SOME LEPIDOPTERA COLLECTED AND PHOTOGRAPHED NEAR SUNNY FLAT CAMPGROUND IN THE CHIRICAHUA MOUNTAINS (COCHISE COUNTY, ARIZONA)

BY

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Sunny Flat Campground is located within the Coronado National Forest in Cochise County, Arizona. It lies within the Cave Creek Valley of the Chiricahua Mountains where the elevation is generally between 5100 and 5200 feet. The valley contains oak forest with sparse understory (Figure 1:G) as well as more open grassy oak savanna (Figure 1: E-F). Pine (*Pinus*), Bigtooth Maple (*Acer grandidentatum*), and Arizona Cypress (*Hesperocyparis arizonica*) are also common in the woodlands. We visited this area to collect and photograph Lepidoptera the night of 24 June 2018.

We stayed at camp site number 1 in the Sunny Flat Campground. This site is located at the edge of the campground near the intersection of 42 Forest Road and South Fork Road. These roads provided an ideal bait trail just outside of the campground, with many large trees near the side of the road to which we applied rotten banana mush/brown sugar (Figure 1:H). We also put up seven bait traps in this area (Type H bait traps as described at http://www.lepidopterabiodiversity.com/SurveyMethods.htm). We located a MV sheet near camp site 1 along a mud path at the edge of a dry rocky wash (Figure 1:A-B) at N 31.88431°, W 109.17843°. The vantage here was not as good as the large open area in the main campground, but site 1 (and adjacent site 2-vacant the night we were there) are disjunct from the main campground, so a MV light and generator could be operated here without disturbing anyone else staying in the campground. One 15 watt UV light trap was placed in oak woodland in camp site 1 (Figure 1:G) at N 31.88484°, W 109.17792°.

We documented as many species as possible by collecting at least one representative of each morphospecies encountered at the MV sheet, UV trap, and bait trail/bait traps. In addition to collecting voucher specimens we also took live photographs of each species encountered on the bait trail, as well as a small fraction of the species encountered at the MV sheet. The photos in Figures 1-9 were taken with a Canon Powershot SX50HS in TV mode with the flash that comes with the camera. Photos in Figure 10 were taken with a Canon EOS 60 D camera body with a Canon MT-24EX Macro Twin Light Flash and Canon 180 mm macro lens.

We have identified most of the species found at the bait trail; however, much of the material collected at lights has yet to be studied and processed. Here we present a list of the species found at bait, live photos of these species on the bait trail (Figures 2-10), and live photos of a small portion of the species collected at the MV Sheet (Figures 2-3 & 7-9). All of the nocturnal species found at bait were Noctuidae (sensu lato) and Geometridae.

Nocturnal Lepidoptera Species Collected and Photographed on the Bait Trail on 24 June 2018

Numbers in [ ] are from the Hodges et al. (1983) *Check List of the Lepidoptera of America North of Mexico*.

NOCTUIDAE (26 species)

***Carales arizonensis* [8226] (Figure 2):** The individual figured is the only specimen found on this date.

***Idia suffusalis* [8325] (Figure 2):** The individual figured is the only specimen found on this date.

***Idia occidentalis* [8334.1] (Figure 2):** About fifteen individuals were seen on the bait trail. This species was present in higher numbers among the bait traps, but they became very worn due to numbers of *Catcala junctura* flying around in every bait trap.

***Idia lubricalis* complex (Figure 2):** Southern Arizona contains a phenotype similar to *Idia lubricalis*, but it differs in wing pattern and COI 5' sequences from any of the several species going under the name *lubricalis* in the eastern U.S. At least one of these was present in fresh condition (Figure 2).

***Tetanolita negalis* [8369] (Figure 2):** About 15 individuals in fresh condition were found on the bait trail.

***Hemeroplanis punitalis* [8468] (Figure 2):** Only one individual came to the bait trail (Figure 2), but both *H. punitalis* and *H. rectalis* came to the MV sheet in numbers. *Hemeroplanis punitalis* and *H. rectalis* are frequently misidentified. *Hemeroplanis rectalis* [8475.1] has a fairly straight antemedial line with contrasting pale band on the basal side, whereas *H. punitalis* has a convex antemedial line with a less conspicuous pale band on the basal side. We have examined photos of the types of these species provided by J. Donald Lafontaine.

***Metalectra bigallis* [8501] (Figure 2):** The individual figured is the only specimen found on this date.

***Panopoda rigida* [8590] (Figure 3):** A single individual was found at the bait trail, and several more were found at lights.

***Melipotis indomita* [8600] (Figure 3):** This species is often common in many southwestern habitats, but on this date we only found a few individuals at both bait and lights.

***Melipotis jucunda* [8607] (Figure 3):** A few individuals were found at both bait and lights, mostly in worn condition.

***Bulia species* [8614?] (Figure 3):** Over 50 *Bulia* were seen on the bait trail and they were also numerous at the MV sheet. Specimens we previously collected and dissected from nearby Idlewilde Campground were *Bulia deducta* [8614], but similar *B. similaris* [8615] is also a possibility in this area. These similar species cannot be reliably separated from wing pattern but they differ in male genitalia and COI 5' sequences.

***Ascalapha odorata* [8649] (Figure 10):** One individual of this tropical migrant was found on the bait trail. On 25 June and from 26-29 June 2018 we found this species in numbers in Spring Canyon State Park, New Mexico and the Davis Mountains, Texas, respectively. Numerous individuals came to the bait traps and some were even flying around the traps when the sun was shining. We also found it in the Wichita Mountains of Oklahoma and Appleton, Wisconsin in July 2018, so there appears to have been a substantial northward migration in 2018.

***Heteranassa mima* [8659] (Figure 4):** Over 25 individuals were found on the bait trail, with lower numbers found at lights.

***Toxonprucha pardalis* [8670] (Figure 4):** This highly variable species was among the most common species at the bait trail, with well over 100 individuals seen. Only a few individuals were found at lights.

***Toxonprucha volucris* [8672] (Figure 4):** Over 25 individuals were found on the bait trail, and a few others came to lights.

