

GREAT WHITE CABBAGE BUTTERFLY

The threat: The butterfly is regarded overseas as a serious pest of brassica crops in several countries including Europe, Britain and India. Brassica crops include: cabbage, cauliflower, broccoli, rape, swedes and turnips.

What is the great white cabbage butterfly?

The great white cabbage butterfly (*Pieris brassicae*) is a new to New Zealand organism that is an unwanted pest in New Zealand. One of its common names is the “great white cabbage butterfly”, because it is a distinctive large white butterfly which is often found on cabbages.

The butterfly is regarded overseas as a serious pest of brassica crops in several countries including Europe, Britain and India. Brassica crops include: cabbage, cauliflower, broccoli, rape, swedes and turnips.

Pieris brassicae will feed on a range of host plants in the plant families Brassicaceae, Capparaceae and Tropaeolaceae. These host plants are readily found in New Zealand, within home gardens, commercial gardens and as weeds such as nasturtium, wild radish, wall flowers and Alyssum.

International reports from areas affected by the pest report 40-68 percent of the cabbage crop being affected. This suggests a high level of damage is possible; however the level of damage is difficult to predict for a new species in a country and will depend on population build up, host availability, competitors and natural enemies. Furthermore, integrated crop management practices established for other pests may be impacted by the introduction of a new pest such as the great white butterfly.

There could be domestic production issues. Brassicas are not a major export crop but are grown widely for domestic consumption and as fodder crops for livestock. It is uncertain what the impact will be on these industries.



Great white cabbage butterfly

Photos: Pete Eeles



Small white butterfly

How invasive is *Pieris brassicae*?

The species is well established in a range of climates, including temperate climates.

Widespread in Great Britain and Europe, the butterfly has been found as far away as countries in Asia, Africa and South America. Biologically New Zealand seems to provide a highly suitable habitat for *P. brassicae* and it would be reasonable to expect that the species could establish and spread in New Zealand.

In Europe the great white cabbage butterfly migrate from Scandinavia or France to England. Given time *Pieris brassicae* could spread to most parts of New Zealand providing suitable host material is available. Natural enemies of this pest already exist in New Zealand, as do controls for the closely related small white butterfly, *Pieris rapae* and these may help combat establishment or slow the spread of the butterfly.

FOR MORE INFORMATION VISIT: WWW.BIOSECURITY.GOVT.NZ

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Where would I find it?

In the pupa (chrysalis) stage the insect can go into diapause over winter and delay emerging as an adult until light and temperature conditions are favourable. Should the pupa hatch in New Zealand there is a high probability of the adult butterfly finding a suitable host plant. The butterflies are capable fliers and are thought to fly considerable distances to migrate.

With the onset of winter, it is likely all caterpillars will have changed into pupa; these will likely be located close to host plants on vertical structures such as fences, poles and buildings. It is unlikely *Pieris brassicae* caterpillars or butterflies will be sighted until September or October when spring arrives in the district.

In Europe great white cabbage butterflies do not live in identifiable, permanent colonies, but breed wherever suitable conditions are encountered. Because of their migratory nature, this species can be found almost anywhere; however, it does show a preference for cultivated areas, where species of brassica are grown, and urban gardens.

What does the great white cabbage butterfly look like?

Adult butterflies: Wingspan 55–70mm. Upperside of wings are pure white. Forewing has a black tip, and in females two black dots and a black smear. The underside of the wings is pale yellow, dusted with grey. Very similar to the common small white butterfly but not surprisingly, larger.



Pieris brassicae male butterfly

Photos: James Lindsey



Pieris brassicae pupa

Caterpillars: Newly emerged caterpillars are yellow with shiny black heads. After the first moult the colour changes to yellowish-green with yellow lines running the length of the body. Fully grown caterpillars are 45mm long, olive green with

a yellow line along the top of the body. Distinguishing features of the mature caterpillar are that the body is covered in splotchy black dots and patches with short black hair over the whole body. The head is bluish-grey with black patches.

Chrysalises: Length 20mm. Pale green (non-diapausing) or greyish-white (diapausing i.e. overwintering), distinguished in that it is dotted with black and yellow markings. The surface of the chrysalis is shaped by ridges and blunt spikes.

It is attached to the substrate by a silken girdle and pad.



Pieris brassicae caterpillar

What looks similar to it?



Pieris rapae (small white butterfly) caterpillar, showing clearly its uniform green colour, unlike the caterpillars of the great white cabbage butterfly.

Caterpillars of the two species, *Pieris brassicae* (great white butterfly) and *Pieris rapae* (small white butterfly) are quite distinctive as the caterpillar for the small white butterfly is uniform velvety green colour with a faint yellow line along the top of its body, and about 30mm when fully grown. In addition, great white cabbage butterfly caterpillar often feed in groups, while those of the small white butterfly tend to be solitary.

Caterpillars of the great white cabbage butterfly are unlikely to be confused with any other caterpillars found feeding on brassicas or nasturtiums in New Zealand due to their distinctive colouring and size.

The adult great white cabbage butterflies look very similar to the small white butterfly which is very common throughout New Zealand. Female small white butterflies have 2 black wing spots, and males one. Although the great white cabbage butterfly is slightly larger than the

small white butterfly the layman is unlikely to be able to distinguish between them.

IF YOU BELIEVE YOU HAVE SEEN ANY GREAT WHITE CATERPILLARS OR PUPA IN YOUR AREA PLEASE ADVISE MAF BIOSECURITY NEW ZEALAND ON 0800 80 99 66.

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