Volume 53, Number 3 Fall 2011

NEWS OF THE LEPIDOPTERISTS' SOCIETY

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Asthenidia sp. (Oxytenidae), Tiputini Biological Station, Ecuador, Steve Fratello and Danusia Antonowicz; see article, page 93.

A Late Season Trip to the Richardson Mountains

Michael Leski

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It seems odd to include the words 'Late Season' in the title of an article describing an early August trip, but these words accurately describe my recent trip on the Dempster Highway. In fact, several of the people that I contacted regarding potential collecting sites simply answered "All the bugs will be gone." And for the most part, they were. However, I was pursuing *Polygonia* and *Nymphalis* species, and I worried that my arrival date of July 28 in Whitehorse might be a week too early.

On Friday, the day after I arrived, I obtained supplies in town and began the 500 km drive north on the Klondike Highway to the start of the Dempster, stopping at promising sites along the way. The first butterfly that I encountered was an extremely worn *Limenitis arthemis rubrofasciata*, which if in good condition would have made a nice addition to my collection. Immediately afterward, I took a *Colias canadensis,* a *Colias palaeno,* and a *Plebejus idas*. An hour later along the Takhini River I took a nice *Polygonia faunus arcticus*, my target species. But the afternoon skies turned dark – a common theme of this trip – and I continued north. A stop along McCabe Creek yielded 3 more *P. faunus*. Another hour or so north, a smallish butterfly crossed the road just below a hill. Upon investigating, I found good numbers of *Boloria chariclea* nectaring along the side of the road. Not a bad start to the trip.

I reached the Dempster Highway that evening and made camp in a gravel pit. At 64 degrees north, darkness was slow to come and the sun quick to rise, so I got an early start the next day. About 50 km into the Dempster, I photographed and vouchered several *Plebejus saepiolus*. A stop at the Grizzly Creek trailhead parking lot yielded several *Lycaena dorcas* and another *Colias palaeno*. More *C. palaeno* were flying, but these were dashing about the parking lot and too time-consuming to catch. After several unproductive stops, the skies again darkened, and I stopped at the Tombstone National Park visitor center, where I had planned to backpack for several days. This park is the high elevation point on the Dempster, and cloudy skies and cool weather were forecast for the next several days, so I abandoned my hiking plans and continued driving. I found a nice campsite along Engineer Creek, where I would fish for grayling for several hours before retiring for the night. The next day was essentially a repeat of the previous day, with the skies clouding after an hour of sampling the local *B. chariclea* population. So I drove on, finding *B. chariclea* at both Windy Pass and roadside as I approached Eagle Plains. That evening I camped just a few km north of the Arctic Circle.

Monday began chilly and damp. I stopped at Wright Pass on the Northwest Territory/Yukon border, took the requisite photos, spread my wet belongings, and scrambled halfway up a nearby peak. The sun had broken through the clouds, but nothing was flying, save three curious ptarmigans that I disturbed. I scrambled down, collected my dry clothes and tent, and continued my drive. Just west of Midway Lake, another red butterfly flew across the road. I parked and investigated, and to my delight, a *P. faunus* was feeding in the ditch. Soon after, I took my first *Polygonia gracilis* of the trip. I would collect many more at this spot until 6 pm, with only an occasional vehicle disturbing my activities.

Continuing my journey, I crossed the Peel River by ferry and reached the visitor center at Fort McPherson, where I learned that the store in town was closed due to Civic Day, celebrated the first Monday in August in most of Canada. Apparently, the holiday had contributed to my collecting success that day, as the traffic had been sparse, unlike my stop at this site a week later, when I would encounter as many as 20 earth movers an hour along this stretch of the Dempster. I found a small campsite east of town, and enjoyed a beautiful and long evening, taking photos at midnight before retiring for the night. The next day I continued my journey, crossing the Mackenzie River by ferry. Near Moose Lake, about 70 km from Inuvik, I spied more *P. faunus* along the road, and collected here for the remainder of the day. These were wary and hard to approach. I soon located a small puddle party at the base of the highway that introduced me to one of the hazards of the Dempster. Built some 4-8 feet above the ground to insulate the underlying permafrost and prevent the road from collapsing, the sides of the highway are rather steep, and the surface is as hard as concrete. So, as I tried to net the group of *Polygonia* at the base of the road, I slipped on the incline and nearly slid into the fen. For this effort, I managed one *P. faunus* and a scraped left hand. I subsequently avoided this spot, tempting as it was. Later, when the skies darkened, I journeyed to Inuvik, taking four more *P. faunus* along a swamp at the back of town, where the Dempster ends and the ice road to Tuktoyaktuk begins.