***Matigramma* sp. (Figure 3):** Material we have previously collected and dissected from nearby Idlewilde campground included *Matigramma repentina, M. emmilta, M.inopinata*, and *M. rubrosuffusa*. A single individual found on the bait trail (Figure 3) needs to be dissected for reliable determination. *Matigramma* individuals from this group of species were fairly common at the MV sheet.

***Zale colorado* [8715] (Figure 5):** Over 25 individuals were found on the bait trail, with lower numbers found at lights.

***Zale insuda* [8696] (Figure 5):** This was the most common species on the bait trail, with over 150 individuals found. Over 25 individuals came to the MV Sheet.

***Catocala ilia* [8801] (Figure 10):** Two individuals were found on the bait trail, one of which was rather worn.

***Catocala junctura* [8829] (Figures 5 & 10):** Eight individuals were found on the bait trail, but it was much more common in bait traps, with 3-13 individuals in each bait trap. Individuals ranged from fresh to worn condition. All individuals were found within oak forest/oak savanna at some distance from the poplars (*Populus*), which presumably are the foodplant here.

***Meganola minor* [8984] (Figure 7):** The individual figured is the only specimen found on this date.

***Condica albolabes* [9695] (Figure 6):** One fresh individual was found on the bait trail.

***Hexorthodes tuana* [10285] (Figure 6):** Over 25 individuals were found on the bait trail.

***Leucana oaxacana* [10451]:** A few individuals were collected at lights and bait, but the photographed *Leucania* (Figure 6) is atypical of *L. oaxacana* and needs to be dissected.

***Neleucania praegracilis* [10613] (Figure 6):** One fresh individual was collected at the bait trail. This species was common in the Davis Mountains in western Texas on 26 and 29 June.

***Hypotrix lunata* [10606] (Figure 6):** A few individuals came to baited trees but this species was more common at lights, with over 25 found at the MV sheet.

***Dichagyris grandipennis* [10890] (Figure 6):** One individual was found on the bait trail. It dropped off the tree and was photographed on the ground before it was collected.

GEOMETRIDAE (4 species)

Numerous species of geometrids were found at lights, but only four species were found on the bait trail. We are much less knowledgeable about the geometrid fauna of this area than the noctuids, and two of these species are undetermined to genus.

***Glena nigricaria* [6448] (Figure 8):** Several worn individuals were found on the bait trail, although fresh individuals were found at the MV sheet.

***Anavitrinella* species (Figure 8):** *Anavitrinella* specimens we previously collected and dissected from nearby Idlewilde Campground were *A. atristrigaria*, and this is the likely identity of the single specimen figured from the bait trail.

