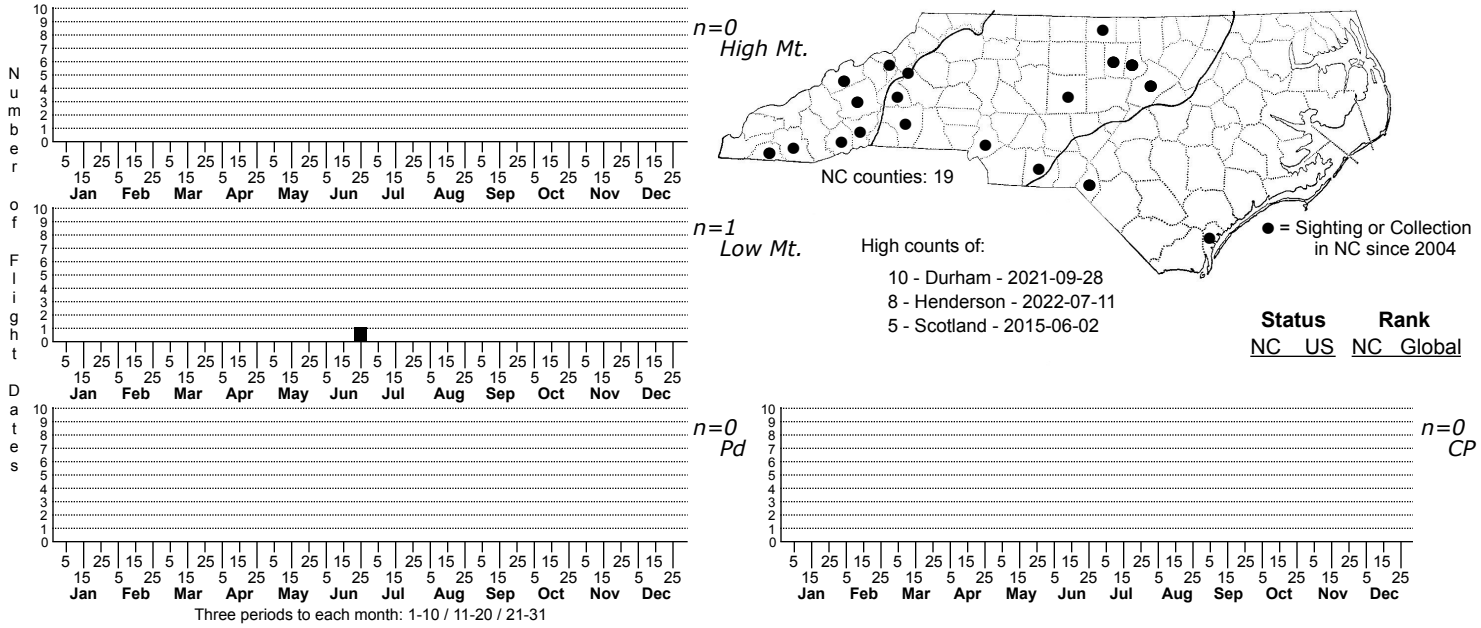
Stigmella caryaefoliella No common name



FAMILY: Nepticulidae SUBFAMILY: TRIBE:
TAXONOMIC_COMMENTS: Members of the genus Stigmella are a group of small leaf-mining moths that typically create linear mines, although a few species form linear-blotch or blotch mines. Newton and Wilkinson (1982) recognized 51 species in their revision on the North American fauna, and new discoveries have since raised the total to around 57 species. Almost all species are specialists and rarely use more than one genus of host plants. Host-specificity, mine characteristics, and genitalic differences are helpful in recognizing closely related forms that are externally similar.

FIELD GUIDE DESCRIPTIONS:
ONLINE PHOTOS:
TECHNICAL DESCRIPTION, ADULTS: Wilkinson and Scoble (1979)
TECHNICAL DESCRIPTION, IMMATURE STAGES: Payne et al., 1972

ID COMMENTS: The following description of the adults is based on Braun (1917) and Wilkinson and Scoble (1979). The palps are gray and lustrous, and the antenna is purplish gray and lustrous. The tuft is pale ochreous to bright orange-ochreous. The eye-cap is shining creamy white, and often has brownish purple shading around the edges. The collar varies from pale ochreous to gray-purple. The thorax and forewing are dark grayish brown to deep purplish black, and sometimes have bronze or purple reflections. There is a single, broad, white, postmedial fascia on the forewing. The fascia has a silvery shine and is broadest on the dorsum. The cilia are gray to blackish and concolorous with the wings. The hindwing and cilia are gray. The legs are purplish gray and lustrous, with pale ochreous to purplish patches, particularly on the forelegs, midlegs, hind tarsi and tibial spurs. Stigmella caryaefoliella is difficult to distinguish from closely related forms such as S. ostryaefoliella based on external characteristics. Reliable identification is best achieved using genitalia, DNA barcoding, or by rearing adults from the host plants.

DISTRIBUTION: Stigmella caryaefoliella is widely distributed in eastern North America where the host plants occur locally. Populations have been documented in Ohio, Ontario, Quebec, and the New England states south and southwestward to Arkansas, Tennessee, Mississippi, Alabama, Georgia, and Florida. As of 2020, we have records from the Inner Coastal Plain and eastern Piedmont.

FLIGHT COMMENT: There appear to be two or possibly three broods per year. Braun (1917) noted that full grown larvae first occur seasonally in the middle of June in the vicinity of southern Ohio. A second and third brood occurs in July, and in late August and early September. Elsewhere, mines with larvae have been found as late as October. We have records for unoccupied mines in May and June.

HABITAT: Stigmella caryaefoliella is a specialist on hickories and occurs in a variety of hardwood or mixed conifer-hardwood forests with the host species.

FOOD: The known hosts include Bitternut Hickory (Carya cordiformis), Pecan (C. illinoinensis), Shagbark Hickory (C. ovata), and Mockernut Hickory (C. tomentosa). In North Carolina we have records for Bitternut Hickory, Mockernut Hickory, Pignut Hickory (C. glabra), Shellbark Hickory (C. laciniosa) and Red Hickory (C. ovalis).

OBSERVATION_METHODS: The adults appear to rarely visit lights and most records are based on either leaf mines or adults that were raised from mines. We recommend searching for mines, and rearing and photographing the adults. A second undescribed species of Stigmella also uses hickory species, but has frass that is broadly distributed in the mine throughout most of its length rather than forming a narrow, central line. Care needs to be taken to not confuse the two when examining mines.

NATURAL HERITAGE PROGRAM RANKS: GNR S3S4

STATE PROTECTION:

COMMENTS: We have very few records for this species in North Carolina, which likely reflect the extent to which leaf-mining species have been undercollected, rather than true rarity. Additional data on the distribution and abundance of this species is needed before we can assess its conservation status.