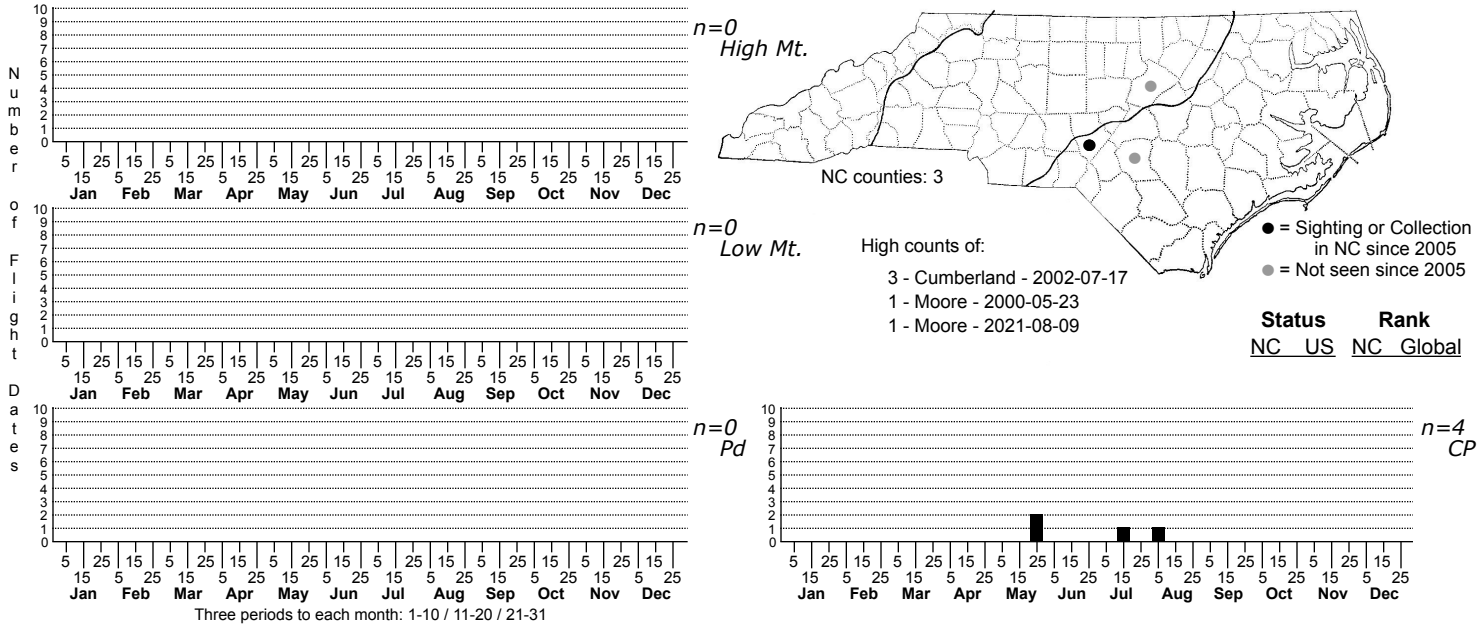
Acronicta albarufa Barrens Dagger



FAMILY: Noctuidae SUBFAMILY: Acronictinae TRIBE:
TAXONOMIC_COMMENTS: One of 74 species in this genus found in North America north of Mexico (Schmidt and Anweiler, 2020), 42 of which have been recorded in North Carolina. This species is placed in subgenus Lepitoreuma by Schmidt and Anweiler, and within the Increta Species Group. Other members of this group in North Carolina include Acronicta exilis, A. ovata, A. modica (=haesitata), A. immodica (=modica), A. increta, and A. tristis.

FIELD GUIDE DESCRIPTIONS: Not in any of the field guides
ONLINE PHOTOS:
TECHNICAL DESCRIPTION, ADULTS: Forbes (1954); Rings et al. (1992); Schweitzer et al. (2011); Schmidt and Anweiler (2020)
TECHNICAL DESCRIPTION, IMMATURE STAGES: Schweitzer et al. (2011); Wagner et al. (2011); Schmidt and Anweiler (2020)

ID COMMENTS: A medium-sized Dagger with a pattern very similar to A. ovata but with a blue-gray rather than pale grayish ground color; males also have whiter hindwings than A. ovata and females have darker gray-brown hindwing (Forbes, 1954; Rings et al., 1992; Schweitzer et al., 2011; Schmidt and Anweiler, 2020). As in A. ovata, the basal dash curves smoothly upward to merge with antemedial line, forming a somewhat pale oval patch in the otherwise darker basal area. The reniform is also shaded with reddish, the orbicular is round with a gray central spot, and the anal dash is dark and sharply defined. Melanic forms of A. ovata have a greenish cast that is absent in A. albarufa (Rings et al., 1992) and other blue-gray species of Acronicta lack the oval-shaped basal patch and other details of this pattern.