Wednesday I made some inquiries as to transportation to the Richardson Mountains, 50 miles to the east of town. With assistance from the Industry, Investment and Tourism office, I located a guide in Aklavik who would

transport me 20 miles upriver. That evening I took the 15 minute flight to Aklavik, and after consulting the guide, established a plan in which I would be dropped at an old seismic trail that ran just south of Bug Lake and headed straight into the Richardson Mountains. I would meet the guide four days later at the Mt. Gifford trailhead about 7 miles to the north on the Husky Channel, which branches from the Peel River just west of town. I was dropped off about 9 pm, and after 2 hours of poorly navigating through the muskeg and up the hill, reached a campsite and stopped for the night. I was alone with the flies and mosquitoes, whose numbers must have increased by an order of magnitude since Colin Wyatt's visit[1].

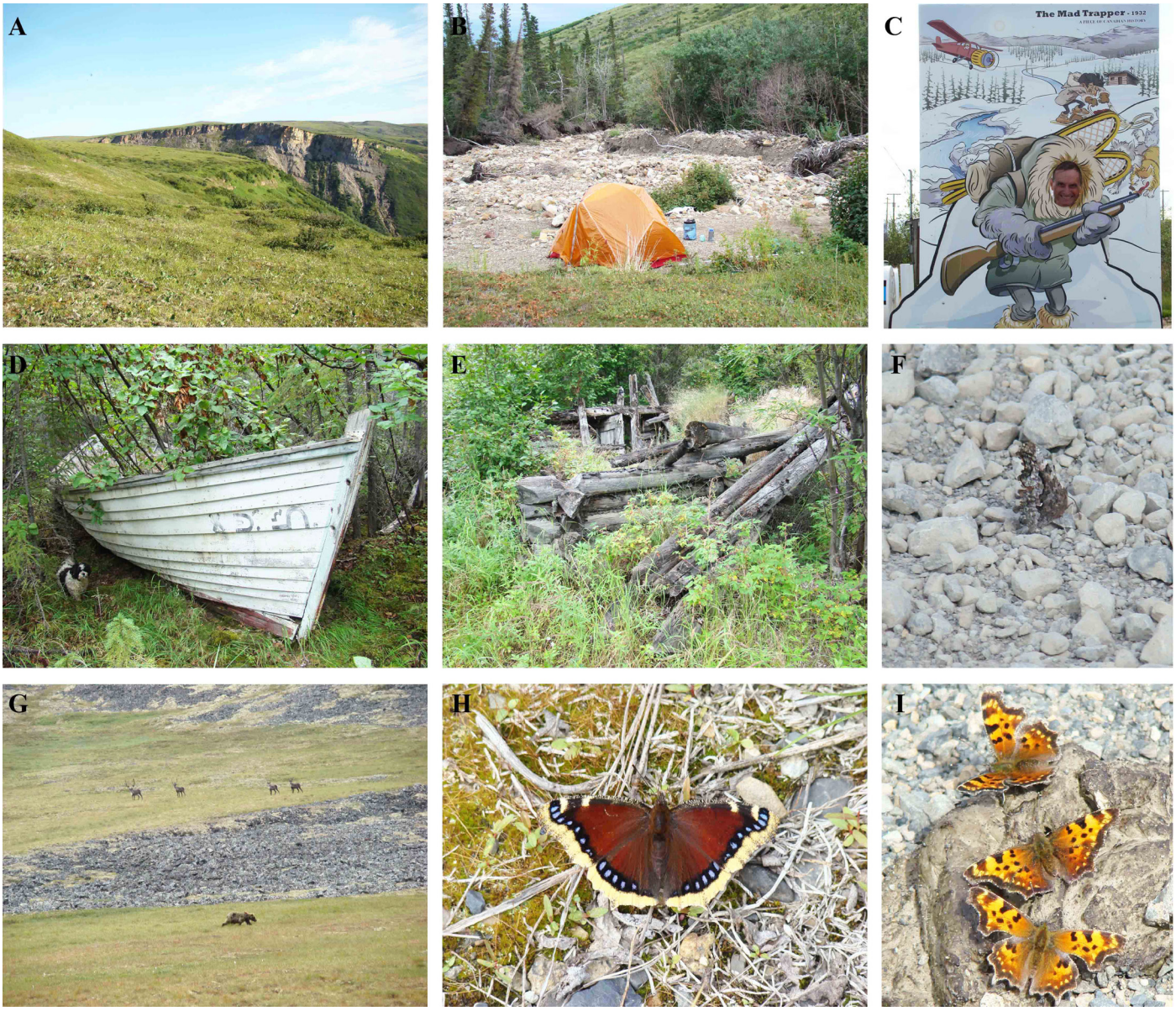
Thursday started sunny and dry. I headed up the ridge, encountering several *P. saepiolus* for which I would not drop the pack to pursue. A *P. gracilis* soon flew bye, and I quickly dropped the pack and nabbed the specimen. Still, I was out of water and somewhat parched, so I descended into a wash to the north, expecting to find Bug Creek. I entered in a dry stretch and continued down the wash, somewhat disappointed. However, I soon encountered a creek entering from the north and obtained water. My thirst quenched, I could now appreciate the *P. faunus* and *P. gracilis* flying in this wash. After collecting for an hour, I returned to the seismic trail to reclaim my food, stored in a bear barrel, but I first ventured toward the river, which was full of *P. gracilis*. They were attracted to the young willows lining the trail, a typical feature of arctic seismic trails[2], and I soon had a good series.

