



# Beneficial predators

The Game & Wildlife Conservation Trust has researched ways of helping farmers to control insect pests naturally without spraying crops with insecticides. By providing the right habitat we have found that it encourages the natural enemies of these pests, known as 'beneficial predators'.

Two of the most effective ways to encourage beneficial predators are to provide over-wintering sites and a source of

pollen and nectar in summer. Tussocky grasses are ideal over-wintering sites and can be sown along field margins or used to divide large fields in the form of beetle banks. To ensure the pollen and nectar is available to all predatory and parasitic insects it is best to sow flowers with an open structure, such as yarrow and plants from the carrot family.



(Above) Seven spot ladybird (© Peter Thompson)

(Below) Lacewing larvae (© www.naturecontrol.com)

There are several species of ladybirds. The seven-spot (see left) is common, as is the smaller two-spot, and the yellow 14-spot, and although known mostly as aphid predators they also feed upon other insect pests. Adult ladybirds lay their eggs near to aphids because the larvae, and the adults, are voracious aphid predators. One larva can eat 300 aphids while the adult can eat up to 5,000 aphids in its lifetime. The new generation of adults hibernate during the winter and value over-wintering habitat such as mature hedgerows, where they can be found huddled together in cracks and crevices in wood or in evergreen shrubs.



(Above) Seven-spot larvae (© Keith Edkins)

(Below) Adult hoverfly (© Peter Thompson)

Lacewing larvae are also voracious aphid predators. They can be recognised by their long curved mandibles which are used to pierce and hold the aphid while it is sucked dry. Like the ladybird, adult lacewings need sheltered habitats during hibernation.



Hoverfly larvae are another aphid specialist with each larva consuming almost 400 aphids before they pupate. The adult hoverflies need pollen and nectar; so planting flower mixes adjacent to crops is helpful, as are conservation headlands and flower rich hedge-bottoms.





Adult ground beetles and their larvae are active predators of many insect pests, and some also eat slugs and snails. They over-winter either as adults in tussocky grasses or as larvae in the soil. Reducing soil cultivations helps to preserve the larvae.

(© Roy Anderson)

Many rove beetle adults and larvae are predators of other insects, while some species are fungal feeders. Many species are good climbers and can control pests on the crop. Some species hibernate as adults in field margins while others over-winter in the soil as larvae.

(© Claus Weisenboehler)



### Predatory flies

There are several species of flies which actively hunt other insects. Their prey includes many pest species, including aphids, which they either catch on plants or in the air. The larvae develop over winter in wood, decomposing vegetation, or the soil, so value hedge-bottoms and woodland edges.



### Predatory bugs

Most bugs eat plants, but there are a few that will also hunt aphids and other small fry. The adults over-winter under bark and in leaf litter, so prefer undisturbed areas.

(© Tristan Bantock)



These brightly coloured soldier beetles, some are blue as well as orange, are predators of aphids and many other insects. The adults hibernate in field margins and other suitable habitat.

(© J. Ellison-Brooks)



Money spiders are able to travel across fields carried by the wind on a silk thread. Some species spin fine sheet webs trapping many small insects while others hunt for their prey. Many other spiders are important predators, including the large wolf spiders.

(© Felix Kossak)



Parasitic wasps control pests by laying one or more eggs inside or on the skin of the victim. The larvae hatch and eat the pest. Large wasps parasitise caterpillars and sawfly larvae, and many minute wasps parasitise aphids or insect eggs. Adults feed on nectar.

(© Jeremy Lee)



## Contact

The Game & Wildlife Conservation Trust is a research charity and for over 75 years our scientists have been researching why species like the grey partridge, water vole, corn bunting and black grouse have declined. We are continually developing practical measures to reverse these declines. Our aim is simple - a thriving countryside rich in game and other wildlife.

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