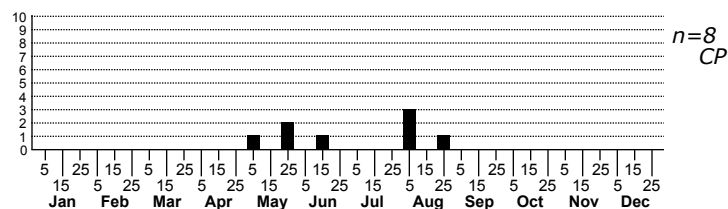
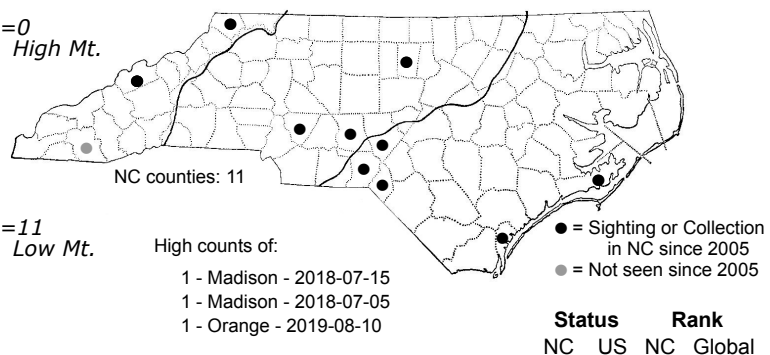
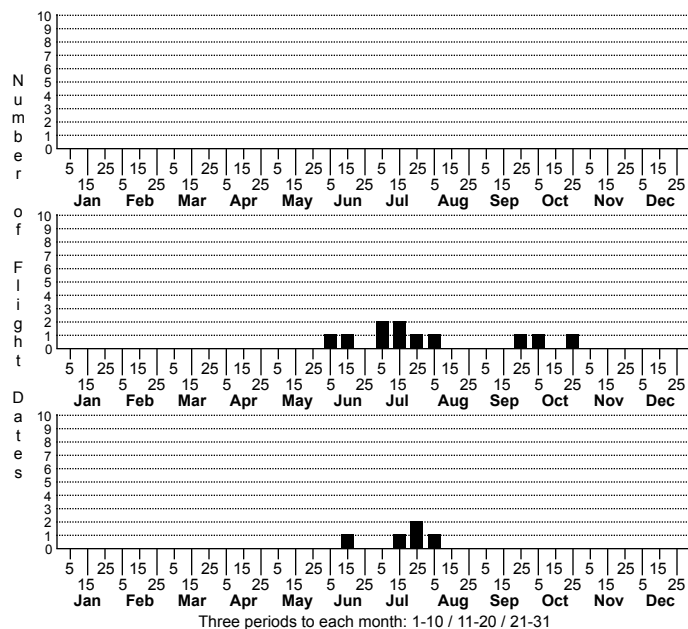


Chionodes bicostomaculella Two-spotted Chionodes



FAMILY: Gelechiidae SUBFAMILY: Gelechiinae TRIBE:

TAXONOMIC COMMENTS: The genus *Chionodes* is the most species rich genus of gelechiid moths in the Western Hemisphere, with 187 recognized species. Our knowledge of the diverse array of species in North America is largely due to the monumental work of Hodges (1999), who spend decades working on the group and described 115 new species (Powell and Opler, 2009). Many exhibit substantial variation within species and have drab coloration, typically with brown, dark gray, or blackish patterning on the forewings. These can only be confidently identified by examining secondary sexual characteristics and/or the genitalia of one or both sexes. Others are more boldly marked and can be identified by wing patterning. Many of our state records are based on Hodges (1999) database of over 19,000 specimens that he examined from major collections in the US. These include North Carolina specimens that he collected mostly from Highlands, and from a few other areas within the state.

FIELD GUIDE DESCRIPTIONS:

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Hodges (1999)

TECHNICAL DESCRIPTION, IMMATURE STAGES:

ID COMMENTS: The head, thorax, and labial palps are grayish with darker dusting, and the antenna is dark gray to blackish with faint lighter annulations. The forewing has a series of small blotches and marks that are entirely shades of black, gray and white, and sometimes with a faint bluish cast. Pale yellow or pale orange blotches or marks are not present. A whitish costal spot is usually present at four-fifths, and the apical fifth often is blackish with white spotting around the margins. Hodges (1999) noted that specimens vary in the relative proportion of pale and dark parts of the patterning. Some northern specimens have a greater proportion of pale scales, and sometimes have only the scale tufts and the distal one-fifth of the forewing dark gray. Others have the forewing heavily overlaid with dark scales, which produces a pattern with less contrast. The hindwing and fringe vary from light gray to light brown. The dorsal surface of the abdomen varies from nearly uniformly pale gray to off-white, to each segment being dark gray with an off-white posterior margin. The tarsi are blackish with pale whitish bands. This species is similar to several other *Chionodes*, and the genitalia offer little help in distinguishing between closely related forms. In the East, *C. fuscomaculella* and *C. bicostomaculella* are the most easily confused. Hodges (1999) noted that *C. bicostomaculella* tends to have the scales of the upper surface shades of black, gray, and white with a slight bluish-gray cast. This species almost always lacks any yellow scales, whereas specimens of *C. fuscomaculella* usually has pale-yellow scales, at least on the basal two-thirds of the wing. In addition, the forewing usually has a warm, slightly yellowish hue. Identification is best achieved by using a combination of maculation, genitalia, and male secondary sex characteristics such as the scale pencils on the hindwing. The larvae are distinctive, and the adults can be easily reared from larvae.

DISTRIBUTION: *Chionodes bicostomaculella* is found in eastern North America in the New England states and adjoining areas of Canada (Ontario; Quebec) southward to Florida, and westward to eastern Texas, Oklahoma, Missouri, Illinois, and Michigan. As of 2021, our records are almost all from the Piedmont and lower elevations in the mountains, with one record from the Coastal Plain.

FLIGHT COMMENT: Most records are from May through August in areas outside of North Carolina, except for Florida where adults become active in March and April. As of 2021, our records extend from mid-June through late October.

HABITAT: This species is associated with hardwood forests with oaks, and typically with species that are found in mesic to slightly drier conditions.

FOOD: The known hosts are all oaks (Hodges, 1999; Robinson et al., 2010), and the larvae use members of both the white oak and red oak groups. Hodges (1999) reported rearing records from White Oak (*Quercus alba*), Bur Oak (*Q. macrocarpa*), and from members of the red oak group. Robinson et al. (2010) list Scarlet Oak (*Q. coccinea*) and Northern Red Oak (*Q. rubra*).

OBSERVATION_METHODS: The adults are attracted to lights.

NATURAL HERITAGE PROGRAM RANKS: GNR SU

STATE PROTECTION: Has no legal protection, although permits are required to collect it on state parks and other public lands.

COMMENTS: We currently do not have sufficient information on the distribution and abundance of this species within the state to assess its conservation status.