I reclaimed my food and made my way back to Bug Creek, where I found a nice sand bar and made camp. I awoke to another beautiful day – Inuvik had highs of 29 degrees C for both Thursday and Friday – broke camp, and started to head north. But the brush was too thick and I was not equipped to bushwhack, so I turned back. When I reached the campsite, I found numerous *Polygonia* flying, and collected until 6 pm. I found both *Polygonia* species in the upper reaches of the wash, an occasional *P. saepiolus*, and a fresh *Nymphalis antiopa* and *Limenitis arthemis rubrofasciata*. The *P. faunus arcticus* that I took were essentially Topotypes, as I was only 5 miles north of the TL, the meadow at the base of Black Mountain. And while I was slightly disappointed that I had not reached this meadow, the preferred habitat of *P. faunus* is actually along streams and creeks, so I could not expect to find a better location in the Richardson Mountains. At the end of the day I took a break from collecting to take some photos of the wash, but discovered that my camera was missing, apparently stripped off my pack during my exit attempt that morning. Twice that evening I retraced my steps by following the tracks stored on my GPS but did not find the camera. I retired about 10 pm, now wearing my nightshades, as true darkness did not come, only a brief twilight which quickly gave way to the rising sun.

Saturday was overcast and no *Polygonia* would fly. In the morning, I made another attempt to recover my camera but returned empty handed. I would quickly lament this loss when a good photo opportunity appeared, a large grizzly coming down the ridge headed directly toward my site, feeding on blueberries. I rang my bear bell and he looked up, glanced at me, and returned to his blueberries. He stopped about 200 yards short of my campsite. I decided this was a good time to explore the far reaches of Bug Creek, but when I returned three hours later the bear was still feeding on the ridge. At this point, my biggest concern was that he was feeding in my exit route, and I would have to make an awkward scramble around the ridge to avoid him. That evening I made one more trip to recover my camera, which I was convinced had fallen somewhere in the woods. I had low expectations for finding a dark camera case in the dim light of this willow thicket, and as I came down the hill empty handed, vowed not to make another attempt. I then looked up to see my camera lying in the meadow! Alas, the bear had gone, perhaps thankfully, so I had no photo opportunity.

Sunday was a dismal day that promised no sun or *Polygonia*. Fortunately, the bear was nowhere to be seen, so I broke camp and headed up the ridge. I paused at the top, and from this vantage point saw nothing but clouds, which confirmed the gloomy forecast. The return trip to the river was much easier. I planned to hitch a ride from a passing boat to my pickup site. When I reached the edge of the woods near the river I saw an ATV, and not wishing to startle anyone, called out "Hello, hello." I exited the woods and saw a man waving from the house on the other side of the river. He then got into a boat and picked me up, and I had the good fortune to visit with Roger Connelly and his wife Helen Sullivan for the day. They had a deep knowledge of the land, detailing the location of Black Mountain and how to access the meadow (park your boat here, Roger explained as he pointed to the map, crawl on your hands and knees for a half mile or so, and then you can hike the rest of the way). I was very fortunate to meet them and hear their tales. The rain stopped about 3 pm, when we took a break from our conversation to venture outside.

