

Schaus Swallowtail Butterfly Assessment Guide

July 29, 2013

The U.S. Fish and Wildlife Service's (Service) FEMA Biological Opinion (BO) dated April 30, 2010, and modified on December 14, 2010, identified 4,312 at-risk parcels representing 1,414 acres, intersecting habitats that may be used by the endangered Schaus swallowtail butterfly (*Heraclides aristodemus ponceanus*) in Monroe County. Specifically, we noted that potential habitat is present in unincorporated Monroe County and in the Village of Islamorada. There are 411 parcels with potential habitat representing 247 acres, in North Key Largo; 2,846 parcels, representing 725 acres, in South Key Largo; and 1,055 parcels, representing 442 acres, in Islamorada. The BO also identified an additional 349 acres of at-risk lands outside of Monroe County's parcel layer not subject to the Rate of Growth Ordinance program.

The at-risk properties were determined by overlaying the County's property parcel layer onto the County's 2009 land cover boundary maps (Monroe County 2009). The County's land cover boundary maps included 13 land cover types. Developed land, undeveloped land, impervious surface, and exotic are considered non-native land cover types. Hammock, pineland, scrub mangrove, freshwater wetland, salt marsh, buttonwood, mangrove, and beach berm are considered native land cover types. The water classification is also considered a native cover type. The minimum mapping unit for land cover polygons was 0.35 acre for hammock and 0.5 acre for all other cover types.

The County's boundary map land cover types containing suitable habitat for the Schaus swallowtail butterfly include undeveloped land, hammock, and beach berm. Undeveloped land and beach berm cover types were included as these mapping units could also include small inclusions of tropical hardwood hammock.

Species Profile: The Schaus swallowtail butterfly is a large blackish-brown swallowtail butterfly with contrasting markings that are mostly dull yellow (Klots 1951, Pyle 1981, Opler and Krizek 1984). This subspecies is most easily confused with the giant swallowtail (*Papilio cresphontes*), which is widespread in eastern North America and occurs in habitat occupied by the Schaus swallowtail butterfly. Although 30 different wild plant species may be exploited as a nectaring food source (Emmel 1988, 1995a), only torchwood (*Amyris elemifera*) and wild lime (*Zanthoxylum fagara*) are known to be used by larvae for development. Nectaring activity usually occurs on blossoms of wild coffee (*Psychotria nervosa*), guava (*Psidium guajava*), or cheese shrub (*Morinda royoc*), also known as yellowroot. Adults may fly in clearings and along roads and trails, or even out over the ocean for short distances (Rutkowski 1971, Brown 1973), but typically remain in the hammocks proper and rarely feed in areas open to direct sunlight (Service 1982, Rutkowski 1971).

Suitable habitat for the Schaus swallowtail butterfly is tropical hardwood hammock in the northern Keys (north Key Largo through Upper Matecumbe Key). Within this area, the Schaus swallowtail appears to be restricted to northern Key Largo, as well as a few islands within Biscayne National Park. However, potential suitable habitat within the subspecies' historic range extends southward to the Matecumbe Keys in Islamorada. Schaus swallowtail butterflies have rarely been reported south of northern Key Largo in recent years, but occurrence has not

been assessed on a frequent or widespread basis (Service 2008). The amount of suitable habitat undoubtedly fluctuates depending on hurricanes, wildfires, and subsequent vegetation succession, but the primary upland habitat is hardwood hammocks.

Threats: Contiguous tracts of hammock remain on South Key Largo and portions of Upper Matecumbe Key, but no longer appear to support the Schaus swallowtail butterfly (Salvato, personal communication, 2006). However, the Service considers these habitats potentially suitable for this subspecies. The reasons these lands likely no longer support the subspecies are not known. A wide array of factors may be contributing to their absence including use of mosquito control pesticides (Service 2008). Prior to human influences, populations of this butterfly were probably subject to naturally occurring population depressions caused by hurricane damage, drought, and rare freezes (Covell 1976).

