phenology fact sheet

WOODLAND TRUST

What is phenology?

Phenology is the study of the timing of natural, seasonal events, especially in relation to climate. It is recording when you saw your first bumblebee or first saw the hawthorn blossom. This can then be compared with other records.

The UK Phenology Network, run by the Woodland Trust and the Centre for Ecology and Hydrology is the largest of its kind in the world.

The Woodland Trust believes that climate change is the biggest single threat to what little remains of our ancient woodland heritage. Ancient woods are sites that have been woodland for centuries if not millennia, and as a result contain many special and rare plants and animals. They exist as small fragments, rather like islands often surrounded by intensively farmed land. As the climate warms species will need to move north to find the climate space that suits them. The hostile landscape around the woods, and the nature of many of the plants and animals (e.g. flightless beetles, or very slow growing plants) will make this movement very difficult.

Phenology offers real evidence that climate change is happening now and that it is already having a significant effect on our wildlife. Phenology can also have a direct link to our own lifestyles by providing indicators of change in the fields of human health (e.g. hay fever), agriculture, horticulture and forestry.

Phenology findings

Over the past 30 years phenology has provided scientists with clear evidence that spring is arriving earlier.

Trees have been coming into leaf sooner. Migrant birds are arriving earlier with swallows now a week ahead of their dates in 1970. Frog spawn is being spotted well before Christmas in the south-west, while comma and holly blue butterflies have been sighted as early as March. Some typical spring flowers are increasingly being seen coming into bloom in November and December and birds and insects that used to migrate or hibernate for the winter are changing their behaviour. Chiffchaffs and blackcaps and even red admiral butterflies are increasingly staying with us for the winter, and recent reports suggest some bees are no longer hibernating.

Does it matter if spring gets earlier?

Yes! In nature, plants and animals are interdependent, with delicately balanced timings that can easily be upset. Many birds rely on insects to feed their chicks and time their egg laying accordingly, for example. Our results are showing that different species are responding at different rates. Insects fastest of all, then plants, then birds. What happens if insect availability peaks before the chicks hatch.

Some trees are responding faster to warmer temperatures than others, coming in to leaf sooner and are gaining an advantage by extending their growing season. Could this change the composition of our woods?

Some creatures, like frogs, make just one breeding attempt in a year. A mild winter may trigger early spawning which may then be wiped out if ponds freeze. What impact will this have on their life-cycles and populations?

Changes in the seasons don't only affect plants and wildlife. They can also affect us. In response to global warming many flowers (including tree and grass flowers) are flowering earlier and the beginning of the pollen season can alter by up to a month in grasses, depending on early spring temperature. Pollen production is itself increased in warmer years spelling misery for hay fever sufferers.

UK Phenology Network
www.phenology.org.uk

Woodland Trust
www.woodland-trust.org.uk

Centre for Ecology & Hydrology
www.ceh.ac.uk