Roger and Helen knew from the guide that I had been collecting butterflies and noted that they had some historical artifacts of interest to me, for on their property was the boat of a bug hunter whose name has been lost with time, and on the shore of Bug Lake, just across the channel, the remains of a cabin that he used! We first walked over to the boat, which was off a trail just to the north of their home, about 50 feet into the woods. Next, we ventured across the channel to the remnants of the cabin, which along with the creek had been named in recognition of his activities. The cabin roof had long ago collapsed, allowing a clear view of the living space. As I noted, most facts have been lost with time, but the cabin was built in the 1920's and originally occupied by Frank Carmichael and trapping friend Karl Gardlund. They used the cabin



A, The canyon above Bug Creek, looking toward Mt. Gifford; B, my campsite in Bug Creek, which is the first creek to the north of Bug Lake; C, A touristy shot in Aklavik. The grave of Albert Johnson, aka the Mad Trapper, is in the town cemetery; D, The remains of the bug hunters boat. The symbols are in the native Gwitch'in language but have no meaning. Squirt stands alongside for reference; E, The remains of Frank Carmichael's cabin, used by the bug hunter and located on the eastern shore of Bug Lake at N68.061 W135.395. Note that nearby Bug Creek does not flow into Bug Lake but into a pond immediately to the north; F, A ventral shot of *Polygonia faunus arcticus* near Moose Lake, on the Dempster Highway approximately 70 km from Inuvik; G, A young grizzly bear passes below four caribou at Wright Pass at the border of Yukon and Northwest Territory; H, *Nymphalis antiopa* basking on North Fork Road, which roughly parallels the Klondike River; I, *P. faunus arcticus* on scat on North Fork Road about 12 km from the Dempster Highway.

as a trapping support base when trapping in the area. The dates that the bug hunter visited are unknown, but preceded Colin Wyatt's visit in 1955. John Carmichael, Frank's son, currently monitors char for the territory, and lives part time in a camp about 10 miles up-river, and by coincidence that day had sent one to my hosts for dinner. Unfortunately for me, I could not stay, and the guide returned at 7 pm to take me to Aklavik.

Monday began the return leg of my trip. Armed now with knowledge of the good collecting spots along the Dempster, I first stopped at the Moose Lake site, some 70 km from Inuvik. Both *Polygonia* species were flying, and now *N. antiopa* was present and in good numbers, which suggested that these emerge the first week of August in the northern Northwest Territories. I collected until about 5:30 pm, taking time to assure the dozen or so helpful travelers that offered assistance that I was fine.

I camped just east of Fort McPherson, anxious to sample the *P. gracilis* near Midway Lake, a curious mixture of the gracilis and zephyrus phenotype. Tuesday began as a fine day but turned cloudy around noon, and I would have little to show for my efforts at the end of the day. I camped near the holiday camp along Midway Lake, built for the Civic Day weekend and only used once a year, and was aroused by rain Wednesday morning. My plans to collect at this spot now dashed by the weather, I drove south, stopping at Wright Pass where I saw my first four caribou. I photographed these, and watched as they approached the road, hopeful for a better shot. But they returned to the ledge upon which they had been grazing, anxiously watching a young grizzly bear pass on the lower ledge. He disappeared into the rocks below the pass, probably to await a better opportunity to hunt caribou in the coming migration of the 125,000 member strong Porcupine herd. I continued my drive, with the mud on the highway now 2-3 inches deep, and as I approached Windy Pass my vehicle began to lose traction, first at 60 km/hour, then at 40 km/hour! The rain stopped when I crested the pass, and I camped at Engineer Creek. I awoke Thursday with the hope that my last two days would offer some better weather. I found some on the Dempster just south of Tombstone National Park, and took several *P. faunus*. At km 20 of the Dempster I encountered a rarity for this area, *Nymphalis l-album*! I turned onto North Fork Road, which heads east from the Dempster at about km 10, and encountered a good photo opportunity, a *N. antiopa* dining on scat. But a truck sped by, sending my subject flying dizzily away, irking me a bit. However, three *P. faunus* immediately emerged from the bushes on the sides of the road and claimed the prize vacated by the *N. antiopa*. After obtaining a nice photograph and the vouchers, I stopped to make camp.

