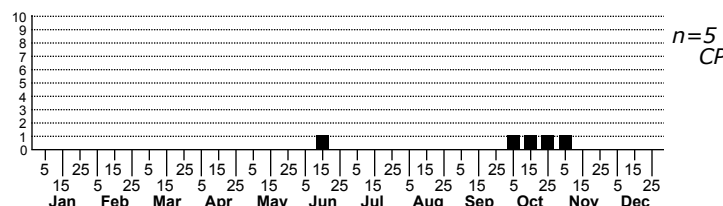
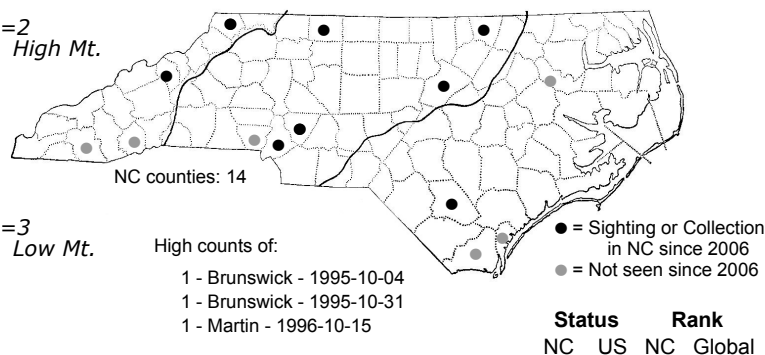
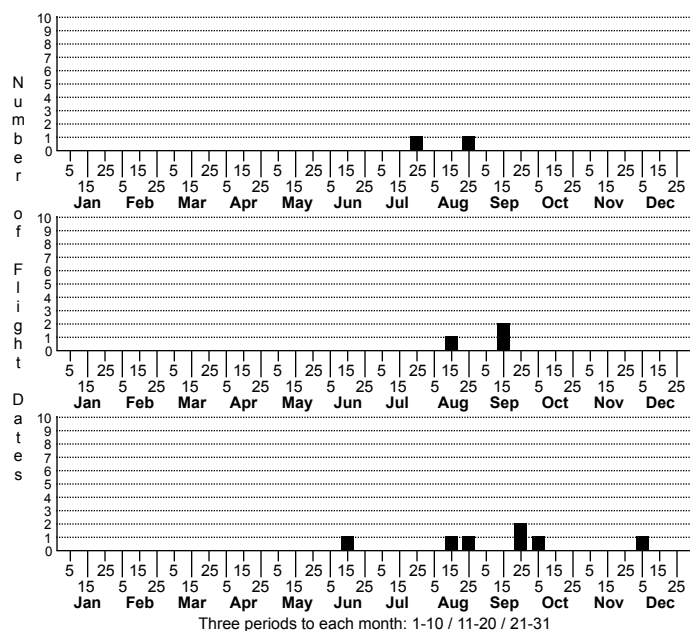


Catocala marmorata Marbled Underwing



FAMILY: Erebiidae SUBFAMILY: Erebiinae TRIBE: Catocalini

TAXONOMIC COMMENTS: One of 103 species in this genus that occur in North America (Lafontaine and Schmidt, 2010, 2015), 67 of which have been recorded in North Carolina. *Marmorata* belongs to a large group of Poplar and Willow-feeding species (Group X of Barnes and MacDunnough, 1918, and Forbes, 1954), all of which except *marmorata* occur north and west of North Carolina.

FIELD GUIDE DESCRIPTIONS: Covell (1984); Beadle and Leckie (2012)

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Forbes (1954); Sargent (1976); Schweitzer et al.(2011)

TECHNICAL DESCRIPTION, IMMATURE STAGES: Peacock and Gall (2000); Schweitzer et al. (2011); Wagner et al. (2011)

ID COMMENTS: Our largest species of *Catocala*, and one of the largest moths found in the state. Easily identified by its large size and by the strong dark arc on the forewings, extending from the costa, through the reniform, reaching the outer margin just below the apex. *Catocala maestosa* is nearly as large and has a similar arc, but its hindwings are solid black, unlike the red and black banding found in *marmorata*.

