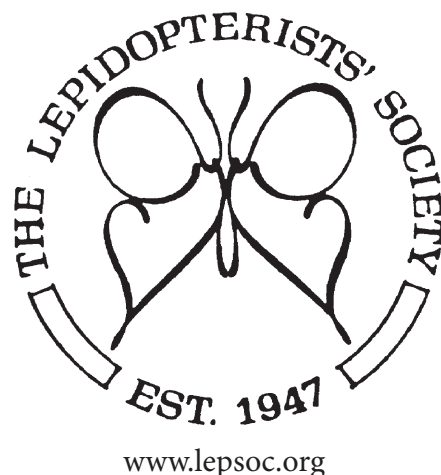

NEWS

OF THE

LEPIDOPTERISTS' SOCIETY

Volume 67, Number 1

Spring 2025



Inside:

Finding caterpillars with UV light in Stann Creek, Belize

Nothing in Montana, Wyoming, and Colorado (Lep Soc 2023 loop trip -- part 2)

Minnesota butterfly records and an assessment

Additional distributional records for the *Petrophila fulicalis* group (Crambidae)

Moss-mimicking caterpillar in Uttarakhand, India

Butterflies of Putumayo Department, Colombia

73rd Annual LepSoc Meeting Announcement, Election Results, Marketplace, Membership Updates, Book Reviews, Metamorphosis

... and more!



NEWS OF THE LEPIDOPTERISTS' SOCIETY

Volume 67, Number 1
Spring 2025

The Lepidopterists' Society is a non-profit educational and scientific organization. The objective of the Society, which was formed in May 1947 and formally constituted in December 1950, is "to promote internationally the science of lepidopterology in all its branches; to further the scientifically sound and progressive study of Lepidoptera, to issue periodicals and other publications on Lepidoptera; to facilitate the exchange of specimens and ideas by both the professional worker and the amateur in the field; to compile and distribute information to other organizations and individuals for purposes of education and conservation and appreciation of Lepidoptera; and to secure cooperation in all measures" directed towards these aims. (Article II, Constitution of The Lepidopterists' Society.)

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ISSN 0091-1348
Editor: James K. Adams

Front Cover:

The Bushveld Scarlet (*Axiocerses amanga*), KwaMhlanga, Mpumalanga, South Africa. January 25, 2025. Image by Lourens Erasmus. See also the back cover.

Testing ultraviolet light to locate caterpillars in the Stann Creek region of Belize

David Moskowitz

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Ultraviolet (UV) light continues to be a fantastic tool for locating caterpillars at night. A growing body of survey work is showing its utility in North America and Europe for finding a broad suite of families but there seems to be almost no focus on the tropics yet (see Further Reading). Testing in 2023 in Costa Rica (Moskowitz 2024) and last year in Belize confirm it can be a valuable methodology for increasing our knowledge about caterpillars in tropical habitats. From 30 November to 6 December 2024, I searched forested habitats at night along roads in the Stann Creek region of Belize for caterpillars using a UV Beast (V. 3) flashlight at 385-395 nm (uvbeast.com). Despite the vegetation being very dense and not knowing the flora or fauna, caterpillars, including early instars, were very easy to find along with highly fluorescent scorpions and other insects. In addition, the white cocoons of a parasite was seen under ultraviolet light. I was also able to easily locate the same caterpillars on successive nights. I tried a few daytime searches of the same areas but did not find any caterpillars, partly because of some trepidation about the number of scorpions found in the vegetation at night.

Although I have not been able to identify all the caterpillars (and a chrysalis) I found, caterpillars that fluoresced are in the Megalopygidae, Saturniidae, Limacodidae, Dalceridae and possibly Noctuidae, Erebiidae, Nymphalidae and Geometridae. Caterpillars found in Costa Rica in 2023 were in the Sphingidae, Limacodidae, Notodontidae, Noctuoidea and Nymphalidae. More testing of UV light and with different wavelengths in the tropics is certain to increase our knowledge of the caterpillars including host plant selection, growth and movement, survivability and parasites.

On the following four pages, the left (or upper) image is normal lighting, the right (or lower) image is UV lighting.

Acknowledgements

I'd like to thank the Hamanasi Resort, Anastacio Bol, Eric Bonilla and Lois Moskowitz for helping with the surveys.

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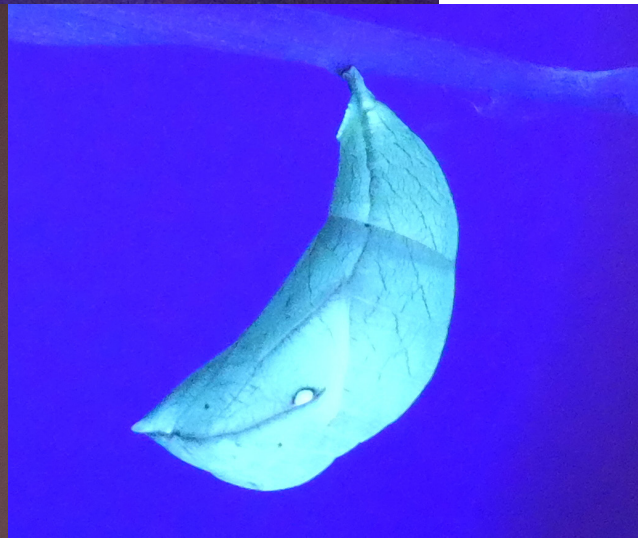
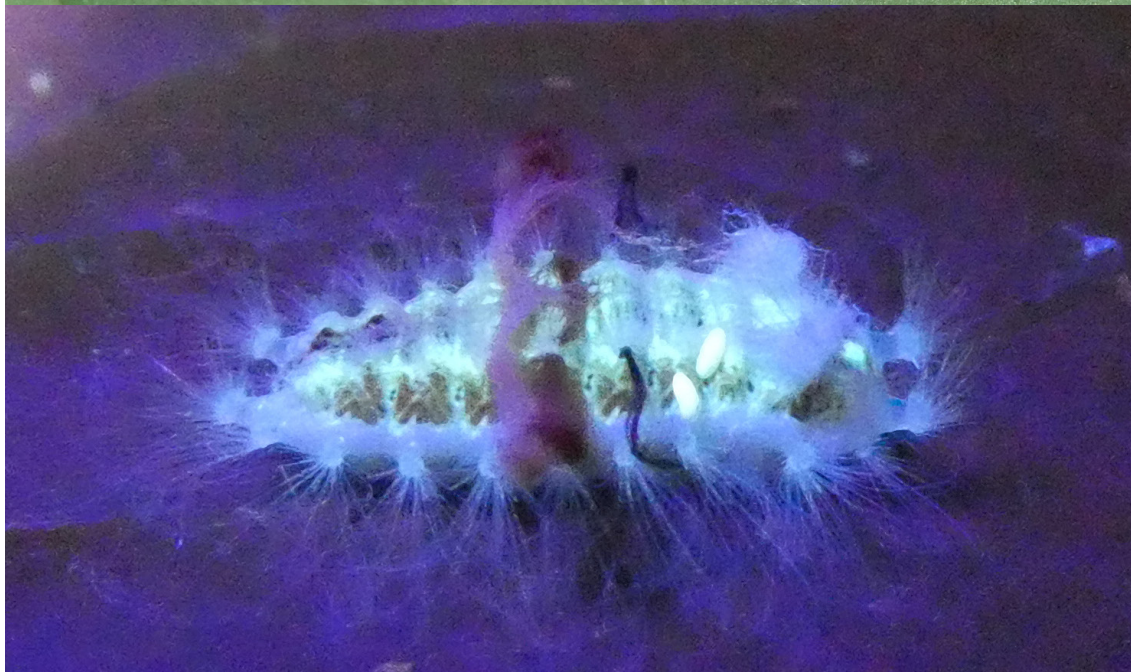
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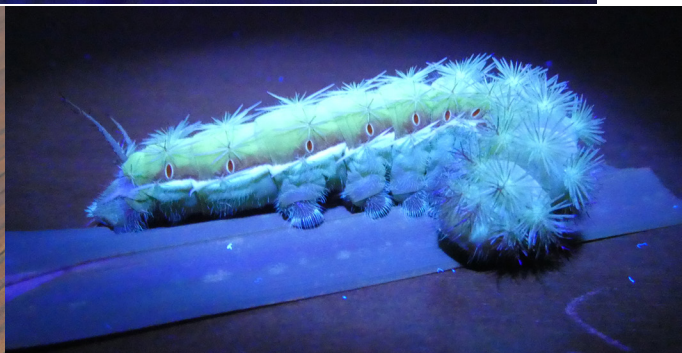


Top: A “jewel” larva in the family Dalceridae. **Second row:** A larva in the limacodid genus *Natada*. **Third Row:** A classic “puss moth” larva in the family Megalopygidae. **Bottom row:** Another megalopygid larva.



Top and Middle: A megalopygid larva (see last row previous page) with parasitoid cocoons visible towards the front right of the larva. The cocoons are MORE obvious as very bright "white" ovals in the ultraviolet image. **Below:** A nymphalid chrysalis of some type.





Top and Middle: Another megalopygid larva in the genus *Norape*. The verrucae are remarkable under ultraviolet light. **Bottom row:** A saturniid larva, in the genus *Automeris* or a close ally.



Top row: A butterfly larva, possibly a nymphalid. **Second row:** Another nymphalid larva, likely a satyrine. **Third Row:** A very fuzzy larva, possibly a noctuid. **Fourth & Bottom Rows:** Two erebid larvae, possibly arctiine.

James and Brian's excellent adventure: Mothing in the plains and mountains to and from the 2023 Lep Soc meeting in Billings, Montana. Part 2

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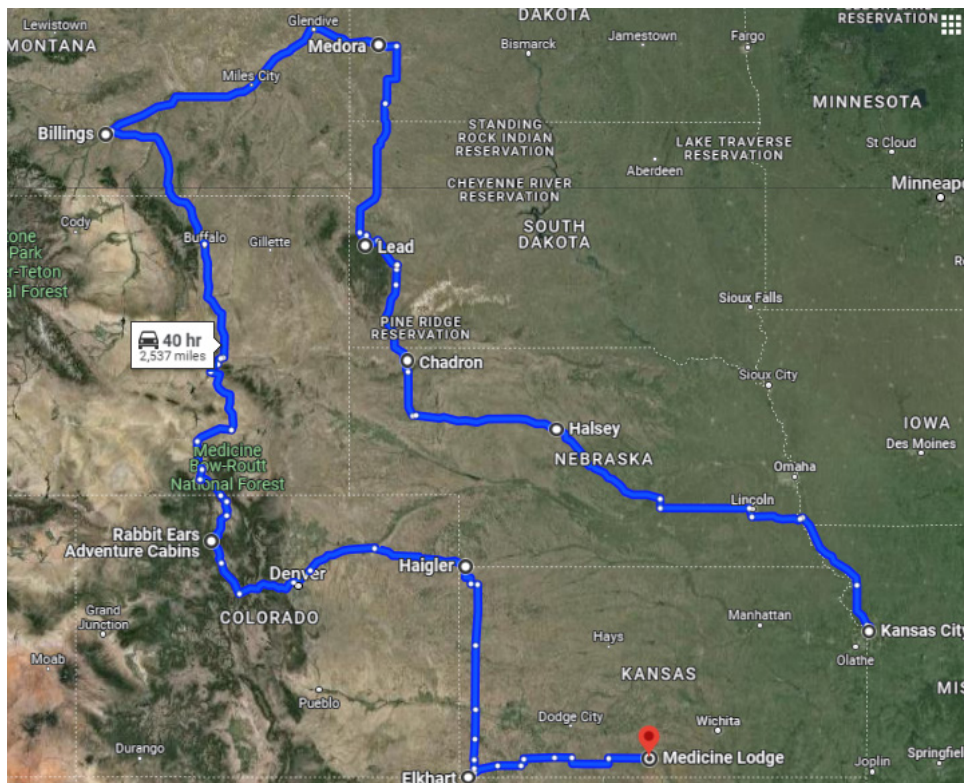


Fig. 1. The mothing “loop” trip of summer 2023. Trips and trapping near Billings and to the southwest on the Beartooth Plateau and beyond into Wyoming, Rabbit Ears Pass and Loveland Pass, Colorado, and the eastern plains of Colorado are discussed in this article. Image captured from Google Earth.

This is the second installment of this three-part adventure on a long loop trip (Fig. 1) that Brian Scholtens and I enjoyed in association with the 2023 Lepidopterists' Society meeting in Billings, Montana.

After three very productive nights at the Bar-X guest ranch SW of Medora in Billings Co., ND, Brian and I headed to Billings, Montana for the Lep Soc meetings. While there, Brian and I had different accommodations and had a chance to take different field trips. Jeff Phippen asked me to join him, accompanied by Montana/Wyoming butterfly guru Steve Kohler, on

a daytime field trip to the Beartooth Plateau and beyond in Montana and Wyoming. On the morning of July 22, we took the Beartooth Hwy. (Hwy. 212) southwest from Billings (Fig. 2) and actually went past the Beartooth into Park Co. Wyoming to begin the day. Our first stop was a location (Fig. 3), indicated by Ernest Williams, where we could encounter *Euphydryas gillettii* – we did! From there we continued to Clay Butte (Figs. 4-5) where the butterfly collecting was spectacularly good – *Parnassius smintheus* (Fig. 6), *Papilio zelicaon*, *Euphydryas anicia*, *Erebia* species (including *pawloskii*), and more,

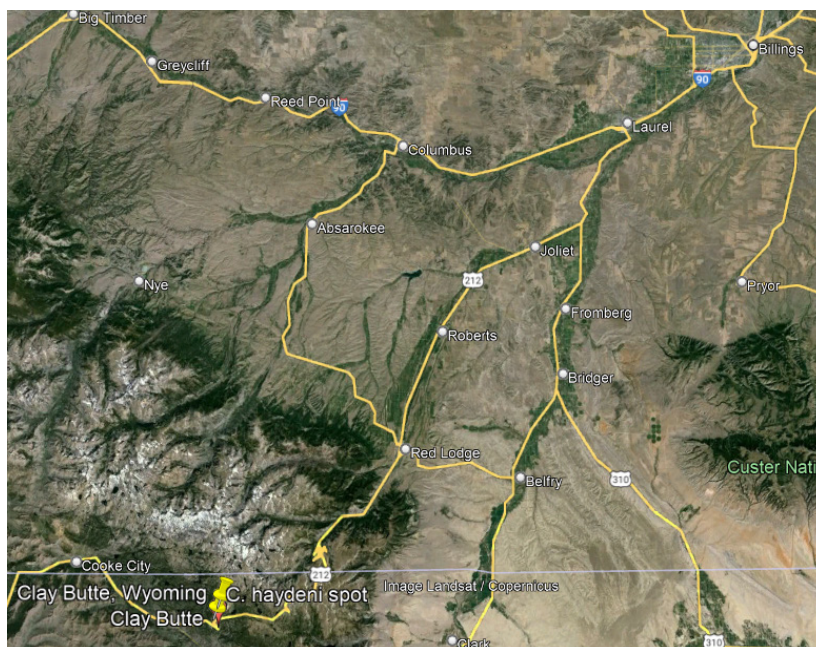


Fig. 2. Billings (upper right of this image) was the starting point for the Phippen/Adams/Kohler daytime field trip during the Lep Soc meeting. We took the Beartooth Hwy. (Hwy. 212) southwest from Billings, crossing the Beartooth plateau (obvious in the image) ultimately ending up at Clay Butte (lower left) in Park Co. Wyoming, with a few stops along the way. Image captured from Google Earth.



Fig. 3. An image of a meadow in the forest where we found *Euphydryas gillettii*.



Fig. 6. *Parnassius smintheus* visiting flowers on the summit of Clay Butte, Park Co., Wyoming, July 22, 2023.



Fig. 7. A brand new species of *Apantesis* from the open areas at the top of Clay Butte, Wyoming. **Fig. 8.** *Euphydryas editha* on the Beartooth Plateau, just south of the Montana border. July 22, 2023.

including a number of the day-flying *Arctia plantaginis* (see Fig. 17). I also collected a species of *Apantesis* (Fig. 7) in the grass, pointed out to me by Ben Mous (from Washington), that turned out to be a brand new species! From Clay Butte we went down highway 212 just a little farther west to a place where *Coenonympha haydeni* was rather common (see Fig. 4), and we capped the day off by coming back across the Beartooth and collecting a number of *Oeneis polixenes brucei* and *Euphydryas editha* (Fig. 8). It was a splendid day, resulting in four butterfly species I had never seen before (Fig. 9).

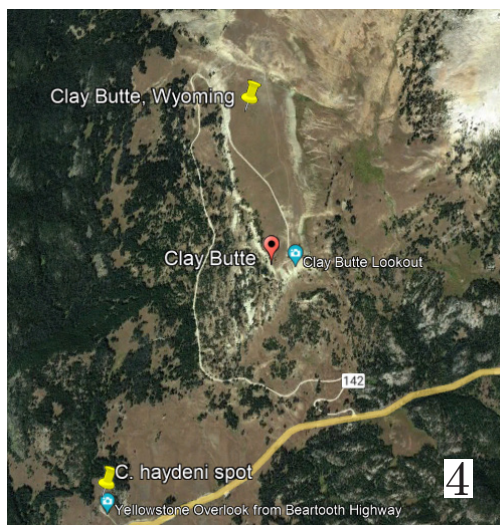


Fig. 4. The Google Earth image of the area around Clay Butte, Park Co., Wyoming. Clay Butte rises above treeline from the parking area on 142 spur (which is a turn off 212, the Beartooth Hwy., the yellow road visible in the image). **Fig. 5.** An image of the view from the top of Clay Butte; Ben Mous with a net on one of the hillsides.

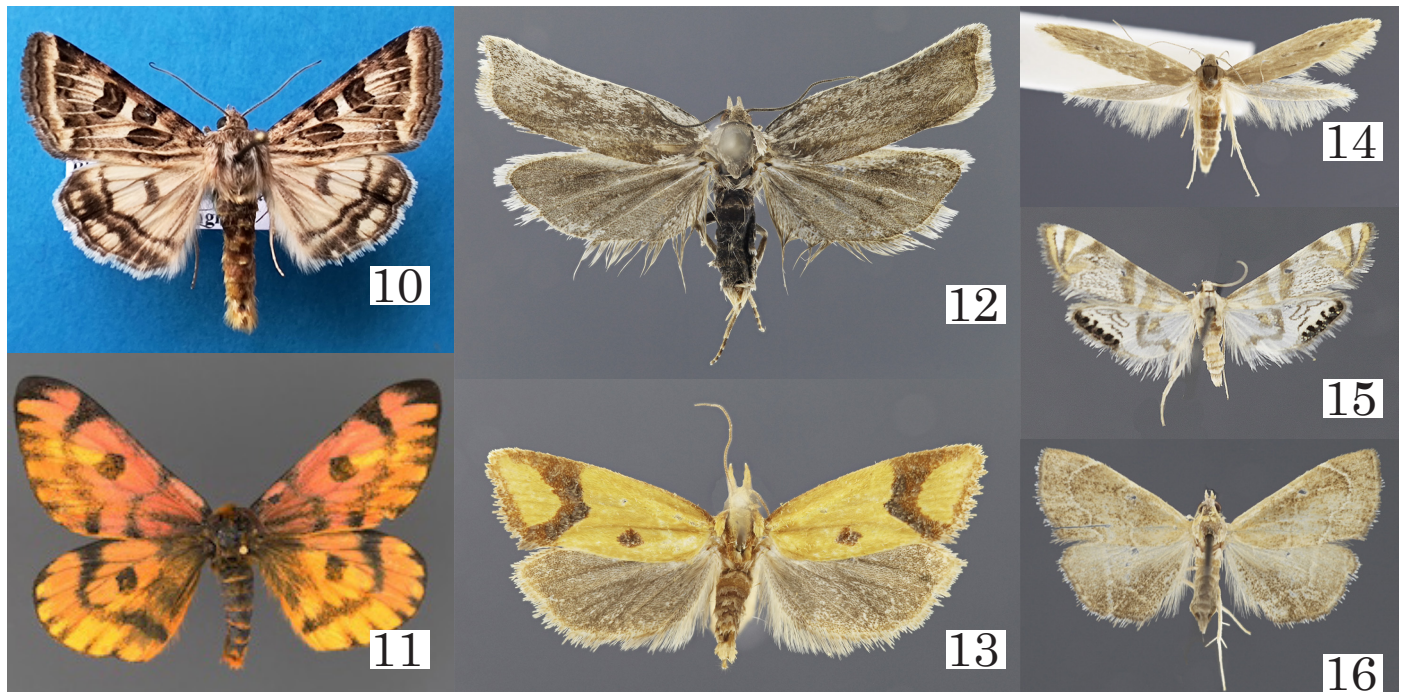


Fig. 9. The new butterfly species for James collected on July 22, 2023. Top row: *Euphydryas gillettii*, *Oeneis polixenes brucei*. Middle row: *Coenonympha haydeni* (upper- and undersides). Bottom row: *Erebia pawloskii* (upper- and undersides).

Although there were nighttime field trips available, I (James) used the time to catch up on a little sleep. Don Tangren, with whom I was sharing a rental, did share some of his *Protoschinia nuchalis* (Fig. 10) with me from one of his outings in the Billings area.

On a separate trip with Stuart Marcus, Brian duplicated several of the Beartooth species that James found, but also did some daytime moth collecting, including one *Hystrichophora stygiana* (Fig. 11), an apparent state record for Montana. He also went on a day trip just outside of Red Lodge with a good crowd of folks while James was stuck (!) in the Executive Council meeting. There was a good assortment of butterflies, particularly fritillaries, checkerspots, and blues, but also *Coenonympha haydeni* and the very pretty saturniid *Hemileuca eglanterina* (Fig. 12). He did a bit of night collecting on the two organized blacklighting trips in Billings, the riverfront park and Billings Audubon Center. Most records here were expected (Figs. 13-16), but there was at least one new county record, and the introduced biocontrol tortricid *Agapeta zoegana*, (Fig. 13) which was taken by several others on the trips.

When the meetings ended, Brian and I said our goodbyes to our lepidopterist colleagues. We headed south towards northern Colorado. In 2010, my mother (Eleanor Adams) and I were on our way back from the Lep Soc meeting in Leavenworth, Washington and passed through the Rabbit Ears pass area in northern Colorado, stopping during the daytime and collecting a really nice series of *Arctia plantaginis* (Fig. 17). We both commented on how the area looked like it would be great for some nighttime collecting, but we had already committed to travelling on to Boulder to visit my brother that evening. I vowed to return to the area someday and finally was able to on this trip. Brian and I stayed in the Rabbit Ears Adventure Cabins (Fig. 18), small but sufficient. The cabins were just a few miles downhill to the east from the area where my mom and I collected the *A. plantaginis* in 2010. The whole area was open national



Figs. 10. *Protoschinia nuchalis*. **Fig. 11.** *Hemileuca eglanterina*. **Fig. 12** *Hystrichophora stygiana* (a Montana state record). **Fig. 13.** *Agapeta zoegana*. **Fig. 14.** *Limnaecia phragmitella*. **Fig. 15.** *Petrophila kearfottalis*. **Fig. 16.** *Stegea salutaris*.



Fig. 17. A series of (all male) *Arctia plantaginis* collected by JKA and his mother Eleanor in the Rabbit Ears Pass area, northern Colorado, third week in July, 2010.

forest land, and the weather was good for collecting. The area had some really nice boggy areas, open hillsides (Fig. 19) with LOTS of flowers, and small ridgelines amongst the forest, and we were able to trap in several of these areas all within a few miles of the cabin (Fig. 20).

After setting the traps the first night, Brian set up a sheet outside the clubhouse at the cabins, and the moths started pouring in. Both of us commented on how we had never seen an area with the diversity of tortricids that we saw those nights at the cabin. Proportionally, that family seemed to dominate compared to other micros, perhaps because of the diversity of both woody and herbaceous plant species in



Fig. 18. The “Trapper Cabin” at Rabbit Ears Adventure Cabins.

the immediate area, particularly composites. There were a handful of species Brian was familiar with from northern Michigan (often *Populus* feeders), but the majority were new encounters. The genus *Pelochrista* was particularly diverse with 5 fairly abundant species (Figures 21-25). The next day was wonderfully sunny, and we had some nice collecting. In one of the open hillside meadows, we encountered a diversity of coppers (Fig. 26; see also Fig. 20). And in one of the boggy areas, we encountered some *Colias*, a number of lesser and greater fritillaries, and *Arctia plantaginis* (see Fig. 17) was on the wing, as was the pericopine *Gnophaela vermiculata* (Fig. 27).

The two nights at this location provided a number of good records and a few state records. The plusiines (Fig. 28) were delightful here, with an abundance of the Rocky Mountain race of *Polychrysis morigera*, *Autographa*



Fig. 19. One of the open fields in the Rabbit Ears Pass area, with lots of flowers in bloom. **Fig. 20.** The Rabbit Ears Pass area (Grand/Jackson Cos.), with trap/collecting locations designated along Hwy., 40. The Rabbit Ears Adventure Cabins are in the lower right. Image from Google Earth.



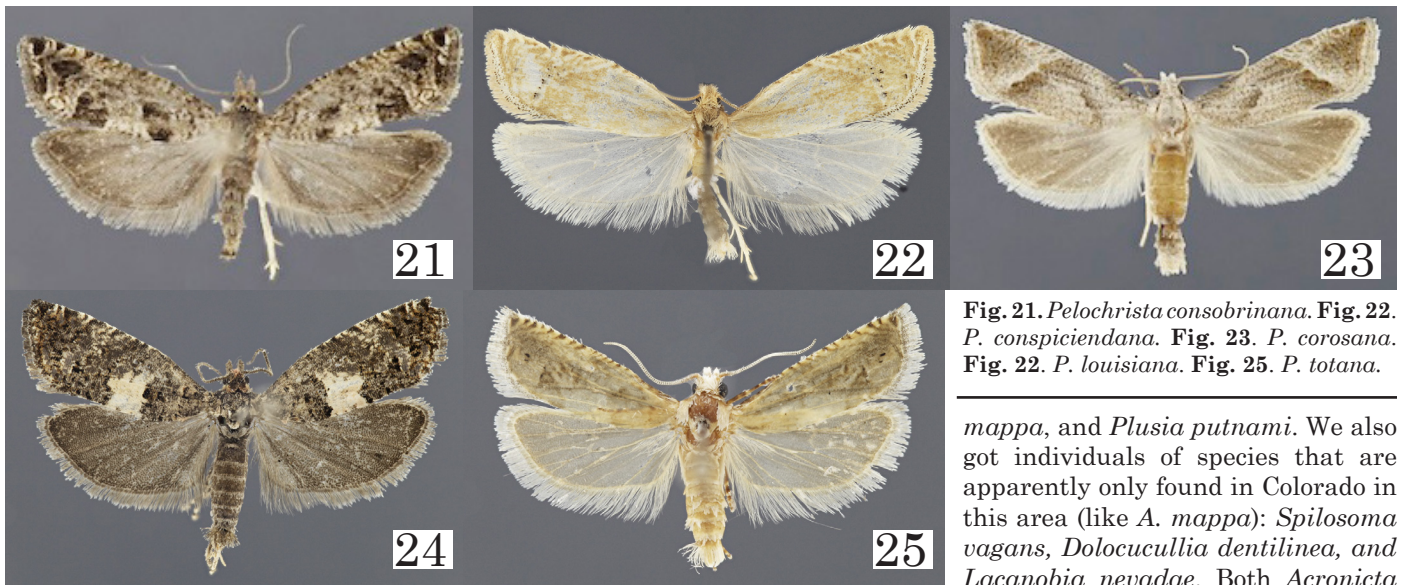


Fig. 21. *Pelochrista consobrinana*. Fig. 22. *P. conspiciendana*. Fig. 23. *P. corosana*. Fig. 24. *P. louisiana*. Fig. 25. *P. totana*.

mappa, and *Plusia putnami*. We also got individuals of species that are apparently only found in Colorado in this area (like *A. mappa*): *Spilosoma vagans*, *Dolocucullia dentilinea*, and *Lacanobia nevadae*. Both *Acronicta fragilis* and *Hypocoena inquinatus* (Figs. 29-31) appear to be significant range extensions southward in the Rocky Mountains and definite Colorado state records. Among the traditional micros, *Amydria curvistrigella*, *Micrurapteryx occulta*, *Epermenia stolidota*, *Myelopsis alatella*, and *Pediasia dorsipunctellus* all appear to be state records (Figs. 32-36). Others are at the edge of their range in the Rabbit Ears area or are slight range extensions, including *Apotomis infida*, *Eucosma corculana*, *Pelochrista consobrinana* (see Fig. 21), *Ambesa walsinghami*, *Catoptria latiradiellus*, and *Gesneria centuriella* (Figs. 37-41).



