
INSECTS AND OTHERS

CABBAGE WHITE — AN IMPORTANT IMPORT

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What do Cabbage Whites and House Sparrows have in common? Both are Old World introductions to North America — the butterfly arriving by accident at Quebec City in 1860, a decade after the sparrow had been deliberately released in Brooklyn, New York. Since then, without the help of travel guides, both have found their way to the west coast, the Northwest Territories and Mexico. Actually, the white is more widespread than the sparrow because it occupies a greater variety of habitats within this range. It may just be the most successful butterfly in North America, regularly showing up on more annual continent-wide counts than any other butterfly. Like Caesar, it came, it saw, it conquered.

Its scientific name is *Pieris rapae*. *Pieris* was a daughter of *Pierus*, a muse in ancient Greek mythology. *Rapae* is the Latin word for turnip. Obviously Linnaeus knew about this caterpillar's diet when he named it way back in 1758.

The European Cabbage Butterfly, one of its other names, already had a hefty range — Great Britain to Japan and northern Africa — before people started exporting it. "We" have now bestowed it on Hawaii, Bermuda, Australia, New Zealand and Iceland. Wherever it is found, its caterpillars have become a serious economic problem for cultivated plants of the mustard family — mustards, cabbage, cauliflower, brussels

sprouts, broccoli and radishes. They also nibble on nasturtiums. Their wild-plant menu includes wild mustard, alfalfa, winter cress and peppergrass. It appears that this alien animal has prospered largely on alien plants — wild and cultivated — rather than on native plants.

Its wingspread is 35-50 mm (1.5-2 in.); its usual plumage, white with black tips on the upper forewings and a black dot on each hind wing. The sexes can be told apart by the number of dark spots on the forewing — one for him and two for her — easily visible when they perch with their wings open. Individuals produced during the short days of early spring and fall look different: they are about 10% smaller and the amount of black is further reduced. In the prairie provinces, where it has two or three broods, it may be seen from early April to mid-November, but is most common in July and August when, in years like 1994, it probably outnumbered all six native whites combined.

To find the correct plants for her progeny, the female uses mainly taste, but also sight and smell (through the antennae) to find plants with mustard oils and related compounds. She may lay one yellow-green egg on the underside of a leaf on a small plant or a cluster on larger plants, presumably depending on her appraisal of the plant's ability to support a family. During her week of life,



Cabbage White variations, images 1-5. This plate appeared in colour in a butterfly field guide published 93 years ago — How to Know the Butterflies by J.H. and A.B. Comstock, Appleton, NY. Figures 1 and 2 are male and female of the summer form; 3 is a female from the spring brood; 4 is the spotless form, and 5 shows the underside of the wings. Images 6-9 are Mustard Whites (Pieris napi), also found in the prairie provinces.

she may lay a few hundred eggs of which, on average (luckily), only two develop far enough to produce more eggs.

In about seven days the caterpillar — the Cabbage Worm — emerges and begins munching its way to maturity by eating its eggshell. The bluish-green larva is covered with a short pile and has yellow lines the

length of its body, with many symmetrical dark spots. In order to grow from 3 mm (0.1 in.) to its full 20 mm (0.8 in.) in a three-week period, it has to moult its skin four times.

The last moult is quite different from the others. Instead of a larger caterpillar emerging, a pupa (chrysalis) breaks out. In preparation for this, the larva weaves a pad of silk to use

as a bed and attaches a particularly strong strand around its body to hold itself in place on a fence, tree trunk or wall. (Coloured photos of larva and pupa appear in both the Audubon and eastern Peterson butterfly guides.)

If the chrysalis is part of a spring or early summer generation, it will release its butterfly in two-three weeks. If it is part of the last brood of the year, it will remain a pupa all winter and produce an adult some eight months later. It may take the new butterfly an hour to pump "blood" through its wings, stretching them to their full length. Then it may have to wait in this vulnerable position up to two hours before the wings are dry and it can fly.

The adult does not grow. Most of the male's time is spent looking for females and most of the female's time is spent feeding and looking for places to lay eggs. The suitor is often rejected by several females before a successful courtship. The pair copulates by joining the ends of their bodies and the bridegroom then demonstrates his muscle by taking his mate on brief nuptial flights.

Butterflies do not fly unless they feel right, i.e., until their bodies are warm enough, but not too warm. In summer this means that most will fly when temperatures are between 16° and 38°C (61°-100° F). Below and above this range, they huddle or relax deep in the grass. However, in the short days of spring and fall near the extremes of their flight period, many will fly when it is cooler by five or more degrees C (9° F).

In spite of all their flying, these butterflies seldom wander more than 400 m (¼ mi.) from where they emerge, although individuals have been known to fly up to 12 km (7 mi.). Males may remain in a small area for several days, roosting in the same bush on consecutive nights. These whites usually patrol within a metre (yard) of the ground and tend to move in a single direction one day and another the next.

The main reason that adults feed is to fuel their many hours of flying. They sup on the nectar of mustards, dandelion, aster, mints, wild bergamot, dogbane, red clover, cinquefoil and many other flowers. If you watch a Cabbage White, you may notice that it tends to visit the same type of flower for some time — supposedly because it learns and becomes proficient at getting nectar from that kind of plant. When it runs out of that species, it will switch to another and learn all over again.

Death attends all stages of the life cycle in the form of cold weather, rain, diseases, birds, spiders, dragonflies and other insects. While the caterpillar may be distasteful to birds because of the mustard oils it eats, it has other important enemies — small wasps which lay eggs in it. When the eggs hatch, the wasp larvae live off the caterpillar, killing it. Adults that escaped from birds can be found with beak marks on the edges of their wings.

And, finally: the Cabbage White weighs about 65 milligrams — 435 to the ounce!