Friday morning promised sunny skies, but morphed into one of those late summer days that fall just short of the butterflies' expectations, with cool temperatures and clouds hanging over the mountains. I did photograph a nice *N. antiopa*, took a few more vouchers, and that afternoon reluctantly began the drive back to Whitehorse to catch my Saturday morning flight. I too vowed to return as soon as I could, but I will do so in the peak butterfly season, when I can enjoy the rush that the arctic offers.

Acknowledgments

I thank Roger and Helen Connelly for their hospitality, and Cris Guppy for advice concerning the acquisition of permits. This work was conducted under research agreements from the governments of the Yukon, Northwest Territories, and Vuntut Gwitchin First Nation. For more photographs and video from the trip, visit http://www.proeurasiamedwriter.com/2011Vacationphotos/Yukon/NWTYukon2011.html.

Literature Cited:

Wyatt, C. 1957. Collecting on the MacKenzie and in the Western Arctic. News of the Lepidopterists' Society 11(1-3):47-53.

US Fish and Wildlife Service, Arctic National Wildlife Refuge. (2008) Downloaded August 17, 2011 from http://arctic.fws.gov/seismic.htm.

Report on the Southern Lepidoptersists' Society and Association for Tropical Lepidoptera Meeting 2011

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The combined annual meeting of the Southern Lepidoptersists' Society and Association for Tropical Lepidoptera was held on October 14-16 at the McGuire Center for Lepidoptera and Biodiversity Center with 52 registrants in attendance. This year's program featured three symposia covering the U. S. and tropical regions with the Sunday morning session devoted to conservation issues. The latter included presentations on continuing studies on populations of Florida and Georgia fauna, Monarch populations in Mexico, and butterfly rearing facilities in Peru. The session concluded with a special feature presentation by Art Shapiro, University of California, Davis, reviewing the northern California butterfly database, accumulated over 39 years for some sites and what he and other colleagues have been able to extract in terms of biotic responses over the long term. Both field trips were well attended, with a day collecting trip lead by Marc Minno to Gulf Hammock and Yankeetown and an evening moth trip locally at Kanapaha Botanical Gardens. The annual banquet was held in the main exhibit gallery of Powell Hall. After dinner, Andrei Sourakov announced the winners of the ATL photo contest, and Charlie Covell presided over an open mike session where several individuals relayed stories of misadventures while collecting in the field, and followed up with the traditional door prizes. The complete program can be found on line at the following websites (www.southernlepsoc.org and www.troplep.org). (Pictures on back page of Newsletter)

Idaea asceta (Prout) (Geometridae: Sterrhinae) from Texas, new to the North American fauna

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Some years ago I found a small white geometrid in the collection of the United States National Museum labeled "San Benito, Texas, Sep. 8 - 15." I could not identify it until 1987 when I made a research visit to The Natural History Museum in London, England. There I found the holotype female (without its abdomen) of *Ptychopoda asceta* Prout (1902) and concluded that this was the Texas moth. The original description is in Prout, L.B. (1902), "Geometridae of the Argentine Republic," *Trans. Ent. Soc. London 1910 (3): 217*. The type locality is Gran Chaco, near Florenzia, Argentina, collected in October 1902 by S. R. Wagner. An apparent topotypic male bearing Prout's identification (but not a type designation) is in the U.S. National Museum, and I was able to dissect its genitalia (C.V. Covell genitalia slide #1178).

Subsequently I received on loan a series of 18 specimens of this same moth from James E. Gillaspy, of Texas A & I University, Kingsville, Texas. These were collected between 1973 and 1983. The wing pattern and male genitalia features agree with those of the topotype male. So far I have seen specimens from Falfurrias, Brooks County; Laguna Atascosa, Cameron County; Sal de Rey National Wildlife Refuge, Hidalgo County; Riskin Ranch, Kenedy County; and Kingsville, Kleburg County. Dates of capture are March and June into September. I have also seen museum specimens from Venezuela, Panama, and Mexico.