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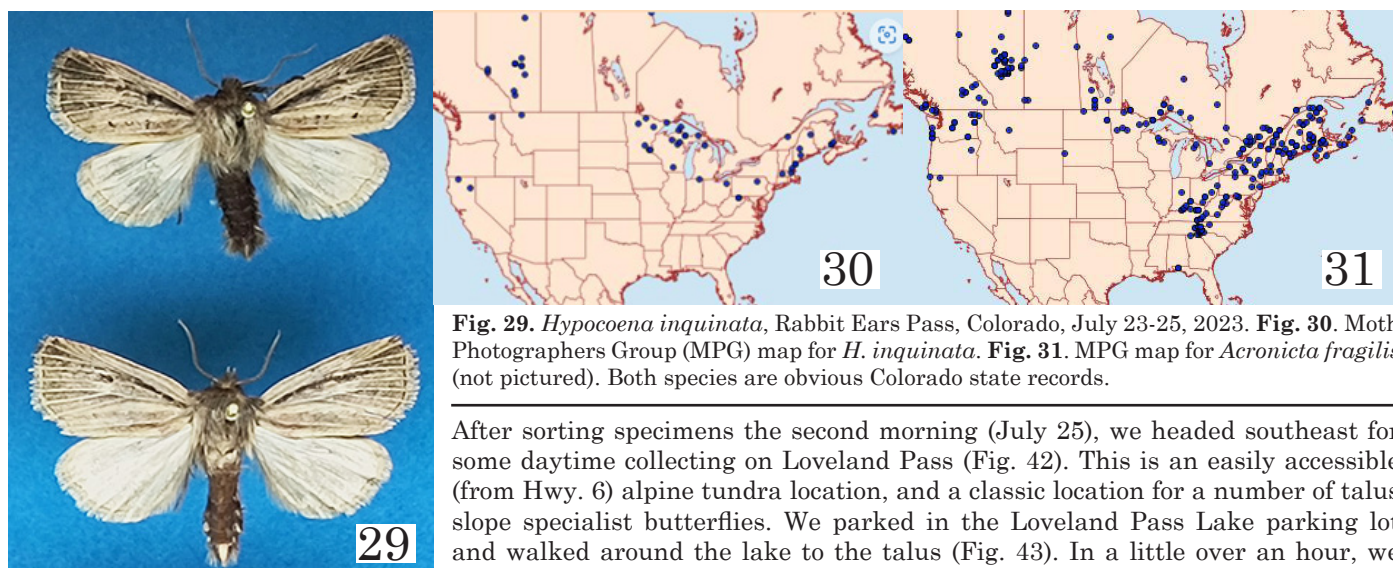
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Fig. 26. Rabbit Ears Pass Coppers. Top row: *Tharsalea rubidus*, *T. heteronea*. Middle row: *T. editha* (male and female). Bottom row: Two *T. helloides*. Fig. 27. *Gnophaela vermiculata*.



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Fig. 28. Rabbit Ears Pass plusiines. Top row: *Polychrysia morigera* (Rocky Mountain "race"). Middle row: *Plusia putnami*. Bottom row: *Autographa mappa*.



After sorting specimens the second morning (July 25), we headed southeast for some daytime collecting on Loveland Pass (Fig. 42). This is an easily accessible (from Hwy. 6) alpine tundra location, and a classic location for a number of talus slope specialist butterflies. We parked in the Loveland Pass Lake parking lot and walked around the lake to the talus (Fig. 43). In a little over an hour, we

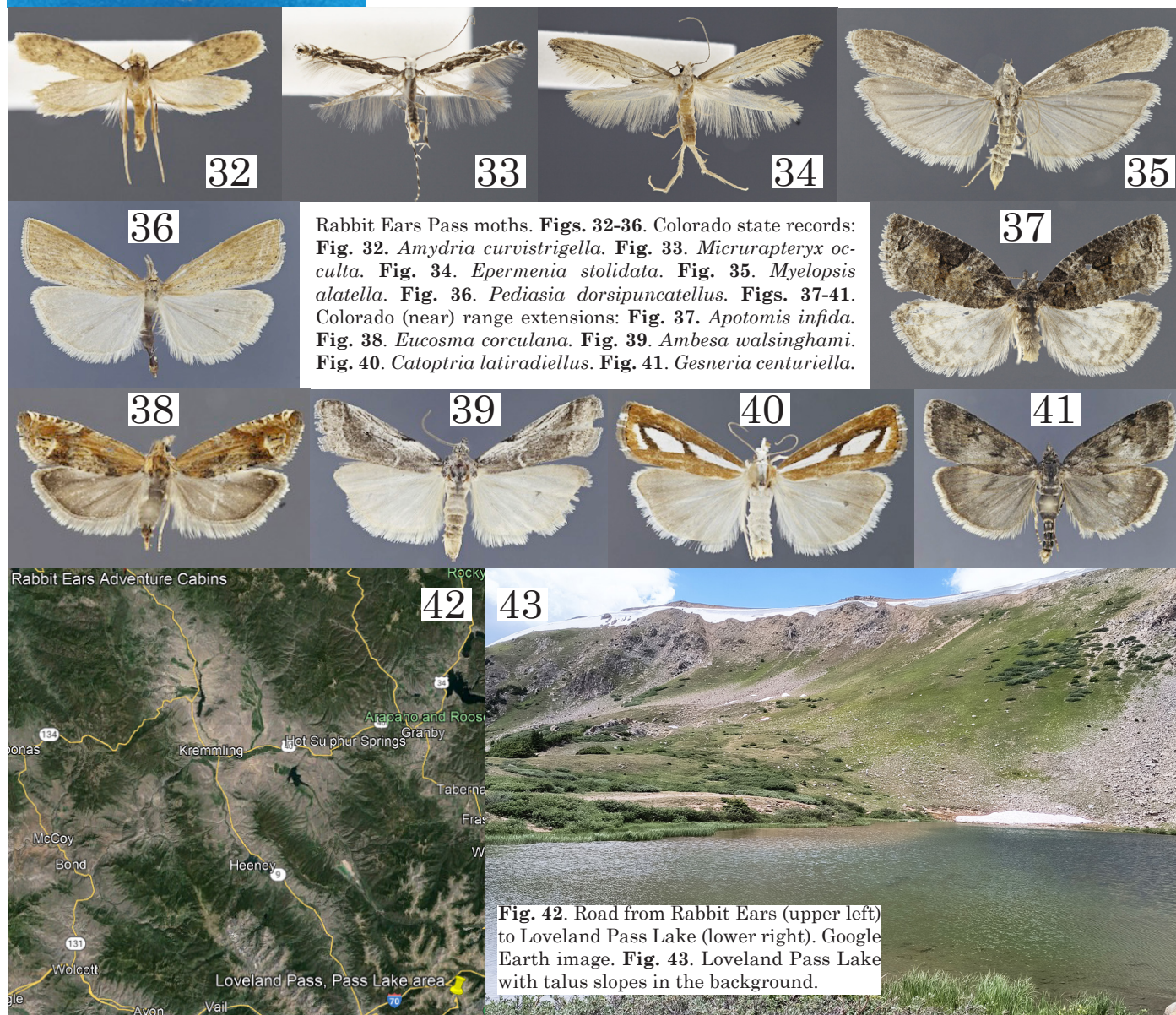




Fig. 44. Talus slope specialist butterflies from Loveland Pass Lake, Summit Co., Colorado. Left: *Chlosyne whitneyi* (male top; female bottom). Upper right: *Lycaena cupreus snowi* (male left; female right). Bottom right: *Erebia magdalena*. July 25, 2023.

were able to catch all three of the rock slope species found here – *Erebia magdalena*, *Chlosyne whitneyi*, and *Lycaena cupreus* (Fig. 44; which made for five copper species in two days), as well as some blues, lesser fritillaries, *Colias meadii*, *Pyrgus centaurae*, and high-altitude *Pyla* species (Fig. 45). Thankfully the weather stayed sunny into the early afternoon – it often clouds over as the day advances.

I left Brian on Loveland Pass to visit my brother William and family in Boulder (mentioned above). Brian continued to collect that afternoon, visited again in the late morning

on July 26 for some additional collecting and then drove to spend the night at Sterling, CO in the eastern plains. He chose the Ramada Inn at the edge of town to stay for the night. As it turned out, the entire interior of the building was being remodeled so few people were staying, and the construction crews had been leaving the doors open to the central courtyard. Moths had been attracted into the 2-story light trap for probably several nights and had conveniently positioned themselves under all the lights just outside the many vacant rooms as well as those near the exterior doors. Although Brian didn't

collect all the species available, he gathered specimens (Figs. 46-50) of 14 species, including *Catocala juncitura*, *Lobocleta peralbata*, *Sitochroa chortalis*, *Pelochrista totana* (see Fig. 25), and *Scythris trivinctella*. Especially abundant were *Suleima helianthana* and *Homoeosoma electella*, both feeders on the extremely abundant sunflowers in the fields just outside the doors and *Platynota nigrocervina*, which has larvae that use several crop plants.

Stay tuned for the last installment of our excellent adventure in the Summer 2025 issue of the News!



Fig. 45. *Pyla* sp., Loveland Pass Lake, Summit Co., Colorado, July 25, 2023. **Figs. 46-50.** Moths from Sterling, Logan Co., Colorado, July 26-27, 2023. **Fig. 46.** *Sitochroa chortalis*. **Fig. 47.** *Scythris trivinctella*. **Fig. 48.** *Suleima helianthana*. **Fig. 49.** *Homoeosoma electella*. **Fig. 50.** *Platynota nigrocervina*.

The Marketplace

IMPORTANT NOTICE to ADVERTISERS: If the number following your ad is "664" then you must renew your ad before the next issue if you wish to keep it in the Marketplace!

Equipment

WANTED: #P500 Cornell/California Entomology Case made by The Interior Steel Equipment Co. of Cleveland Ohio in the mid 1990's. Vertical steel cabinet (case) 72" high x 22-7/8" wide x 18-7/8" deep. Color #32 beige. Holds 21 California Academy or Cornell sized drawers. Please contact Mark Druckenbrod at cdruckenbrod@gmail.com 671

AVAILABLE: 25 USNM drawers and unit trays, enough to fill all 25 drawers. Unit trays are of various sizes. Interested party(-ies) would need to pay to have them shipped. If an interested party is close enough, that person could arrange to pick them up or have them picked up. Contact Mike Gilligan (mtgillig@tds.net). The address, if you wish to pick them up, is 16721 County Rd. 109, Arcadia, OH 44804. 671

Tropical Trips

Bhutan, September 6-16, 2025

See ThaiButterflies.com and/or AntonioGiudici.com.

PRICE: the all-inclusive tour will cost 3,295 \$ per person.

DATES: 6 to 16 September 2025

CHARGES: gasoline, driver, guidance, domestic flight, highway fees, food, drinks (not alcoholic), accommodation in double room are included.

PAYMENT 50% at the time of the booking. The rest not less than 60 days from the beginning of the tour.

CANCELLATIONS up to 60 days before, will be refunded the 50% of the amount paid. Less than 30 days before, no refund.

FLIGHTS: there are direct flights Drukair to Paro from Bangkok, Singapore, Dubai and the main Indian towns. **HOTELS:** are booked by ThaiButterflies.com, 3/4 stars.

MEALS: breakfast at the hotel, lunch usually snacks, sandwiches and beverages from the hotel, paid by organizers, dinner in town or at the hotels.

ENTRY REQUIREMENTS: Your passport must be valid for a period of 6 months beyond the expected exit date. It is your responsibility to ensure that you obtain any necessary tourist visa prior to departure.

VISA fee is 40 US\$ per person, not included.

TRAVEL INSURANCE: This is compulsory and must include full medical and emergency repatriation cover.

LIABILITY: By joining this tour you accept that you travel entirely at your own risk and that you absolve ThaiButterflies.com from and against any and all liability financial or otherwise resulting from accident, injury, illness, theft, or from flight cancellations/delays or failure by the ground agent or local guide to provide requested services.

TOUR HOURS: Depending the needs, usually we move at 7.30/8am to our destination. Depending on the day and the distance, usually we are back to the hotel at 4/5pm. Time to relax, rest and wait for the dinner usually at 7pm.

The aim of the Marketplace in the **News of the Lepidopterists' Society** is to be consistent with the goals of the Society: "to promote the science of lepidopterology...to facilitate the exchange of specimens and ideas by both the professional and the amateur in the field..." Therefore, the Editor will print notices which are deemed to meet the above criteria, without quoting prices, except for those of publications or lists.

We now accept ads from any credible source, in line with the New Advertising Statement at the top of this page. **All advertisements are accepted, in writing, for two (2) issues unless a single issue is specifically requested.** All ads contain a code in the lower right corner (eg. 564, 571) which denotes the volume and number of the **News** in which the ad first appeared. **Renew it Now!**

Note: All advertisements must be renewed before the deadline of the

third issue following initial placement to remain in place.

Advertisements should be under 100 words in length, or **they may be returned for editing.** Some leeway may be allowed at the editor's discretion. Ads for Lepidoptera or plants must include full latin binomials for all taxa listed in your advertisement.

The Lepidopterists' Society and the Editor take no responsibility whatsoever for the integrity and legality of any advertiser or advertisement. Disputes arising from such notices must be resolved by the parties involved, outside of the structure of The Lepidopterists' Society. Aggrieved members may request information from the Secretary regarding steps which they may take in the event of alleged unsatisfactory business transactions. A member may be expelled from the Society, given adequate indication of dishonest activity.

Buyers, sellers, and traders are advised to contact state department of agriculture and/or ppqaphis, Hyattsville, Maryland, regarding US Department of Agriculture or other permits required for transport of live insects or plants. Buyers are responsible for being aware that many countries have laws restricting the possession, collection, import, and export of some insect and plant species. Plant Traders: Check with USDA and local agencies for permits to transport plants. Shipping of agricultural weeds across borders is often restricted.

No mention may be made in any advertisement in the **News** of any species on any federal threatened or endangered species list. For species listed under CITES, advertisers must provide a copy of the export permit from the country of origin to buyers. **Buyers must beware and be aware.**

A rare encounter with a moss-mimicking caterpillar in Kedarnath Wildlife Sanctuary, Uttarakhand, India

Ashirwad Tripathy

Forest Entomology Discipline, Forest Protection Division, Forest Research Institute, Dehradun,
Uttarakhand, 248006, India ashirwadresearch101@gmail.com

During a two-year field survey on ants in Jagpura (30°28'19"N, 79°08'06"E; 1940 m MSL), Rudraprayag district, Kedarnath Wildlife Sanctuary, I had a fascinating encounter on 13 August 2024 with Temp. 22 °C and RH 84 %. While examining the moss-covered trunk of a *Lyonia cf. ovalifolia* tree, I discovered a caterpillar remarkably camouflaged among the moss. The tree was filled with *Atrichum* sp. (Polytrichaceae) moss, and the caterpillar was hiding within the moss.

The forest type is Himalayan Moist Temperate Deciduous Forest, with dominant tree species including *Aesculus* sp., *Betula alnoides*, *Alnus nepalensis*, *Daphniphyllum himalense*, *Machilus odoratissima*, *Carpinus viminea*, *Cornus macrophylla*, *Cornus oblonga*, *Viburnum mullaha*, *Symplocos theifolia*, *Symplocos crataegoides*, *Rhododendron arboreum*, *Stranvaesia nussia*, *Quercus glauca*, *Quercus leucotrichophora*, and *Lyonia* sp. (Fig. 1).



Fig. 2: The profile of the unknown moss mimicking caterpillar.



Fig. 1: Habitat of the caterpillar in the Himalayan Moist Temperate Deciduous Forest.

The caterpillar was whitish-green, with green scoli resembling moss leaves, blending seamlessly with its surroundings. Its ventral body had a bluish-green hue (Fig. 3). This exceptional camouflage highlights the caterpillar's adaptation to evade predators in its mossy habitat (Fig. 2). The caterpillar was photographed and left in its natural habitat. Unfortunately, its

food plant could not be identified. Throughout my survey, no similar caterpillars were observed during the pre-monsoon, monsoon, or post-monsoon seasons of 2023 and 2024. This indicates that the caterpillar might be rare or highly seasonal. Based on its morphology, the caterpillar is likely a moth larva but the I could not identify it.

Moss mimicry in caterpillars is a fascinating yet sparingly documented phenomenon. Baul and Badon (2024) reported moss mimicry in the butterfly genus *Moduza* (Nymphalidae), highlighting its evolutionary adaptation to blend with its environment. Similar strategies are observed in other taxa, such as the Diptera subfamily Cylindrotominae (Imada, 2021). Chien (2020) provided photographic documentation of an unidentified caterpillar from the Arfak Mountains, West Papua, Indonesia (New Guinea), describing it as “a caterpillar camouflaged to look like its preferred substrate, feeding on epiphytic moss.” Additionally, Kay (2016) captured an image of a moss-mimicking caterpillar belonging to the family Saturniidae, while Anker (2007) photographed a caterpillar of *Adelpha serpa selerio* (Nymphalidae) with similar moss-mimicking adaptations in Panama.

This rare observation contributes to our understanding of the hidden beauty and ecological adaptations of our Lepidopteran fauna. Such discoveries not only enrich our knowledge of biodiversity but also underscore the importance of preserving these unique habitats. Further studies could unveil more about the life cycle, ecological role, and evolutionary significance of this remarkable caterpillar.

Acknowledgment

I would like to thank Miss Neha Binwal, Ph.D. Scholar, I.P.G. G.P.G. College of Commerce, Haldwani, Nainital, Uttarakhand,

for identifying the moss genus. Special thanks to Chief Wildlife Warden of Uttarakhand for providing permission to work in Kedarnath Wildlife Sanctuary.

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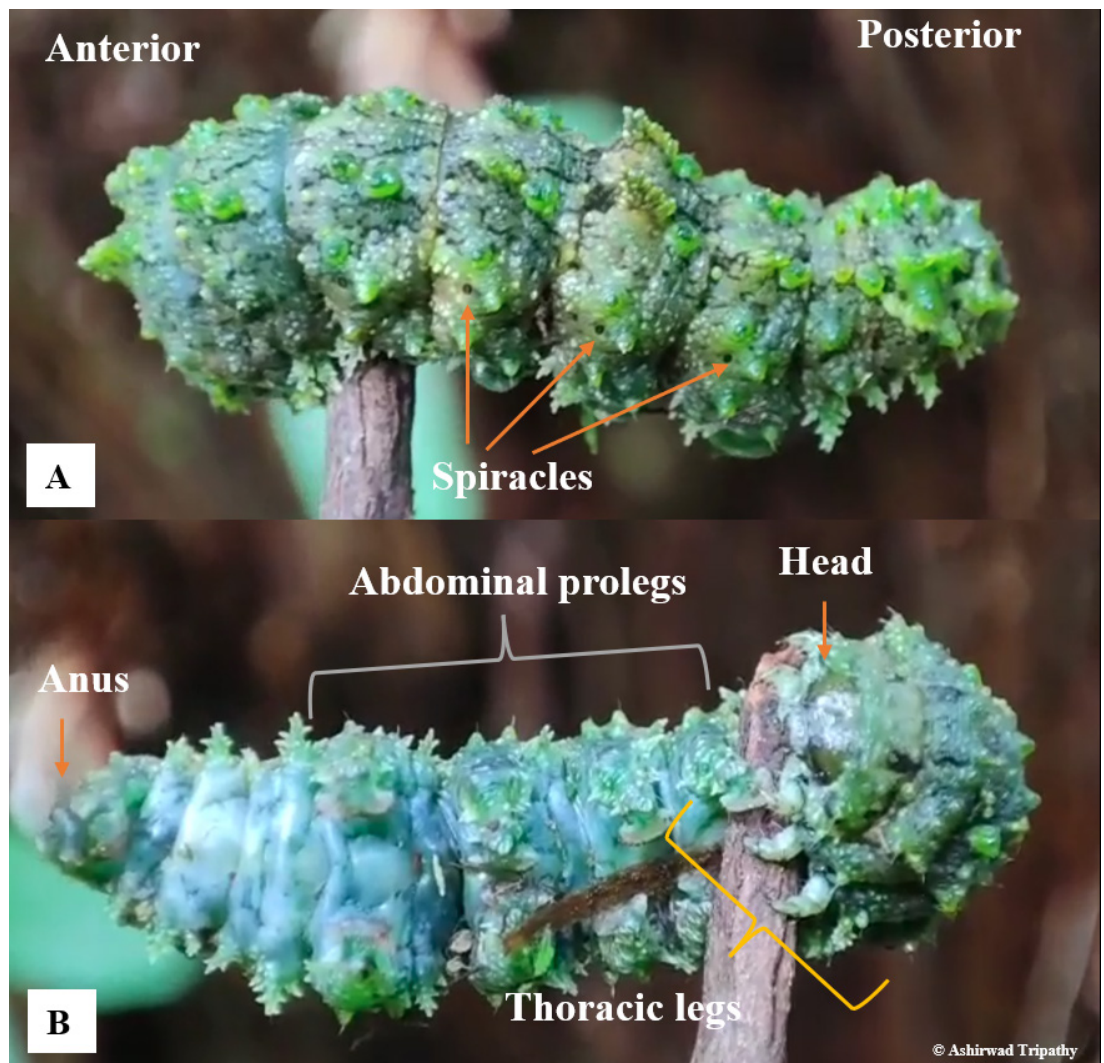


Fig. 3: The profile of the unknown moss mimicking caterpillar, higher magnification.

Announcements:

The Association for Tropical Lepidoptera

This society, founded in Gainesville in 1989, is a global network of professional and amateur lepidopterists who share a passion for studies and photography of the butterfly and moth faunas of the tropics. Our full-color biannual journal, *Tropical Lepidoptera Research*, is legendary for its scientific content, superb editing, and spectacular illustrations. Among the benefits of ATL membership are: discounted page charges for authors; engaging annual meetings (customarily held jointly with the Southern Lepidopterists' Society), and periodic emailed UPDATES which describe the activities of this and other lepidopterology societies whose focus is on the tropics. Dues are \$95 per year for regular members in the USA (\$80 for new members) and \$50 for students. Please see our website (trolep.org) for further information and for samples of the journal. Dues may be paid to the ATL Treasurer, P.O. Box 141210, Gainesville, FL 32614-1210 USA. We will welcome your participation in our shared celebration of biodiversity at its best!

The Southern Lepidopterists' Society

The SLS was established in 1978 to promote the enjoyment and understanding of butterflies and moths in the southeastern United States. Regular membership is \$30.00. Student and other membership categories are also available. With membership you will receive four issues of the SLS NEWS. Our editor David Fine packs each issue with beautiful color photos and must-read articles. The SLS webpage (<http://southernlepsoc.org/>) has more information about our group, how to become a member, archives of SLS NEWS issues, meetings and more.

The annual meeting, set for the the weekend of April 24-27, 2025, with the ATL, is a go (see above right). More details will be passed on as they become available.

Please write Marc C. Minno, Membership Coordinator, at marc.minno@gmail.com if you have any questions. Dues may be sent to Jeffrey R. Slotten, Treasurer, 5421 NW 69th Lane, Gainesville, FL 32653.

Society of Kentucky Lepidopterists

The Society of Kentucky Lepidopterists is open to anyone with an interest in the Lepidoptera of the great state of Kentucky. Annual dues are \$15.00 for the hard copy of the News; \$12.00 for electronic copies. Follow the Society's facebook page for updates on future meetings and potential field trips at <https://www.facebook.com/societykentuckylep/>.

To join the Society of Kentucky Lepidopterists, send dues to: Les Ferge, 7119 Hubbard Ave., Middleton, WI 53562.



Argyrogrammana nurtia
(Riodinidae).
Found in various parts of the Neotropics.
Logo of the 2025 joint ATL/SLS meeting.

The APRIL 2025 JOINT MEETING OF ATL and SLS is April 24-27.

The venue will be different as the McGuire Center is dealing with construction. The meeting details will be made available, by whatever means necessary, as soon as we learn more. Stay tuned.

Mix Family Award for Contributions in Lepidoptera

In honor of Nancy, John, Lin, and Joe Mix, the "Mix Family Award for Contributions in Lepidoptera" has been established to honor amateur lepidopterists who have contributed the most to the field of Lepidoptera research, education, outreach, or has had a significant impact on the Lepidopterists' Society. This fund from the Mix family will establish a \$1,000 annual award, presented at the banquet of the annual meeting of the Society. The **deadline is June 1, 2025**.

Eligibility:

- Not currently studying for, employed, nor retired from, a professional entomological or adjacent professional science career.
- Any member of the Lepidopterists' Society, whether or not in current good standing.
- From any part of the world.
- Can be for long-term contributions or significant short-term accomplishments.
- Have not previously won the Mix Family Award in the subsequent four years.

To Nominate:

- Any member of the Society may nominate any other member, or you may nominate yourself.
- A letter of nomination that clearly outlines the contributions, which will accompany their announcement at the banquet.
- Email the letter to info@lepsoc.org with the subject line "nomination for Mix award".

Deadline for nominations is **the first of June** of each year. In cases where the Annual Meeting is earlier, the deadline will be adjusted accordingly. The Awards Committee of the Society shall review nominations and will select a winner.

Searching The Lepidopterists' Society Season Summary on SCAN

Brian Scholtens and Jeff Pippen

Part of what we are now doing as a society is contributing all our Season Summary records to SCAN (Symbiota Collections of Arthropods Network), a larger effort to assemble and make available occurrence records of insects and other arthropods to the greater scientific community and the public in general. Each year we now upload all of the submitted Season Summary records to this site. In addition, several years of back records are also hosted here, and we hope to continue adding past years as that is possible.

Now that our Season Summary is available online, we provide below a simple set of instructions about how to use the SCAN database to search our available records. This process is easy, but not immediately obvious when you start exploring the site. To get started you can go directly to the SCAN site using the link below, or you can access it through The Lep Soc webpage using the link under Season Summary. Then just follow the set of instructions below to access, search and download any data from the Season Summary. The first two instructions set up the search feature to search only the Lepidopterists' Society records. If you would like to include other databases, you can select them in addition to our database. Have fun and explore a bit. There are lots of interesting datasets on the site, including quite a few from major and minor collections as well as some important personal collections. Have fun exploring our data and those in the other databases.