DISTRIBUTION: Recorded at two sites in the Fall-line Sandhills and historically from Raleigh in the Eastern Piedmont.

FLIGHT COMMENT: Recorded in May and July but with too few records to detect a pattern. Schweitzer et al. (2011) report that there is one primary brood in the North and a partial second brood in late August.

HABITAT: The habitat for this species across its range consists of dry oak forests, particularly sandy woodlands (Schweitzer et al., 201). Our recent records are consistent with this description, coming from Pine-Scrub Oak Sandhills habitats in the Fall-line Sandhills. The habitat where the historic record was made in Raleigh (Brimley, 1938) is unrecorded, but Dry Oak-Hickory Forests are found at scattered locations in that area and seem likely as the source habitat.

FOOD: Larvae are stenophagous, feeding on species of xeric oaks (Schweitzer et al., 2011). Bear Oak (Quercus ilicifolia) is apparently the main host plant used in the Northeast (Schweitzer et al., 2011), but is quite rare in western Piedmont of North Carolina and does not occur anywhere near where A. albarufa has been recorded in this state. The same is true for Bur Oak (Q. macrocarpa) and Dwarf Chinquapin Oak (Q. prinoides), two other host plants used in the North. Several species of xeric oaks occur at the two sites where we have recorded A. albarufa in the Fall-line Sandhills, including Post Oak (Q. stellata), Blackjack Oak (Q. marilandica), Turkey Oak (Q. laevis), and possibly Sand Post Oak (Q. margarettae). Blackjack Oak, however, is apparently refused by A. albarufa larvae (Schweitzer et al., 2011). That leaves Post Oak as the most likely host, since it is the only one of these oaks that also occurs in the Piedmont, where Brimley recorded the species.

OBSERVATION_METHODS: Our recent records are from blacklight traps; the method used for the record included in Brimley (1938) is unrecorded. According to Schweitzer et al. (2011), A. albarufa has occasionally been the most common species of Acronicta coming to lights at sites in Massachusetts and New Jersey. They also report that it comes to bait.

NATURAL HERITAGE PROGRAM RANKS: G3G4 S1S2

STATE PROTECTION: Listed as Significantly Rare in North Carolina by the Natural Heritage Program. It has no legal protection, however, although permits are required to collect it on state parks and other public lands.

COMMENTS: Acronicta albarufa has a large geographic range, found from Manitoba, Ontario, and New England south to Arkansas, North Carolina, and Georgia (Schweitzer et al., 2011; Adams, 2015). Over almost all of this range, however, it is considered rare and local, with many areas of apparently suitable habitat unoccupied, including sites where it had been known to occur historically (Schweitzer et al., 2011). In North Carolina, that pattern is consistent with our sampling results, with no records obtained from seemingly suitable dry oak woodlands and barrens across most of the state. Schweitzer et al. considered but largely dismissed impacts of efforts to control Gypsy Moth populations, including the spread of the introduced biological control, the Tachnid fly Compsilura concinnata. Such explanations seem even less likely in North Carolina, since there have been only a few intensive efforts to eradicate Gypsy Moth outbreaks in this state and Compsilura has not yet had any noticeable impact to our moth populations. Another possible cause is the nearly continent-wide change in the fire regime. Wagner et al. (2003) suspect that suppression of natural fires has had a major impact on Acronicta albarufa and other species associated with native shrublands and barrens in the Northeast, which, like Longleaf Pine habitats, are strongly dependent on fire to maintain their open structure and species composition. As with species associated with other fire-maintained habitats, we recommend that refugia be left in any one prescribed burn, leaving enough habitat unburned to serve as a source of re-colonization for the burned areas. Burn rotations should be long enough to allow for effective re-colonization to occur before the refugia themselves are burned. For species of particularly high conservation concern -- including Acronicta albarufa -- careful monitoring should be done to determine how well they survive a particular management regime, with practices adapted accordingly.