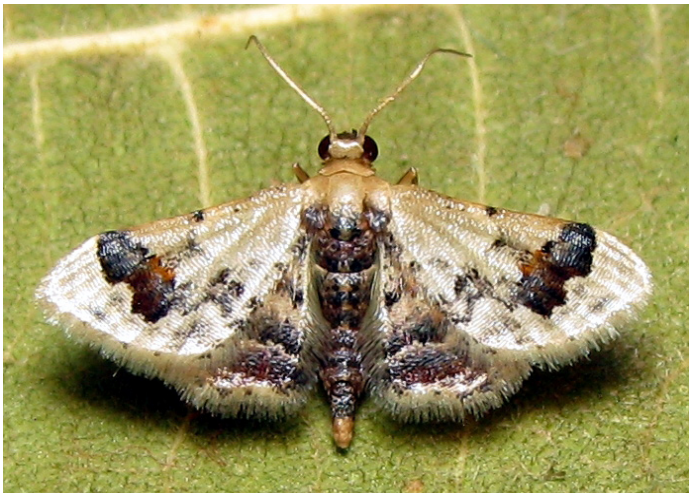

Figure 1. *Idaea asceta* (Prout). Photo by Maury Heiman

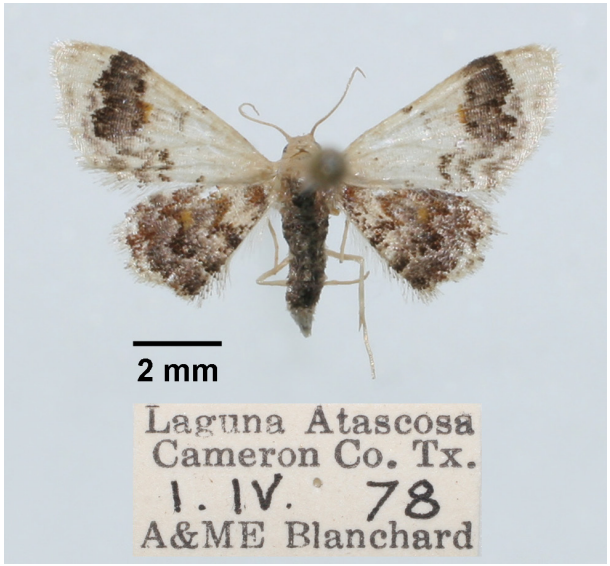

Figure 2. *Idaea asceta* spread. Photo by Deborah Matthews

The living individual figured (Fig. 1) was photographed by Maury Heiman three miles north of Devine, Medina County, Texas, on September 15, 2009. It had come to mercury vapor light. The image was posted in the Moth Photographers Group as number 7107 under the name *Idaea pervertipennis* (Hulst), another very small geometrid found in southern Texas. Fig. 2 shows a "dead and spread" specimen from Laguna Atascosa, Cameron County, Texas (collected April 1, 1978 by Andre and May Elise Blanchard) is shown for a more complete view of the wings (Fig. 2).

This species is still under revisionary investigation along with the rest of the North American Sterrhinae, so I will not give a full description here. Its posting on the Moth Photographers Group has prompted me to correct the identification, however, and to delay no longer its "introduction" to the United States Lepidoptera fauna.

I thank Maury Heiman of Devine, Texas, for providing the image for publication, and providing supporting information. I also thank J.E. Gillaspy and E.C. Knudson for the loan of specimens and Bob Patterson for his cooperation. Thanks are also due to Deborah Matthews for photographing the spread Texas specimen.

Conservation Matters: Contributions from the Conservation Committee

Lepidoptera conservation under a changing climate

Astrid Caldas

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Climate change is among the most daunting environmental problems faced by the world today. What with sea level rise, droughts, fires, floods, it seems the world is being taken by storm (pun intended).

As a science, climate change is pretty much set on the fact that man-made carbon emissions are the main driver behind a trend in warming temperatures around the globe. The vast majority of climate scientists agree that the world is getting warmer, and that human burning of fossil fuel is behind it. Probably many of you have seen the now (in) famous "hockey stick" graph of rising temperatures, and maybe even followed the so-called "climategate". One could argue that there is some controversy about what people believe when it comes to climate change, but what is undeniable is that temperatures **are** going up, independently of the reason. Yes it happened before, and much worse. The earth's climate has fluctuated a lot in the past 2 billion years, and today's warming is not even close to some of the warming that happened in the past. And we know that, in the past, when temperatures changed, many species disappeared. Are we ready to accept that some of the species roaming the earth now will be gone in 50 or 100 years? Of course not, particularly when it comes to butterflies…