- 1) Go to: <https://scan-bugs.org/portal/collections/index.php>
- 2) Click on Select/Deselect All to deselect all databases
- 3) Scroll to near the bottom of the list and select Lepidopterists' Society Season Summary
- 4) Go back to the top and click on Search
- 5) Choose whatever criteria you would like and tell to complete search
- 6) Records will be displayed
- 7) Click on the icon in the upper right if you would like to download records
- 8) Click on appropriate choices – this will download comma separated or tab separated data, which can be compressed or not
- 9) Click Download Data

PayPal -- the easy way to send \$ to the Society

For those wishing to send/donate money to the Society; purchase Society publications, t-shirts, and back issues; or to pay late fees, PayPal is a convenient way to do so. Sign on to www.PayPal.com, and navigate to "Send Money", and use this recipient e-mail address: kerichers74@gmail.com; follow the instructions to complete the transaction, and be sure to enter information in the box provided to explain why the money is being sent to the Society. Thanks!

Wedge Entomological Research Foundation Student Award

The Wedge Entomological Research Foundation (WERF) was founded to promote the study of insects, their evolution and diversity, and in particular to research and publish information on the moths of North America. WERF's flagship publication is the *Moths of America North of Mexico* (MONA) series, of which many fascicles are available for free in PDF form at http://wedgefoundation.org/publications_paypal.asp. The Foundation runs an award program for students. This Student award is up to \$1,500 per year, and can be used for expenses related to the study and conservation of moths, butterflies, and related insects (e.g., travel to meetings, field station room/board, biosystematics research costs, etc.). High school, undergraduate, and graduate students are eligible. WERF is especially committed to supporting underserved groups. Applicants should submit a one page (500 word) project description **by 15 May 2025** with an indication of how the funds will be used. The committee will begin making awards subsequently. The application should be accompanied by a resume or curriculum vitae, and a letter of recommendation from the student's major professor or academic advisor. Please email all application materials to the committee chair, David Wagner, at david.wagner@uconn.edu. Preference will be given to proposals that focus on Lepidoptera. Completion of a 350-word summary of project findings, with one to two appropriate images, is required by 31 December of the award year. Support from WERF should be acknowledged in relevant presentations, publications, web products and similar deliverables.

Memoirs of the Lepidopterists' Society

Are you thinking about developing or do you have a longer manuscript that would exceed the allowable page limit at typical scientific journals? If so, please consider submitting this longer, monograph-length work to the *Memoirs of the Lepidopterists' Society*. Submissions need not be memoirs in the strict sense (e.g., a historical manuscript or longer biographic treatise written from a personal knowledge). Instead, the Society's *Memoirs* publication has ranged, over the years from a checklist of butterflies of America north of Mexico (Volume 2) to a techniques manual for studying butterflies and moths (Volume 5) to a systematic revision of the tortrid genus *Paralobesia* (Volume 6). This broad array of topics is intentional; the Society wishes to use our *Memoirs* as a creative outlet for longer papers that would appeal to diverse audiences. Inquiries and submissions should be directed to Dr. Keith Summerville, editor of both the *Journal of the Lepidopterists' Society* and the *Memoirs of the Lepidopterists' Society* at Keith.Summerville@drake.edu or 515-271-2265.

Correction: Winter 2024 News (66:4)

The top image on the back Cover was taken July 15, 2024, not Sept. 15, 2024.

73rd Annual Meeting of the Lepidopterists' Society – July 30 - August 3

Clarion Inn Sierra Vista, 39 East Fry Boulevard, Sierra Vista, AZ 85653, (520) 459-4221

Hosted by Kelly Richers, Chuck Harp and Todd Gilligan, with assistance from Sangmi Lee, students, and research associates of the ASU Insect Collections

Schedule:

Tuesday, July 29: Wedge Foundation meeting preceding the LepSoc meeting

Wednesday, July 30: Executive Council Meeting, 9:00 a.m. until completed (by 3 p.m.)

Welcome Reception at hotel, possible field trip

Thursday, July 31: Presentations, possible field trip

Friday, August 1: Presentations

Barbeque at Veterans Memorial Park

Saturday, August 2: Presentations if needed (a.m.)

Business meeting (p.m.)

Banquet by Orient Express Restaurant

Sunday, August 3: Leave the meeting, day trips possible

Registration:

Registration includes access to all field trips, the welcome reception Wednesday evening, presentations on Thursday, Friday, and Saturday, and informal moth collecting/observing most nights. BBQ (Friday night) and Banquet (Saturday night) tickets

Meeting (Members \$180), includes BBQ and Banquet
Meeting (Students \$90), includes BBQ and Banquet
Meeting (Non-Members \$200), includes BBQ and Banquet
Additional BBQ tickets (\$29/each), arrangements for serving alcohol are being made

Additional Banquet tickets (\$50/each), cash bar will be open at banquet plus each seat gets one drink ticket

We will likely use the now-familiar numbered tickets to attach to each registration package, one for completed registration, one for the banquet, one for the BBQ.

Rooms (Separate, not included in registration costs):

Rates at the Clarion Inn are (subject to change):

\$119 per night, King single or double occupancy

\$139 per night, Double single or double occupancy

\$169 per night, Queen Suite, single or double occupancy

Rooms are subject to Tax and local fees

We have 10 King and 10 Double rooms reserved at this price. There are many other hotels and lodging options available in Sierra Vista with a variety of prices. There are also many camping options in the area, ranging from RV parks to KOAs to State Parks. Book early!



73rd Annual Meeting of the Lepidopterists' Society
Sierra Vista, Arizona July 30th – August 3rd 2025

Field Trips:

The area around Sierra Vista contains some of the most famous Lepidoptera collecting sites in the entire country. It is expected that informal field trips will happen every night, including before and after the meeting. We will be organizing one or two official field trips, with details coming later.

Location:

The Clarion Inn Sierra Vista is located on East Fry Boulevard, and can be reached directly east off of Buffalo Soldier Trail or west off Rt. 92.

For more information, visit <https://www.lepsoc.org/2025-annual-meeting>. See you in Sierra Vista!

Summer Internship: We are looking to employ a summer intern to sample caterpillars and moths in remote parts of Idaho from early June through at least mid-August. Primary goals will be to collect baseline surveys of moth populations using light trap samples and collect and photograph macrolep caterpillars. An important aspect of the caterpillar surveys will be to document tri-trophic interactions between caterpillars, their hostplants, and parasitoids. The intern(s) will learn basic plant identification, DNA barcoding (for caterpillar and parasitoid identification), insect macrophotography, and have an opportunity to interact with entomologists, botanists, and BLM wildlife biologists. Data from the survey will be used to inform conservation and BLM management decisions, yield baseline data on insect diversity in the region, and contribute to ecological studies examining trophic specialization (diet breadths) and food web structures across latitudinal gradients. Additionally, caterpillar collections and images will be used in a book on the Caterpillars of Western North America. The position will include free lodging and a summer stipend. For more information about the position contact David Wagner (david.wagner@uconn.edu).

Lep Soc Statement on Diversity

This is available at any time, should you need to know at: <https://www.lepsoc.org/content/statement-diversity>



Lepidoptera Course August 4–14th, 2025

www.lepcourse.com

Join us for a 10-day field course at the Southwestern Research Station in Portal, Arizona. Designed for students, amateur naturalists, conservation biologists, and other biologists who have an interest in learning more about the Lepidoptera. We will emphasize taxonomy, ecology, and field identification of lepidopterans in Southeastern Arizona. Lectures will include background information on the morphology, biology, and ecology of leps and their importance in pollination biology. Field trips will provide participants with collecting, sampling, and observation techniques; and lab work will provide instruction on specimen identification, preparation, dissection, and curation. Costs for 10 days inclusive of fees, room, and board: \$1,900. Email swrs@amnh.org for an application, or contact Chris Grinter at cgrinter@calacademy.org for more information on the course. Space is strictly limited to 15 participants.

Nominations for Karl Jordan Medal

The Karl Jordan Medal is given biannually by the Lepidopterists' Society in recognition of outstanding original research in lepidopterology, especially traditional works which emphasize morphology, taxonomy, zoogeography, and natural history. These fields, though critically needed, are less popular and poorly funded in recent decades.

The award was established by the late Arthur Allyn, through the Allyn Museum of Entomology, Sarasota, Florida in 1972 in recognition of the 25th Anniversary Celebration of the Lepidopterists' Society. It was subsequently supported by Lee D. and Jacqueline Y. Miller as the Allyn Museum operated as an off-campus unit of the Florida Museum for 24 years until the McGuire Center opened in 2004, and during the 20 years of the Center's history, through the passing of Jacqueline Miller in 2024. Administered by the Lepidopterists' Society, this prestigious award consists of an engraved Silver Medal, a \$2000 cash award, and travel support for the recipient(s) to accept the award at the Annual Meeting of the Society.

The medal features a likeness of Karl Jordan who was active in the field for more than 50 years and one of the original Honorary Life Members of the Lepidopterists' Society. The establishment of the award was detailed in *The Journal of the Lepidopterists' Society*, 26(4): 207-209.

Criteria for recipients emphasize that the award may be based on a single piece of research or on a series of interrelated works at least three but not more than 25 years old. Nominations should consist of a formal nomination letter accompanied by a current CV. These materials should be submitted electronically to info@lepsoc.org. Nominees are generally retained in the pool for future consideration. Nominations may be submitted throughout the year, however, the **submission deadline** for consideration for the 2025 Jordan Medal is **31 May 2025**.

Election Results

The election results (terms start with the summer meeting) are as follows:

President		%	totals
Anthony McBride	tmcbride409@gmail.com	96.43%	270
Secretary			
Chris Grinter	cgrinter@gmail.com	95.36%	267
VP's			
Richard L Brown	RBrown@entomology.msstate.edu	75.71%	212
Jason Dombroskie	jjd278@cornell.edu	79.29%	222
Giovanny Fagua	fagua@javeriana.edu.co	53.57%	150
Gregory Pohl	micromothman@gmail.com	69.64%	195
EC Members			
Lars Crabo	lcrabo@nwrads.com	93.57%	262
Laura Gaudette	gaudettelaura@gmail.com	89.64%	251
Mat Seidensticker	mat@nrres.org	89.29%	250
Honorary Members			
Richard L Brown	RBrown@entomology.msstate.edu	88.57%	248
Olaf Mielke	omhesp@ufpr.br	82.50%	231
total ballots			280

Elected members are shaded in green. Just as a reminder, for the Vice Presidents, no two can be from the same country, hence Jason Dombroski is elected over Richard Brown. Also, as recipient of the most votes, Jason will serve as first VP. The "EC Members" will appear as Members-at-Large on the inside of the back cover of every issue of the News, along with all other officers.

Lep Soc Statement on Collecting

The Lepidopterists' stance on collecting is discussed fully in The Lepidopterists' Society Statement on Collecting Lepidoptera. This is available online at: <https://www.lepsoc.org/content/statement-collecting>

Selected butterfly records from northeastern Minnesota and an environmental assessment

David MacLean

Grand Marais, MN

birchpt@boreal.org

After retiring from Youngstown State University in 1998, my wife Bonnie and I moved to Devil Track Lake, seven miles inland from Grand Marais in Cook County Minnesota. The purpose of this article is to share my records of some of the interesting butterflies and moths I have encountered in the past thirty-four years.

The Minnesota Butterfly Fauna

Verifiable records of 163 species of skippers and butterflies have been recorded from Minnesota (Huber, 2012) including *Pyrgus centaureae freija*, a rare Minnesota Species of Special Concern (<https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=IILEP38011>), and *Hesperia uncas*, *Hesperia ottoe*, *Oeneis uhleri varuna* and *Oarisma poweshiek* listed by the Minnesota DNR as endangered (<https://www.dnr.state.mn.us/rsg/index.html>). Ron Huber graciously supplied the following additional records: *Hesperia ottoe*: 2012 July 20, Wabasha Co., Weaver Dunes, photo by Dean Hansen; *Hesperia leonardus pawnee*: 2016 Aug 22, Clay Co., Bicentennial Prairie, Robert Dana (<https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=IILEP65060>); *Oarisma poweshiek*: 2003 July 12, Pipestone Co., Ron & Cathy Huber; *Pyrgus centaureae freija*: 1982 at McNair, and Kyle Johnson, 2021 NW Angle, Lake of the Woods County; *Oeneis uhleri varuna*: 1985 June 4, Clay Co, Felton Prairie, Nancy Braker and *Lycaeides samuelis*: 1983 June 2, Winona Co, Ron Huber. Oehlenschlaeger and Huber (2002) reported 89 species of butterflies from Wadena County, Minnesota, the first published detailed account of Lepidoptera for any county in the state. MacLean (2018) reported 73 species of skippers and butterflies from Cook County in Northeast Minnesota and in 2024, *Megisto cymela* was recorded for the first time at the Cook County 4th of July butterfly count to raise the total number to 74. Huber (2012) estimated that 150 butterfly species could be seen state wide in a "typical" year. MacLean (2018) estimated the number for Cook County in a typical year to be from 40-45. Voucher, photo and sight records are those of the author except where mentioned.

SPECIES ACCOUNTS

HESPERIDAE

The following twelve species of skippers were recorded from Cook County: *Thorybes pylades*, *Erynnis icelus*, *Carterocephalus palaemon*, *Thymelicus lineola*, *Hesperia*

comma, *H. sassacus*, *Polites peckius*, *P. themistocles*, *P. mystic*, *Wallengrenia egerment*, *Lon hobomok*, *Euphyes vestris* and *Amblyscirtes vialis*.

***Thymelicus lineola*, the European Skipper** (Fig. 1). By the early 1990s, *Thymelicus lineola*, was well established along roadsides and other grassy habitats of Cook County and by the early and mid 2000s the numbers of *T. lineola* in Cook and St. Louis Counties had increased to where it was very abundant. The late Jim Philips of Saganaw estimated the number of *T. lineola* at the Bear Trap Butterfly Counts, St. Louis County, in 2005 and 2006 to be 25,000 and 33,000 per party-hour respectively! In 2024 large numbers of *T. lineola* were recorded at the West Cook Lake Road in St. Louis County (472) and the McNair butterfly count in Lake County (332). In 2023, 724 were recorded at the Cook County Butterfly Count but only 11 in 2024 and none were recorded along nearby CR 8 and other roads near Devil Track Lake in southern Cook County. Recent declines of *T. lineola* populations throughout Europe have been attributed to habitat loss due to human activities such as urbanization, agriculture expansion, deforestation, climate change, pesticides and non-native plants (see <https://www.google.com/search?client=firefox-b-1-d&q=decline+in+populations+of+the+European+Skipper>). The reason for the sudden drop in the Cook County population of European Skippers is unclear as the causes suggested for the European decline seem to be unlikely in this case and little is known about the natural enemies of the European Skipper in Minnesota (Arthur, 1962, Carl, 1968).

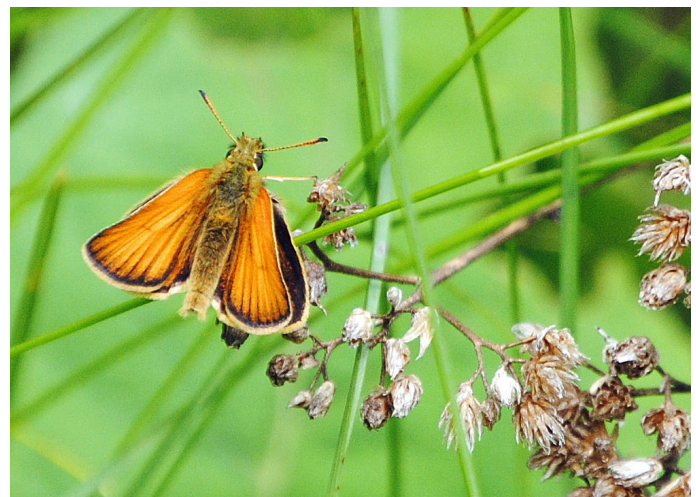


Fig.1. *Thymelicus lineola*, the European Skipper, a common introduced species throughout Minnesota.

PAPILIONIDAE

Papilio canadensis (Rothschild & Jordan), the only recorded swallowtail in my collection from Cook County was common to abundant most years. Sight records of *Papilio polyxenes* F. have been reported from extreme southwestern Cook County and one was seen at Tettegouche State Park in Lake County 20 miles southwest of Cook County.

PIERIDAE

The following seven species of Pieridae were recorded from Cook County: *Pontia occidentalis* (Reakirt), *Pieris oleracea* (Harris), *P. rapae* (L.), *Euchloe ausonides* (Lucas), *Colias philodice* Godart, *C. eurytheme* Bsd. and *C. interior* Scudder.

***Pontia occidentalis*, the Western White** (Fig. 2). Considered a stray in northeastern Minnesota, this species was observed in Cook County on August 8, 2006. During late August to early September, 2011, as many as twenty *occidentalis* were recorded on eight different dates. Jim Phillips and Norma Malinowski also reported *occidentalis* from St. Louis County during this period. In early August of 2023, the Western White was recorded at five Cook County sites and on August 12, Marilyn and Kerry Carter photographed it in West Duluth and on August 13 at Island Lake, St. Louis County.



Fig. 2. *Pontia occidentalis*, the Western White, on Sedum, August 4, 2023, Walter Rd., east end of Devil Track Lake.

***Euchloe ausonides coloradensis*, the Large Marble** (Fig. 3). This species was first recorded on May 18, 2001 at the Seagull Lake access along the upper Gunflint Trail (CR 12) in Cook County. In each May from 2003-2006 a total of 35 adults were observed and photographed as well as eggs and larvae on the host plant, Tower Mustard (*Turritis glabra*) that was common, at that time, along a six-mile portion of CR 12 from the Magnetic Rock Trail head to Seagull Outfitters on Seagull Lake (Figs. 3, 4, 5). Late instar larvae were seen to consume Tower Mustard seed pods, a source of mustard oils.

In 2004, I reared several mid instar larvae on Tower Mustard that pupated but did not overwinter in captivity.

In 2007, no adults were recorded due to the Ham Lake fire, however, the following year, ten were in seen along CR 12 near patches of *T. glabra* that had survived the Ham Lake fire the previous year. From 2010 to 2012 the number of adults recorded ranged from 7-8 and Tower Mustard was numerous along the Upper Gunflint Trail. However, in 2013 only five adults were recorded, three in 2014, five in 2015, seven in 2016 and four in 2017. In 2018 only one adult was recorded and no host plants or adult marbles were seen in 2019, 2020 and 2021. On June 7, 2022, one Large Marble was seen along the Upper Gunflint Trail for the first time in four years, however none were seen in 2023 and 2024. The decline in the population of Large Marbles along the upper Gunflint Trail is clearly the result of the decline of the host plant, Tower Mustard. The recent collapse of the Large Marble population along the Upper Gunflint Trail in the late teens and early 2020s does not seem manmade and if Tower Mustard becomes reestablished along the Upper Gunflint Trail, the Large Marble population may also.

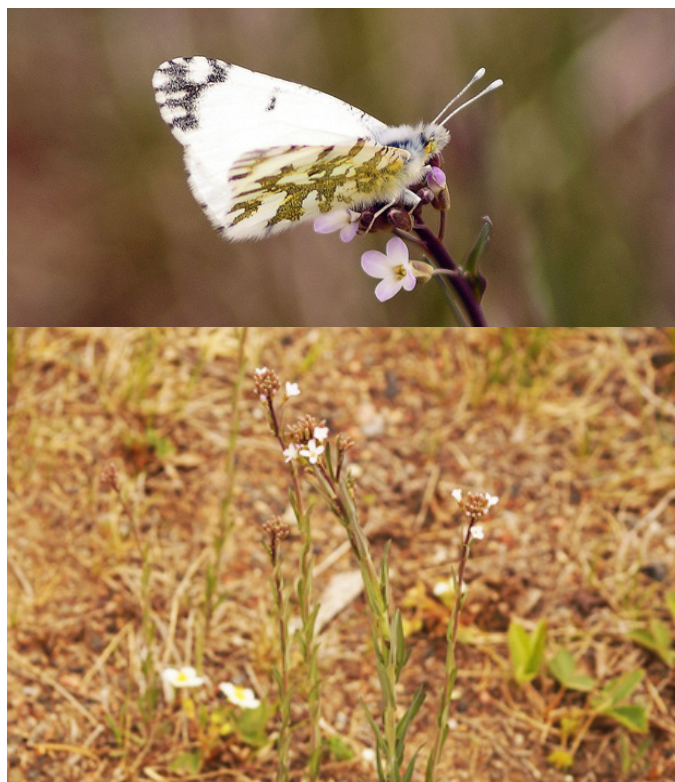


Fig. 3 (top). Large Marble, *Euchloe ausonides* on the larval host plant, Tower Mustard, *Turritis glabra*, May 23, 2003, Upper Gunflint Trail (CR 12) roadside, Cook County, MN. Fig. 4 (bottom). Tower Mustard, *Turritis glabra*, larval host plant of the Large Marble, *Euchloe ausonides* found on sandy over sandy soil, Upper Gunflint Trail roadside, Cook Co., MN.

Tower Mustard (Fig.4) is an ephemeral spring plant found in nutrient-poor sandy soils. The loss of Tower Mustard along roadsides has been attributed to agriculture and development (Open AI for decline of roadside Tower Mustard), two factors clearly not responsible in this case. To my knowledge, no herbicides were used in this

portion of CR 12 or roadside mowing. The Tower Mustard (*Turritis (Arabis) glabra*) Norfolk Biodiversity Action Plan states that plants can produce abundant seeds, which are capable of remaining viable for many years; tower mustard plants often reappear on former sites after long periods of absence (<https://www.norfolkbiodiversity.org/assets/Uploads/Tower-mustard2.pdf>).



Fig. 5. Large Marble larva on the host plant Tower Mustard, upper Gunflint Trail, Cook County MN. Late instar larvae were seen to consume seed pods of the host plant Tower Mustard a rich source of mustard oils.

LYCAENIDAE

The following 14 species of Lycaenidae were recorded from Cook County: *Tharsalea epixanthe* (Boisduval & LeConte), *T. dorcas* (Kirby), *Satyrion liparops* (LeConte), *Callophrys augustinus* (West), *C. niphon* (Hübner), *C. eryphon* (Boisduval), *Strymon melinus* Hübner, *Cupido comyntas* (Godart), *C. amyntula* (Boisduval), *Celastrina ladon* (Cramer), *C. neglecta* (W. H. Edwards), *Glaucopsyche lygdamus* (Doubleday), *Icaricia saepiolus* (Boisduval) and *Plebejus idas nabokovi* (Masters).

***Plebejus idas nabokovi*, the Northern Blue** (Fig. 6). This species of special concern (Wolf and Brzeskiewicz, 2002 and Wolf, Howe, and R. P. Dana, 2005), was recorded on June 30, 1992 along Cook County Road 27 and Forest Roads 154 and 170 (The Grade). Also on June 30, 1992, the Northern Blue was found along an unnamed logging road (now State Forest Road 665) east of Binagami Lake and the site of the 4th of July Cook County Butterfly Count since 1995. In 2000 & 2001, as part of an inventory of Species of Special Concern for the Superior National Forest, I recorded large numbers of *nabokovi* from State Forest Road 665, Lima Mountain Road (FR 152) and open pine stands off FR 1426. In 2000, The State Forest Road 665 site was visited twelve times from June 28 to August 13 that resulted in a total of 217 Northern Blue records for an average of 18 per sample. Ninety four additional records were made along Forest Roads 152, 154, 170 and 1426 and again in 2001 with the largest number of Northern Blues along State Forest Road 665 and open pine sites off FR 152. The number of Northern Blues recorded at the State Forest Road 665 site in 2000 and 2001 may have been

elevated as the Greenish Blue, *Icaricia saepiolus* which was common there as well, could have been mistaken for *nabokovi*. The average number of Northern Blues recorded from annual butterfly counts along Lima Mountain Road (FR 152) resulted in 101 Northern Blue records on seven dates sampled in 2000 and two in 2001. The decrease in the number of Northern Blues at State Forest Road 665 from the 1990s and early 2000s was due to encroachment by trees that overgrew and shaded out the larval host plant, Dwarf Bilberry, *Vaccinium caespitosum* at several locations (https://www.fs.usda.gov/wildflowers/plant-of-the-week/vaccinium_espitosum.shtml). A similar event took place at former open sites along Lima Mountain Road (FR 152) that had supported Dwarf Bilberry and a population of Northern Blues. Unfortunately, a plan for the Forest Service to create a metapopulation by opening up and connecting these and other Northern Blue sites off Lima Mountain Road and CR 12 never materialized. On July 1, 2001 my wife Bonnie and I found a population of *nabokovi* along CR 3 near Plouff Creek in western Cook County, today the site of a highly successful Forest Service project begun in 2015 to regenerate the Northern Blue and its larval host plant Dwarf Bilberry (D. Grosshuesch, USDA - Superior National Forest). Since initiation of the project in 2015, Northern Blue numbers have ranged from 124 to an astounding 1,580 recorded in 2021.



Fig 6. Northern Blue, *Plebejus idas nabokovi*, Plouff, Creek Butterfly Count, 2020 photo by David Grosshuesch.

NYMPHALIDAE

The following 32 species of Nymphalidae were recorded from Cook County: *Danaus plexippus* (L.), *Boloria bellona* (F.), *B. freija* (Thunberg), *B. chariclea* (Schneider), *Argynnis (Speyeria) cybele* (F.), *A. cybele krautwurmi* (Holland), *A. aphrodite* (F.), *A. atlantis atlantis* (W.H. Edwards), *Limenitis arthemis arthemis* (Drury), *Vanessa virginiensis* (Drury), *V. cardui* (L.), *V. atalanta* (L.), *Aglais milberti* (Godart), *Nymphalis l-album* (Denis & Schiffermüller), *N. antiopa* (L.), *Polygonia interrogationis* (F.), *P. comma* (T.W. Harris), *P. faunus* (W.H. Edwards), *P. progne* (Cramer), *P. gracilis* (Grote & Robinson), *Junonia coenia* Hübner, *Euphydryas phaeton* (Drury), *Chlosyne nycteis* (Doubleday), *C. harrisii* (Scudder), *Phyciodes cocyta*

(Cramer), *P. batesii* (Reakirt), *Lethe anthedon* A. H. Clark, *Coenonympha tullia* (Müller), *Cercyonis pegala* (F.), *Erebia mancinus* Doubleday, *E. discoidalis* (W. Kirby), *Oenis jutta* (Hübner) and *O. macounii* (Edwards).

In addition, Jim & Pat Sanders, Dave Grosshuesch, Wally Mattson and Marilyn Carter recorded the very local and uncommon Appalachian Brown, *Lethe appalachia* R.L. Chermock at the McNair site in St. Louis County on July 13, 2022 and again on July 19, 2023. The Eyed Brown, *Lethe eurydice* (L.) was also recorded from the McNair site in St. Louis County on 13 Jul 2022 (Jim & Pat Sanders, and seven others). *Megisto cymela* (Cramer) was recorded for the first time on July 7, 2024 at the State Forest Road 665 site in Cook County (Jim & Pat Sanders, Chris Beal, Mary Bahr, Tim Craig, Tim Haas) and at Moose Lake State Park in Carlton County on June 18, 2024 (Jim & Pat Sanders, John Green and six others). On June 22, 2012, Pat Thomas photographed the American Snout, *Libytheana carinenta* (Cramer; Fig. 7), an uncommon butterfly in northern Minnesota, on East Superior Street, Duluth, St. Louis County, Minnesota.

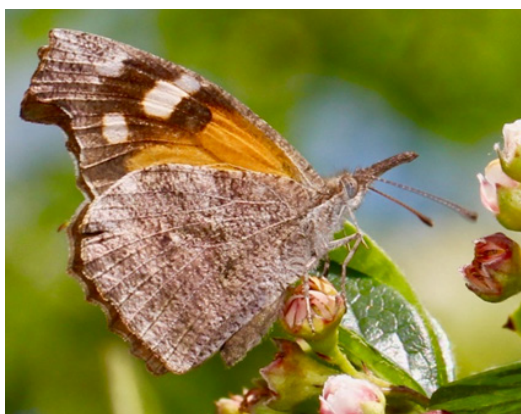


Fig. 7. The American Snout, *Libytheana carinenta*, June 22, 2012 East Superior Street, Duluth, St. Louis Co., Mn. Photo by Pat Thomas.