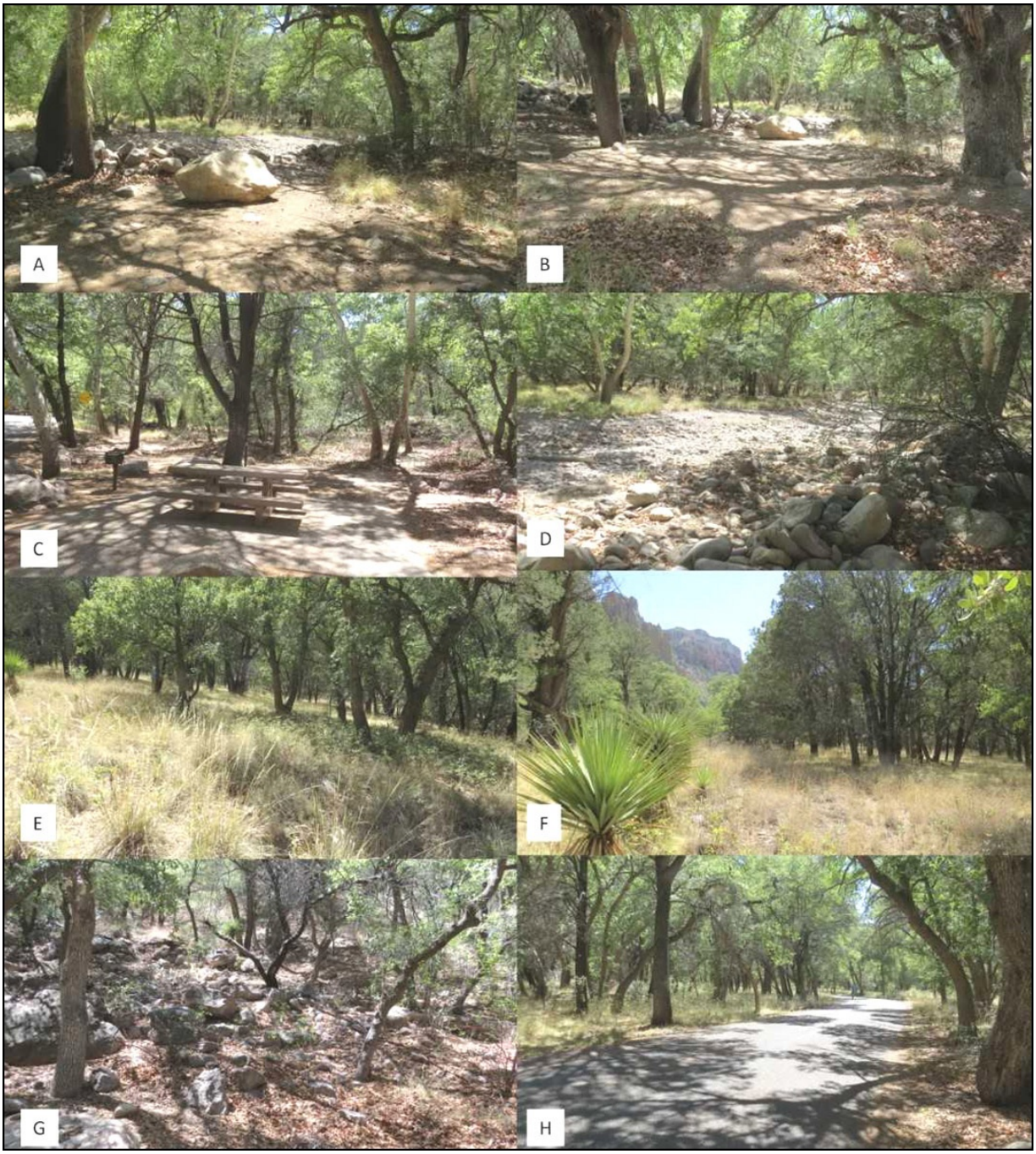

Figure 1: Habitats in the vicinity of Sunny Flat Campground Site 1: A-B: MV Sheet Site in oak woodland at edge of dry wash. C: Sunny Flat Campground Site Number 1. D: Dry rocky wash through oak woodland (right side photo) and grassy oak savanna (top of photo). E: Grassy oak savanna. F: Mixed woodland and grassy savanna. G: Oak woodland with rocky, sparsely vegetated understory at camp site number 1. H: Part of bait trail along road.

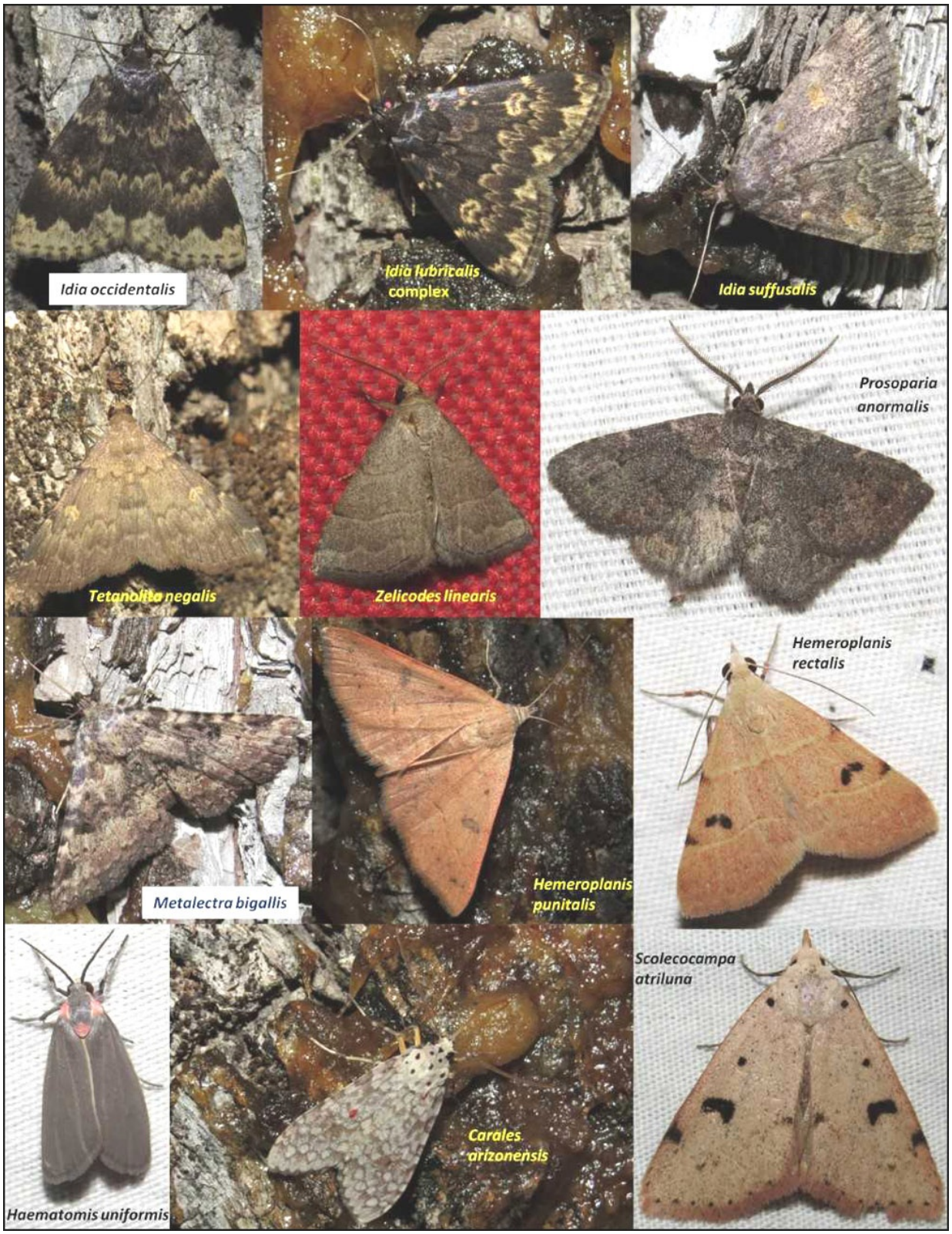

Figure 2: Arctiinae and Primitive Quadrifine Noctuidae.

