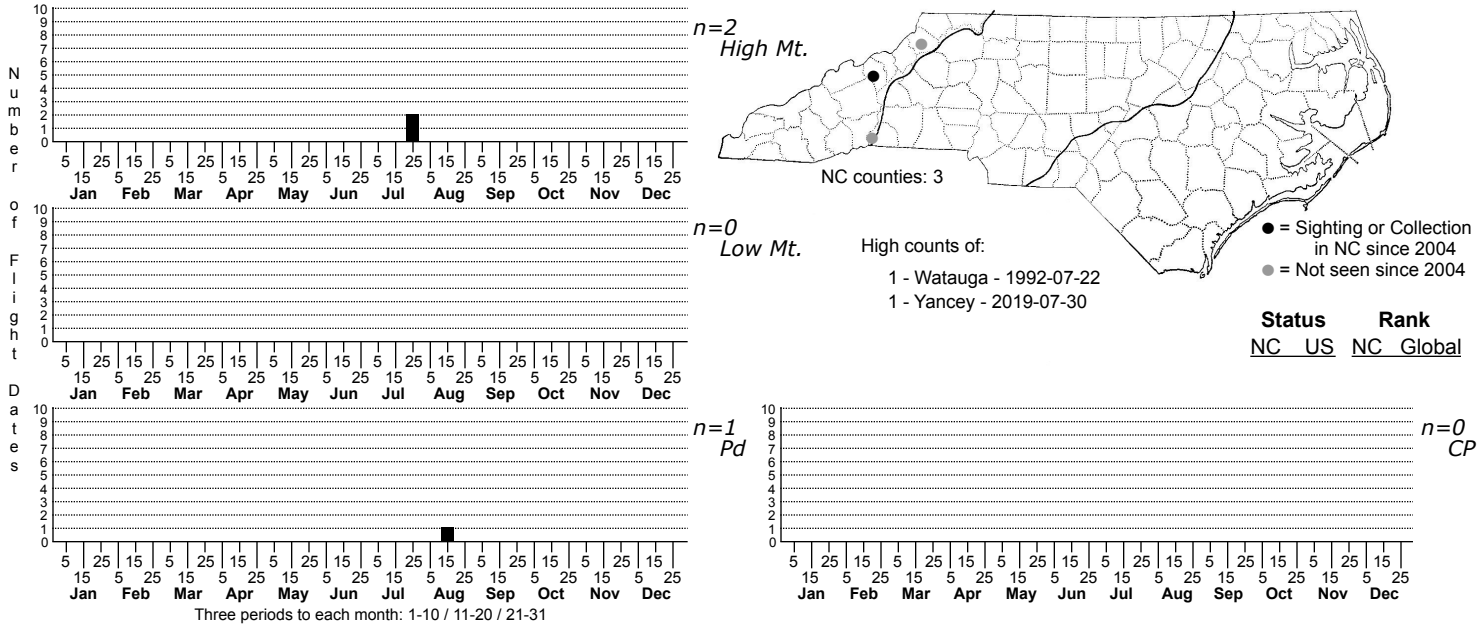
Choristoneura fumiferana Spruce Budworm Moth



FAMILY: Tortricidae SUBFAMILY: Tortricinae TRIBE: Archipini
TAXONOMIC_COMMENTS: Choristoneura fumiferana is a member of a species complex that includes seven or eight closely related species and numerous biotypes. They all have nearly identical life histories and are best identified by their range and host plants (Lumley and Sperling 2010, 2011; Nealis, 2015).

FIELD GUIDE DESCRIPTIONS: Covell (1984); Beadle and Leckie (2012)
ONLINE PHOTOS:
TECHNICAL DESCRIPTION, ADULTS:
TECHNICAL DESCRIPTION, IMMATURE STAGES: Baker (1982)

ID COMMENTS: The head, palps, antennae, and thorax are light brown to brownish gray. The forewing patterning and coloration is highly variable, but typically consists of a mosaic of small clay-colored, fuscous, reddish brown, and gray patches. In some specimens gray patches may predominate, while in others the dark tones prevail. Western forms are often strongly reddish with blackish reticulations. The hindwing is gray. MPG has a nice series that show the various phenotypes that occur across the range.

DISTRIBUTION: Choristoneura fumiferana is a mostly boreal species that occurs from Alaska and the Yukon Territories eastward across Canada to Nova Scotia and Prince Edward Island. In the US populations occur in northern California and the central and northern Rockies, and in the eastern US primarily from Maine southward through the Appalachian region to western North Carolina and eastern Tennessee, and westward to Kentucky, Illinois, Nebraska, Minnesota, and North Dakota. Scattered records are also known from northern Florida, coastal South Carolina, and northwestern Louisiana. As of 2023, we have only three records, with two from high-elevation sites with spruce or spruce-fir forests, and one from a lower elevation site in Polk County.

FLIGHT COMMENT: The adults typically fly during June, July and early August at northern latitudes, but have been found as early as February in Florida, and in April and May at other southern localities. As of 2023, our very limited records are from late July through mid-August.

HABITAT: Local populations are typically found in forests with spruce and fir. We have one record from a low elevation (4,300') site with a stand of Red Spruce in Watauga County, and a second from a Red Spruce-Fraser Fir forest on Mt. Mitchell. Kearfott (1905) also reported a specimen from Tryon in Polk County from a site with no spruce or fir present.

FOOD: The larvae are stenophagous and mostly feed on spruce and fir trees, but occasionally on other conifers (Craighead et al., 1950; Schaffner, 1959; MacKay, 1962; Prentice, 1966; Freeman, 1967; Bauce and Carisey, 1996; Fleming, 1996; Mattson et al., 1996; Carisey and Bauce, 1997; Cappuccino et al., 1998; Regniere and Duval, 1998; Retnakaran et al., 1999; Maier et al., 2004; Heppner, 2007; Lumley et al., 2020). White Spruce (Picea glauca) and Balsam Fir (Abies balsamea) are two of the most important hosts, but other conifers are sometimes used, particularly during outbreaks. These include Norway Spruce (P. abies), Engelmann Spruce (P. engelmannii), Black Spruce (P. mariana), Blue Spruce (P. pungens), Red Spruce (P. rubens), Subalpine Fir (Abies lasiocarpa), Eastern Larch (Larix laricina), Eastern Hemlock (Tsuga canadensis), Western Hemlock (T. heterophylla), Red Pine (Pinus resinosa), Eastern White Pine (P. strobus), and Northern White Cedar (Thuja occidentalis). Our two best documented records are from sites with either Red Spruce or Red Spruce and Fraser Fir.

OBSERVATION_METHODS: The adults are attracted to lights and the larvae are easily observed on the host plants.

NATURAL HERITAGE PROGRAM RANKS: G5 S1S2

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

COMMENTS: This species is rare in the state and currently restricted to high-elevation forests with spruce or fir.