***Polygonia interrogationis*, The Question Mark.** On May 19 of 2012, large numbers of the Question Mark started showing up in Cook County and continued through June to July 13. Forty eight were recorded at a single bait trap at the east end of Devil Track Lake over ten days in May and June (Figs 8 & 9). The northward extent of the irruption is not known but several *interrogationis* were recorded at the Chik-Wauk Museum and Nature Center on June 3, 2012 in northern Cook County just several miles south of the Canadian border. The Question

Mark is common near Duluth in St. Louis County but uncommon in Cook County where I have only seen it once since the irruption in 2012.

***Polygonia gracilis*, the Hoary Comma** (Figs. 10 & 11). This uncommon butterfly in the upper Midwest, was recorded three times, on August 16 and 18, 1989 on Forest Road 561 west of Poplar Lake in Cook County and along Forest Road 665 on August 22, 2002. Identification of all three was confirmed by Kyle Johnson.

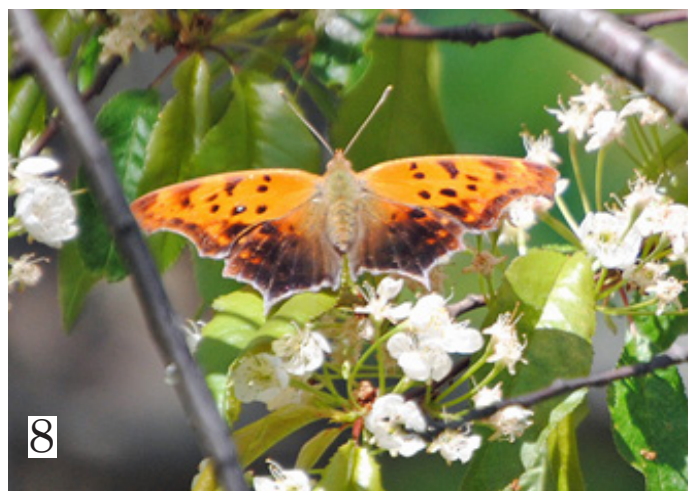


Fig. 8. The Question Mark, *Polygonia interrogationis*, May 19, 2012, East end of Devil Track Lake, Cook Co., MN. Fig. 9. The Question Mark, *P. interrogationis*, at a hummingbird feeder, June 24, 2012, East end of Devil Track Lake, Cook Co., MN. Figs. 10 & 11. Hoary Comma, *Polygonia gracilis*, dorsal and ventral views; left specimen collected August 16 and right specimen collected August 18, 1989, Forest Road 561 west of Poplar Lake, Cook County, MN.

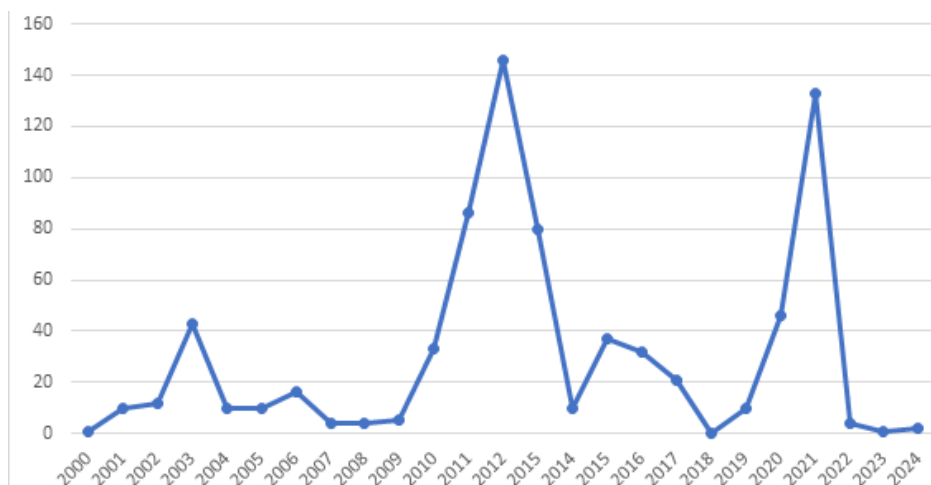


Fig. 12. The number of the Atlantis Fritillary recorded from Cook Co., St. Louis Co. and Carlton Co., MN. from 2000 to 2024.

Argynnis atlantis atlantis, the Atlantis Fritillary.

By far the most abundant *Argynnis* species, this species was common to abundant some years followed by a period of scarcity before increasing again (Fig. 12). The large number of Atlantis Fritillaries recorded in the late 2000s also reflects the increase in the number of butterfly counts in Northeast Minnesota since 1990.

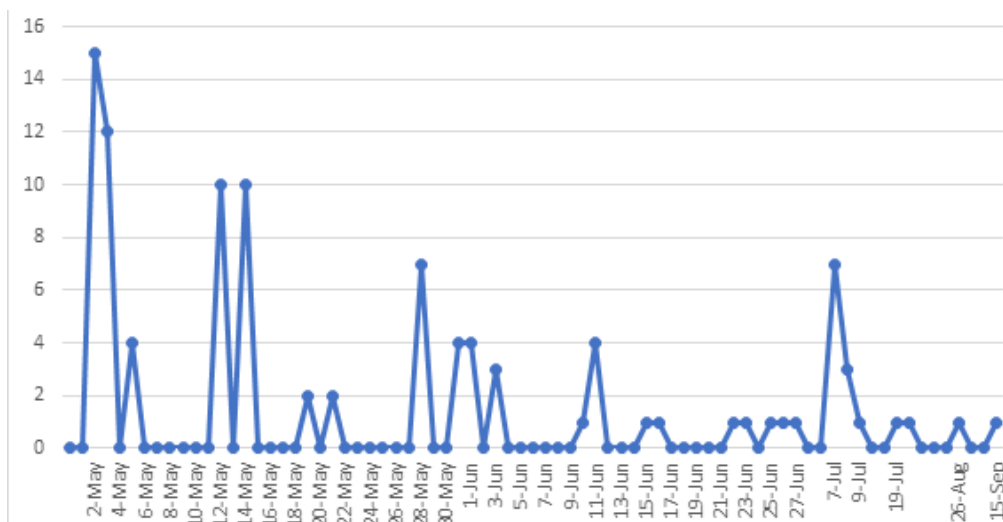
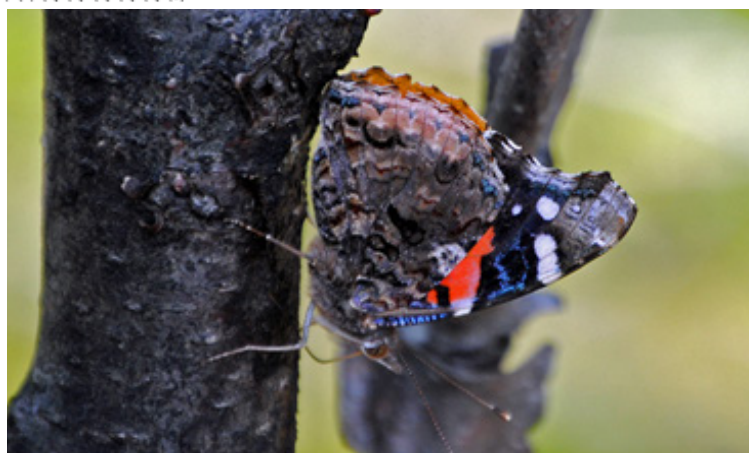


Fig. 13 (above). Number of Red Admirals recorded in 2012 from Cook Co., MN. Not all intervals on the horizontal axis are the same. Fig. 14 (right). Red Admiral feeding on birch sap, May 5, 2012, Cook Co., MN.



Vanessa atalanta, the Red Admiral. Considered a southern migrant, this species was recorded in ten years from 2000 to 2024, including 2012 which was an irruption year when large numbers arrived on May 2 (when many were sighted near Duluth) and the last on September 15 (Fig. 13). On May 5, one was seen feeding on Birch Tree sap (Fig. 14). Many specimens recorded in May and June were designated as “fresh” but by July 8 some were very worn.

Erebia mancinus, the Taiga Alpine and *Oeneis jutta*, the Jutta Arctic, are both Species of Special Concern. The Taiga Alpine

(Fig. 15) was recorded in late May and June of 2012, 2014, 2016, 2018 and 2020 at a small upland Black Spruce bog at Golden Eagle Lodge on Flour Lake in Cook County. The presence of adults every other year suggests that *mancinus* has a two-year life cycle at this site (<https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=IILEPN8140>).

Oeneis jutta (Fig. 16) was also seen flying with *mancinus* at this site on the same years and dates. Unlike records of the Jutta Arctic in odd numbered years from Lake and St. Louis Counties, I only found the Jutta Arctic in Cook County on even numbered years Swengle and Swengle (2013).

Oeneis macounii, Macoun's Arctic

is another Minnesota species of Special Concern. This species with a two-year life cycle, was recorded on most even numbered years at 13 sites in Cook County (Fig. 17). Numbers ranged from 1 (2002 & 2008) to 15 in 2010. In 2000, I observed several pairs of *macounii* (presumably males) on State Forest Road 665 in tight spiraling in possible territorial flights that soon ended when both were back on the ground (<https://mnfi.anr.msu.edu/species/description/11749/Oeneis-macounii>). 2010 was a good year for Macoun's Arctic when one showed up where you would least expect it, the

Fig. 15 (left). Taiga Alpine, *Erebia mancinus*, Upland Black Spruce Spruce Bog, June 8, 2018, Golden Eagle Lodge, Flour Lake, Cook County, MN. Fig. 16 (right). The Jutta Arctic, *Oeneis jutta*, Upland Black Spruce Bog, Golden Eagle Lodge, Flour Lake, Cook County, MN.



Grand Marais Harbor where I was playing drums with the North Shore Swing Band. Unknown to me, my wife Bonnie saw the butterfly that had landed on our unsuspecting director, captured it and held onto it until our gig was over! Later, back at Devil Track Lake I placed it in a cage before releasing it (Fig.19). Jerry McCormick has additional records of *Oeneis macounii* from St. Louis County.

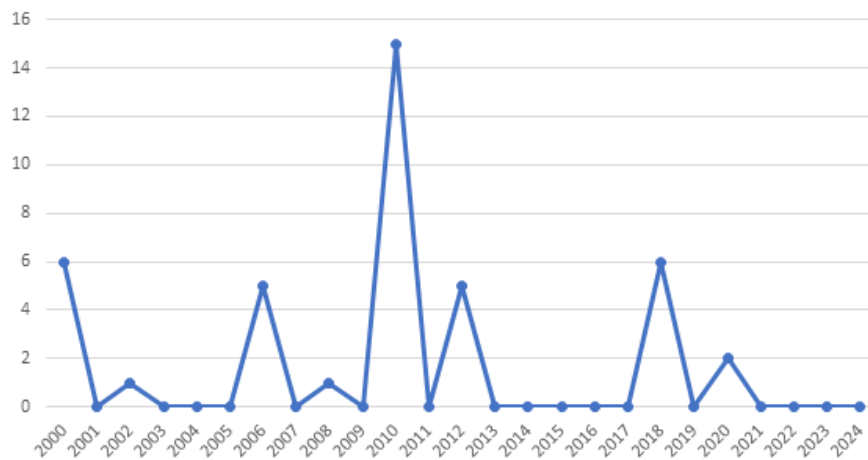


Fig. 17. Number of Macoun's Arctic recorded from Cook County, MN, 2000 – 2024.

Nymphalis antiopa, Mourning Cloak and *N. l-album*, Compton's Tortoiseshell. (Figs. 20 & 21). These two butterflies can be common to abundant some years and absent in others. Figure 22 shows population irruptions that occurred for both species in 2011-2013 and a smaller

Fig. 18. Macoun's Arctic, *Oeneis macounii*, May 28, 2016, Walter Rd. east of Devil Track Lake, Cook County. Fig. 19. Macoun's Arctic, none the worse from after being hand captured near the Grand Marais Harbor on May 29, 2010 and later released on the shores of Devil Track Lake. Fig. 20. Compton Tortoiseshell, *Nymphalis l-album*, May 30, 2020. Fig. 21. Mourning Cloak, *N. antiopa*, May 3, 2012.



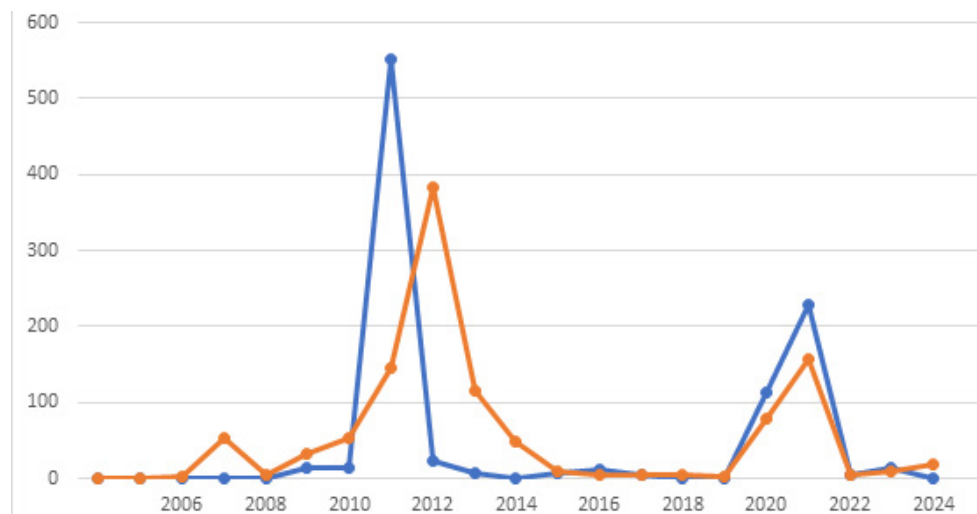


Fig. 22. Number of *Nymphalis l-album*, blue line, and *N. antiopa*, orange line, recorded from Cook Co., MN, 2002 - 2024.

one in 2020-2021, followed by dramatic declines. During the seven years between irruptions, the number of *N. l-album* ranged from 0 – 12 and for *N. antiopa* 1–9. At least 17 species of tachinid flies and eight species of hymenopteran wasps have been reported from *N. antiopa*, some of which were likely responsible for the sharp decline in the Mourning Cloak and Compton Tortoiseshell populations (https://entnemdept.ufl.edu/creatures/bfly/mourning_cloak.htm).

***Danaus plexippus*, Monarch.** Figure 23 reflects the relatively small number of Monarchs that migrated north to Cook County (blue line, May–July) during this time period except for 2006 and 2012. The even smaller number of adults recorded migrating south in late summer and early fall (orange line, Aug. – Oct.) suggests low fecundity of Monarchs near the northern extreme of their range in Northeast Minnesota.

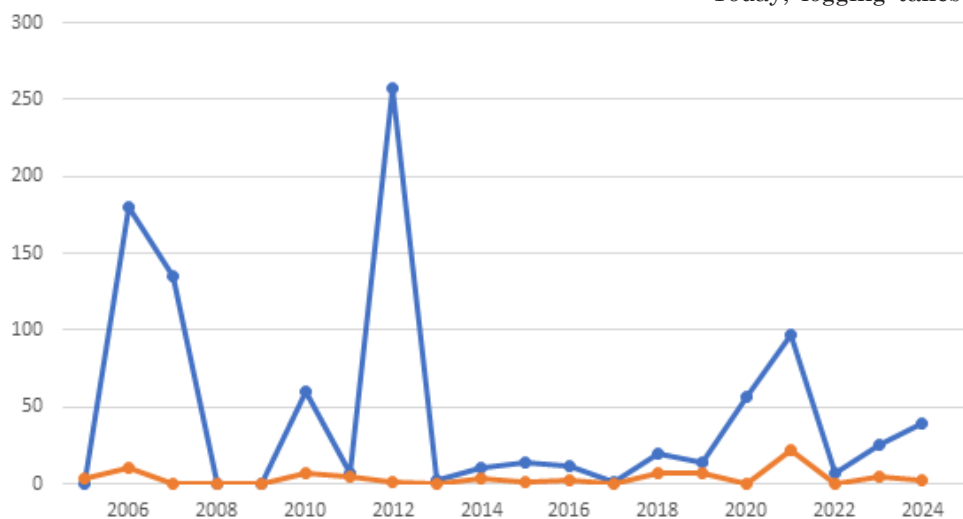


Fig. 23. Number of Monarchs recorded May-Jul, & blue line, and Aug-Oct, orange line, from Cook Co., MN, 2005-2024.

Environmental Assessment

As the Minnesota Department of Natural Resources (DNR) lists habitat loss, pesticides, herbicides and climate change as the biggest threats for pollinators, including butterflies, (<https://www.dnr.state.mn.us/pollinators/index.html>) a brief review of these factors in northeast Minnesota seems warranted.

Habitat and Land Use: According to the earliest land surveys, the vegetation of northeast Minnesota included Great Lakes Pine Forest (White Pine, Paper Birch and Aspen) and Boreal Hardwood-Conifer Forest (Aspen, Birch, Balsam Fir, White Cedar and White Spruce) plus areas of Peatland (https://files.dnr.state.mn.us/eco/mcbs/natural_vegetation_of_mn.pdf). A map of Cook County Land Use and Cover published in 1994, shows that Mixed Forest, Deciduous Forest, Coniferous Forest, Wetlands (bogs, marshes & fens) make up 76.5% of the acreage of Cook County while Urban-Industrial, farmlands and rural residences make up less than 0.2%. Cook County still retains 90% of its pre-European settlement wetlands (https://www.co.cook.mn.us/government/departments/soil_and_water/program_services.php). While the primary land use change has been a gradual increase in developed areas around tourist destinations along the North Shore and Gunflint Trail (CR 12), the majority of Cook County remains forested and dedicated to recreational use, with a focus on preserving natural landscapes (https://cms7files1.revize.com/cookcountymn/Departments/landservices/plans/The_Land_Use_Guide_Plan.pdf). Today, logging takes place in Cook, Lake and St. Louis Counties but nothing on the scale of the late 19th and early 20th centuries (King, 1981).

Pesticides and Herbicides: The Minnesota DNR Forest Pest Report states that malathion was used to control the Spruce Budworm, in Koochiching County and Lake County in 1969 and the Yellow-headed Spruce sawfly in Carlton and St. Louis Counties in the early seventies. The 1980 Forest Insect and Disease Report stated that “With increased public concern over pesticide use in our forests, all spray projects are coming under closer review.” By 1998 the only mention of pesticides

in the Minnesota Forest Health Annual Report was to control pests in greenhouse and forest nurseries (https://files.dnr.state.mn.us/assistance/backyard/treecare/forest_health/annualreports/1998ForestHealthReport.pdf).

The Minnesota Department of Agriculture's Pesticide Management Plan Report for 2023-2024 characterizes Cook, Lake and St. Louis Counties as "Forested with shallow bedrock, agriculture is nearly non-existent" (<https://www.lrl.mn.gov/docs/2024/mandated/241250.pdf>). The Minnesota Department of Health (MDH) reported that the herbicides acetochlor and metolachlor and their metabolites were detected in the Arrowhead-shallow bedrock region of northeast Minnesota but not neonicotinoids that are widely used in agricultural areas of Minnesota. (<https://www.health.state.mn.us/communities/environment/water/docs/ucmpreport.pdf>).

Climate Change: While habitat loss and pesticides may not be as serious a threat to the butterflies of northeast Minnesota as elsewhere in Minnesota, climate change could be, especially for host plant specialists. Minnesota has warmed by 3°F since 1895, with the most dramatic warming occurring in the last 50 years along with an increase in annual precipitation of 3.4 inches (<https://www.pca.state.mn.us/air-water-land-climate/climate-change-impacts>, <https://www.dnr.state.mn.us/climate/index.html>). According to Mulder, et al. (2023), increased warming will increase tree growth that will out compete and encroach on Bog Blueberry, *Vaccinium uliginosum* L. in Alaska. In addition, earlier springs with reduced snow cover will expose plants to temperatures that can kill the buds. Dwarf Bilberry, host plant of the Northern Blue, associated with *Vaccinium* species in the upper Midwest, (https://www.fs.usda.gov/wildflowers/plant-of-the-week/vaccinium_cespitosum.shtml), could be exposed to similar conditions in the near future. Therefore, continued warming will likely determine the future of small populations of species at the southern limit of their distribution in Minnesota such as the Taiga Alpine, the Large Marble and the Northern Blue.

Acknowledgement

The author wishes to recognize his wife Bonnie who has helped him for over sixty years to fulfill his interest in the study of insects.

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From the Editor's Desk

It has been some time since I have taken the opportunity to reflect on my time as editor and talk to you, the membership. I have been the editor for thirteen and a half years as of now, and this is my 55th issue of the News. In that time, I have formatted around 500 articles of one type or another, and I sincerely hope that you have enjoyed not just the articles but the manner in which I have put them together. I have often tried to put similar themed articles back to back so that you can enjoy the connections between them as much as I do.

I also wanted to thank all the contributors of articles for the News. Some are regular contributors, others have published just once or twice. But all of them are appreciated. I have never found myself out of material for an issue, and sometimes, like this issue and the last, they end up running for 60 pages. I also continue to be impressed by the scientific content of many of them, and am honored to include them in the News. And in all that time, I have rarely had to reject anything that was sent to me. I also wanted to let you know that I enjoy being editor, and plan on continuing for some time to come, if you'll have me. Thanks!

James K. Adams

Finding Limberlost

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A few years ago as John Rawlins and I left the DNA lab at Carnegie Museum we asked each other, "What would Walter Sweadner have thought of this kind of work?" Sweadner is known for his pioneering quantitative study of a hybrid zone in *Hyalophora* (= *Platysamia*), published in 1937. His career at Carnegie was cut short by an early death in 1951, just before the molecular structure of DNA was published, signaling the beginning of a new era in genetics. In my student years during the 1960s – 1970s even the widespread use of electrophoresis to study allozyme variation could not have predicted the marvelous intricacy of genomics and phylogenetics we practice today.

In recent years I have asked attendees at Lep Soc meetings, "Did you collect butterflies as a youngster, and what books did you read?" A surprising number reply that they began working with Lepidoptera as undergraduate or graduate students as a consequence of being intrigued with theoretical population genetics, developmental genetics of wing pattern, phylogenetics, or other arcane pursuits. I did not hear "Oh, I became interested in geographic variation in *Speyeria*". Their reading was nearly always newly published research in journals. Many had never read Holland's *The Butterfly Book* (1931) or *The Moth Book* (1920).

To me the most interesting current papers compare patterns of genetic variation to geographic variation in various natural history traits such as host plant use, interpopulation pheromone response, wing pattern, and so on (e.g. Dupuis et al. 2018, 2020; Peters and Marcus 2017; Tuttle et al. 2020). Evolution near the species level is fundamentally the product of natural selection on life history traits. For prospective workers in modern genomics and phylogenetics, a foundation during childhood in collecting and rearing Lepidoptera would seem an important springboard for their future studies. Tragically, loss of biodiversity has robbed much of the current generation of these experiences.

For those interested in the early natural history literature on Lepidoptera I would recommend reading any or all of a few key classic books, all written by women at the turn of the 19th to 20th centuries. These books will teach about those times and culture including its prose and writing style, about the lives of the authors, about the state of nature in a primarily rural society and, most importantly, about rearing select species. Their books still stand as some of the most detailed and comprehensive life history writing.

***Moths of the Limberlost*. Gene Stratton-Porter. 1916.**

Of all the authors I discuss, Gene Stratton-Porter is easily

the most distinctive in accomplishment and force of character. As a child she spent her time exploring field and woods, and developed a special fondness for birds. She eventually moved to the small town of Geneva, Indiana, near the 13,000 acre swampy wilderness called The Limberlost. (This priceless nature preserve was degraded by development even during Stratton-Porter's residence. Now only a 465 acre restored fragment remains.) Here she expressed her love of nature by developing skills as a writer of fiction, children's books, and natural history articles in popular magazines. With earnings from these efforts she became an accomplished photographer, especially of birds.

She preferred glass plate cameras for the quality of the prints produced, and overcame their weight and bulk by enlisting a crew who helped trudge through swamp and forest to set up and patiently wait for the best shot. During this period she discovered the striking size and beauty of saturniids and other moths, and began breeding them and photographing their life cycles.

It was at this time that she wrote *Girl of the Limberlost* in which the heroine and her mother had a difficult relationship, and only after the mother witnessed the girl collecting a "very rare" moth and selling it to buy a dress for a social occasion, did the mother appreciate the worth of her daughter's love of nature. *Girl* became a best-selling book, which helped fund Stratton-Porter's work, but which also engendered the wrath of Frank E. Lutz, curator at the American Museum of Natural History:

"The Saturniids are indeed fortunate moths; they have largely escaped successful "English" christenings. Although *Samia cecropia* was named by Linnaeus long ago and has been a common and popular moth in this country ever since moths were at all popular, *Cecropia* is still its common name. I hope my children's children will call it *Cecropia* even though it was nicknamed something else [Robin Moth] by a lady who wrote very good fiction but did immeasurable harm to unalloyed nature by encouraging the commercial viewpoint. People forget that the Limberlost stories are fiction, and my mail was for some time filled with letters from people, ranging all the way from an eight year old boy, who wanted to sell a battered Luna so he could buy a pony, to invalids who wished to get money to buy medicine by selling the moths that came to their bedside lamps. Permit me to say that he who goes to Nature with money in his eyes will not only be blind to her truths, her glories, and the real benefits that she offers to those who love her, but he will be disappointed as to his financial returns." Lutz, *Field Book of Insects*, p 156

Gene Stratton-Porter developed a guiding philosophy in her personal life and in her writing: No one can be a complete person, content in themselves, unless grounded in a close association with Nature. This was the message in *Girl* and in her natural history work. As a corollary she would never photograph a dead, mounted specimen – bird or moth. Aesthetically, she disliked confining her broods in cages. To photograph eclosing moths she let them crawl over furniture or drapes, constantly guiding them to remain in the field of view. Too often, while changing glass plates, the moth would escape through an open window. Similarly, ovipositing females would be allowed to fly about a small room overnight, laying eggs on all surfaces. One might expect that she would have constructed a special studio for photographing her captive subjects.

Gene Stratton-Porter was also an artist of great sensitivity, who described her subject with poetic prose (Stratton-Porter. *Moths of the Limberlost*, p. 244):

“Polyphemus is rich in shadings of many subdued colours, that so blend in contrast as to give it no superior in the family of short-lived lovers of moonlight. Its front wings are a complicated study of many colours, for some of which it would be difficult to find a name. Really, it is the one moth that must be seen and studied in minutest detail to gain an idea of its beauty.”

To correct the shortcomings of black-and-white photography Stratton-Porter printed images on special paper and for certain species carefully hand-painted over them, as



Hand painted photograph of *Antheraea polyphemus*. Moths of the Limberlost. Gene Stratton-Porter.

she did for the chapter on *A. polyphemus*. Although text-only modern reprints are available, it may be worth paying the premium price for an original copy of *Moths of the Limberlost*.

Gene Stratton-Porter corresponded with professional entomologists and read their works, yet she was often critical of their stiff prose and overwhelming terminology. They failed to answer her questions about basic natural history. What was the purpose in nature for various structures, behaviors, and wing patterns?

