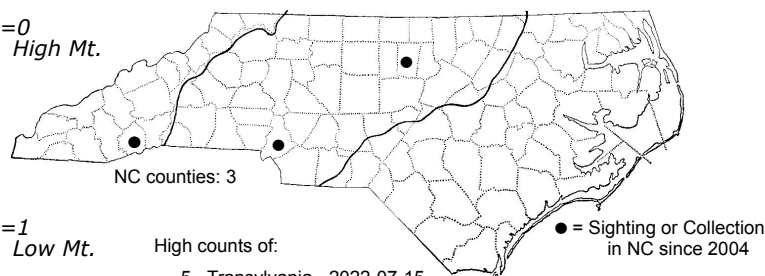
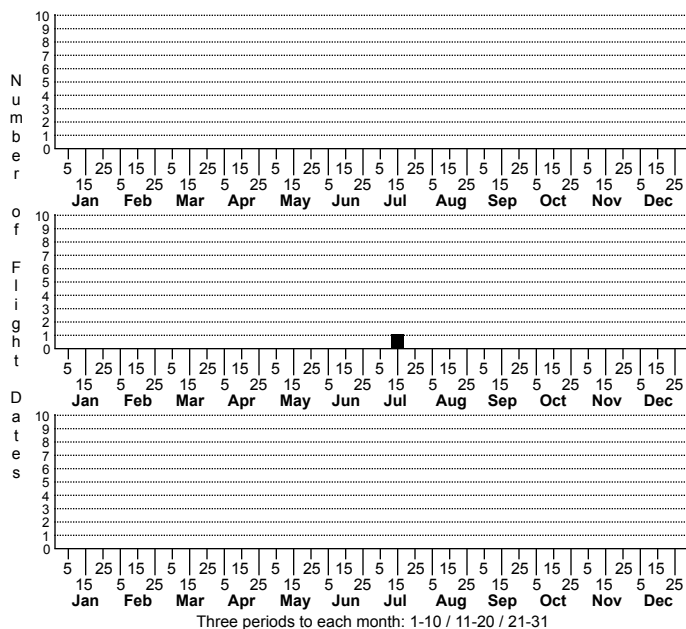


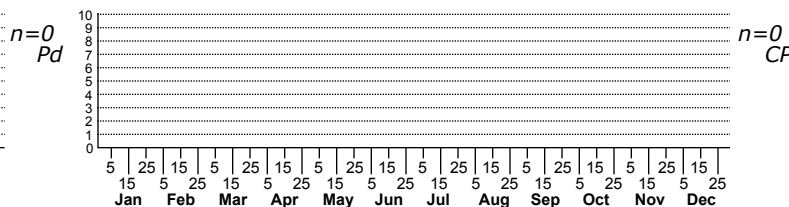
*Antispila freemani* No common name



High counts of:  
 5 - Transylvania - 2022-07-15  
 3 - Transylvania - 2021-06-16  
 2 - Transylvania - 2021-07-13

● = Sighting or Collection in NC since 2004

| Status | Rank   |
|--------|--------|
| NC     | US     |
| NC     | Global |



FAMILY: Heliozelidae SUBFAMILY: TRIBE:  
 TAXONOMIC\_COMMENTS:

FIELD GUIDE DESCRIPTIONS:

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: Lafontaine (1973)

TECHNICAL DESCRIPTION, IMMATURE STAGES: Lafontaine (1973); (Eiseman, 2019)

IDI COMMENTS: The following is based on the original description by Lafontaine (1973). The antenna is dark brown, with yellow at the base and apex. The head is light golden brown, and the thorax and abdomen dark brown. The forewing above is dark brown with coppery reflections. A pale golden, oblique fascia is present one-third from the base that curves slightly and is closest to the base at the inner margin. It is widest on the inner margin and narrows to about one-half the maximum width on the costa. At two-thirds, there are two small pale golden spots, one along the costa and a second just anterior and near the tornus. The dorsal spot is triangular, extends about one-third the way across the wing, and curves slightly towards the wing apex. The costal spot is more rounded, slightly larger, and extends half-way across the wing. The cilia are brown and fade to light gray at the tips. The hindwing and cilia are both grayish-brown. The male has a conspicuous tuft of bright golden bristles near the base of the underside of the forewing.

*Antispila freemani* is difficult to distinguish from several closely related species (e.g., *A. isabella*, *A. cornifoliella*, *A. nysaeoliella*, *A. viticordifoliella*) based on photographic images. These species are best identified by using DNA markers, genitalia, or a combination of host plants and/or geographic ranges (Nieukerken et al. 2012). *Antispila freemani* can be distinguished from *A. nysaeoliella* by the brown thorax and the fascia that is not constricted at the cell.

There are two *Antispila* species in North Carolina that specialize on dogwoods (*A. cornifoliella* and *A. freemani*). The former typically produces a linear-blotch mine that originates away from the leaf margin, while *A. freemani* produces a blotch mine that originates at the leaf margin. Based on DNA barcoding data, *A. freemani* appears to be a more northern form that is found primarily in Canada and the New England states, while *A. cornifoliella* is more widely distributed throughout the eastern US to as far south as Florida. The recent discovery of *A. freemani* in the western mountains suggests that a disjunct population occurs in the southern Appalachians.

DISTRIBUTION: *Antispila freemani* has been found throughout much of southern Canada and at scattered localities in the eastern US. In Canada, populations occur in British Columbia and from Manitoba eastward to Nova Scotia. In the US, this species occurs in Vermont, Maine, Massachusetts, Iowa, Ohio, Kentucky, and Oklahoma (Eiseman, 2019). It was first discovered in North Carolina in 2021.

FLIGHT COMMENT: The flight season is poorly documented, but includes records from May through July. Late-season broods in Canada appear to overwinter and emerge the following spring or summer. As of 2022, we have only two site records, with occupied mines in mid-June and mid-July, along with a reared adult emerging on 13 July.

HABITAT: Local populations utilize a variety of dogwoods as hosts.

FOOD: The larvae feed on dogwoods, including species with northern affinities. The documented hosts include the native species Alternate-leaf Dogwood (*Swida alternifolia*) and Gray Dogwood (*S. racemosa*) (Eiseman, 2022). As of 2024, we have records for mines on both of these species, as well as Silky Dogwood (*S. amomum*) and Flowering Dogwood (*Benthamidia florida*).

OBSERVATION\_METHODS: The adults are best obtained by rearing them from Alternate-leaf Dogwood or other native dogwoods.

NATURAL HERITAGE PROGRAM RANKS: GNR S1S3

STATE PROTECTION:

COMMENTS: As of 2022, we have only two site records from the western mountains. This species appears to be rare in North Carolina and very localized in its distribution.