## About the Artist/ Linda Pitkin

My lifelong passion for the living world has been explored through both art and science. I had a long career in insect taxonomy at the Natural History Museum, London (where I met my husband Brian), while also achieving success as an underwater wildlife photographer, before extending my interests to botany.

I took up botanical illustration in 2007, joining an informal course run by Leigh Ann Gale, and later became a Fellow of Hampton Court Palace Florilegium Society.

I am a member of Surrey Botanical Society, and as I have an affinity for water, waterside plants have a special appeal for me. I chose to illustrate British native species because of their particular value to the environment, as they have evolved to live in a healthy natural balance with other wildlife since the last Ice Age.

I started preparing for this set of paintings with research and sketchbook studies in 2015, continuing this as I painted them from 2016 to 2019. I sought out wild plants and returned to inspect them in their different stages, sometimes in subsequent years; where possible taking samples of specimens (with permission, see 'Acknowledgements'). We have some native species in and around our small wildlife garden pond, and I bought plants from suppliers to ensure I had enough material on hand to work from. I found it helpful to take many reference photographs to get an idea of the variability of the plants.

I work slowly at drawing and painting plants, but that allows me to get to know my subjects in depth and detail, as I delight in their diversity of structure, and the challenges of depicting them. The paintings are watercolour on Fabriano Artistico Extra White paper, and my style favours dry brush work for fine details.

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Scientific and common names used here follow the Botanical Society of Britain and Ireland's short list of accepted plant names, and *New Flora of the British Isles* (4th Edition), by Stace, 2019.

## Acknowledgements

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Sarah Clifford, Countryside Project Officer, Downlands Partnership. Willy Pit Pond, Warlingham.

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