The text is entirely in the first person. This is not an instar-by-instar chronology of the life cycle. This book is literature, not a field guide. For each species she tells a personal story of her experiences and along the way describes the life stages for some thirteen species. As the text meanders the author digresses into philosophical discourse and other commentary. This warm style of writing and the broad range of personal stories makes reading *Moths of the Limberlost* especially rewarding.

***Caterpillars and their Moths.* Ida M. Eliot and Caroline G. Soule. 1912.**

These two women shared similar backgrounds – prominent families and private schooling- and a strong commitment to promote education for girls and women. Eliot and Soule joined together late in life, sharing a love of butterflies and moths, and eventually co-authored this book.

Ida Eliot, born in 1839 in New Bedford, Massachusetts, was the daughter of a Massachusetts congressman and graduated from what is now Salem State University. She later moved to St. Louis, Missouri, where she founded a school for freed African American students. Moving to New York she and her partner Anna Brackett founded the Brackett School for Girls. By 1900 she had moved back to New Bedford, Massachusetts, where she apparently met Caroline Soule.

Caroline Soule was born in 1855 in Springfield, Massachusetts. Her father was a prominent clergyman, able to send Caroline to the best schools. She was a member of the Boston Women's Education Society and later the Boston Society of Natural History and the Entomology Society of America. An ardent breeder of Lepidoptera, she published some seventeen articles in *Psyche* around the turn of the century.

Eliot and Soule bred Lepidoptera for twenty years before they put their collective knowledge and experiences into book form. They treat forty three species and for each they provide a photograph of both adult and larva. Eliot's sister Edith did the studio photography, and it may be said that the contrast and resolution is superior to that of Stratton-Porter.

The emphasis on caterpillars in the title is significant. For many years, Eliot & Soule was a standard reference on

larval biology. Most succeeding field guides concentrated on figures of adults until modern digital photography has made practical the lush treatment of complete life histories that we see in current works (Collins & Wagner 2014). Eliot and Soule dedicated their book "to the teachers and children who have begged us to write it." This dedication is borne out by the detailed and comprehensive beginning chapters, including a description of their rearing space (The Crawlers); rearing methods; eggs, larval and pupal structures; development from egg hatching to adult emergence and mating; hunting for all stages; and parasites. This is followed by eleven chapters of life histories of about 10 families (by contemporary taxonomy). One curious omission from all these books is *Hemileuca maia*, the boldly marked, black and white diurnal saturniid. It is a fall flyer and so "out of season", yet Holland (1920) briefly discusses it and illustrates both adult and larva.

Eliot and Soule, and some others included here, preferred to rear larvae in circular tins, of the kind used to package various staples and products. This would seem a lethal method due to the lack of ventilation, tendency of host leaves to wilt and degrade, lack of light (many species require normal ambient photoperiod to regulate their development), accumulation of droppings, etc. Rearing in tins requires daily, rigorous cleaning and replenishment of host plant. The authors stress this routine care, and so seem to have avoided excessive loss to disease. No author mentions rearing larvae in mesh sleeves covering branches as protection for caterpillars. The various authors mention covering open jars with "scrim", a loosely woven fabric of linen or cotton. Window screening was in use, but neither material was apparently used to make sleeves.

For the most part Eliot and Soule use straight-forward descriptive prose, but punctuated with humorous anecdotes. A gardener delivers a box. "These bugs (*Dryocampa rubicunda*) are eating up a lady's maple tree so she sent me to have the Bug Woman tell me what to do about it". The authors go on: - - - 'In the country there is a firm belief in the poisonous qualities of all crawling things.' She advises the gardener to pick the 'caterpillars' off and let her identify them.

"There ain't no caterpillars there. It's only these bugs".

"These are caterpillars, not bugs".

"Oh no; caterpillars've got fur all over 'em. Some folks call these worms and some call 'em bugs. I call 'em bugs".

In the prose style of the time few proper names are used, and they refer to themselves as "The One of Us" or "The Other of Us."

Relatively cheap reprints of Eliot and Soule are available, but original editions in good condition can be found for under \$100. These may be worth that price for the beautiful gold embossed title and artwork on the front cover.



One of many skillful line drawings by Ellen Robertson-Miller.

Butterfly and Moth Book. Ellen Robertson-Miller. 1912.

It is difficult to write an unbiased description of this book. It was one of the first books on butterflies and moths I read; I was enchanted by the flowery Victorian prose. Each species was a new story for me.

Robertson-Miller discovered moths and butterflies late in life. She was burdened in caring for her invalid mother. They decided to move to a farm in search of a therapeutic life. Butterflies and moths were abundant in the surrounding meadows, fields, and woods and soon provided a soothing distraction for both mother and daughter. The neighborhood children, and then their parents, gathered to observe metamorphosis in cages of caterpillars. Robertson-Miller published magazine articles on her new interest, and eventually these experiences were documented in this book.

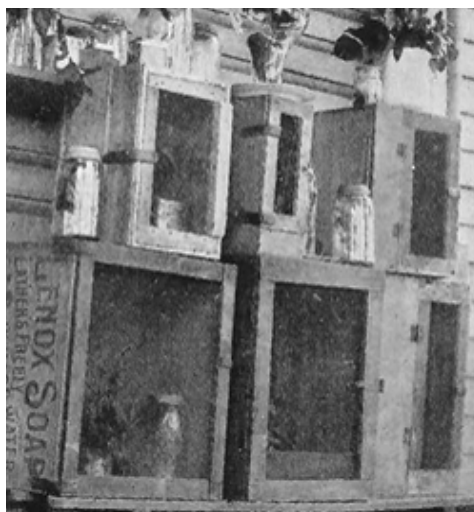


"Near to where the cocoon hung was literally alive with males - - - How did it happen they were there? - - - Simply because they were males "who would - a - wooing go". They had scented "my lady" from afar and come to visit her."

Ellen Robertson-Miller.

Each species treatment includes many black-and-white photographs, supplemented by detailed line drawings, a feature in common with Dickerson's book. Robertson-Miller gives a particularly absorbing account of the life history of *Argynnis (Speyeria) cybele*, with its unusual habit of overwintering as a young larva. I remember many years ago Sterling Mattoon showing me his *Speyeria* "condominium"

Ellen Robertson-Miller's "Crawlers" where she reared larvae in mesh-covered jars on shelves or in soap box cages.



for overwintering larvae: a block of wood with holes drilled to accommodate each larva. It seems a marvel that they survive hibernation in the wild at this delicate stage.

***Moths and Butterflies.* Mary C. Dickerson. 1901.**

Mary Dickerson was head of the Department of Biology and Nature Study at the Rhode Island Normal School (Providence). Her philosophy, stated in the Preface, is that of a teacher:

“For young people natural history is of great educational importance, outside of its pleasure value. Its primary value lies in the fact that it not only places before the senses a host of opportunities for pleasurable observation of concrete objects but that it also leads the mind gradually but surely to the power of independent thought and judgement. When a structure, habit, or condition of environment is seen, the question naturally follows “How does this help the creature in the circumstances of life?” or “How has this structure or this habit ever come about so perfectly to fit the creature to the conditions of its life?” In answering these questions the boy or girl becomes an independent reasoner.”

In Dickerson's writing we repeatedly see her understanding of Darwin's concept of adaptation and natural selection. In a theoretical example she imagines that changes in the environment cause changes in a resource, such as a change in flower shape, which in turn affects the ability of a moth to obtain nectar. “But these moths are not exactly alike among themselves”. “Those best adapted for the new conditions would live, the others would die.” Those rearing Lepidoptera know that in nature only a tiny percentage will survive. Dickerson also states that each generation reveals novel variation and that this variation is heritable. All aspects of Darwinian evolution are now in place. Neither Darwin nor the authors of these natural history books understood genetics – the mechanism of inheritance – but this gap in the model in no way invalidated the obvious appeal and significance of evolution by means of natural selection.

In summing up impressions from these books it is useful to place them in historic context, with publication dates from 1901 to 1916. America was an isolated country; three of the works were published before the First World War. It was the beginning of the silent movie era. Broadcast radio was just into the future. People got their news from newspapers and their entertainment from books and magazines. The population shift from farms to cities was ongoing during this period, and so also the beginning of the destruction of pristine nature, as seen in the Limberlost story. Yet all authors celebrated the magnificent abundance of Lepidoptera in field, meadow, and forest. Dozens of cocoons could sometimes be collected from trees and shrubs in towns and cities. Electric lighting was largely confined to commercial applications. Street lighting was a source of specimens and by befriending the man hired to replace burned-out bulbs one could occasionally be rewarded with a female moth still retaining some of her complement of eggs. Reading these books today should renew a dedication to protect our remaining biodiversity.

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A debatable wildflower for the garden: hairy beggarticks (*Bidens pilosa*)

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Native wildflowers in the home garden can be a blessing or a curse. Consider: They can be showy and pollinator friendly. But they can thrive so well in the garden's rich soil that they can become invasive, smothering out less hearty species.

Case in point: *Bidens pilosa*, known by such monikers as hairy beggarticks, Spanish needle, cobbler's pegs, farmer's friends, hitch hikers, black-jack, or simply, bidens. As a member of the aster family (Asteraceae), the blooms are attractive (small but with a single row of bright white petals surrounding a deep yellow center), produce copious amounts of nectar and pollen for attracting pollinators such as butterflies. Names usually reference the tendency of the seeds—black, bristly and barbed—to adhere to any fibrous material such as clothing, hair, fur, or feathers. (Fortunately, the seeds are easily dislodged.) Leaves are medium size, compound, and dull green—additional features that enhance the garden. Native throughout most temperate to tropical regions within the United States, the wildflower is most prevalent in coastal states from the Pacific, along the Gulf of Mexico, and up the Atlantic coast to New England. Favored habitats are poor, disturbed soils—*especially* areas that have been recently burned; the plant does well in sand, also.

Bidens is a late summer through fall annual; frosts terminate growth. However, each flower produces copious seeds that are programmed to begin a fresh generation the following spring. Most pollinators find the flowers irresistible; in southern Florida, the species is often the most butterfly-visited wildflower. Another plus: one species of tiger moth (family Erebididae) in Brazil, as well as our local dainty sulphur (*Nathalis iole*)—and occasionally, painted lady (*Vanessa cardui*)—exploit the plant as a host.

And there's more. Chemists have identified about 200 pharmacologically active compounds from various parts of hairy beggarticks. Not surprisingly, several human cultures traditionally consume flowers, seeds, and vegetative parts as food, drink (tea), and medicine.

My initiation to hairy beggarticks dates to when I was a nascent teenager with a penchant for butterflies. During summers, I would walk along a nearby railroad track in suburban New Orleans. Because 1955 was a pre-herbicide era, swaths of unkempt vegetation flanked the roadbed. Understandably, that meant an abundance of flowers—and, to my delight, an assortment of butterflies. I quickly learned that a low-growing, white-flowering wildflower was

particularly alluring to butterflies and bees. I observed, too, that this same plant was often common in vacant parcels of land within the city—even in my neighborhood. My neighbors referred to the plant as “stick-to-weeds” because of the habit of the seeds attaching to anything that would brush against them.

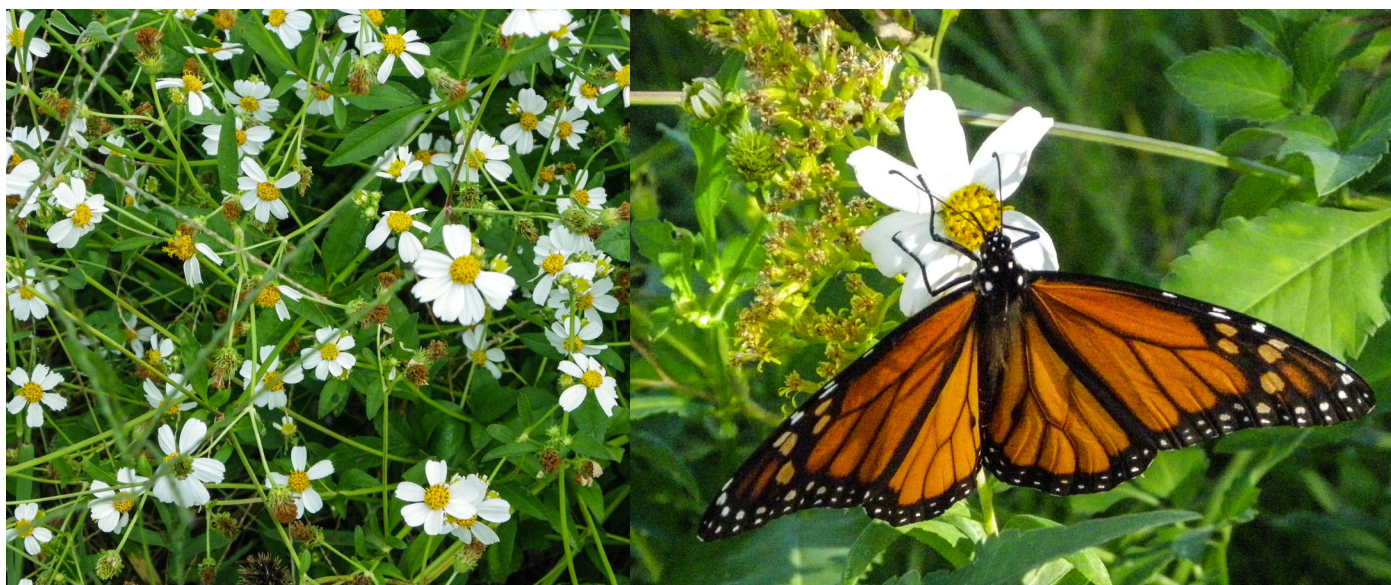
Now, I champion the “stick-to-weeds” as a friend of the time-challenged gardener—in much the same way as I promote Indian blanket (*Gaillardia pulchella*) (see my article in *NEWS*, Fall 2024). But for success, one must understand the nature of the plant: a pioneer species. Such plants are adapted to thrive in poor, bare ground following disturbance. If planted in a traditional well-tending garden, these plants usually grow tall and lanky, produce luxuriant greenery, and delay flowering until late in the year.

And so it is with hairy beggarticks. In a typical fertile pollinator garden, the species can be invasive, rank—characteristics that are generally undesirable. Furthermore, each flower head produces prodigious seeds. These traits, however, can be discouraged by withholding fertilizer and water. And in early spring, one can easily cull unwanted seedlings. In the winter, *Bidens* can be uprooted and discarded and lantana, pruned to the ground to encourage new growth the following spring. The key to success is vigilance. And if space permits, a relatively large flower bed will require even less maintenance. For me assets outweigh potential problems. Furthermore, if hairy beggarticks is combined with large varieties of lantana, e.g., “Miss Huff” “Ham and Eggs,” and “Texas lantana” (all heat and drought tolerant), the homeowner can create an aesthetic display as well as a feast for pollinators.

To summarize: seeds self-sow in the fall and sprout the following spring, insulating the ground from the invasion of many unwanted grasses and forbs; no fertilizer or supplemental water is ever required, even during periods of serious drought; foliage is disease resistant; flowers are powerful attractants for pollinators; host for at least two species of lepidoptera; spent plants have shallow root systems easy to dislodge; and finally, all parts of the plant can embellish a kitchen table. And for gardeners with sufficient space to dedicate a portion to a nature-centric landscape, hairy beggarticks offers a unique opportunity to experience an armchair “walk on the wild side.”



Left: Stand of *Bidens pilosa*. **Right:** Mixed stand of largely *Bidens pilosa* and Lantana; Gulf Fritillary visiting the Lantana.



Left: Close up of stand of *Bidens pilosa*. **Right:** Monarch (*Danaus plexippus*) visiting a flower of hairy beggarticks (*Bidens pilosa*).



Left: Close up of individual flower of *Bidens pilosa*. **Center:** Seed head of *Bidens pilosa*, showing the barbed ends that so easily adhere to clothing, hair, etc. **Right:** The individual seeds of *Bidens pilosa*, again showing the barbs.

Additional distributional records of the *Petrophila fulicalis* species group (Crambidae)

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In JLS 75(2), I published an identification article addressing the *Petrophila fulicalis* species group (Crambidae) which included updated descriptions and maps of the distribution of six closely related species: *P. canadensis* (Munroe, 1972), *P. confusalis* (Walker [1866]), *P. fulicalis* (Clemens, 1860), *P. heppneri* (Blanchard & Knudson, 1983), *P. hodgesi* (Munroe, 1972), and *P. santafealis* (Heppner, 1976) (Sexton 2021) (Figure 1). The accumulation of records of these species has continued at a nearly exponential pace, particularly on such online community science repositories as iNaturalist (iNaturalist.org). The present contribution compiles selected observations which provide new state records, substantial range extensions, and significant regional records as of 31 December 2024 from iNaturalist and other sources.

Species are discussed in the same sequence as the earlier publication (Sexton 2021). County names are *italicized*. Specimen records from SCAN include an institutional abbreviation and specimen number. Observation numbers listed as “iNat” or “BG” are from URLs on iNaturalist.org or BugGuide.net, respectively, and should be prefaced with <https://www.inaturalist.org/observations/> or <https://bugguide.net/node/view/>, as appropriate.

Institutional abbreviations: BEM = William F. Barr Entomological Museum (University of Idaho); LEM = Lyman Entomological Museum (McGill University); LFC = Laurentian Forest Centre (Canadian Forest Service, Quebec City); MEM = Mississippi Entomological Museum; ROM = Royal Ontario Museum.

Growth of the iNaturalist Data Set

The cutoff date for records in Sexton (2021) was 31 August 2020. At that time, from the iNaturalist data set alone, there were about 3,405 observations of moths of the genus *Petrophila* in Canada and the United States (Table 1). The growth in popularity of iNaturalist has been exponential and the platform now boasts well over 200 million natural history observations (Loarie 2024). In the past approximately 4-1/2 years, the available set of records of *Petrophila* moths has burgeoned to over 12,500 in Canada and the United States (Table 1), a nearly 370% increase, now documenting 17 species in the genus including one pending new U.S. record (near *P. triumphalis* (Schaus, 1912) or *P. brunneodora* (Dyar, 1914); A.

TABLE 1: *Petrophila* sample sizes from iNaturalist, 2020 versus 2024. Data sets include all records from the U.S. and Canada.

Taxon	TOTAL OBSERVATIONS		GROWTH
	Aug. 31, 2020	Dec. 31, 2024	2020-2024
<i>Petrophila</i> (all species)	3,405	12,549	369%
<i>Petrophila fulicalis</i>	470	2,089	444%
<i>Petrophila confusalis</i>	267	819	307%
<i>Petrophila canadensis</i>	720	2,611	363%
<i>Petrophila santafealis</i>	1	63	6,300%
<i>Petrophila hodgesi</i>	25	212	848%
<i>Petrophila heppneri</i>	52	107	206%
%age of observations at Research Grade	89%	88%	
Percentage of observations currently at genus level	5%	6%	

Solis, pers. comm.). Comensurate with that increase, the sets of observations of species addressed in the present contribution show increases in the range of 200-440% with a few exceptions.

Petrophila fulicalis (Clemens, 1860) - Feather-edged *Petrophila*.

Observations since 2020 have not modified the core range of *P. fulicalis* (Sexton, 2021, Map 1) but have added a few additional state records around its perimeter where the species is quite sparse. Since the observer population is also relatively sparse in these added regions, the new records are not viewed as a range expansion, *per se*. Overlap with the range of the endemic *P. hodgesi* is discussed under that species.

ARKANSAS: *Benton*, Rogers, June 2020 (uploaded January 2021) (S. C. Granderson, iNat 68356124). This constitutes the first published image of the species in Arkansas and may provide the first documented state record pending clarification of the following: Two earlier records on scan-bugs.org require verification: (1) a report from *Saline* (Lake Winona spillway), 19 May 2015, which is within the range of the endemic *P. hodgesi* (Munroe, 1972) and cannot be verified without a photo or specimen (LepSoc database); (2) a specimen in the Mississippi Entomological Museum (MEM 313317) from *Polk*, collected 19 June 2017, by R. L. Brown, also within the known range of *P. hodgesi*.

KANSAS: *Johnson*, Lenexa, 19 August 2020 (J. Witters, BG 1888059), FIRST STATE RECORD. Ten additional records,

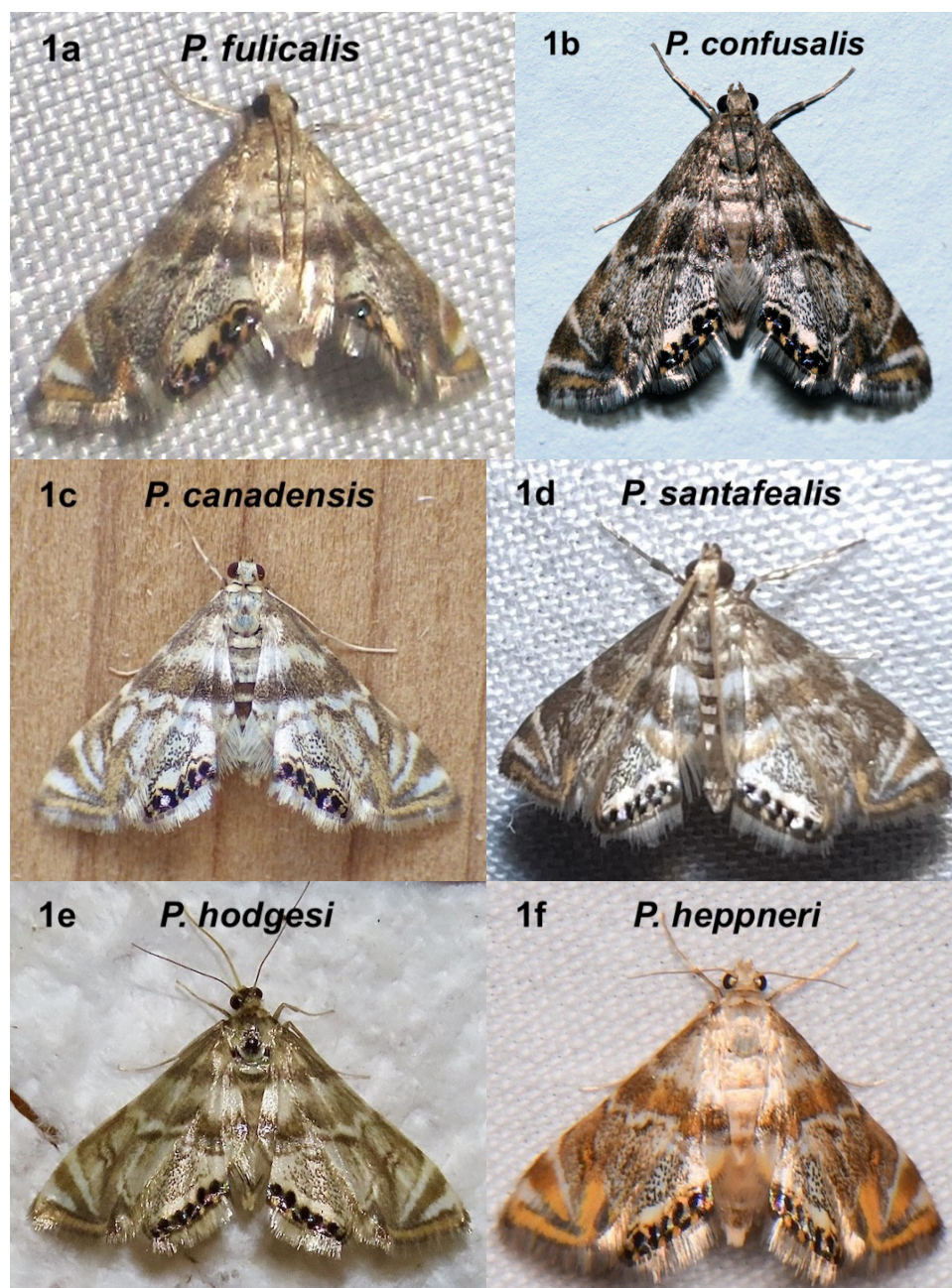


FIGURE 1. Six species of the *fulicalis* species group: 1a. *P. fulicalis* (Texas; C. Sexton); 1b. *P. confusalis* (California; Tom Murray); 1c. *P. canadensis* (Minnesota, Carl Barrentine); 1d. *P. santafealis* (FL; Luke Smith); 1e. *P. hodgesi* (Missouri; Gary Zerbe); 1f. *P. heppneri* (Texas; Jack Cochran).

Cherokee, Saline, Shawnee, and Wabaunsee, 2020-2024, extending the known range west to Salina, Kansas (iNaturalist).

MISSOURI: *McDonald*, Elk River, 8 Sept 2021 (Caleb Wardlaw, iNat 94145064); first record in southwest corner of state, adjacent to other records in AR and OK.

NEBRASKA: *Douglas*, Bennington, 18 August 2022 (Loren & Babs Padelford, BG 2213563), FIRST STATE RECORD.

NEW MEXICO: *Eddy*, nr Brantley Lake, June 2022 (David Heckard, iNat 120970166), plus three additional records through September 2023. FIRST STATE RECORDS. The species remains very sparse in New Mexico and west Texas but may occur along the length of the Pecos River watershed.

RHODE ISLAND: *Providence*, North Smithfield, 15 July 2021 (Aaron Hunt, iNat 150767304), FIRST STATE RECORD.

[VERMONT: An observation in *Franklin*, 12 July 2019 (judywelna, iNat 28971959) has been redetermined as *P. canadensis*. This removes the only known Vermont record for *P. fulicalis*. No additional state records have surfaced.]

[CANADA: MANITOBA: Two previous records of *P. fulicalis* reported by Pohl et al. (2018) have been redetermined as *P. canadensis* (G. Pohl, pers. comm.). This removes Manitoba from the documented distribution of *P. fulicalis*.]

ONTARIO: Along with the report of Riotte (1992), Pohl (pers. comm.) mentions specimens in the Ken Stead collection and ROM. *Lambton*, Sarnia, 9 August 2023 (find_report, iNat 252270393) provides the first online photographic record for the province.

QUEBEC: Pohl (pers. comm.) reports the species is listed by Handfield et al. (1997) and specimens are in LEM, LFC, ROM. Winn (1912) reported specimens (as "*Elophila fulicalis*") from St. Johns and St. Hilaire in the Chagnon collection

and from Montreal, Rigaud, and Rosemere in his personal collection, but these all predate the description of *P. canadensis* (Munroe, 1972) and need to be re-examined.

