

Golden hoverfly

A rare British fly

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Conservation of the golden hoverfly

Many rare insects could be helped by relatively small changes in management to the countryside. By focusing on a few 'flagship' species to highlight particular issues, many others can benefit. With this in mind, the golden hoverfly has been selected in the Government's Biodiversity Action Plan to help conserve the wildlife that depends on tree-holes.

The golden hoverfly *Callicera spinolae* looks very similar to the common wasp, except as its name implies, it is coated in golden downy hairs. It can be distinguished easily from wasps by the antennae, which are long and black with white tips. Also, as with all true flies, it has only one pair of wings where wasps have two pairs.



A spectacular tree-hole in beech. R S Key.

An endangered species

In Britain, the golden hoverfly is an endangered species found only in East Anglia. It is rare throughout its range in Europe where it is considered to be an indicator of forests of international importance.

Recent surveys have confirmed its endangered status. In East Anglia it is known definitely from three sites, but it probably flies between sites quite readily and may be present in other places as well. Since the 1920s it appears to have migrated westwards across East Anglia. This may be continuing today as suggested by a 1999 record from Cambridgeshire, the most westerly record yet. In the east, it appears to remain at only one of its former sites.

The life of the golden hoverfly

The golden hoverfly is essentially a woodland species, found in woods of varying size and composition. It has not, however, been found in coniferous woodland. Adult golden hoverflies are unusual among "dead wood" hoverflies in having a flight period in early autumn, where most other species fly during the spring. Adults are most easily seen feeding on ivy flowers, one



The golden hoverfly *Callicera spinolae*.
D E Wilson.

of the few nectar sources available at this time of year. Ivy growing over walls, on trees and in hedgerows is suitable, especially when close to woodland. Wasps and hornets also feed on ivy in September, and it is sometimes difficult to distinguish the golden hoverfly among them without getting close enough to see the characteristic antennae and golden hairs.

The golden hoverfly breeds in holes of living, standing broad-leaved trees, such as ash, field maple and beech. Tree-holes form when a branch falls off a tree and the wood becomes softened by fungal attack. The softened wood rots away, leaving a hole. Water often collects in these holes, and micro-organisms, such as bacteria and yeasts, start a process of decay. Tree-holes of this kind are a natural part of the woodland ecosystem and are an important feature, not only for the golden hoverfly, but also for a wide range of wildlife. The grub, or larva, of the golden

hoverfly feeds on the micro-organisms in these holes. It has a complex set of mouthparts, which includes a series of filters to extract bacteria from the water. It also has a pair of black horn-like hooks, which it uses to push its way through the decaying wood.

The larva takes two or more years to develop. At any one time, most of the population exists as larvae in tree-holes. Each September only a small proportion of the larvae develop into adults. When ready to pupate, the larvae tend to move to drier parts of the tree-hole, particularly near cracks or places where the bark is loose and adults can readily escape without getting wet. Individual tree-holes often remain suitable for the larva of the golden hoverfly for several years, as long as the conditions remain wet. They are used again and again by succeeding generations. Tree-holes like this are extremely valuable, and it is important to protect them.

Q. What has caused the decline of the golden hoverfly?

A. Loss of woodland

Over the past few thousand years, natural broad-leaved woodland cover has been reduced over much of East Anglia, as it has over much of Europe. This loss of habitat has most likely caused the golden hoverfly to become very rare. The continuing fragmentation of remaining woodland reduces the opportunity for the golden hoverfly to disperse into other woods successfully.

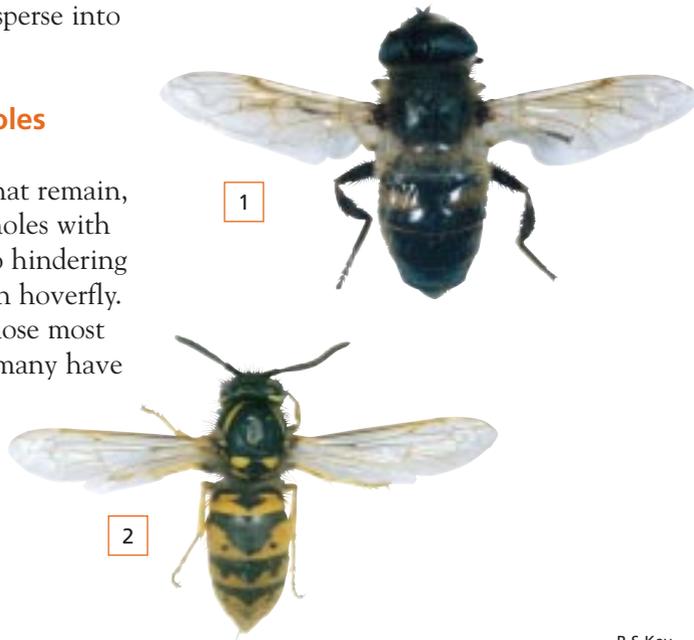
A. Loss of wet tree-holes

Even within the woods that remain, the lack of suitable tree-holes with wet decaying wood is also hindering the recovery of the golden hoverfly. Large, mature trees are those most likely to have holes, but many have been cut down and they have become scarce. The forestry practice of planting saplings close together means that there are few low branches that subsequently die and fall off. This is of course what is desirable if good

timber is to be produced, but such trees have little scope to develop tree-holes. Also, trees with holes tend to be considered as diseased and they are often cut down, further reducing the number of suitable breeding sites. Not all tree-holes are suitable for breeding - many are too dry. In larger woods (over five hectares), one would expect a sufficient number of tree-holes for at least a few to be wet. In fragmented woods today, this is not always the case.



Flowering Ivy - R 5 Key



R 5 Key.

Other hoverflies, like this drone fly(1), and common wasp(2)s also feed on ivy blossom. The wasp may be distinguished by its long, thick antennae and clearly yellow-marked body, and the drone fly by its tiny antennae and bee-like appearance.

What can you do to help the golden hoverfly?

- ◆ Protect existing broad-leaved woods.
- ◆ Encourage sympathetic treatment of trees with tree-holes.
- ◆ Protect ivy growing on trees, in hedgerows and over walls. Ivy only produces flowers when the plant grows vertically.
- ◆ Expand broad-leaved woods to include species like ash and beech.
- ◆ Keep old large trees and trees with holes. Tree-holes should be recognised as important habitats for wildlife in themselves, and trees with holes and old large trees, which tend to have more

holes than younger trees, should be individually protected. Allow some trees to grow sufficiently far apart to encourage them to develop with a less regular shape with low branches. Such trees are more likely to develop tree-holes.

The wildlife of tree-holes

Tree-holes are not just important for the golden hoverfly - many other rare invertebrates depend on them. Rich and varied communities can be found in them. Tree-holes can last for many years and will be used repeatedly year after year. Conserving the golden hoverfly will help to protect these species too.