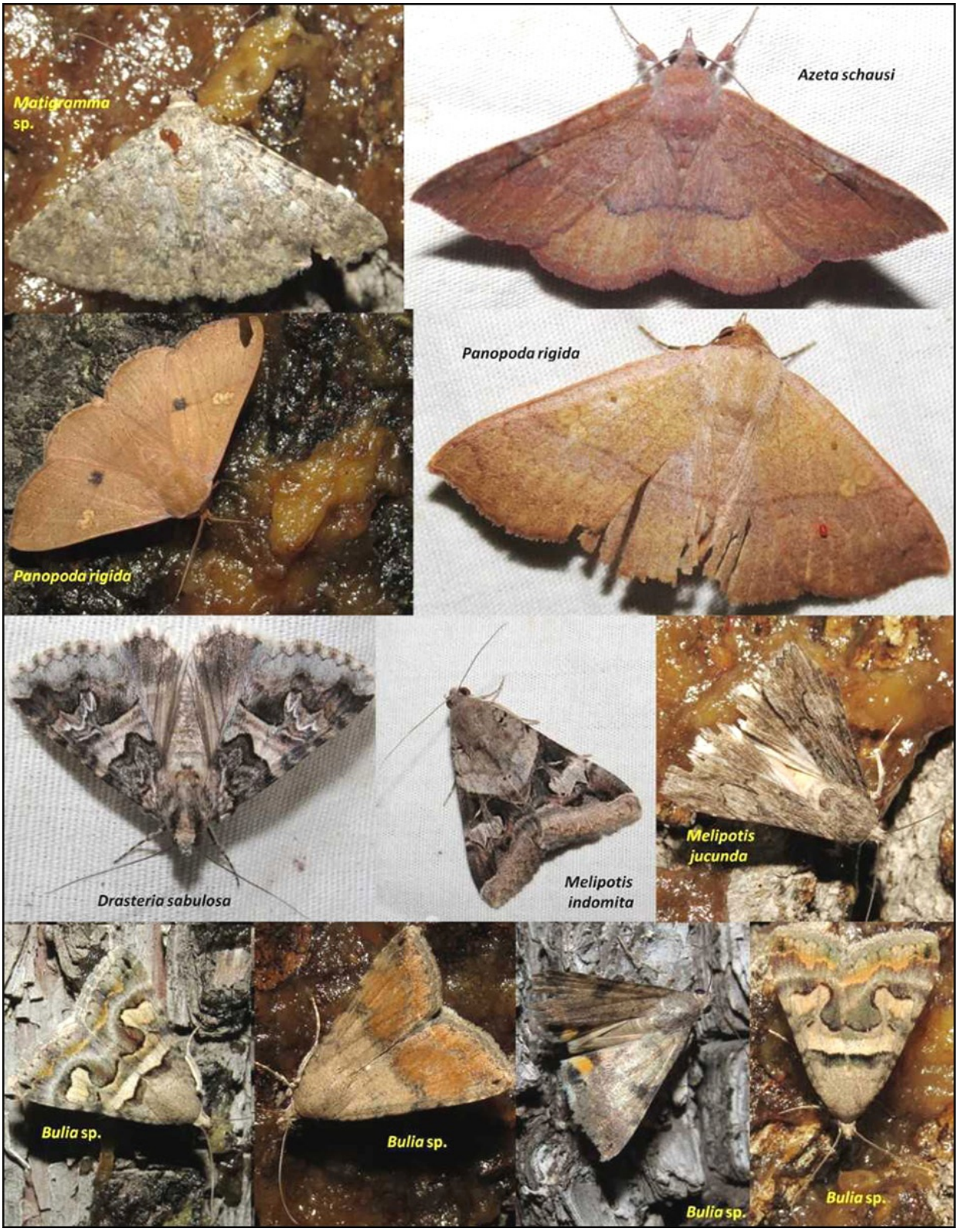

Figure 3: Quadrifine Noctuidae.

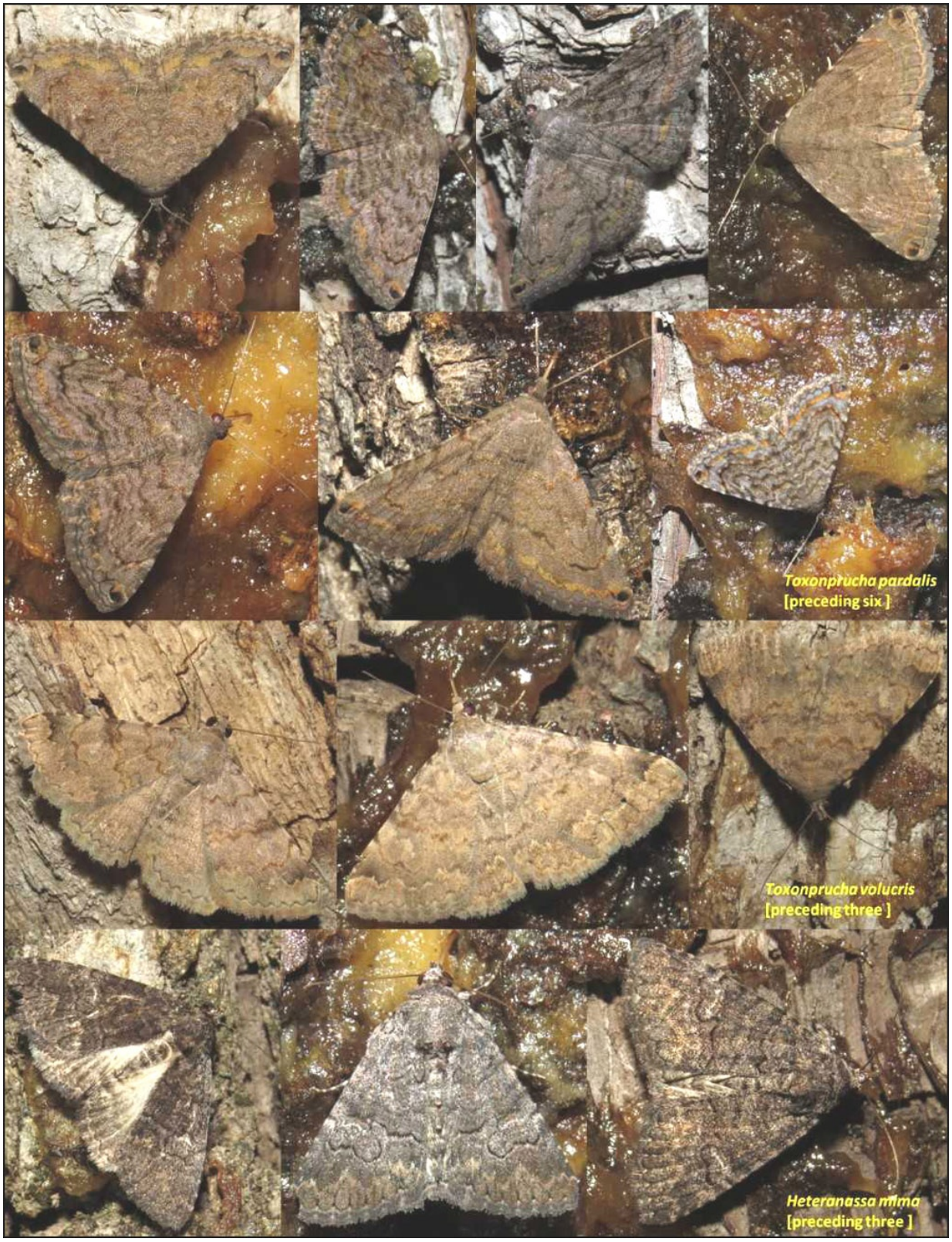

Figure 4: Noctuidae: Erebinae: *Toxonprucha* & *Heteranassa*.