Petrophila confusalis* (Walker [1866]) - Confusing *Petrophila

Observations since 2020 have extended the known range of *P. confusalis* into the central Rockies of Wyoming and Colorado, shown the species to be fairly widespread in the Snake River watershed of southern Idaho, and added a few

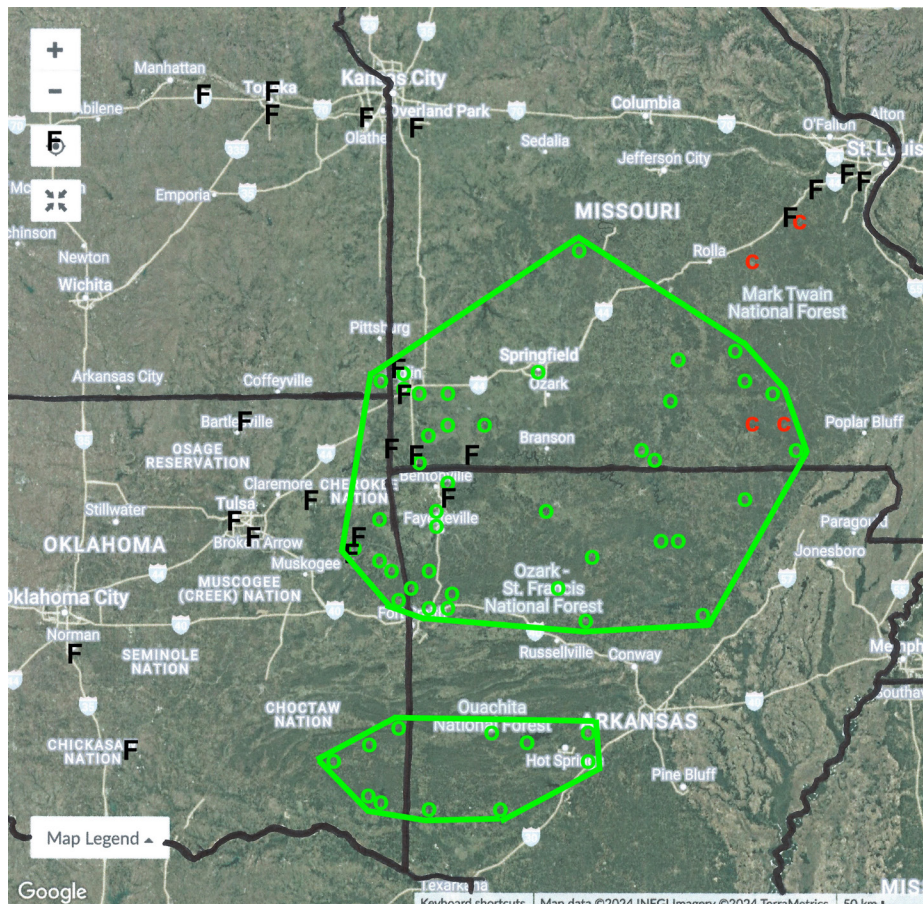


Figure 2. Map of the Ozark and Ouachita Ecoregions with ranges of three *Petrophila* species. Green “o”s and polygons indicate the presently documented range of the endemic *Petrophila hodgesi*; two segments of the species range are separated by the Arkansas River floodplain. Red “c”s mark recent records of *Petrophila canadensis*. Black “F”s indicate records of *Petrophila fulcalis*. Base map imagery from iNaturalist.org/Google; map data ©2024 INEGI Imagery.

watershed records on the east side of the Sierra Nevada in extreme western Nevada.

COLORADO: *Routt*, Steamboat Springs, 29 July 2024 (bethnature2, iNat 232840949), FIRST STATE RECORD.

NEVADA: *Douglas*, July 2024 (VitalBeeBuds, iNat 228957277), first Carson River watershed record; *Lyon*, Smith Valley, 14 August 2024 (Chad Ceredon, iNat 235811589) and *Mineral*, “Walker Lake”, 10 September 2024 (Chad Ceredon, iNat 241024723), both new records for the Walker River watershed.

WYOMING: *Carbon*, Hanna, 3 July 2021, (Jaime Baxter-Slye, iNat 85571636), FIRST STATE RECORD.

Petrophila canadensis (Munroe, 1972) - Canadian *Petrophila*

Observations since 2020 have added records in Nova Scotia and Newfoundland. Two reports from Prince Edwards Island on iNaturalist in 2023 have been redetermined as

Eoparargyractic plevie. In Missouri, the range of *P. canadensis* is now documented to extend westward into the eastern portion of the Ozark Highlands Ecoregion (Chapman et al., 2002), overlapping slightly with the eastern edge of the range of *P. hodgesi* (Figure 2).

ALABAMA: *Lauderdale*, Goose Shoals, 22 July 2021 (J. Garner, iNat 88235781). This moth is similar to several other records in central and northeast Alabama which are phenotypically indistinguishable from *P. canadensis*. Their specific placement would benefit from genitalic examination or DNA analysis of specimens (Sexton 2021). This is the first record of the *P. canadensis* subgroup from the Interior Plateau Ecoregion of northern Alabama, all previous reports having been in the Southwestern Appalachians and Ridge and Valley Ecoregions (Griffith et al., 2001).

MISSOURI: *Crawford*, Steelville, 7 July 2019 (Zebulen Collier, iNat 28352623), FIRST STATE RECORD. Also: *Franklin*, Sullivan, 7 June 2020 (K. Leeker, iNat 48929615). *Oregon*, Eleven Point River, August 2022 (Caleb Wardlaw, iNat 130632909, 130645779), southwesternmost records in MO, overlapping newly extended range of the endemic *P. hodgesi* (in adjacent *Ripley*, MO; Figure 2).

SOUTH CAROLINA: *Stewart*, Landsford Canal SP, 29 May 2023 (Gage Sutton, iNat 164556641), FIRST STATE RECORD (genus and species), pending confirmation with dissection and/or DNA. Two additional records in 2024 in *York*.

CANADA: MANITOBA: Two previous reports of *P. fulcalis* were redetermined to be *P. canadensis* (G. Pohl, pers. comm.; see above). These are at the western edge of the latter species' range.

NEWFOUNDLAND: *Division No. 2*, St. Lawrence, 29 July 2023 (wilsonnorman, iNat 175593317), FIRST PROVINCIAL RECORD.

NOVA SCOTIA: *Pictou*, nr Stellarton, 25 July 2020 (scaup, iNat 54584131); earliest known photographic record for NS; six additional observations, 2022-2024, including *Hants* and *Victoria*.

***Petrophila santafealis* (Heppner, 1976) – Santa Fe Petrophila**

One additional Florida county has been added since Sexton (2021). The large increase in photographic records (Table 1) primarily comes from one observer adding numerous observations in *Marion* and *Suwanee*.

FLORIDA: *Jefferson*, Aucilla WMA, 21 August 2021 (Abby Darrah, iNat 92168424), new county record.

***Petrophila hodgesi* (Munroe, 1972) - Ozark Petrophila**

Since 2020, there has been an eightfold increase in the available observations of this regional endemic (Table 1), most records being infill within the known range. The range of *P. hodgesi* is herein extended to the Osage/Gasconade Hills Ecoregion and into the eastern portion of the Ozark Highlands in southeastern MO (Chapman et al., 2002) where the species narrowly overlaps with *P. canadensis* (Figure 2). The range of *P. fulicalis* overlaps or interdigitates with that of *P. hodgesi* in the western portion of the Ozark Highlands (Figure 2). Due to complexities of topography, it is still not clear if the latter two species actually co-occur in the same stream segments.

MISSOURI: *Camden*, Climax Springs, 23 May 2024 (Garrett Frandson, iNat 217800011), northernmost record to date; *Ripley*, Fourche Creek, 12 June 2022 (Mr. Satterfield, iNat 121478588), easternmost record. This is in the eastern portion of the Ozark Highlands Ecoregion of Missouri, just 32 km (20 mi) from the edge of the Mississippi Alluvial Plain (Chapman et al., 2002) (Figure 2).

***Petrophila heppneri* (Blanchard & Knudson, 1983) - Heppner's Petrophila**

TEXAS: *Terrell*, Independence Cr., 1 June 2021 (Rich Kostecke, iNat 81963525). This extends the range of this species one watershed to the west of the previously-known range and constitutes the first record in the Trans-Pecos region of the state.

Discussion

The continued rapid growth of community science repositories like iNaturalist.org allows for better definition of the distributions of many species. In the case of a moth genus like *Petrophila* whose larvae are aquatic, the increasingly fine-grained distributional data allow for the preliminary characterization of habitat associations, at least at the ecoregional level. Where ranges of similar species like *P. canadensis*, *P. hodgesi*, and *P. fulicalis* overlap in the Ozark Highlands Ecoregion (Figure 2), for instance, questions of environmental tolerances and ecological interactions may come into better focus for more detailed examination.

While the toughest identification challenges in a group of species like the genus *Petrophila* may remain outside the purview of field photographic records (Sexton 2021), the wider data sets help to highlight those geographic areas where more detailed examination of records with dissection and DNA analysis might be targeted. Such is the case, still outstanding, of the distributions of *P. canadensis* and *P. santafealis* in the southeastern U.S.

Acknowledgements

I thank the following for recent discussions, correspondence, and posting of significant records regarding the genus *Petrophila*: Johnny Baakliny, Carl Barrentine, Bala Chennupati, Jaime Baxter-Slye, Mike Burrell, Dick Cannings, Jack Cochran, David P. Critchlow, Link M. Davis, Robert Difrancia, Melissa Drake, Zach DuFran, Cliff Ferris, Loran Gibson, Aaron Hunt, Matt Hunter, Rich Kostecke, Seabrooke Leckie, Tom Murray, Steve Nanz, Owen Ridgen, Dan Riley, Ken Rosenthal, Luke Smith, Eric Soehren, M. Alma Solis, Josh Vandermeulen, Caleb Wardlaw, Quinten Wieggersma, Gary Zerbe. Greg Pohl has been particularly generous with respect to information on Canadian records.

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Supplemental data: An appendix which enumerates additional infill county records of the set of six *Petrophila* species is available from the author (gcwarbler@austin.rr.com).

Digital Collecting:

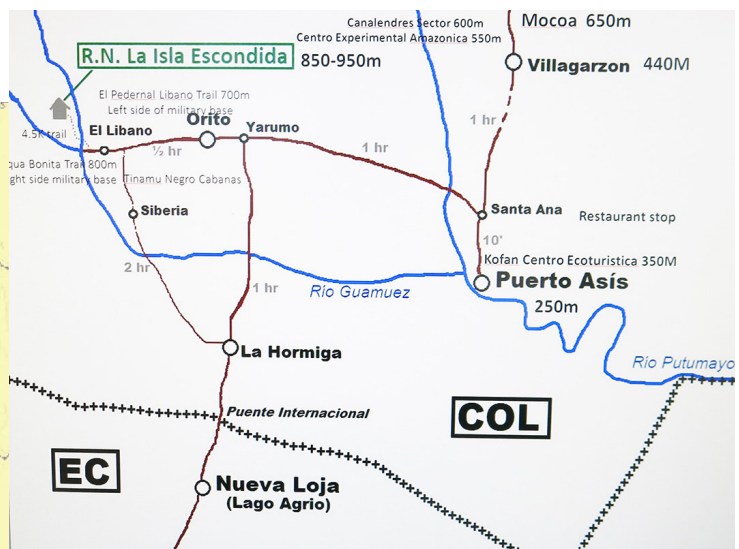
Butterflies of Putumayo Department: Colombia. Amazonian basin to Andean foothills (250-900m), SW Colombia bordering Ecuador

Bill Berthet

12885 Julington Road, Jacksonville, FL 32258

bergems@comcast.net

Map of southwestern Colombia, showing location of Putumayo Department and Puerto Asís. Close up of area visited for this article, showing Puerto Asís and other collecting locations



Trip Summary: September 18-29, 2024

Airplane flight 1½ hrs from Bogotá SW to Puerto Asís 250m – visited Heco Hotel Kofan 350m; Canalendres Sector 550m; Amazon Experimental Center (CEA) Sendero El Yage 600m; Sendero Agua Bonita Trail 800m (right side of military base); El Pedernal Libano Trail 700m (left side of military base); and La Isla Escondida 850-910m.

You can go to <https://www.butterflycatalogs.com/colombia.html> for our new Colombia photo guide with 3,950 species. We also recently released Eastern and Western Ecuador pdf's at <https://www.butterflycatalogs.com/ecuador.html>. The pdf's are free to download.

This is a summary of a 12 day trip organized by Indiana Cristóbal Ríos-Málaver (Manizales, Colombia) Biologist, Magister in Ecology and amateur photographer of Lepidoptera; associate researcher of the Institute Alexander von Humboldt in Colombia and the McGuire Center for Lepidoptera and Biodiversity University of Florida. Among his interests is the scientific divulgation of topics related to lepidopterology on social networks. He is currently conducting joint research on the biodiversity of butterflies and moths in Colombia, with national and international institutions. He may be contacted at crisomelidae@gmail.com. Indiana's wife Maria, a bug loving very talented artist in multiple mediums, also joined us.

We checked the phone for messages after landing at El Dorado Airport in Bogotá. American Airlines said my luggage was "delayed" in transit and would arrive on a later flight. Indiana and I went upstairs to Crepes y Waffles to meet Maria to celebrate our birthdays. Another man's birthday was also on that day and he came over and celebrated with us. Many of the patrons sang Happy Birthday in English and Spanish. We arranged to pick up the luggage the next day. We settled in at Heco Hotel Kofan as the sun set.

Putumayo Department: Southern Colombia: bordered by Caquetá River to the Northeast, Ecuador to the South, and Peru to the Southeast.

There are two distinct morphological zones in this Department. To the west is the flank of the Eastern Andes Mountain Range extending to the Amazonian foothills with forested lowlands. The center and eastern parts are the Amazonian plain-basin.

Petroleum oil is pumped from Puerto Asís along the Putumayo River over the Andes to Tumaco on the Pacific side. Additional products include limes, marble, and coal. Cultivation consists of rice, sugarcane, beans, corn, bananas, plantains, and, as mentioned limes. The area is also used for grazing cattle. Pack Horses transfer supplies on degraded old growth rainforest trails from village to village.



Left: *Opsiphanes* pupa. Right: 4. *Omacha pax*. 5. *Erythia labdacus*. 6. *Porthocla gemma*. 7. *Anteros formosus*.

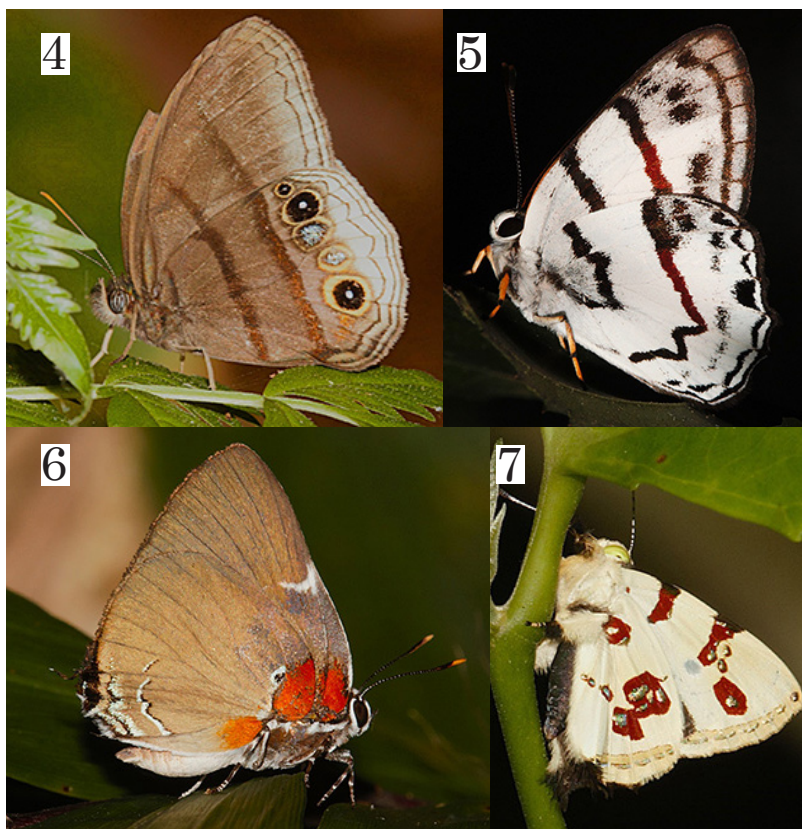
Butterfly and Moth photography is gaining in popularity in this region.

Early the next morning we started lurking around the Heco Hotel Kofan grounds (290-350m) and found a butterfly chrysalis in the genus *Opsiphanes*. We partook of breakfast while Indiana and a man with bait started spraying trees along the very dry degraded forested trails. It was sunny, but many butterflies were looking worn, probably having been out a while since it was so dry. As we crackled the dry leaves along the trail we spotted several Spix's night monkeys (*Aotus vociferans*) or the Colombian gray night monkey, belonging to the only nocturnal genus of New World primates.

It was a good first day: following a trail close to my room, we recorded *Omacha pax*, *Erythia labdacus*, *Porthocla gemma*, and the photogenic *Anteros formosus*. We had a few minutes rest then packed our stuff in a white pickup truck for the three hour drive to Mocoa with our bait man riding in the pickup bed.

We stopped for a lunch of scrambled eggs, with tomatoes and other herbs. In addition, there was a delicious fried, light cake -- of three possible filling flavors I chose chocolate, and shared a little bit with a local dog laying close by. Around 3:30pm we stopped to pick up my "delayed" luggage at the Villagarzon airport and were met with a **CLOSED** sign. We were able to get a security guard to contact the man with the key. After some driving back and forth, I got my luggage, slipped him a big tip, and he smiled and gave me thumbs up while we drove him back to Villagarzon. Relieved, we continued down the main road dodging motorcycles, stopping briefly for some construction just before arriving to Mocoa. We pulled into the brightly colored Dantayaco Hotel for a couple of nights. We had a nice partially open breezy room, and even had room for a moth light ten feet away from my bed . . . and a Jacuzzi!

When I got out of the truck, I discovered my camera body base was sopping wet from condensation from the A/C

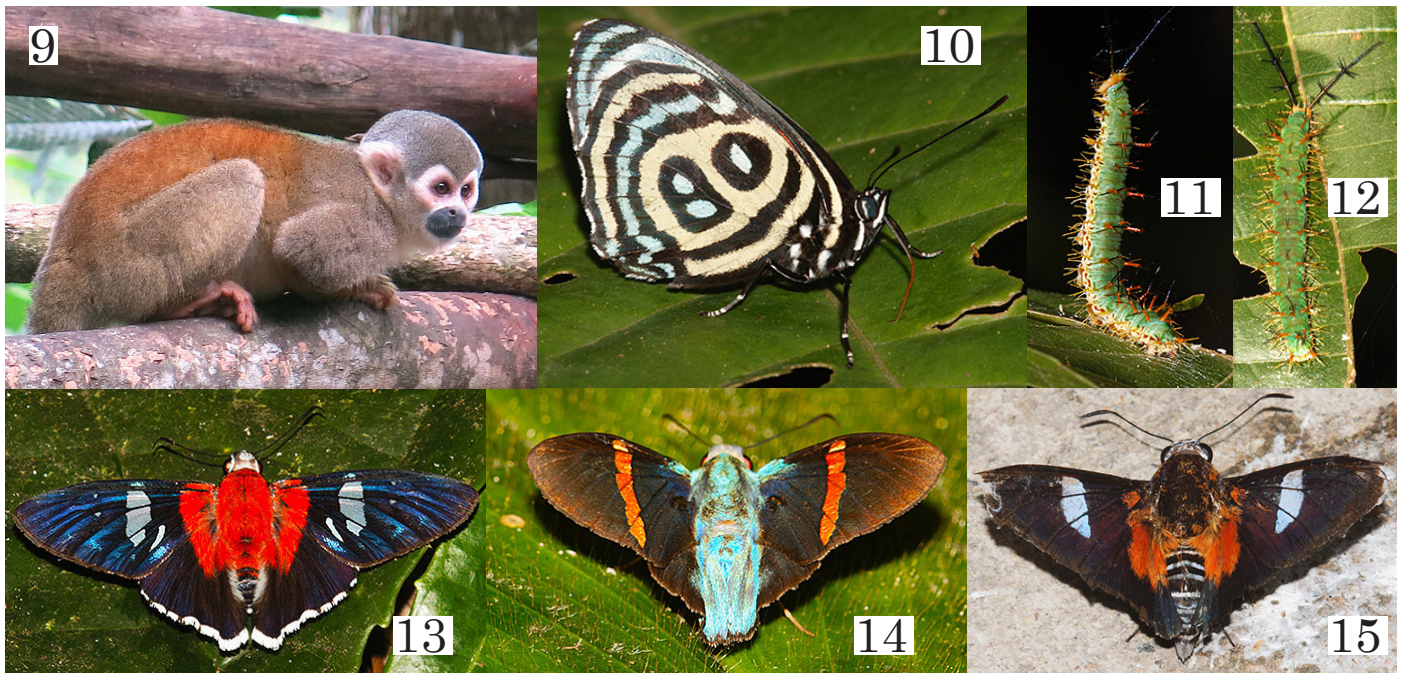


forming a puddle of water under the carpet. I checked the camera, taking the battery and card out after making sure it didn't function. I gave the body to Indiana who put the camera in a bag with rice. It still didn't work in the morning . . . but, I brought another camera body with me. Always good to have backup, because you just never know.

After dinner Indiana set up a moth light in my room that attracted *Macrosoma majormacula*. This "American moth-butterfly" is in the Neotropical genus *Macrosoma*. This genus has traditionally been viewed as an extant sister group of butterflies in the superfamily Papilionoidea. A 2014 phylogenetic analysis suggested Hedyliidae is part of Papilionoidea, and not a sister group, and are more accurately referred to as butterflies rather than moths. The superfamily is Hedyloidea, with around 35 species. We observed a number of different species in this genus attracted to moth lights in Mocoa, Orito, and La Isla Escondida.



Macrosoma majormacula



9. Playful Monkey at the Dantayaco Hotel. 10. *Calicore ines*. 11 & 12. Unidentified caterpillar doing callisthenics. 13. *Taroctenus corytus corba*. 14. *Porphyrogenes omphale*. 15. *Yanguna cometes*.

This was moth photography at its finest: lay in bed with binoculars checking the moth light, see a goodie, get out of bed, get a click, then lay down again finally falling asleep, after closing up the mosquito netting around the bed.

We had an early rise the next morning, and before leaving we had fun with the monkeys. We cut up a bunch of bananas and underhanded them to the monkeys, which were quite dextrous, with four in a row grabbing bananas in midair. Following the entertainment, I hiked with our bait man, Indiana and Maria up a hill about ½ mile to a tram, which then crossed over a river. From there the trail led to Fin del Mundo, which unfortunately was not open. Plan B took us in a taxi to Canalendres Sector (550m). Crossing over another bridge, we started baiting the one trail/paved lane. Even though degraded with constant foot traffic there was a small stream feeding water to a much larger river with trees, bushes, flowers and vines between the water and the pathway. Butterflying was very productive on this sunny day -- clicks included *Calicore ines*, *Taroctenus corytus corba*, *Porphyrogenes omphale*, *Yanguna cometes*, plus a caterpillar standing tall enjoying the direct sunlight reflecting off his body and face, then laying back down to feed later.

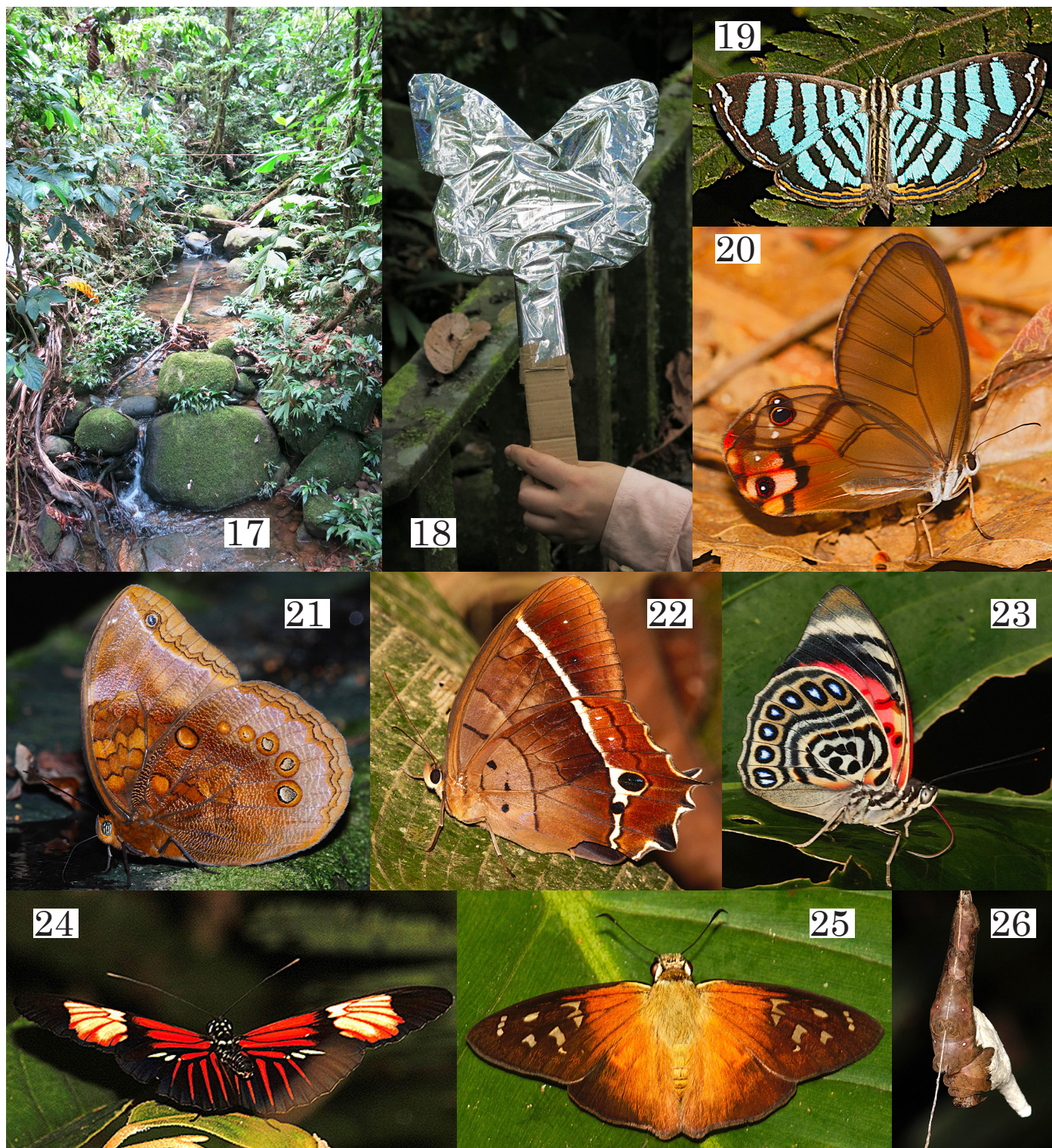
We took a taxi back. At the hotel I checked my camera -- yay, it worked! After a shower, we had a tasty dinner at the Amazonia Restaurant, an upstairs hole in the wall restaurant that had a waiting line at night for dinner. Downtown Mocoa had been recently ravaged by flooding. Motorcycles were the main transportation. There were also lots of trucks transporting petroleum. The main roads were in good condition except for stop and go construction around Mocoa.



Arapaima gigas, on display at the Amazonia Restaurant.

Arapaima gigas, also known as pirarucu, is the largest freshwater fish in South America. This giant air-breathing fish is found in the rivers of South America inhabiting natural lagoons and low-current reaches of Amazonian rivers. In the neighboring department of Caquetá this fish is raised along with many other species in aquaculture reservoirs totaling around 250 hectares. One of the fish farming stations is located in El Doncello, Caquetá Department supporting the handling of consumer and ornamental fish, reproduction, fattening, marketing, along with providing training, technical assistance and technology transfer to producers, students, professionals, and companies.

The next morning we took a taxi to Amazon Experimental Center (CEA) - Sendero El Yage trail (600m). The area was well forested, with a trail featuring an interesting marked possible *Heliconius erato* hybrid, with red-marked veins, nectaring with others on "Hot Lips" bushes. Further down the trail, we put out bananas around the small bridge. Maria was waving her tin foil butterfly on a stick



17. Sendero El Yage trail. 18. Maria's Morpho lure. 19. *Argyrogrammana johanismarci*. 20. *Haetera piera*. 21. *Catoblepia berecynthia*. 22. *Antirrhea philaretas*. 23. *Prepona hewitsonius*. 24. *Heliconius erato*. 25. *Augiades criniscus*. 26. Larva killed by fungus.

attracting male Morphos to come closer to investigate. It was nice to see *Catoblepia berecynthia midas* feeding on a banana. *Antirrhea philaretas intermedius* was skulking around in the brush below the bridge. To get that click, Indiana held me at the waist while I leaned over with outstretched arms as far as I possibly could. I got an

adrenalin rush observing *Prepona hewitsonius beata* visiting the bait. I was also excited to get a couple clicks of *Haetera piera negra*, the bright orange colored skipper *Augiades criniscus*, and the dazzling *Argyrogrammana johanismarci*. We also passed several dead caterpillars with possible fungus infections.