DISTRIBUTION: Recorded from all provinces of the state, although possibly absent from the high mountains and barrier islands. Coastal Plain populations may be restricted to brownwater river floodplains.

FLIGHT COMMENT: Willis (1991) found adults over an extremely long period, from June to October, apparently reflecting the lengthy time it takes for eggs to mature. Apart from one record in August, our records come from September and October, during the period when mating and egg-laying actually takes place.

HABITAT: Habitats used in the Coastal Plain include levee forests and swamps along two of the brownwater rivers that flow down from the Piedmont: the Roanoke and Cape Fear. Both Swamp Cottonwood and Eastern Cottonwood are common in those areas. We have not found *marmorata*, however, in blackwater floodplain where only Swamp Cottonwood occurs (one record shown by Peacock and Gall, 2000, however, is located out on the Albemarle-Pamlico Peninsula where Swamp Cottonwood is more likely to occur). In the eastern Piedmont, records also come from along the Roanoke River, but where Eastern Cottonwood is more likely to occur. Habitats used in the western Piedmont and Mountains are less clearly documented, but only Eastern Cottonwood is native to those regions (Bigtooth Cottonwood, *Populus grandidentata*, also occurs in the Mountains, but is much rarer and found primarily in the northern counties).

FOOD: Larvae are stenophagous, probably feeding primarily on poplars (*Populus* spp.) but also accepting willows (*Salix* spp.) in captivity. Peacock and Gall (2000) reared larvae from a females collected in swamps containing Swamp Cottonwood (*Populus heterophylla*), but successfully fed them on a diet of Eastern Cottonwood (*P. deltoides*) and Sandbar Willow (*Salix exigua*). Based on the fact that Eastern Cottonwood is rare in that area, they concluded that Swamp Cottonwood is the likely host, at least in southern Indiana. In North Carolina, however, the overall distribution of records for *C. marmorata* better matches the distribution of Eastern Cottonwood, especially in the Piedmont and Mountains where Eastern Cottonwood is present but Swamp Cottonwood is absent. While the Coastal Plain populations occur in areas where Swamp Cottonwood is common, Eastern Cottonwood is also present at those same sites. Moreover, Eastern Cottonwood is essentially confined to brownwater river floodplains, matching our records for *C. marmorata*, whereas Swamp Cottonwood also occurs in blackwater river floodplains, occupying a much larger proportion of the Coastal Plain, but in areas where we have not found *C. marmorata*.

OBSERVATION_METHODS: *Catocala marmorata* comes to both blacklights and bait, but these methods appear to be more successful during the fall, when *marmorata* is more likely to be actively mating and ovipositing (Schweitzer et al., 2011). During the summer, Willis (1991) has had much better success finding adults by tapping trees during the day. He noted that the moths preferentially choose light-colored trees to rest on and are often found far from their host plants, especially during the long period it apparently takes for eggs to mature.

NATURAL HERITAGE PROGRAM RANKS: G3? S3S3

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: *Catocala marmorata* has long been regarded as rare (Sargent, 1976), but Willis (1991) and Peacock and Gall (2000) found it can be fairly common, at least in restricted areas. The fact that it is not easily trapped during the summer may also contribute to its apparent rarity. Nonetheless, it appears to be a host plant and habitat specialist and in North Carolina the Cottonwood-containing forests that it prefers are found in relatively few areas. Moreover, the large tract of bottomlands along the Roanoke River -- containing one of the largest tracts of *marmorata* habitat -- are being adversely affected by changes in the flood regime resulting from the creation of large hydro-power and flood control dams upstream (see LeGrand and Hall, 2012). Although that may be offset by past planting of Cottonwood plantations -- now largely abandoned -- this area has also been subject to Gypsy Moth control programs, involving the application of Btk over large areas. As pointed out by Schweitzer et al. (2011), larvae of this moth are likely to be young instar larvae when areas are normally treated for Gypsy Moths, which are the stages that are most vulnerable to the effects of Btk. More needs to be learned about the host plants and habitats used by this species in North Carolina and more daytime surveys employing tapping need to be conducted to better document its distribution and abundance. Nonetheless, the scarcity of records for this species, the scarcity of large tracts of its habitats, and the threats in at least some of these areas suggests that its conservation needs are significant.