Assessment Guide: In order to provide assistance in assessing threats to the Schaus swallowtail butterfly, the Service has developed the following guidance and recommendations that, if implemented, will minimize adverse effects to the Schaus swallowtail butterfly. If the use of this guide results in a determination of “no effect” for a particular project, the Service supports this determination. If the use of this guide results in a determination of “not likely to adversely affect” (NLAA) for the Schaus swallowtail butterfly, the Service concurs with this determination and no additional correspondence is necessary. If the use of this guide results in a “may affect” determination, then additional coordination with the Service is necessary prior to permit issuance. For projects that result in a “*may affect*” determination, if, after reviewing the specific project and assessing its potential effects to federally listed species, the Service determines that the project will result in take, the Service will notify FEMA and the acreage of impacts will be subtracted from the take limits provided in the BO. This guide is subject to revision as necessary.

- A. Parcel is not in the species focus area or on the Real Estate (RE) parcel list.....***no effect***
 Parcel is in the species focus area or is on the RE parcel list.....***go to B***
- B. The applicant proposes no removal or modification of the Schaus swallowtail butterfly’s native habitat (i.e., beach berm, hammock, and native habitat in the undeveloped lands classification).....***NLAA***
 The applicant proposes removal or modification of the Schaus swallowtail butterfly’s native habitat. A vegetation survey is required to document the native plant species and size present on the property and a general description of the surrounding properties within 500 feet is also required.....***go to C***
- C. The property is in North Key Largo. The Service will examine the site-specific parameters of the habitat and proposed development.....***may affect***
 The property is in South Key Largo or Islamorada.....***go to D***
- D. The property is within a developed subdivision or canal subdivision and the area within 500 feet of the parcel is greater than 60 percent developed or scarified***NLAA***

Not as above.....*go to E*

- E. The vegetation survey documents the presence of torchwood and/or wild lime, and any of the above referenced nectaring food source plant species (wild coffee, guava, or cheese shrub/yellowroot) and the parcel is adjacent to contiguous tracts of this species' native habitat greater than 1 acre in size*may affect*

The property is not as above*go to F*

- F. The property is less than 1 acre and/or is not adjacent to contiguous native habitat greater than 1 acre. The applicant has proposed either on-site or off-site habitat compensation* commensurate with the amount of native habitat lost. Permit with habitat compensation*..... *NLAA*

The property contains and/or is adjacent to contiguous native habitat greater than 1 acre in size AND/OR the applicant is not proposing habitat compensation* or the proposed habitat compensation* does not meet minimum compensation requirements..... *may affect*

***Habitat Compensation**

The minimum recommended habitat compensation is replacement of lost vegetation through protection or restoration of habitat, and/or monetary contributions to accomplish the aforementioned activities, according to the participating community's land development regulations. The Service has reviewed the following participating communities' Codes of Ordinances governing habitat compensation and found them to meet minimum recommended habitat compensation: Monroe County, Part II, Chapter 18, Sections 118-2 and 118-8; City of Marathon, Article 2, Chapter 106; Village of Islamorada, Part II, Chapter 30, Article VII, Division 4, Section 30-1616; and Key West, Part II, Subpart B, Chapter 110, Article V, Section 110-223 and Section 110-225, and Article VI, Division 2, Section 110-287 and Division 3, Section 324 and 327. The cities of Key Colony Beach and Layton were determined to not have ordinances that meet the minimum recommended habitat compensation. If the participating community proposes to modify the habitat compensation requirements of their ordinance, additional review by the Service will be necessary.

If habitat compensation is being provided in excess of the minimum recommended, the Service may consider the additional compensation as a credit to the not-to-exceed habitat acreage losses referenced in the BO. To be considered for credit, the compensation must be like for like habitat compensation and credit will be granted at half value. For example, if 4 acres of additional compensation are provided, the credit granted would be 2 acres. This partial credit is considered appropriate as existing vegetation currently provides benefit and the credit vegetation may not provide the same habitat benefit until later in time.

Monitoring and Reporting Effects

For the Service to monitor cumulative effects and to track incidental take exempted for the Schaus swallowtail butterfly, it is important for FEMA and the NFIP participants to monitor the number of permits and provide information to the Service regarding the number of permits issued. In order to meet the reporting requirements in the BO, we request that FEMA and/or the NFIP participants send to the Service an annual database summary consisting of: project date, permit number, project acreage, native impact acreage, amount of acres and/or number of trees/plants replaced as habitat compensation, and project location in latitude and longitude in decimal degrees.

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