Red-Spotted Purple *Limenitis (=Basilarchia) arthemis astyanax* (Fabricius) (Insecta: Lepidoptera: Nymphalidae: Limenitidinae)¹

Donald W. Hall and Jerry F. Butler²

**Introduction**

The red-spotted purple, *Limenitis arthemis astyanax* (Fabricius), is a beautiful forest butterfly that is also commonly seen in wooded suburban areas. It is considered to be a Batesian mimic of the poisonous pipe vine swallowtail, *Battus philenor* (Linnaeus), with which it is sympatric. For detailed taxonomic information on the red-spotted purple, see Warren et al. (2009a).

The white admiral, *Limenitis arthemis arthemis* (Drury), is a more northern subspecies and is not mimetic. It is believed to benefit from its disruptive banded coloration for protection in the absence of a poisonous model (Platt and Brower 1968). For photos and detailed taxonomic information on the white admiral, see Warren et al. (2009b). The red-spotted purple interbreeds with the white admiral in the zone of overlap, and the hybrids are healthy and fertile (Scott 1986).


---

¹ This document is EENY447, one of a series of the Entomology and Nematology Department, UF/IFAS Extension. Original publication date May 2009. Revised March 2013 and March 2016. Visit the EDIS website at [http://edis.ifas.ufl.edu](http://edis.ifas.ufl.edu). This document is also available on the Featured Creatures website at [http://entnemdept.ifas.ufl.edu/creatures/](http://entnemdept.ifas.ufl.edu/creatures/).

² Donald W. Hall, professor; and Jerry F. Butler, professor, Entomology and Nematology Department; UF/IFAS Extension, Gainesville, FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county’s UF/IFAS Extension office.

U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension.
**Distribution**
The red-spotted purple is resident from Florida westward to eastern Texas and northward into Minnesota, Wisconsin, Michigan, New York, Vermont, and New Hampshire.

**Description**

**Adults**
The wing spread of adults is 3.0 to 3.5 inches (Daniels 2003). The upper surface of the front wings are black with thin marginal white dashes and submarginal, rows of oblong white and orange spots. The upper surfaces of the hind wings are black with iridescent blue patches and spots on the distal half. The undersides of the wings are brownish black with iridescent blue areas and with large orange basal spots, a row of bright orange spots, and two rows of curved iridescent blue dashes near the margins of the wings. The undersides of both wings have a row of curved marginal white dashes.

**Eggs**
The eggs are whitish to pale green when first laid but later change to gray (Minno et al. 2005, Scott 1986). The egg surface is sculptured with small hexagons with spikes arising from the corners of the hexagons.

**Larvae**
Full grown larvae are approximately 1.6 inches in length (Minno et al. 2005) The head is brown and fringed with short spines and has a cleft on top. The body is olive green to greenish brown with a pinkish white saddle and a white lateral line. There are a pair of long, thick, branched horns on top of the prothorax and a small pair of branched spines on top of the posterior end and several humps on the back. The larvae are bird-dropping mimics. They are very similar in appearance to viceroy larvae but are less spiny (Minno et al. 2005). Caterpillars of species in the genus *Limenitis* are our only horned bird dropping mimics (Wagner 2005).

**Pupae**
The pupae are brown and white (possibly bird-dropping mimics). They hang vertically attached by the terminal end to a small silk pad by a cremaster.
Life Cycle and Biology

There are two generations per year in Florida. Eggs are laid near the tips of leaves, and the young larva eats most of the leaf tip, except for the midrib, on which it rests. The larva attaches pieces of leaves and fecal pellets to the base of the exposed midrib with silk, presumably to protect itself from predators.

Third instar larvae overwinter in a small leaf shelter (hibernaculum) that is attached to the stem of the host plant with silk.

Adults prefer to feed on tree sap, fermenting fruit, or dung, but they do occasionally take nectar from flowers, and also frequently feed at mud or drink from mud puddles (Allen 1997; Glassberg et al. 2000; Opler and Krizek 1984; Scott 1986).

Preferred plant hosts for red-spotted purple larvae in Florida are black cherry (Prunus serotina Ehrh.) and deerberry (Vaccinium stamineum L.), occasionally willows—particularly Carolina willow (Salix caroliniana Michx.) and possibly species in the family Betulaceae. Plant names for Florida plants are from Wunderlin and Hansen (2008). In the Northern US, a variety of other plants are used including aspens, poplars, cottonwood, hawthorn, birches, black oak, and serviceberry (Allen 1997; Cech and Tudor 2005; Opler and Krizek 1984; Scott 1986).
Red-spotted purple Limenitis (=Basilarchia) arthemis astyanax (Fabricius) (Insecta: Lepidoptera: Nymphalidae: Limenitidinae)

Selected References


Figure 10. Deerberry, Vaccinium stamineum L., a host of the red-spotted purple, Limenitis arthemis.
Credits: Jerry Butler, University of Florida

Figure 11. Carolina willow, Salix caroliniana Michx., a host of the red-spotted purple, Limenitis arthemis.
Credits: Don Hall, University of Florida

Figure 12. Carolina willow, Salix caroliniana Michx., a host of the red-spotted purple, Limenitis arthemis.
Credits: Don Hall, University of Florida


