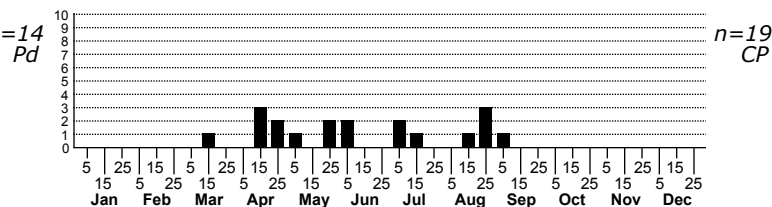
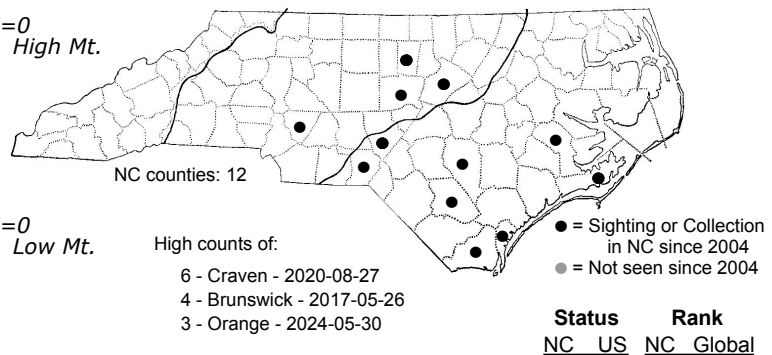
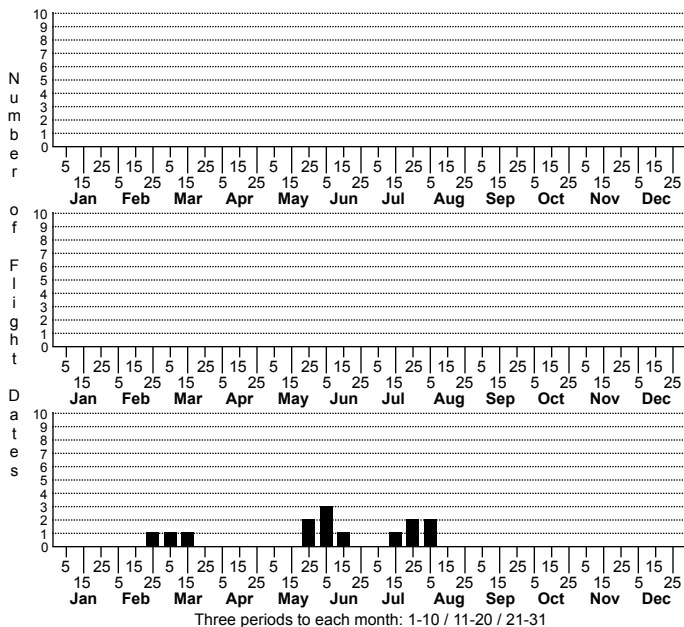


Rhyacionia frustrana Nantucket Pine Tip Moth



FAMILY: Tortricidae SUBFAMILY: Olethreutinae TRIBE: Eucosmini

TAXONOMIC COMMENTS: The genus *Rhyacionia* is widespread in the Holarctic Region, ranging from Japan and Asia to the Caribbean Antilles and Mexico (Powell and Miller, 1978). There are 33 described species worldwide and 24 in North America. The larvae feed on the needles, buds, and growing tips of pines.

FIELD GUIDE DESCRIPTIONS:

ONLINE PHOTOS:

TECHNICAL DESCRIPTION, ADULTS: (Powell and Miller, 1978)

TECHNICAL DESCRIPTION, IMMATURE STAGES: (Asaro et al., 2003)

ID COMMENTS: The following description is based in part on that of Powell and Miller (1978). The palps, front of the head, and crown are light frosted gray, while the dorsum of the thorax is similar but sometimes slightly darker. The basal one-fourth of the forewing is mottled with shades of gray and form a faint basal patch. The relatively dark basal patch is bordered by a lighter gray to pale cross-band that is less than one-half the width of the basal patch. The basal patch and cross-band are often separated by a narrow reddish or reddish brown fascia. A large reddish costal blotch typically borders the gray cross-band posteriorly and extends inward to around two-thirds. It sometimes continues to the inner margin to form a complete reddish cross-band. Between this and the apex there are a variable number of smaller blotches or irregular orange to rust bands that either partly or entirely cross the wing. The apex is often heavily dusted with reddish scales. The fringe is dark gray, and often has a black line extending around the termen. The hindwing is pale grayish brown with a paler fringe. The abdomen is shining light gray above, and the legs are gray with paler bands exteriorly.

Powell and Miller (1978) noted that *Rhyacionia aktita* is externally similar to *R. frustrana* and is best identified by genitalia. In North Carolina, *R. aktita* appears to be restricted to sites close to the coast and typically flies during the late-winter and early spring months. In contrast, *R. frustrana* is well-represented in the Piedmont and has a much longer flight period from late winter through early September. Both species can co-occur locally along the coast, and forewing length is helpful in sorting the two species out locally, with *R. aktita* averaging around 7 mm versus only 5 mm for *R. frustrana*. Genitalia may be required to separate the two at coastal locales for specimens with intermediate wing lengths, particularly when specimens are collected during the winter and spring months.

DISTRIBUTION: *Rhyacionia frustrana* is found in eastern North America, central America, and the Caribbean. In the US it occurs from Massachusetts south to Florida, and westward to Missouri, Oklahoma, Texas (Asaro et al., 2003; Powell and Miller, 1978). An introduced population is also in southern California. As of 2021, all of our records are from the Coastal Plain and eastern Piedmont.

FLIGHT COMMENT: Local populations have two or more broods per year. The adults emergence from shoots containing over-wintering pupae beginning in late December or January in the southernmost portions of the range in the United States, and as late as April in northern regions. In the South, there are typically two generations in the mountainous regions of the Appalachians, three in the Piedmont, and four in the Coastal Plain (Asaro et al., 2003). As of 2021, our records extend from late February through early September.

HABITAT: This species requires yellow pines for successful reproduction, and is found in both natural pine and mixed pine-hardwood forests, as well as tree farms and nurseries. Asaro et al. (2003) noted that pines that are less than five years old are most vulnerable to infection, and that populations tend to rapidly diminish as trees approach crown closure.

FOOD: The larvae use a wide variety of yellow pines (subgenus *Pinus*), including at least 19 species throughout its range (English, 1958; Schaffner, 1959; Kimball, 1965; Becker, 1973; Ebel et al., 1975; Powell and Miller, 1978; Lashomb et al., 1980; Hedlin et al., 1981; Stephen and Wallis, 1985; Dixon, 1987; Ross et al., 1995; Asaro et al., 2003; Heppner, 2007; Eiseman, 2022). The most common hosts in the Southeast include Shortleaf Pine (*P. echinata*), Slash Pine (*P. elliottii*), Table Mountain Pine (*P. pungens*), Pitch Pine (*P. rigida*), Pond Pine (*P. serotina*), Loblolly Pine (*P. taeda*) and Virginia Pine (*P. virginiana*). Asaro et al. (2003) noted that *P. taeda*, *P. echinata*, and *P. virginiana* are the most commonly used species in the Southeast.

OBSERVATION_METHODS: The adults are attracted to lights, and the larvae or pupae can be found in pine shoots.

NATURAL HERITAGE PROGRAM RANKS: GNR [S4S5]

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

COMMENTS: This species can be a pest in pine plantations and nurseries in the Southeast, and is presumed to be relatively secure within the state.