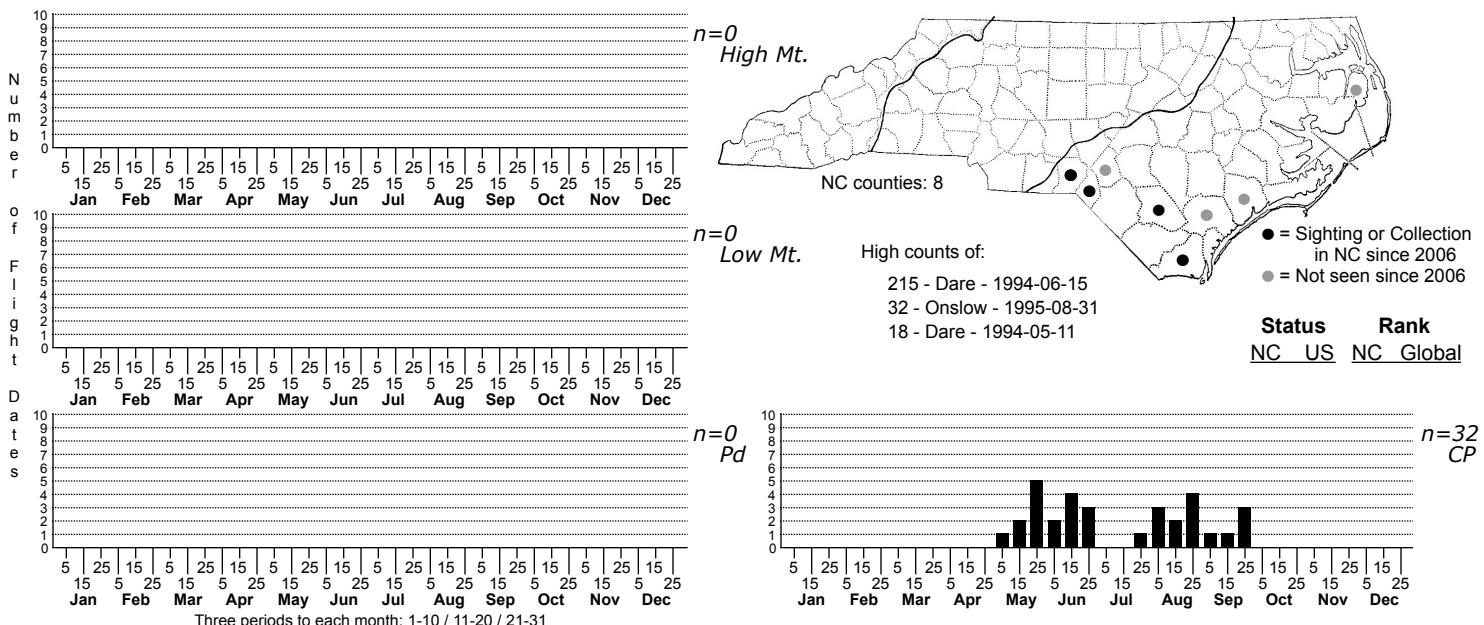


Hypagyrtis brendae Brenda's Hypagyrtis



FAMILY: Geometridae SUBFAMILY: Ennominae TRIBE: Bistonini

TAXONOMIC COMMENTS: This New World genus contains 7 species, 1 neotropical and 6 from North America, three of which occur in North Carolina (piniata may also be possibly present in the mountains -- Wagner et al., 2001). This genus shows a large range of variation, however, and its taxonomy still appears to be unsettled. Forbes (1948) stated that "the species or forms of this genus are completely confused and show no satisfactory differences in genitalia -- they may be merely races and strains, but breeding from known foods will be needed to make sure."

FIELD GUIDE DESCRIPTIONS: Covell (1984)

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Heitzman (1974)

TECHNICAL DESCRIPTION, IMMATURE STAGES: None are known.

ID COMMENTS: Size and coloration are similar to esther, with the subterminal area shaded with rusty brown and the medial and basal areas shaded with grayish-brown or violet-gray (Macaria transitaria is also very similar but has simple rather than pectinate antennae and a different wing shape). The median line is much more developed in brendae than in esther (where it is typically missing or obscure), forming a wide diffuse band on the hindwing in particular. On the forewing, the median line runs straight and obliquely across the wing, converging with the postmedian at the inner margin. Both of these lines meet the inner margin at an acute angle whereas in esther, the postmedian makes a perpendicular intersection with the inner margin (see Heitzman, 1974, for a description and illustration). In brendae, the dark line component of the post median line is also narrow, sharp and distinct. As in other Hypagyrtis, females are larger, longer-winged, and have a more scalloped outer margin on the hindwing.

DISTRIBUTION: Restricted to stands of Atlantic White Cedar in the Outer Coastal Plain and Sandhills.

FLIGHT COMMENT: Covell (1984) reports two broods in the Mississippi Valley. Our data indicate that there may be two or three broods or possibly that the species flies during most of the growing season.

HABITAT: Nearly all of our records come from peatland habitats containing stands of Atlantic White Cedar. Only a single specimen has been caught at a site that did not have any White Cedar present but where there may have been some undiscovered stands in the vicinity. All the rest came from traps placed within stands of this tree. Populations have been found in large peatdomes, Carolina Bays, and Streamhead Atlantic White Cedar communities in the Sandhills.

FOOD: Larvae are believed to feed on Atlantic White Cedar (<i>Chamaecyparis thyoides</i>) in North Carolina, though this needs to be confirmed by rearing. Host plants are poorly documented for <i>H. brendae</i> throughout much of its range, which includes areas where Atlantic White Cedar is not found.

OBSERVATION METHODS: Comes very well to 15 watt UV lights, with up to 215 captured in a single trap at the Dare County Bombing Range. It is unlikely to come to bait or to flowers.

NATURAL HERITAGE PROGRAM RANKS: G4 S2S3

STATE PROTECTION: Listed as Significantly Rare by the Natural Heritage Program. That designation, however, does not confer any legal protection, although permits are required to collect it on state parks and other public lands.

COMMENTS: This species is an extreme specialist on a now highly restricted host plant and habitat type. Atlantic White Cedar is a highly prized timber species and many stands -- including most of those on the Dare County Bombing Range where this species was originally found in the state -- have been cut. Peatdomes, including the one on the Dare County mainland, are also vulnerable to the effects of sea level rise, with vast acreages expected to be lost within the foreseeable future. Any loss, degradation, or fragmentation of the habitat used by such an extreme habitat specialist may make it increasingly difficult for it to recover from environmental perturbations. We judge the risks to this species accordingly as very high. If it is discovered to represent a separate species from the Midwestern form, as seems likely, its global status will also need to be revised.