My two story lodge at Tinamu Negro Cabanas.

The next day we back tracked from Mocoa to Villagarzon to Santa Ana for a good lunch, and then headed west to Orito and on to El Libano village for a two day stay at Tinamu Negro Cabanas. I had my own two story lodge, with veranda for various views and another Jacuzzi! Indiana was mentoring the kids in the area and spreading Mother Nature's need for protection and understanding to all who would listen. We finished the day with a tasty dinner, good conversation, and we ended up sleeping well.

The following morning a taxi picked us up around 9:00am. We followed a tarmac road on the right side of Base Military Guamuez near the border of Ecuador. There were lots of butterflies along the way. The road ended where Sendero Agua Bonita trail (800m) began. We kept busy around the car and trail while Indiana baited. This was our fourth day of sunny conditions. Lush vegetation bordered this trail leading into a partially forested habitat. Areas near water can be hot spots along the trail. The bait we used this day was a mix of rotting fish-shrimp-urine, with rotting bananas for the big Nymphalids. I was so busy clicking away I forgot about lunch, though I had plenty of electrolyte-laden drinks and snacks so there were no worries. Indiana whipped out a small three-legged seat at the end of the trail that I sat on for a couple minutes of rest and a chocolate snack that was a welcome treat. The goodies from this day include the bright orange *Methone cecilia magnarea*, *Asterope leprieuri optima* imbibing minerals from rotting wood, *Napaea sylvia*, *Callicore lyca aegina*, *Eurybia silaceana*, and *Paraspiculatus elis*. *Ourocnemis principalis* can also be found here.

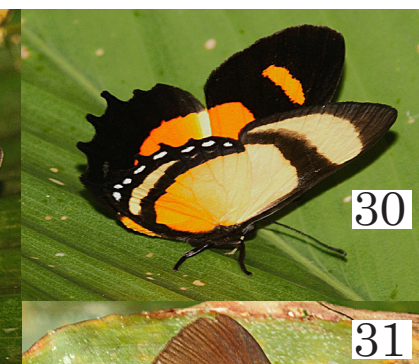
We took a taxi back to the cabin to enjoy the Jacuzzi. Another good dinner and night's sleep prepared us for the next sunny morning. The taxi picked us up around 9:00am for about a 20 minute drive on the left side of Base Military Guamuez to El Pedernal. This is a trail starting between two houses going 4½ km to R.N. La Isla Escondida (see earlier map) then further up the mountain.



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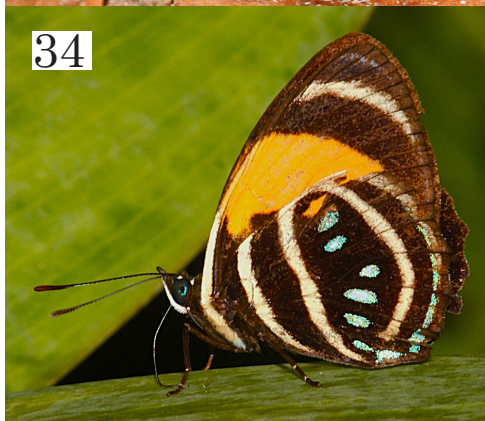
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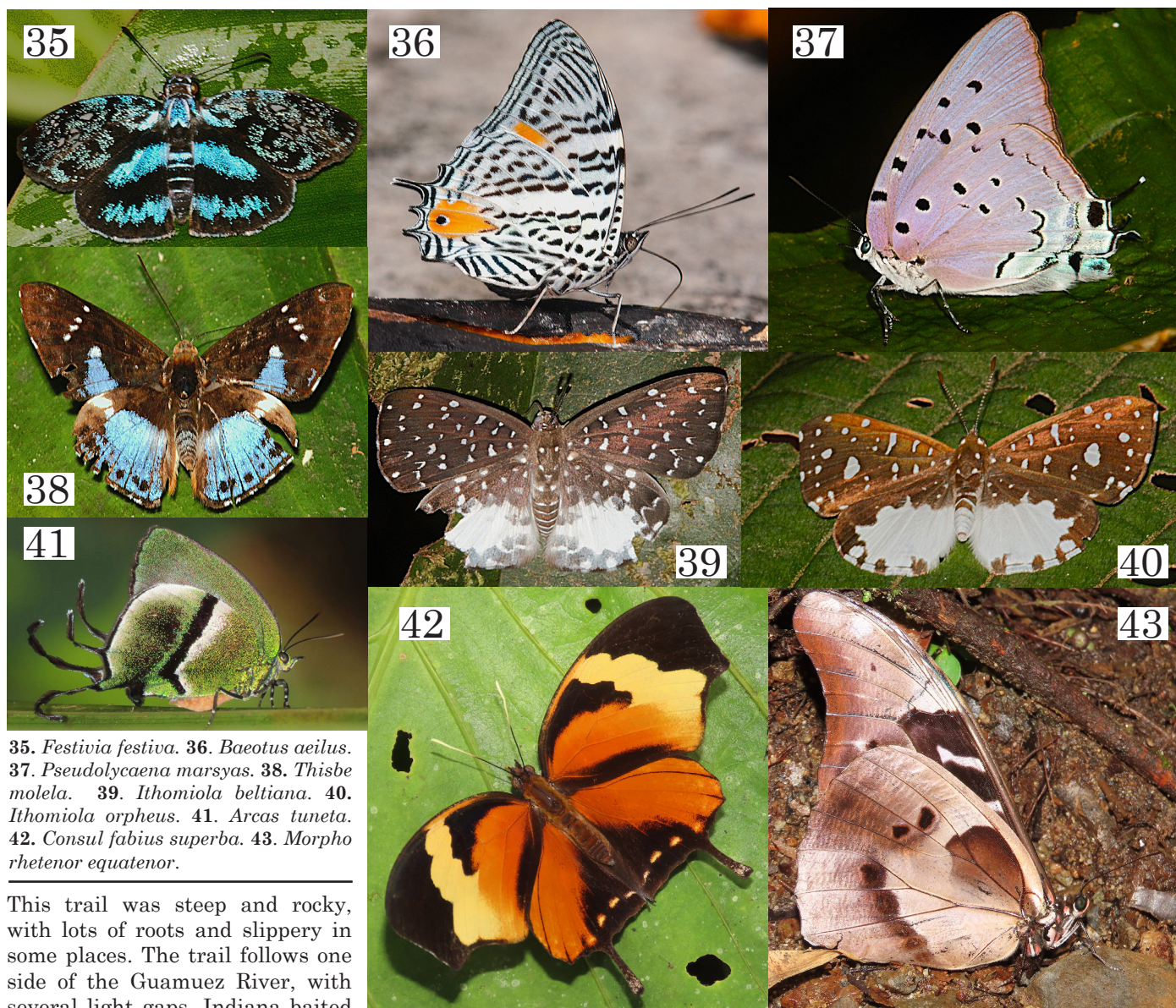


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28. *Asterope leprieuri optima*. 29. *Eurybia silaceana*. 30. *Methone cecilia magnarea*. 31. *Paraspiculatus elis*. 32. *Napaea sylvia*. 33. *Ourocnemis principalis*. 34. *Callicore lyca aegina*.



35. *Festivia festiva*. 36. *Baeotus aeilus*. 37. *Pseudolycaena marsyas*. 38. *Thisbe molela*. 39. *Ithomiola beltiana*. 40. *Ithomiola orpheus*. 41. *Arcas tuneta*. 42. *Consul fabius superba*. 43. *Morpho rhetenor equatenor*.

This trail was steep and rocky, with lots of roots and slippery in some places. The trail follows one side of the Guamuez River, with several light gaps. Indiana baited heavily while I stayed busy with the clearwings nectaring on small white flowers. Throughout the trip Indiana lugged the aforementioned small three legged chair for me to use in the field that I really enjoyed. There was lots of action this day including *Festivia festiva*, *Baeotus aeilus* on banana left on the bridge, *Pseudolycaena marsyas*, *Rekoa meton*, *Ithomiola beltiana*, *Ithomiola orpheus*, and *Thisbe molela*.

Back at the Cabanas, Maria and I joined Indiana and several of his young students for dinner. I asked one student, a 10 year old boy, to play thumb wars. His right hand was larger and stronger hand than mine -- he smiled and giggled as he continued his winning ways. After dinner Indiana showed some local boys and girls moths that were attracted to his moth light.

The next day we watched the sun rise, had a hearty breakfast, and then repacked for the next trip. This day we trav-

elled by horseback/hiked the 4.5 km trail to R.N. La Isla Escondida. Before this trip my sweetheart Lynn's horse-owning daughter Karen invited me to her place for horse lessons that really paid off during this trip. Thanks Karen! While riding the horse we reached a large creek. There was high water and logs had washed out the bridge, so we had to navigate through large boulders and clear cool water to cross. The horse was happy to get a couple gulps of fresh water. *Consul fabius superba*, *Morpho rhetenor equatenor*, and the photogenic *Arcas tuneta* were found here.

After riding less than 2 hours in the shady forest we emerged into a large clearing that Jurgen Beckers started building in 2016. He is an avid birder from Colombia to Venezuela and co-author with fellow guide Pablo Florez on the guidebook "Birdwatching in Colombia". He also spends part of the year in Belgium working as an engineer. You can tell this place was well planned during construction, using many of the local trees for lumber.

Below: A drone shot of the R.N. La Isla Escondida area. Right: Lodge at La Isla Escondida.



Dismounting from the horse I was surprised to see three people on the open air first floor (two in hammocks) and two German doctors sitting in plastic chairs, all looking at their phones or computers. We got there in the clouds around 1:00 pm, unpacked, and had lunch. We hiked along the semi-dark "Orange" trail, finding lots of blue, pink, and yellow clearwing satyrs lurking around, a good sign. R.N. La Isla Escondida (website at escondidia.lodge@proton.me) (850-910m) has around 120 hectares located where the Andes foothills meet the Amazon. The island is located between the confluences of two major rivers: the Rio Sucio and the Rio Guamuez, neighboring Inga-Ande National Park. This habitat contains over 450 documented birds offering trails in old growth rainforest along with several small creeks, light gaps, and "hot spots".

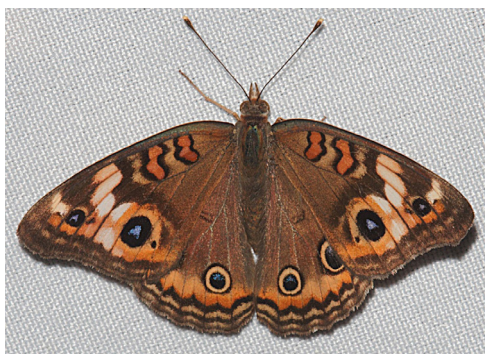
Entrance to the Orange trail is a bit tricky but otherwise the trails are modest to wide, busy with leaf cutter and

army ants walking over the moist leaf litter. Scattered along the trails are moss covered rocks and exposed roots, and sometimes we had to navigate fallen rotting timber. There are several side openings along the trail to explore inside those darker habitats for satyrs and other goodies. There are several hot spots along the trail usually around junction points or near a creek crossing. We baited those areas heavily and frequently. A little wind helped to carry the scent further attracting additional species on some days.

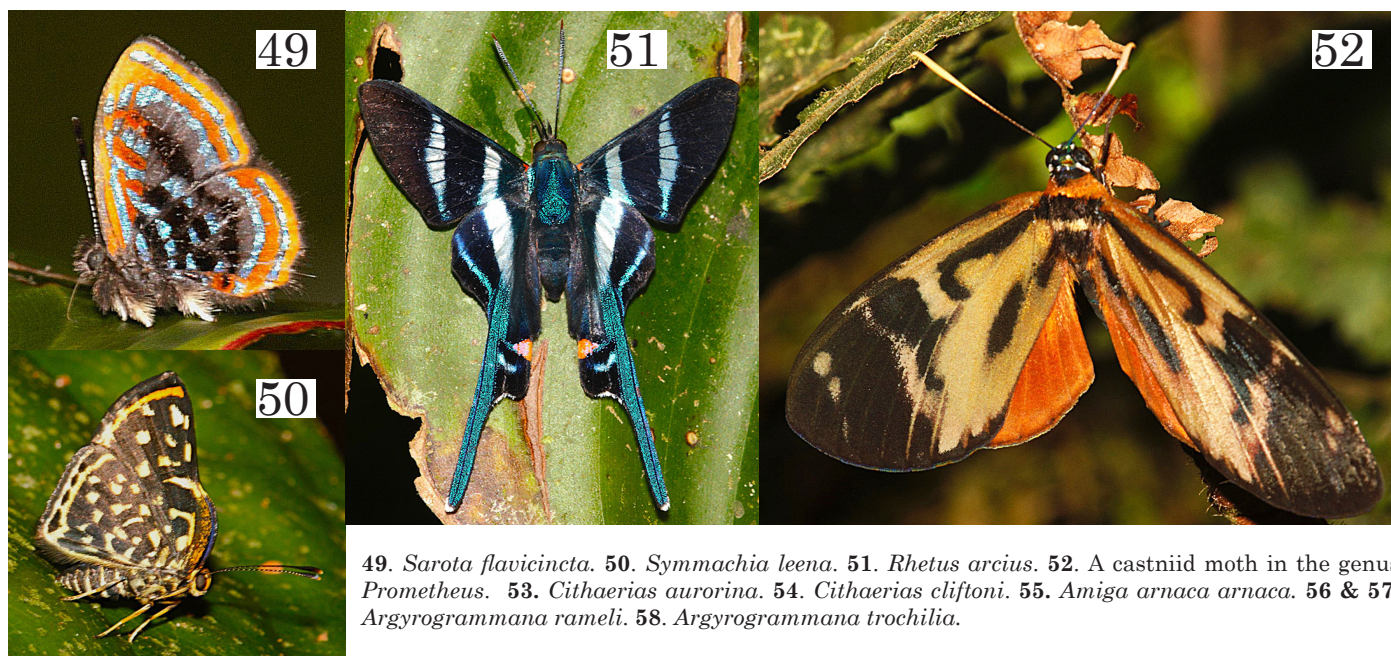
I had a basic room and bed with mosquito netting, with two 120V plugs, which was enough for charging. We saw over 18 *Oropendola* nests (from room 3) in a nearby tree. Their constant chattering was distinctive, and when they fly they show off the bright yellow flash from their tail feathers. A blooming Inga tree attracted many species of insects. And amazingly, the solar power with star-link connection received internet and cell reception better than my service in Jacksonville, Florida.

Jurgen, using some of his engineer skills has built well matched units that collect and store solar power to be used when necessary. Drinking water is provided by the creek nearby, but I preferred bottled water with lots of electrolytes. There is a vegetable garden and a green house, with numerous pineapple plants and other herbs and tomatoes that are used in daily cooking. The food was good and plentiful, with a fun loving staff. Really good vibes here.

Right. *Junonia genoveva*. Below. left: *Pseudautomeris* sp.; right: *Automeris* sp.



Indiana set up several moth lights that started attracting insects pretty quickly. We were surprised to see *Junonia genoveva* come to the sheets, and moths included an *Automeris* sp. and a *Pseudautomeris* sp.



The weather gods were smiling on us with most days being partly sunny to sunny, except one day where it rained at night. Even so, the next day was hot and sunny all day.

Walking the property next to the lodge around 7:30am one morning I observed 4 *Sarota flavicincta* (the size of a fly) dogfighting each other. They would disappear, come back, dogfight some more then disappear again. When the temperature got warmer they left with only one landing

close enough to get a click. I observed a total of six *Sarota flavicincta* that morning.

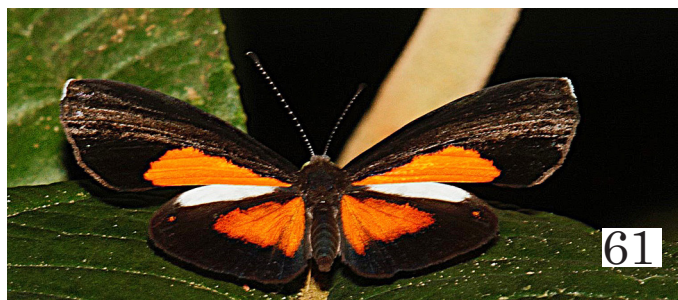
Butterflies I observed along the Orange Trail included *Tellone variegata* (see next page), *Sarota flavicincta*, *Cithaerias aurorina*, *Cithaerias cliftoni*, *Amiga a. arnaca*, *Rhetus arcus*, *Symmachia leena*, open and closed winged shots of *Argyrogrammana rameli*, *Argyrogrammana trochilia*, and a *Prometheus* sp. *Castniidae*.

Below: *Tellone variegata*. Right: One of the better "hot spots" along the trails associated with the property at La Isla Escondida.



One of the "hot spots" was a large broadleafed group of various plants at a trail junction creating a larger open area for the sun to penetrate the old growth tropical forest. Needless to say, we baited here often!

Other clicks here included *Cariamothis erythromelas suffusa*, *Asterope markii hewitsoni*, *Ourocnemis r. renaldus*, *Asterope d. degandii*, *Ourocnemis aerosus*, and *Asterope leprieuri optima*.



61. *Cariamothis erythromelas suffusa*. 62. *Asterope markii hewitsoni*. 63 & 64. *Asterope degandii degandii*. 65 & 66. *Ourocnemis renaldus renaldus*. 67 & 68. *Ourocnemis aerosus*.



Asterope leprieuri optima

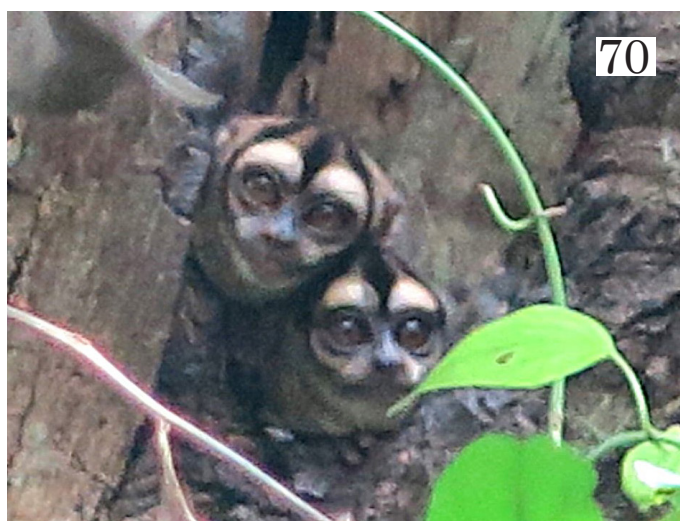
R.N. La Isla Escondida was a hard place to leave. For a butterfly/moth photographer the habitat is about as good as it gets. It is like hunting for treasure, for little winged jewels, never knowing what is going to turn up next. Places like this give one the opportunity to heighten and enlighten all your senses and become more aware of your surroundings along with living a simpler life.

When it came time to leave, we packed our horse with our stuff and said our goodbyes. Indiana and Maria had already started hiking back, while I rode the horse. Once back to the beginning of the trail, there was a taxi waiting for the three hour drive back to Santa Ana for lunch. After that is was one more taxi to Puerto Asís airport, and from there a plane back to Bogotá.

In Bogotá, we had a fun-filled farewell dinner at the Hilton Garden Inn Restaurant with Indiana and Maria. The next morning was an early flight to Miami, with a switch to the final flight back to Jacksonville, where I arrived in the early afternoon.

I have heartfelt thanks to YMCA Zumba instructors Trina, Heather, Sucu, and Victor for their country-latin-hiphop-bollywood and other Zumba dance routines that I attended 3-4 times weekly to help increase my stamina, giving me a more limber body and having fun at the same time. Mother Nature hug to “Hoover” Indiana Cristo @Lepidopteracolombiana for the following images: *Consul fabius superba*, *Morpho rhetenor equatenor*, *Ourocnemis principalis*, *Cithaerias cliftoni*, and *Arcas tuneta*. The rest of the images are mine (Bill Berthet).

NOTE: There is a book review on “The Butterflies of Colombia” on pg. 52. Indiana Cristóbal Ríos-Málaver is mentioned as a contributor to the amazing content in the book.



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70. Spix's night monkeys (*Aotus vociferans*), Heco Hotel Kofan. 71. Ctenosaurus, Sendero El Yage. 72. *Rekoa meton*, trail to La Isla Escondida. 73. *Asterope markii hewitsoni*, and bug friend, La Isla Escondida.



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Membership Updates

Chris Grinter

Includes ALL CHANGES received by February 8, 2025.
Direct corrections and additions to Chris Grinter,
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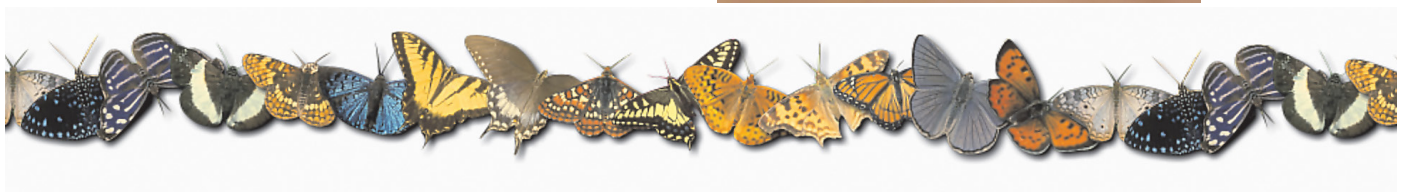
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The Yellow Tinsel,
Catapaecilma subochrea
Lycaenidae:
Theclinae. Sri Lanna National Park, Chiang Mai, Thailand February, 2020.
Image by Antonio Giudici.

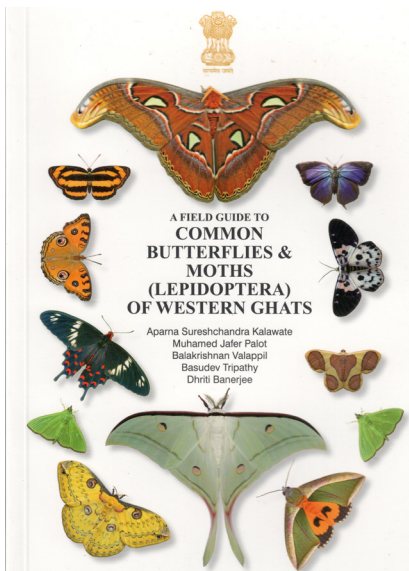


Book Reviews

A Field Guide to Common Butterflies & Moths (Lepidoptera) of Western Ghats, 2024, by A. S. Kalawate, M. J. Palot, B. Valappil, B. Tripathy & D. Banerjee. Published by the Zoological Survey of India, Pune. 16.5 cm × 24 cm. Softcover. x + 206 pp. Available from Zoological Survey of India (<https://zsi.gov.in>) and Pemberley Natural History Books, UK. ISBN: 978-81-8171-636-1

The Deccan, a large plateau in central peninsular India, is flanked by two mountain ranges, the Eastern Ghats near the Bay of Bengal and the Western Ghats overlooking the Indian Ocean. The latter is recognized as a biodiversity hotspot and this book is an excellent start toward documenting the Lepidoptera of that mountain range.

The book is beautifully produced with hundreds of photos showing the living moths and butterflies in their natural resting position, exactly how one needs them to be shown in a field guide. Virtually all the butterflies are shown perched on leaves or flowers in nature, whereas most of the moths were photographed in captivity on artificial substrates (such as fabrics, walls, paper), mostly of a neutral and light color. The quality of all the photos is excellent, showing clear, crisp close-ups of each living specimen. Besides serving as a field guide, the book is important as a survey of the Lepidoptera of this region.



Alongside each photo of the species treated, text provides wingspan, diagnostic characters (critical for any field guide), distribution, status (common, rare, etc.), and larval foodplants. Sometimes the distributions are too broad, as for example the saturniid *Loepa schintlmeisteri*, an endemic to the Western Ghats, but the cited distribution pertains to the entire genus *Loepa*, although Iraq should not be included but China certainly should be. Ten pages treat Hesperiidae, a family that sometimes receives less attention in field guides. There is no index in the book.

Unfortunately, copies of this important title will be rare outside of India, so I sent copies to some of my moth colleagues (sorry, butterflyers) and they all agreed it is an excellent book. Lucas Micheels noted that Brazil is not part of the range for *Altha subnotata*. Regarding the Notodontidae, Ryan St Laurent (University of Colorado-Boulder) told me that *Neocerura* is now in the newly established Cerurinae and that Scraeciidae has recently been elevated to family status, but he noted that the authors should not be expected to be aware of these recent taxonomic changes. Regarding the Geometridae, Tanner Matson (Smithsonian)

pointed out that some of the common names are quite long and cumbersome, and he suspects a few might be newly coined. "I really enjoy the live insect images—resting postures can be such useful identification tools. There's no introductory text for the higher taxa [of moths], which is something I always appreciate in books like this." Tucker Cooley said the book is a wonderful piece of work and extremely well-illustrated. He found the common name green longan limacodid for *Parasa lepida* to be somewhat questionable because that species is usually referred to as the blue-striped nettle caterpillar. He also spotted a text error on page 2 wherein describing the process of identifying butterflies and moths as "confucius, some time" instead of "confusing sometimes" but I think it must be an autocorrect by the word processing program.

Stefan Naumann (Berlin) has been intensively studying Asian Eupterotidae in recent years and thinks the *Ganisa* specimen labeled as *similis* is probably *postica*. He said the other eupterotids appear to be correctly identified, but the genera *Eupterote* and *Ganisa* contain many similar-looking species and both genera need revision. James Hayden (McGuire Center for Lepidoptera & Biodiversity) commented about the taxonomic coverage in the Pyraloidea by saying that "almost all the species treated are Spilomelinae, with a small representation of other crambid subfamilies. That is not too surprising because Spilomelinae is relatively diverse, especially in the tropics, and includes lots of large, conspicuous moths with distinctive wing patterns. Collections are full of big, pret-

ty pilos taken by generalist collectors. So, although the book's taxonomic coverage of pyraloids is skewed, it may in fact be fairly representative of what an average naturalist would take notice of at a lighted sheet. For the same reason, I cannot disagree with most of the identifications, because the names are used commonly. However, I do find a bit perplexing the total absence of Pyralidae *sensu stricto*; although on average they aren't as big and pretty as spilomelines or acenropine crambids, they could have included a big epipaschiine or colorful *Endotricha*."

I hope this review will motivate curators, faculty, and librarians to acquire this valuable book. It will encourage many young naturalists in western India to study Lepidoptera in the coming years. I thank Dr. Aparna Kalawate for calling my attention to this book and helping me to purchase copies. I appreciate comments by my colleagues cited above for taxonomic groups of which I have no expertise.

Richard S. Peigler, Department of Biology, University of the Incarnate Word, 4301 Broadway, San Antonio, Texas 78209; email: peigler@uiwt.edu

Photo Guide to the Butterflies of Colombia [Foto Guía de Mariposas de Colombia] (Lepidoptera: Papilionoidea). COP16 Special Edition. By Kim Garwood and Juan Guillermo Jaramillo. 2024. In English and Spanish. 1,247 pages. More than 13,200 color photos. Digital format for display on a cell phone or a computer. 152 MB. Available as a free PDF download at the authors' website: <https://www.butterflycatalogs.com/colombia.html> Also available free for viewing online and offline through the CVC website: <http://ecopediia.cvc.gov.co/biodiversidad/fauna/foto-guia-de-mariposas-de-colombia>

Formidable challenges confront photo guides to live butterflies of South American countries. For example, in Colombia, species of butterflies currently recorded number nearly 4,000—more than five times the number in America north of Mexico (Ferris 1989). Described species of butterflies in Colombia constitute more than 20% of all those on the planet (Garwood et al. 2022b).