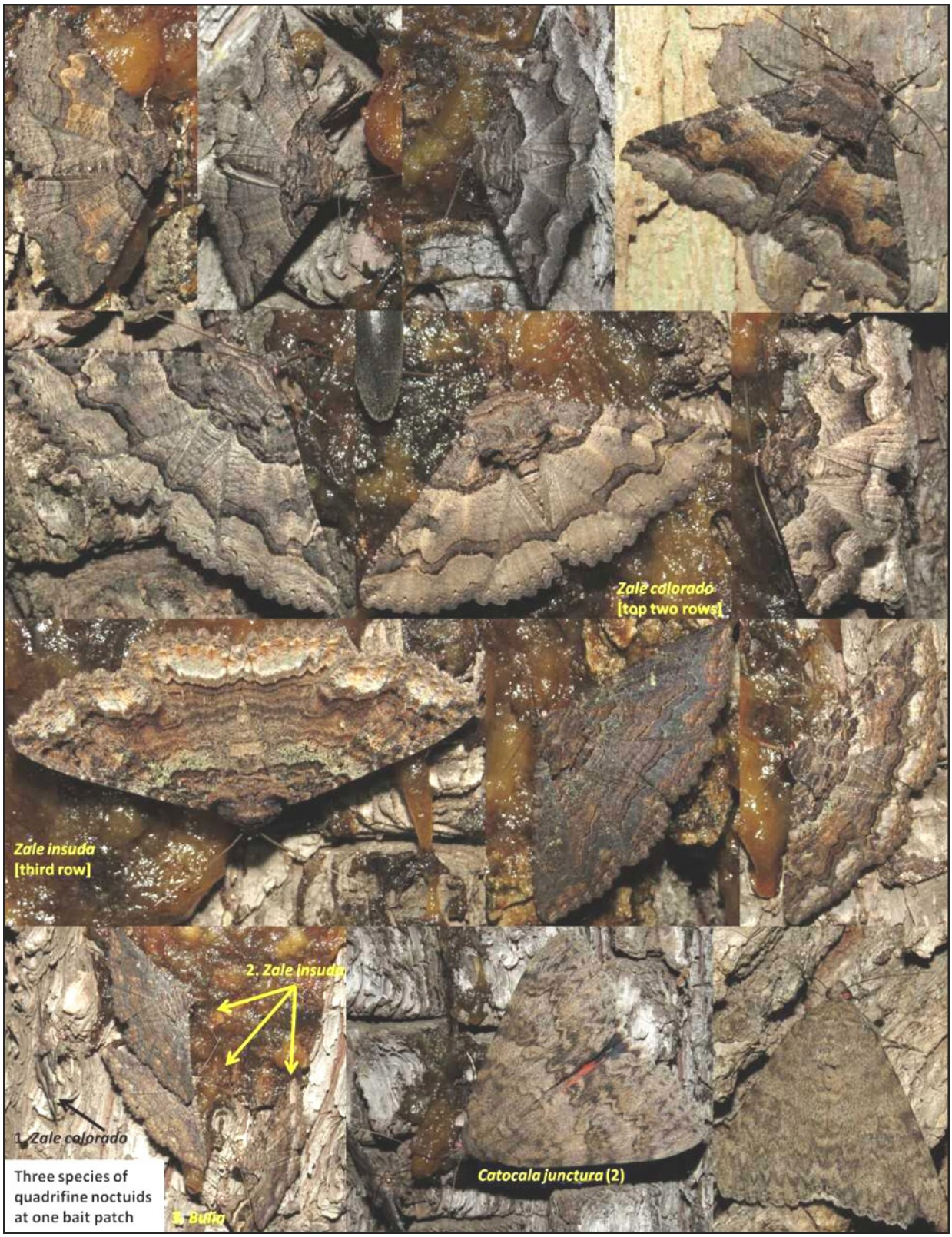

Figure 5: Noctuidae: Erebinae: *Zale* & *Catocala*.

