

The Value of Different Tree Species for Invertebrates and Lichens

The table below shows the number of insects and epiphytic (growing on plants) [lichens](#) which have been recorded in association with common trees and shrubs in Britain. The figures in brackets include mite species as well as insects.

Tree or Shrub	Associated Insect Species	Associated Lichen Species
Oak (<u>pedunculate</u> & <u>sessile</u>)	284 (423)	324
Willow species	266 (450)	160
Birch (<u>silver</u> & <u>downy</u>)	229 (334)	126
Hawthorn	149	no data
<u>Blackthorn</u>	109	no data
Poplar species (including aspen)	97	no data
<u>Crab Apple</u>	93	no data
Scots Pine	91	132
<u>Alder</u>	90	105
Elm	82	187
<u>Hazel</u>	73	160
Beech	64 (98)	206
<u>Ash</u>	41	255
Spruce*	37	no data
Lime	31	83
Hornbeam	28	44
<u>Rowan</u>	28	125
Field Maple	26 (51)	93
Juniper	20	no data
Larch*	17	no data
Fir*	16	no data
Sycamore*	15	183
<u>Holly</u>	7 (10)	96
Sweet Chestnut*	5	no data
<u>Horse Chestnut*</u>	4	no data
Yew	4	no data
Walnut*	4	no data
Holm Oak*	2	no data
Plane*	1	no data
Rhododendron*	0	no data

* Introduced Species

Important Notes:

The table above is a useful tool, although it does not begin to provide the whole picture of the value of different tree species for wildlife. It should by no means be assumed that because the table shows relatively few animal/lichen species associated with a particular tree species, that this species is therefore of little value for wildlife.

The table should be read with the following cautionary points in mind:

- No one individual tree of a particular species will harbour all the species of insects/mites/lichens known to be associated with that tree species. Indeed, no single woodland is likely to contain all of the species associated with its constituent tree species.
- Trees of the same species in different geographical areas of Britain will have different sets of associated fauna and lichens. Climatic and geographical variations, as well as the mobility of the associated species concerned will all influence which insect/mite/lichen species can colonize individual trees and survive in a particular area.
- **Species diversity is not the same as biomass.** A tree species may have relatively few insect species associated with it, but if the insects which are associated with it occur in huge numbers (e.g. aphids) then that tree may harbour an enormously important source of food for other animals. A tree's value for wildlife does not therefore necessarily equate to the number of species directly associated with it.
- Much of the table above is derived from a paper by Southwood (1961). The data from this immensely useful paper is based upon tree foliage eaters. However, trees obviously provide a range of resources for species other than those simply eating their foliage. Southwood also concentrated on species specifically linked to particular tree species and deliberately omitted those species feeding on a wide range of host tree species
- (This point is related to the above.) The value of individual trees for wildlife depends upon the age of the tree. Different species may be associated with an individual tree at different stages of its lifecycle. For example, insects associated with flowers and fruits, will only be able to benefit from a particular tree once it has grown sufficiently and is mature enough to flower. Older trees also have a much greater variety of microhabitats available for colonization. (More [here](#).)

The table above listing the value of trees for insects and lichens is derived from a variety of sources including the Forestry Commission and BTCV.

The original source references for the number of species are:

Insects

Southwood, T.R.E. (1961) The numbers of species of insect associated with various trees. *J. Animal Ecology* 30: 1-8

Lichens

Rose F. and Harding, P.T. (1978) Pasture and woodlands in Lowland Britain and their importance for the conservation of the epiphytes and invertebrates associated with old trees. Nature Conservancy Council & The Institute of Terrestrial Ecology.

Further Notes

Southwood's original paper was updated by:

Kennedy, C.E.J. and Southwood, T.R.E. (1984) The number of species of insects associated with British trees: a re-analysis. *J. Animal Ecology* 53: 455 -478

The subject has also recently been revisited by:

Alexander, A., Butler, J. and Green, T. (2006) *British Wildlife* 18(1): 18 - 28.

This is an extremely useful paper which gives a broad view of the value of trees for wildlife. It takes into account a wide range of other species associated with trees including mycorrhizal communities; soil organisms; dead wood decay communities; epiphytes; as well as flower and fruit feeders. It

should be a 'must read' for anyone interested in or working with the topic.