In Colombia, three neotropical biogeographic realms converge, generating ecological complexity and diversity—and difficult taxonomic questions (Wilmott 2022). Restricted distributions, geographic remoteness, rugged mountains, dense jungle, habitat destruction, armed conflict, and violent crime constrain access to sites hospitable to butterflies (Collins 2023).

Despite these challenges, *Photo Guide to the Butterflies of Colombia* (Fig. 1) elegantly captures the richness of Colombia's butterfly fauna. Kim Garwood and Juan Guillermo Jaramillo report that their photo guide presents photos of 81% of the 3,950 described species of butterflies recorded from Colombia up to the time of their guide's publication. The guide displays curated photos of butterflies organized taxonomically, 12 photos per page. Most of the photos show live butterflies in nature but occasional photos show mounted specimens or butterflies that the authors captured, positioned, photographed, and released. Some photos that illustrate Colombian species show butterflies photographed or collected elsewhere. On average, more than three photos illustrate every species, often including different subspecies, sexes and views.

A caption below each photo indicates genus and species and, when applicable, subspecies. It covers whether identification extends only to genus, or if identification is not determined. The caption may also note a recent previous scientific name and, in cases of sexual dimorphism, sex. The authors acknowledge that identification of some species based on photos has an inherent margin of error, and that some identifications in their photo guide may be in-

correct despite consultation with experts.

Data in captions denote photographer, country, locality, geographic range, and sometimes altitude and month/day. Abbreviations simplify the captions. Keys to abbreviations appear at the end of the guide and provide additional information. For example, the key to abbreviations of locality indicates each locality's full name and in most cases the range of altitudes within it.

The photo guide includes no checklist of butterflies of Colombia, but the authors offer such a checklist separately as an open access publication in English and Spanish on their website (Garwood et al. 2022b). To produce this checklist, they collaborated with two Colombians, Bianca Huertas, senior curator of Lepidoptera at the Natural History Museum in London, UK, and Indiana Cristóbal Ríos-Málaver, Associate Researcher at the Alexander von Humboldt Biological Resources Research Institute in Bogotá, Colombia.

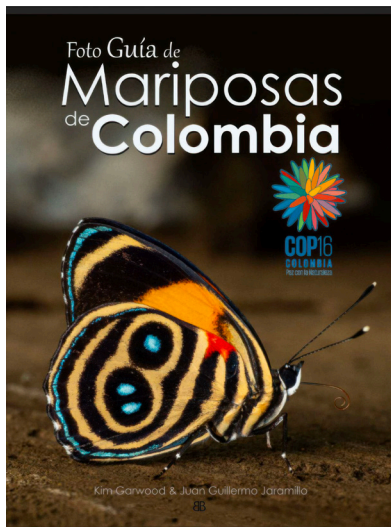


Figure 1. Digital cover of *Photo Guide to the Butterflies of Colombia*. Creative Commons (CC BY) by K. Garwood and J. G. Jaramillo

There is also no bibliography, but the authors' website offers an open access alternative: *Neotropical Butterfly Bibliography [Bibliografía de Mariposas Neotrópico]* (Garwood and Jaramillo 2022a). Though an index is also lacking, users can easily conduct electronic text searches to retrieve photos via names in captions and in page headers (Fig. 2 and 3). All these omissions help to keep the page count of the photo guide manageable for readers using the guide strictly for identification of butterflies. Discussion of life histories, host plants, and phenology is beyond the scope of this photo guide.

Data on Butterflies of Colombia is evolving. The authors encourage readers who have corrections or additions to contact them. The digital medium facilitates production of updates.

A little more than two months after release of the special edition of *Photo Guide to the Butterflies of Colombia*, species recorded in the authors' database of Colombian butterflies had increased by 19, due mostly to photos that people had sent the authors (Kim Garwood, Dec. 7, 2024, pers. comm). The authors note that habitats of some of the butterflies shown in their photo guide have been destroyed, so these butterflies no longer occur in localities where their photos were taken. Other species may never be photographed before their habitats disappear.

Photo Guide to the Butterflies of Colombia is the product of a collaboration that flourished after Jaramillo, born and raised in Medellín, Colombia, contacted Garwood, a widely recognized neotropical butterfly expert, photographer, and author from the United States. An agronomist by

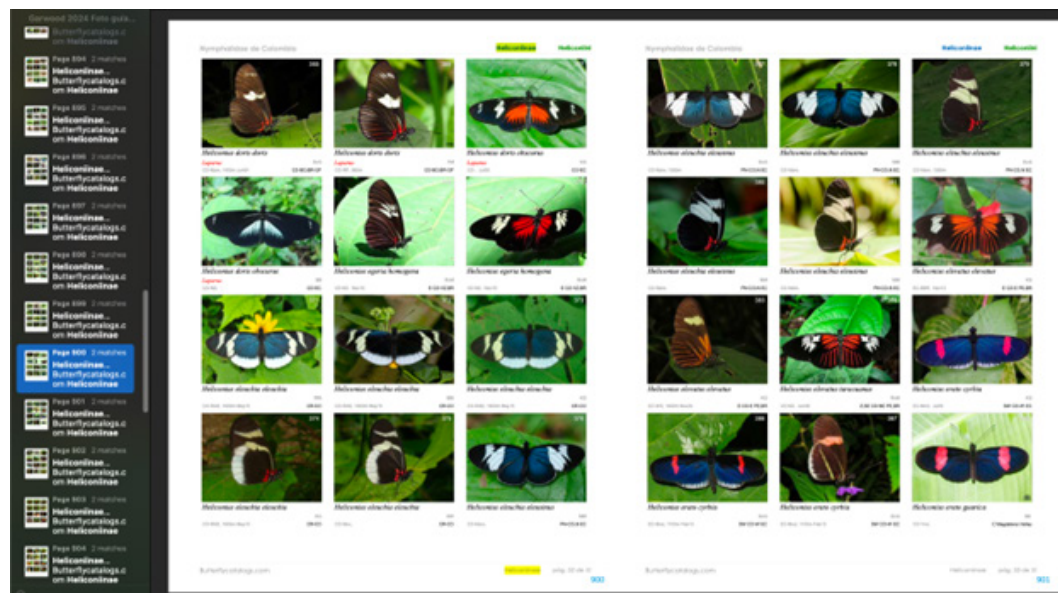


Figure 2. Mac computer screen shot of a two-page spread from *Photo Guide to the Butterflies of Colombia* downloaded in a PDF. A text search for Heliconiinae in this photo guide displayed these pages. Thumbnails in the side panel on the left hyperlink to these and other pages from the search. Reproduction of these pages is permitted under Creative Commons (CC BY) by K. Garwood and J. G. Jaramillo.

profession, Jaramillo photographed Colombian butterflies and birds as a hobby. He reached out to Garwood because the National University of Colombia in Bogotá had no records of dozens of species of butterflies he had photographed. Jaramillo went on to develop and manage the butterfly database that underlies the Colombian butterfly checklist and photo guide (Cardona 2021, Collins 2023).

Garwood and Jaramillo note that the photos represent 20 years of their work, plus thousands of hours of fieldwork by 640 photographers whom they credit by name at the end of the guide. They also name experts in diverse disciplines who generously contributed to the guide, and they acknowledge support by the community science platform iNaturalist.org.

Photo Guide to the Butterflies of Colombia is part of an ongoing project by Garwood and Jaramillo to produce neotropical butterfly photo guides based on Jaramillo's butterfly database, which he refers to as the "BioButterfly Database." In addition to Colombia, countries whose butterflies these photo guides illuminate include Ecuador, Bolivia, Brazil, and Peru; however, currently, only for Colombia have Garwood and Jaramillo produced a nationwide photo guide to butterflies including all families. Like Colombia, other Andean countries present daunting challenges. For example, Ecuador, a country with a quarter the land area of Colombia, has a similarly large number of butterfly species (Garwood and Jaramillo 2022a).

A foreword by Marco Antonio Suárez Gutiérrez, General Director of the Corporación Autónoma Regional del Valle del Cauca (CVC), puts this special edition of *Photo Guide to the Butterflies of Colombia* into historical context. The

special edition honors the 16th Conference of the Parties (COP16) on Biological Diversity, held in Cali, Colombia, October 21 to November 1, 2024. The timing of its publication also coincides with the 70th anniversary of the CVC, a Colombian public institution dedicated to protecting the country's ecosystems. The CVC has supported publication of the photo guide by posting it for viewing free online—a public service beyond the means of the authors. Because of the CVC, the photo guide is now accessible to people unable to store the big PDF on their devices. For their part, Garwood and Jaramillo

generously issued their photo guide under a Creative Commons license (CC BY) that grants anyone permission to distribute it (Creative Commons 2019).

Photo Guide to the Butterflies of Colombia is more than a guide. It showcases the beauty and magnitude of Colombia's biodiversity, a source of national pride and potentially a driver of conservation and tourism. It is a catalyst for collaboration among community and university scientists. It is an inspiring call to study neotropical butterflies and a comprehensive reference open to all. It embodies the authors' guiding principle: *Solo podemos conservar y proteger lo que conocemos*—"We can only conserve and protect what we know."

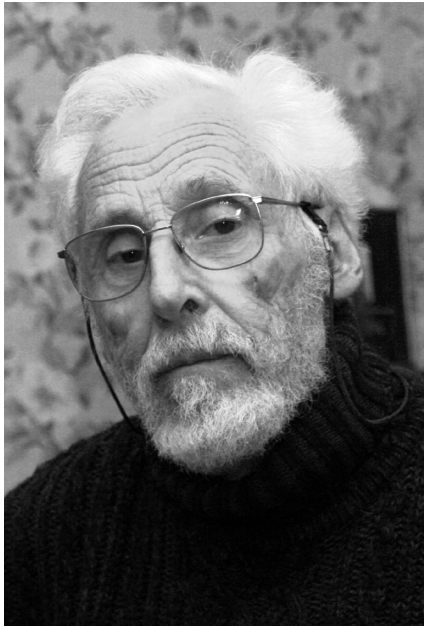
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- Creative Commons 2019 <https://creativecommons.org/share-your-work/licenses/>
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(continued on pg. 57)

Metamorphosis

Henri Descimon, 90
February 19, 1934 - January 1, 2025



Henri Descimon at home, December 17, 2005.

Henri had been interested in butterflies since childhood, and this interest deepened during family visits to Cauterets in the Pyrenees between 1949 and 1961. During one of these visits, in September 1953, he captured a butterfly that he was unable to identify and entrusted to Hubert de Lesse, who concluded that it was a new species to which Descimon and de Lesse gave the name *Erebia serotina*, which L.G. Higgins and N.D. Riley in turn named

"Descimon's ringlet" in their Field Guide to the Butterflies of Britain and Europe, first published in 1970. This episode marked Henri's entry - then aged 19 - into the world of Lepidopterists.

Henri's childhood was a difficult one, as his father was a prisoner of war from 1939 to 1945. He began his university studies at the Sorbonne University (the oldest University in Paris) in September 1952. Henri also became a regular visitor to the Entomology Laboratory of the Paris Natural History Museum. He went on entomological excursions in the forest of Ozoir-la-Ferrière, 30 km from Paris, and other places where *Coenonympha hero*, *Euphydryas maturna* and many other forest butterflies could still be found in abundance. His studies were brilliant, and he obtained a Diplôme d'Études Supérieures (Master degree) in 1957 with an outstanding dissertation on the Lepidoptera of the Pyrenees, based on his observations since his first visit to the Pyrenees in 1950. Several notes summarize the most remarkable observations were published in French entomological journals, and the dissertation was eventually published with an update in 2010.

Henri graduated in Natural Sciences in 1958, and was appointed secondary school teacher in Chartres for 1958-1959. He then did his military service, first in Autun as a teacher, then serving in a regiment of Algerian riflemen in Mostaganem, and in 1961-1962, he completed his military

service by returning to Autun. His entomological surveys in the Morvan region, to which he often returned, date back to this period.

In 1962, he was recruited as assistant professor at the École Normale Supérieure in Paris, a position with both teaching and research responsibilities. He wrote a brilliant thesis on pterin biosynthesis in the Pieridae. Henri demonstrated that pterins are both an excretory product and a major constituent of the pigments present in Pieridae wings. They also play an important role in several metabolic chains. The thesis (available at <https://hal.science/tel-03548036>) also includes an important chapter in which Henri details the rearing methods for *Colias croceus*, *Pieris napi* and *P. brassicae*, requiring special precautions to avoid contamination by viruses. Henri later successfully adapted this approach to the rearing of other butterflies, in particular *Parnassius apollo*.



Henri Descimon examines freshly hatched *Parnassius apollo* at his home, May 4, 2003.

In parallel with his biochemical work, Henri continued his entomological surveys during his vacations, and published several notes on the distribution of *Lycaena helle* and other species, as well as on more general questions of melanism and Lepidoptera behavior. In the late 1960s and 1970s, Henri made several trips to tropical America, where he studied the distribution and ecology of various species, particularly in the genera *Agrias*, *Prepona*, *Morpho*, *Perisama* and in the subfamily Brassoliniinae. From one of these trips, he brought back a *Perisama* that he dedicated to his wife: *Perisama patara arletta*. This interest in neotropical fauna led him to organize an international meeting on the biogeography of tropical America in Paris in June 1976, the proceedings of which he published the following year.

In 1979, Henri was appointed Professor at the University of Provence in Marseilles, where he remained for the rest of his career. On his arrival in Marseilles, Henri and his family bought a house surrounded by a garden. In this garden, Henri carried out mini-experiments to acclimatize

plants from countries with Mediterranean and subtropical climates. Later, he would also grow *Sedum*, the host plant of *Parnassius apollo*.

In Marseilles, Henri gave up biochemical research to devote himself to population genetics, firstly on *Parnassius mnemosyne*, during Michel Napolitano's thesis, then on other *Parnassius* from the French fauna, *Boloria eunomia* and *Euphydryas aurinia* during other thesis supervisions (see summary in <https://hal.science/hal-02367189>). His work also focused on phylogeny problems in *Parnassius* and Meliteines. His in-depth knowledge of French butterflies has led him to address speciation and spatial population structure, often applied to conservation issues. His collection data were also used in the first synthesis of the influence of global warming on butterfly distribution, published in *Nature* (Parmesan et al. 1999). Having observed natural hybridizations between species beyond the now well-known cases of *Erebia serotina* and *Lysandra cormion*, and some cases of introgression such as between *Parnassius apollo* and *P. phoebus*, Henri wrote two important syntheses on species concept in Lepidoptera, the latest of which in collaboration with James Mallet (available at <https://hal.science/hal-04870001v1>) has been cited 70 times.



Henri Descimon looking for *Parnassius mnemosyne* at the Sainte-Baume, June 11, 2001.

His teaching activities were close to his heart. As a personal subscriber to *Nature*, he kept abreast of the latest discoveries in his lectures, including to his undergraduate students, who were thus introduced to the process of scientific research rather than to a fixed level of knowledge.

During his entomological surveys, he found aberrations in *Parnassius apollo*, which he began to breed in captivity. For over twenty years, he carried out controlled crosses of various morphotypes of *Parnassius apollo*, which enabled him to describe the recessive or dominant character of several forms. He then returned to the study of butterfly wing pigments, integrating them into the study of wing patterns, and this was the subject of his last publications.

Only after retirement did Henri and his wife have the opportunity to return to the Pyrenees in September to capture new specimens of *Erebia serotina*, whose genetic analysis demonstrated that *E. serotina* is a recurrent hybrid between male *E. pronoe* and female *E. epiphron*.

Henri had an excellent knowledge of botany, which was the subject of several of his publications. He knew the host plants of all the butterflies he was interested in. For example, in 1963, he discovered that the host plant of *Pieris ergane* in the Alps is *Aethionema saxatile*. After retirement, he began researching *Arícia morronensis* in the French Pyrenees, looking for its host plant *Erodium glandulosum* on limestone outcrops identified on geological maps and botanical surveys, some of which dated from the nineteenth century! With the help of his wife Arlette, he mapped out as complete a range of *A. morronensis* in France as possible. The Descimon couple spent six 15-day periods in the Pyrenees, carrying out research that would have been impossible in an academic setting. The article presenting Descimon's work on this species goes far beyond the search for this butterfly, addressing the very process of scientific research.

At home, he continued to crossbreed *Parnassius apollo* strains every year until 2023, which were the subject of several publications. He also took part in entomological trips in search of *Parnassius* from Central Asia, and visited Patagonia in search of the mythical *Colias ponteni*, which he unfortunately never found. Keen to bear witness to the riches of the past, Henri often discussed the decline of entomofauna as a result of changes in the way meadows and forests were managed. He was well aware that the conservation of species can only be achieved through effective conservation of their habitats. The collection of European butterflies collected by Henri, along with that of his brother Robert, is to be deposited at the Muséum d'Histoire Naturelle in Paris, where it will remain a witness to a diversity that has unfortunately often vanished.

A complete list of Henri Descimon's 181 scientific publications, spanning 70 (!) years, together with a list of Lepidoptera dedicated to him, is available on Zenodo at <https://zenodo.org/records/14633113>. Henri had been a life member of the Lepidopterists society since the 1960s, and a founding member of the Society for European Lepidopterology.

Henri Descimon's death leaves a great void in French entomology. He is survived by his wife Arlette, their two children and three grandchildren.

Gabriel Nève, Institut Méditerranéen de Biodiversité et d'Écologie (IMBE), Aix Marseille Université. All photos by G. Nève. Email: gabriel.neve@imbe.fr

Herb H. Neunzig
Giant of New World Phycitinae (Pyrallidae)

Herb H. Neunzig, prolific phycitine (Pyrallidae) worker of the Western Hemisphere and an Emeritus North Carolina State Professor of Entomology, passed away on October 31, 2024, at the age of 97. Herb was most interested in the biology and morphology of Phycitinae immatures (Fig. 1), and later expanded his studies to phycitine adults. He described 28 phycitine genera (all valid) and 173 species (including one synonym) (Richard Mally, pers. comm., data from GlobIZ).



Fig. 1. Herb Neunzig examines a tree fern for caterpillars on our 2004 field trip to the Cordillera de Talamanca, Costa Rica.

Herb is best known for four MONA (Moths of America North of Mexico) fascicles 15.2-5 (Neunzig 1986, 1990, 1997, 2003) and was working on the final MONA fascicle 15.1. He also contributed two chapters, *Pyraloidea* and *Pterophoridae*, to Stehr's *Immature Insects* (Neunzig 1987) book on Lepidoptera larvae. He published many research papers and major monographs on immatures (e.g., *Acrobasis* larvae and pupae (Neunzig 1972) and phycitine immatures associated with

legumes (Neunzig 1979)), generic revisions (e.g., *Salebriaria* (Neunzig 1988), *Homoeosoma* and *Patagonia* (Neunzig & Goodson 1993)), and geographical studies (e.g., Phycitinae of Belize (Neunzig & Dow 1993)).

He was also a talented illustrator and made line drawings for his research papers (Fig. 2). Bernard Landry, who co-authored two papers on Galapagos phycitines (Landry & Neunzig 1998, 2006) said he "was impressed with his knowledge of the Phycitinae. His art skills were excellent. He had a great eye for showing the essential characters in his drawings." Julian Donahue co-authored a paper with Herb on two new *Dioryctria* species from California (Donahue & Neunzig 2005). Herb was a focused, fast writer; as a case in point, he published *Dioryctria sierra* Neunzig, 2003, before Julian could share a possible host plant (foxtail pine (*Pinus balfouriana*)) with him [Donahue, J. P. 1996. Field notes for Onion Valley, type locality for *Dioryctria sierra* Neunzig, 2003]. I co-authored 10 papers with Herb on a broad array of phycitine genera, mostly from Costa Rica, and his part for each was done very quickly (Neunzig & Solis 1996, 2002a,b, 2004, 2005a,b, 2006a,b, Solis & Neunzig 2017, 2023). In 2023, I

published our final collaborative paper on the Phycitinae of the Sierra Tarahumara region in northwestern Mexico.

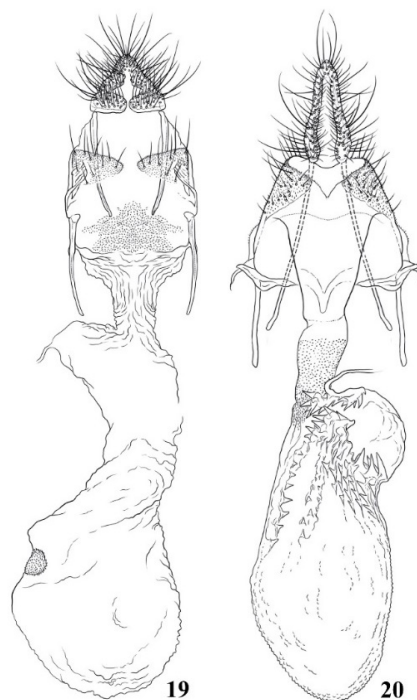
Some of the text and images in this article are taken and/or summarized from an article about Herb Neunzig in the *Pyraloid Planet* (Solis 2024) that is available on the GlobIZ website (www.pyraloidea.org).

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Figs. 2. Female genitalia line drawings by Herb Neunzig (from Solis et al. 2023).

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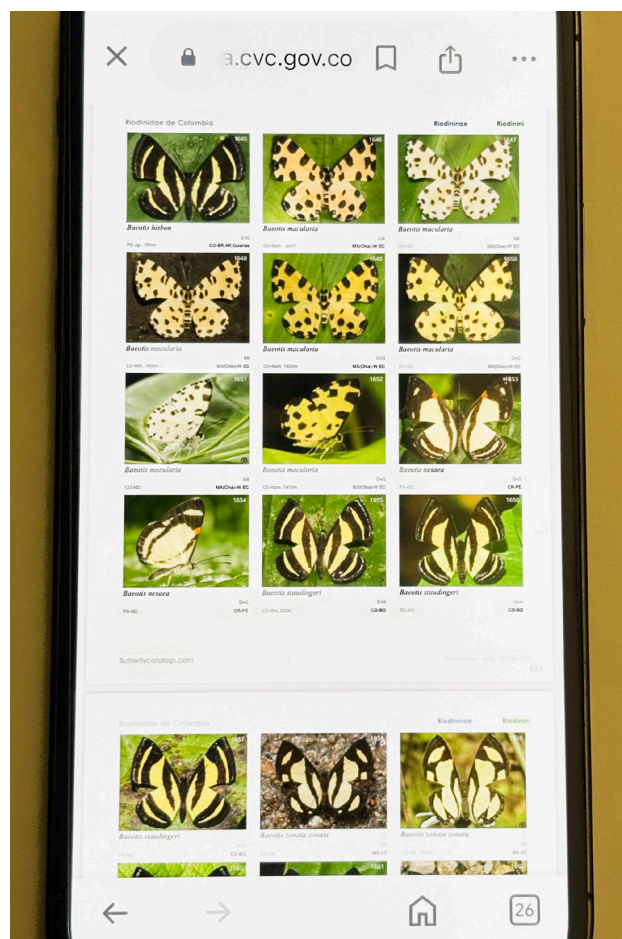
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Continued from pg. 53

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Figure 3. Page from *Photo Guide to the Butterflies of Colombia*. A search for *Baeotis* in the guide viewed online retrieved these pages. To see more pages, simply scroll down. Zoom in to enlarge. Reproduction of these pages is permitted under Creative Commons (CC BY) by K. Garwood and J. G. Jaramillo.



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1. Electronically transmitted file and graphics — in some acceptable format — via e-mail. Graphics/figures should be at least 1200 x 1500 pixels/inch² for interior use, 1800 x 2100 for covers.
2. Article (and graphics) on disk or thumb drive in any of the popular formats/platforms. Indicate what format(s) your disk/article/graphics are in, and call or email if in doubt. The InDesign software can handle most common word processing software and numerous photo/graphics software. Media will be returned on request.
3. Color and B+W graphics; should be high quality images suitable for scanning. Original artwork/maps should be line drawings in pen and ink or good, clean photocopies. Color originals are preferred.
4. Typed copy, double-spaced suitable for scanning and optical character recognition.

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Issue	Date Due
67 2 Summer	May 12, 2025
3 Fall	August 15, 2025
4 Winter	November 15, 2025
68 1 Spring	February 15, 2026

Be aware that issues may ALREADY BE FULL by the deadlines, and so articles received close to a deadline may have to go into a future issue.

Reports for Supplement S1, the Season Summary, must reach the respective Zone Coordinator (see most recent Season Summary for your Zone) by Dec. 15. See inside back cover (facing page) for Zone Coordinator information.

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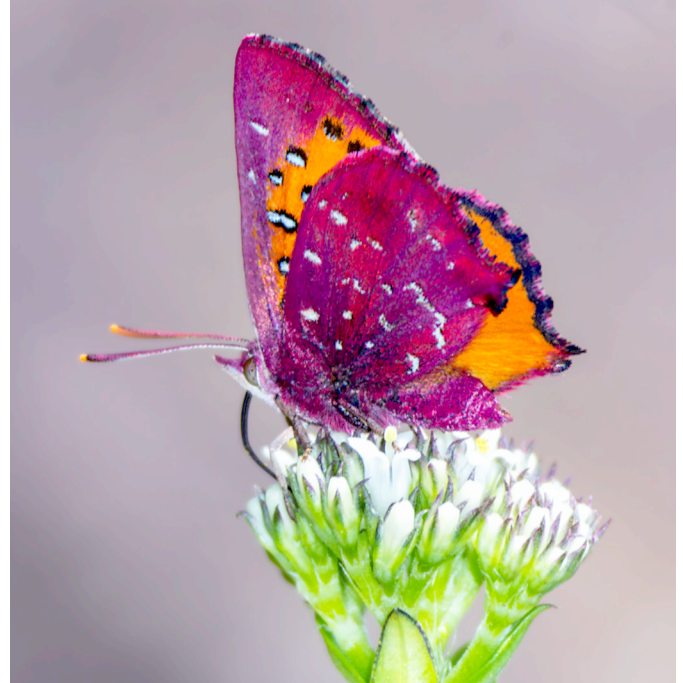


Two more moths from the Rabbit Ears Pass area, Jackson/Grand Counties, Colorado, July 23-25, 2023. Left: *Arctia caja*. Below: *Caloreas coloradella*. See related article, page 8.



One of the country's cutest red butterflies, the Bushveld Scarlet (*Axiocerses amanga*) KwaMhlanga, Mpumalanga, South Africa, January 25, 2025. They can be found all over the Lowveld in South Africa from September until May. They have a fast, low-flying flight pattern and will often defend small territories amongst flowers and dry leaves. The height that they fly is low to the ground, on most occasions not more than a couple of feet off the ground when coming in to feed. In terms of photography the butterflies are pretty relaxed and you can get within a few metres of them (2-3m) without them becoming startled. They don't however open their wings as regularly as the Eastern Scarlets (*Axiocerses tjoane*). The best time to view these butterflies is generally between 10:00 and 13:00 in meadows and the lower parts of hills. The food plants are *Ximenia caffra* and *X. americana*. (See front cover as well).

Lourens Erasmus



Aloeides aranda, underside images, Rosemarie Ave, Monteseel, South Africa. December 22 (top) and 28 (bottom), 2024. Images by Steve Woodhall.