UF IFAS Extension UNIVERSITY of FLORIDA

EENY-436

# Southern Cabbageworm (larva), Checkered White (adult) *Pontia (=Pieris) protodice* (Boisduval & Leconte) (Insecta: Lepidoptera: Pieridae: Pierinae)[1]

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*The Featured Creatures collection provides in-depth profiles of insects, nematodes, arachnids, and other organisms relevant to Florida. These profiles are intended for the use of interested laypersons with some knowledge of biology as well as academic audiences.*

## Introduction

*Pontia protodice* (Boisduval & Leconte), formerly *Pieris protodice* Boisduval, is a common pierid butterfly throughout much of the United States that may be locally abundant. The larva occasionally found on crop plants in the family Brassicaceae is known as the southern cabbageworm. This is the accepted name for this species in the Entomological Society of America's Common Names of Insects Database, and is the name most often found in books on economic entomology (Capinera 2001, Cranshaw 2004, Metcalf and Metcalf 1993).

However, the species is known uniformly in butterfly books by the common name of the adult—the checkered white (Allen 1997, Brock and Kaufman 2003, Cech and Tudor 2005, Daniels 2003, Glassberg et al. 2000, Minno et al. 2005, Opler and Krizek 1984, Scott 1986, Wagner 2005). This is also the common name used in the North American Butterfly Association's Checklist of **North American Butterflies Occurring North of Mexico**. Therefore, the name checkered white is used in this publication.

## Distribution

The checkered white is resident in most of the southern US, but also colonizes northern states and occasionally parts of southern Canada. It is most common in disturbed areas where its favored host plants occur. Wagner (*2005*) states that while the checkered white was once abundant, its populations have plunged along the eastern seaboard from New England to the Carolinas, and it is now local or rare in these areas. He raised the question of whether its decline in these areas may be due to *Cotesia glomerata* (Hymenoptera: Braconidae) or other introduced biological control agents. It is still common along roadsides and in other disturbed areas of central Florida.

## Description

### Adults

The wing spread of adults is 1.25 to 2.00 inches (Daniels 2003). Males are white with charcoal markings on the front wings. Females are grayish-white with darker gray or charcoal checkered markings on both front and hind wings. Early spring and late fall (cool season) adults tend to be smaller, darker, and more heavily patterned (Daniels 2003).

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Figure 1. Adult male checkered white butterfly, *Pontia protodice* (Boisduval & Leconte).
Credits: J. F. Butler, UF/IFAS


Figure 2. Adult female checkered white butterfly, *Pontia protodice* (Boisduval & Leconte).
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## Eggs

Eggs are yellowish when first laid but later change to orange. They are barrel-shaped, tapered at the apex and have longitudinal ridges.

## Larvae

Full grown larvae are approximately 1.1" in length. The head is gray with yellow patches; the body is gray with yellow stripes, rows of small black spots and numerous short hairs (Minno et al 2005).

## Pupae

The pupae are bluish-gray with mid-dorsal and lateral white stripes and small black dots on the ventral half of the body. The pupae are attached by a cremaster and a silk girdle.


Figure 3. Egg of the checkered white butterfly, *Pontia protodice* (Boisduval & Leconte).
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Figure 4. Larva of the checkered white butterfly, *Pontia protodice* (Boisduval & Leconte).
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Figure 5. Pupa of the checkered white butterfly, *Pontia protodice* (Boisduval & Leconte).
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## Life Cycle and Biology

Adult checkered whites take nectar from a variety of flowers. Tooker et al. (2002) cited a study by C. Robertson in Illinois in which adult checkered whites were observed to feed on nectar from flowers of over 50 species of plants.

Although adults are sexually dimorphic in terms of dark pigmentation of the wings, both sexes recognize the opposite sex by differential UV reflectivity rather than by differences in the dark pigmentation (Rutowski 1981). When adult populations are dense, a female is typically mated during its first day of adult life and may mate more than once during its lifetime. Dense populations where there are numerous male/female interactions act as a signal for females to migrate to less densely populated areas (Shapiro 1970).

During mating, a male passes a spermatophore that represents about 7 to 8% of his body weight and requires about 24 hours to regenerate his potency while a female requires about five to seven days to deplete the contents of the spermatophore (Rutowski 1984). Males, because of their large investment, tend to select younger and larger females for mating (Rutowski 1982).

Females assess the egg load of host plants prior to oviposition. Eggs are often laid on the fruits of host plants but may also be laid on stems. Larvae prefer flowers or fruits but will also eat leaves of the host plants (Minno et al. 2005).

## Host

The hosts of checkered white larvae are herbs in the mustard family (Brassicaceae). Preferred hosts are Virginia pepperweed (*Lepidium virginicum L.*) in the Southeast and prairie pepperweed *(Lepidium densiflorum* Schrad.) in the North, but they also eat the exotic shepherd's purse (*Capsella bursa-pastoris* [L.] Medik.) (Miller and Miller 1970).


Figure 6. Virginia pepperweed, *Lepidium virginicum* L., a host of the checkered white butterfly, *Pontia protodice* (Boisduval & Leconte).
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## Economic Importance

Checkered white larvae are occasionally minor pests on cultivated members of the mustard family (Brassicaceae), including cabbage, broccoli (Kok and McAvoy 1989, Reid and Cuthbert 1971), and horseradish (Marsh 1913). On cabbage, the larvae eat only the outer leaves in contrast to larvae of the cabbage white butterfly (Imported Cabbageworm (ufl.edu)), *Pieris rapae* (Linnaeus) that bore into the heads (Scott 1986).

If required, control measures for checkered white larvae in Florida are listed in the Insect Management Guide for crucifers.

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