Butterflies and moths provide a vast array of what we call ecosystem services, including pollination. They are also excellent indicators of environmental quality, and have an important aesthetic value, being enjoyed by people around the world. Climate change is likely to affect Lepidoptera in many ways. Most commonly, species will experience changes in range and distribution, and in population sizes. Another way that Lepidoptera may respond to climate change is through phenological changes: species are already shifting range due to climate change, usually moving to higher latitudes or altitudes. Species are already emerging earlier in the spring due to warmer temperatures. There are many instances of disruption of essential interactions with food plants and prey. And other effects of climate change are yet unknown.

Biodiversity is already at a crossroads, with more species in danger of extinction than ever before. Human activities have degraded, destroyed, and fragmented the landscape to a degree that makes it very hard to design conservation plans, simply because connectivity and habitat availability are many times rare if not impossible to detect. Add to that the challenge of climate change, and it may be impossible to design effective conservation plans for many species and habitats, because they will have less capacity to respond due in large part to human threats. It is essential that conservation plans include a climate adaptation component, either from early stages or as a later inclusion.

As an example of the importance of climate adaptation planning, a recent publication (Poiani et al., 2011) asked conservation teams to re-evaluate 20 projects taking into account climate change threats, and the project teams developed 42 adaptation strategies. Out of the 42 adaptation strategies developed, only two were existing, unchanged conservation strategies. That tells us that conservation practices that have worked up until now may not be effective anymore under a different climate scenario. Protected habitat will have to include predicted habitat after species range shifts, as in the case of critical habitat under the Endangered Species Act for the Quino checkerspot. Conservation easements will have to include the same. Managed relocation or reintroduction efforts, if they are to have a chance in succeeding, will have to take into account not only future habitat but also phenological characteristics of relevant interacting species.

When we consider all those concerns, the number of studies addressing butterfly conservation under a changing climate is worrisome. A recent issue of the Journal of Insect Conservation was dedicated exclusively to Lepidoptera conservation, but only a small fraction of the papers dealt with climate change. One article (Wilson & Maclean, 2011) did a literature review of all papers published on ISI Web of Science between January 2005 and December 2009 about climate change and/or biodiversity. Only 9 out of 73 papers that showed a link between climate change and declining biodiversity studied insects, 8 of which dealt with Lepidoptera. These papers showed Lepidoptera to be very sensitive to climate change. My own search just last June yielded about 50 papers dealing with various aspects of climate change and Lepidoptera (Table 1). That is certainly not impressive!

I attended the Annual Meeting of the Lepidopterists' Society this past June at Yale University and made a few suggestions to our members that might improve this alarmingly sad state of affairs. The National Phenology

Table 1: Breakdown of articles found on the ISI Web of Science dealing with Lepidoptera and climate change (CC).

Focus of paper	# of studies
Review article focusing on CC	9
Predictions under CC	15
Effect of CC on single species	11
Effect of CC on assemblage	16
Effects of CC on species interactions	6

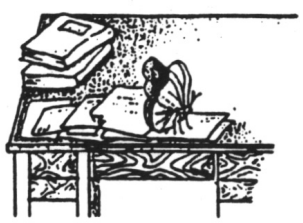
Network (http://www.usanpn.org/) currently has only 12 Lepidoptera species on its list, so I urged the society to become a partner and increase the number of species in that list. We could bring specialized input to the network, whose capabilities would be of much value to conservationists. I also suggested that we use their publication, Season Summary, in a better, more comprehensive way. In addition to range extensions, host plant associations, and population dynamics, I proposed that we make an effort to include consistent, actively sought first sightings of species known for a long time from specific locations. Also, include any changes in host plant association, phenology disruption, or other change in a known pattern that can be related to a warmer climate.

If we are to keep enjoying leps for years to come, we need more climate change-related studies. We need to be aware of climate change-induced changes in butterflies and moths. We may need reintroductions and managed relocation of species whose populations are declining and that have adequate, available habitat that could sustain a viable population under a warmer climate. The time to act is now - otherwise we may lose some of the most beautiful creatures ever to flutter on earth.

Literature Cited:

Poiani, K. A., Goldman, R. L., Hobson, J., Hoekstra, J. M., & Nelson, K.S. (2011). Redesigning biodiversity conservation projects for climate change: examples from the field. *Biodivers Conserv 20*:185–201.