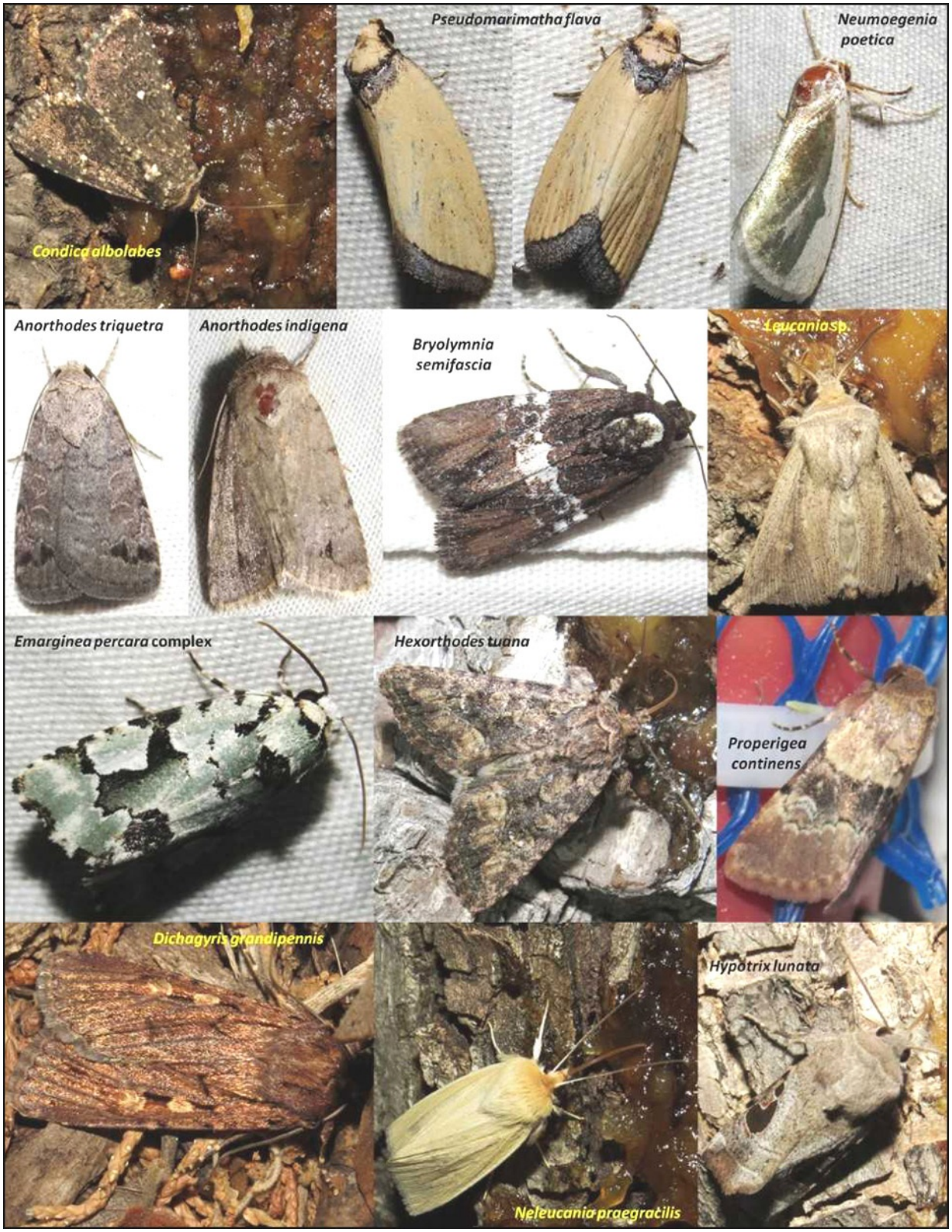

Figure 6: Trifine Noctuidae.

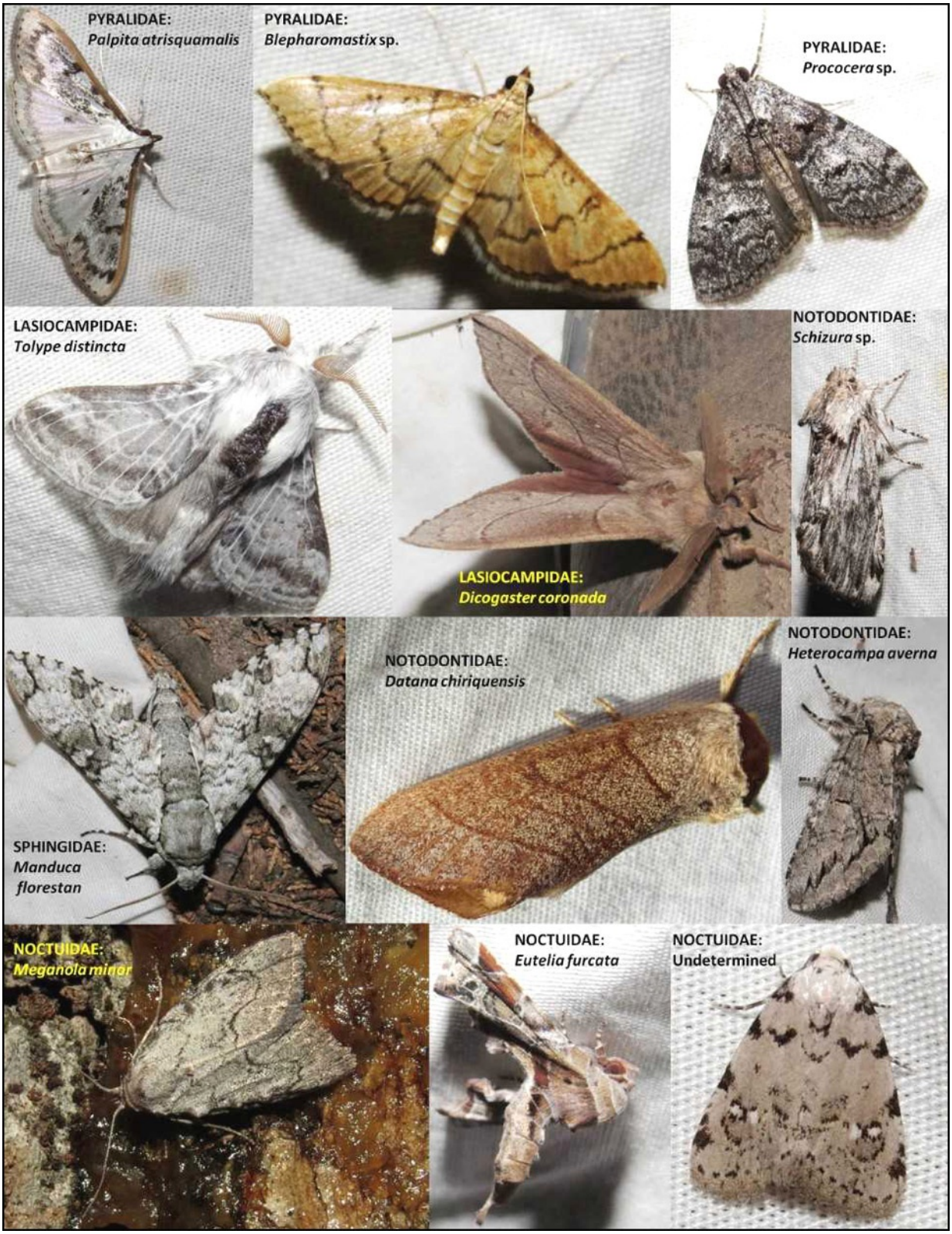

Figure 7: Pyralidae, Lasiocampidae, Notodontidae, & Noctuidae.

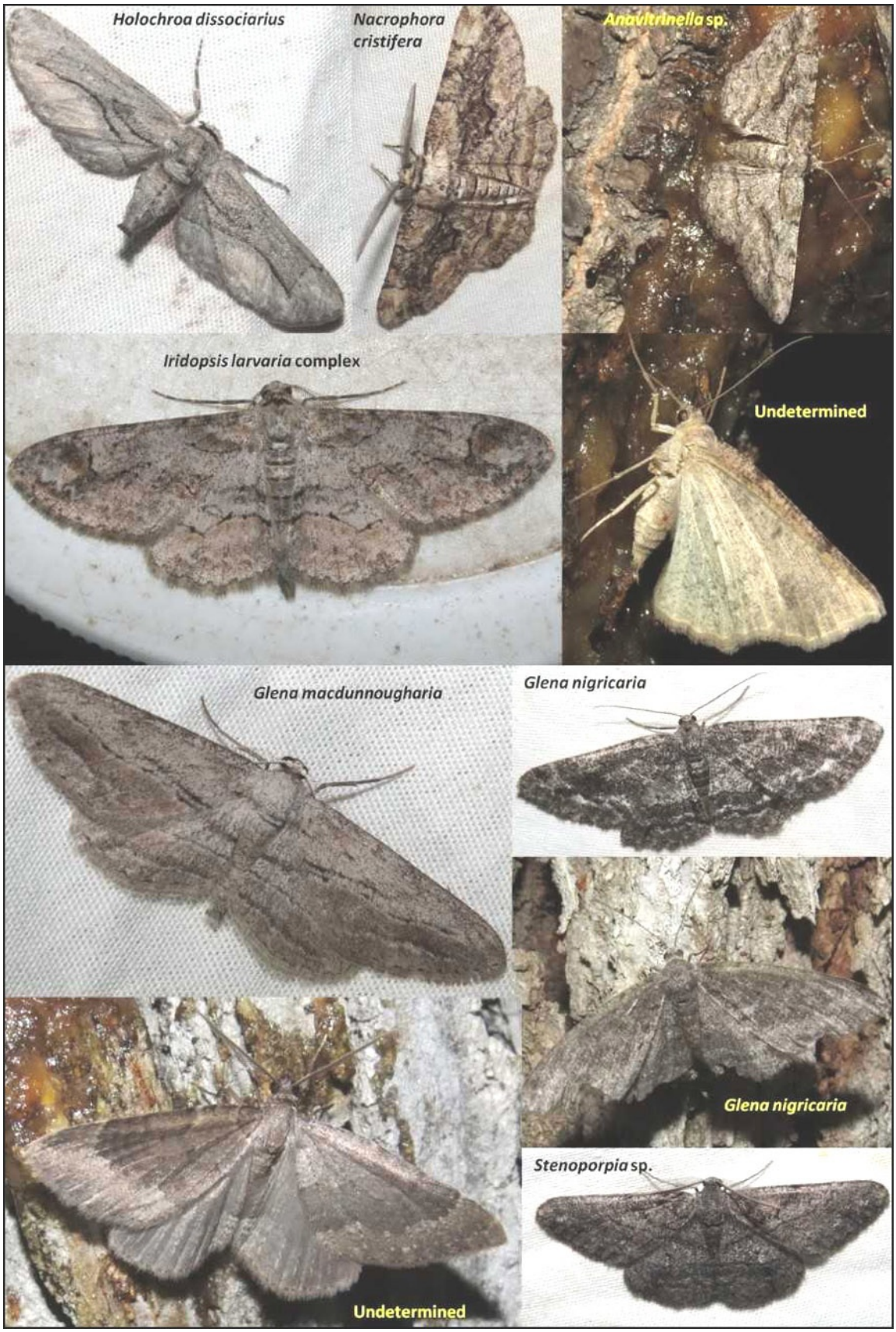

Figure 8: Geometridae.

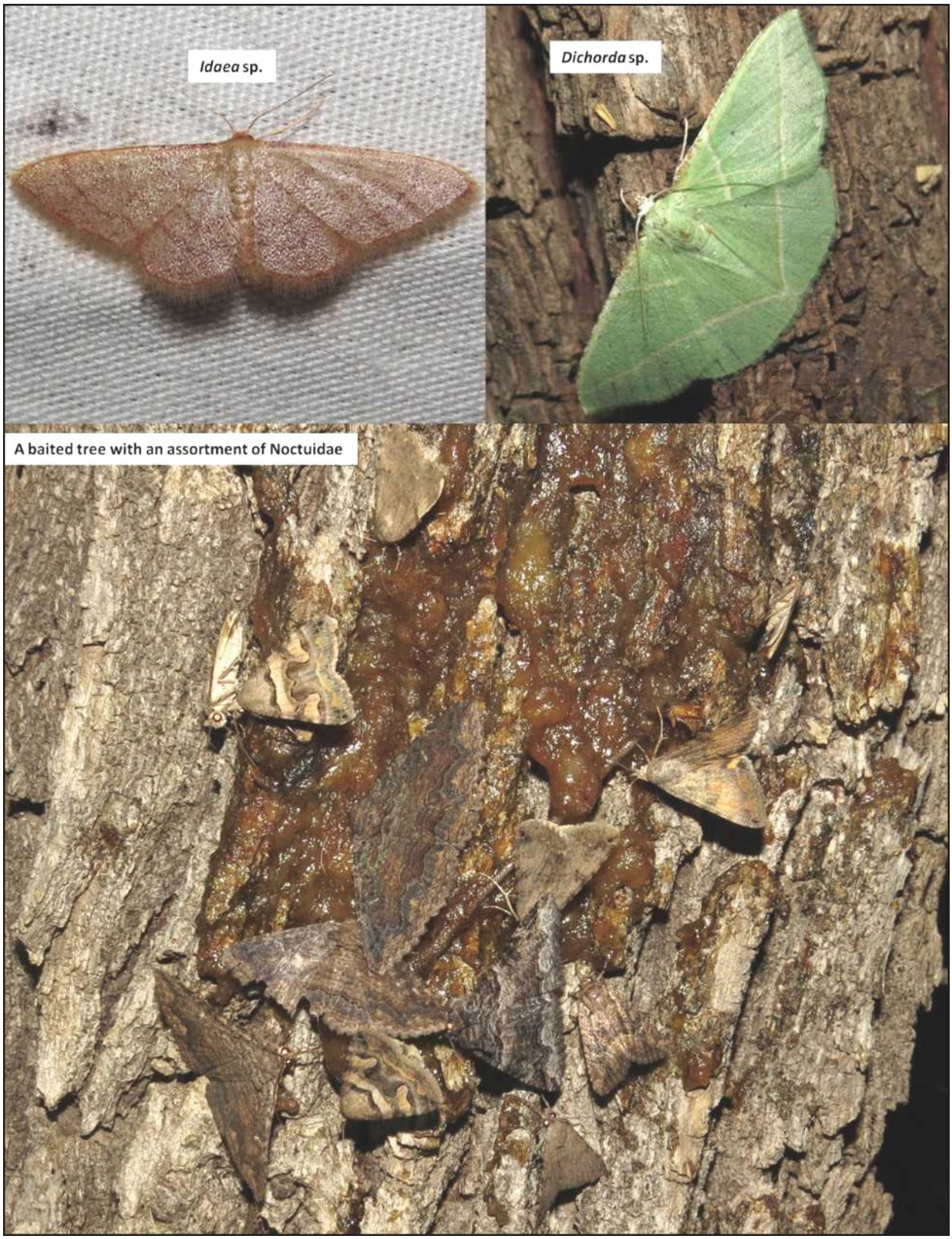

Figure 9: Geometridae and Example of a Baited Tree.

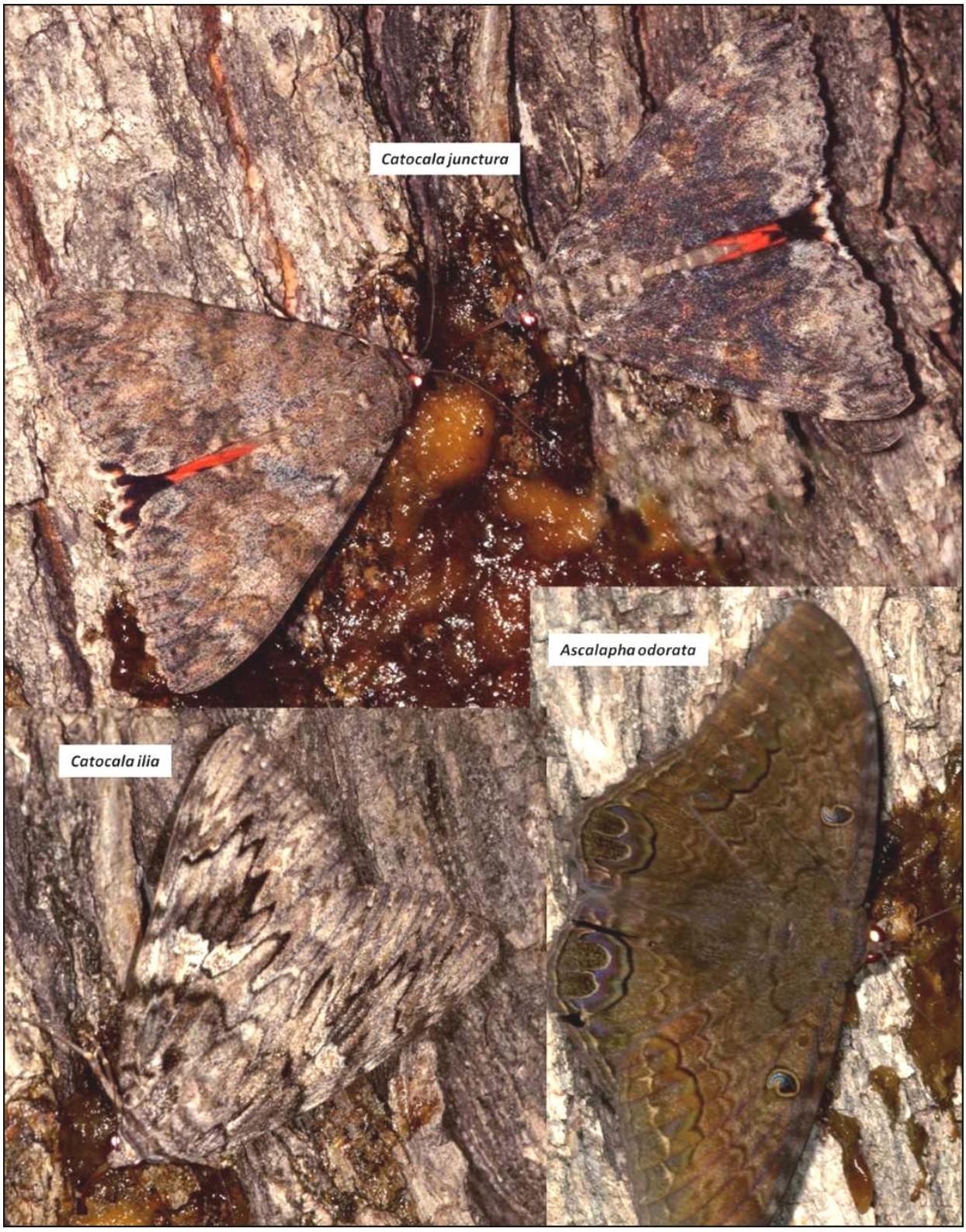

Figure 9: Noctuidae: Erebinae: *Catocala* & *Ascalapha*.

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