Wilson, R. J. & I. Maclean, M.D. (2011). Recent evidence for the climate change threat to Lepidoptera and other insects. *Journal of Insect Conservation 15*(1-2): 259-268.



From the Editor's Desk

James K. Adams

A Hectic Hello . . .

It is with a great sigh of relief from me, and undoubtedly from previous editor Dale Clark as well, that this issue of the News is in your hands. I cannot thank Dale enough for all of his help, including ressurecting his editing career for two more issues than he had anticipated. I also want to thank Dale, former president John Shuey, and current president Andy Warren for listening to concerns and letting me freak out a couple of times while I was learning the InDesign software to produce this newsletter. Please bear with me as I am still in the learning process, and it may take a few issues until I really know what I'm doing. This issue may be a little "sparse" as far as frills are concerned -- I promise to continue learning more about what InDesign can do and hopefully add to the quality of the presentation in the Newsletter with successive issues.

It is my responsibility that publication of the news issues got behind. Dale was not terribly happy with me when, in February, I indicated that I was far more unprepared and incapable than I thought (I felt like a technological dinosaur for one of the very few times in my life!). But Dale graciously agreed to do two more issues, and during that time John Shuey suggested we upgrade from the old PageMaker program to InDesign. The learning curve for InDesign was initially VERY steep, but I am getting there.

As we are behind a little, I need to get a fourth issue out quickly. So if you are desirous of getting something into print almost immediately then send along your articles, pictures, letters, announcements, book reviews, and/or e-mails to me at jadams@daltonstate.edu NOW. And if you can, please send articles and pictures for those articles separate from one another. If you embed photos in the article, I have to extricate them for use. I am always happy to receive electronic materials by snail mail, particularly any high density photos you may wish to include with your articles. I can scan regular photographs if absolutely necessary. But the more that you can provide me in electronic form the better. My snail mail address is as follows: School of Natural Sciences and Mathematics, 148 Sequoya Hall, Dalton State College, 650 College Drive, Dalton, GA 30720. Thanks for all your help!

Be sure to give me feedback. If there is something glaringly wrong or bizarre, or really great, please let me know.

Oh, one more thing. I am a lover of all leps, but I do tend to the moth (dark) side (as many of you know). If the covers seem to have more moths than usual, don't forget that moth species outnumber butterflies at least 15 to 1!

2011 Karl Jordan Medal Award Recipient: J. Donald Lafontaine

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The Karl Jordan Medal is an award that may be given biennially by the Society at the Annual Meeting in recognition of original published research of exceptional quality on Lepidoptera in the areas of morphology, taxonomy, systematics, zoogeography and "natural history". The criteria (see J. Lep. Soc., 26:207-209) emphasize that the work may be based on a single piece of research or on a series of interrelated works and must be at least three but not 25 years old. The latter is to assure that the awarded work has been used by lepidopterological community and stood the test of time. The Jordan Medal is not intended to be a career award for service rendered to the study of Lepidoptera inasmuch as the Lepidopterists' Society already has such an award, Honorary Life Member. In addition, the nominee does not have to be a member of the Society.

This year President John Shuey presented the Karl Jordan Medal to J. Donald LaFontaine during the banquet at the 60th Annual Meeting at Yale University in New Haven, Connecticut. This was followed by his presentation, "Classifications … getting them righter." This was light-hearted look of the use of phylogenetics including some examples from everyday life.

James Donald Lafontaine was born on 8 December 1948 in Otttawa, Ontario, Canada. He married Herma Wagter on 11 Sepember 1971. Together they have two married daughters, Heather and Julie, and two grandaughters, Erika and Natalie.

He received a Bachelor of Arts (Biology) from Carleton University, 1972, and his Ph.D. (Entomology) from the University of Alberta, 1979, for his research on the *Euxoa detersa* group (Noctuidae) under the direction of Dr. George Ball.

Dr. Lafontaine's service to the scientific community is highly commendable. He is a member and held office in several professional societies, including the Lepidopterists' Society, Vice President (1984, 1990), President (2001-2002), Karl Jordan Committee (1984, 1988); the Entomological Society of Canada, Division Editor (2002-2007), associate Editor (2004-present); Society of European Lepidopterists; and the Southern Lepidopterists' Society.

His editorial contributions are extraordinary. In addition to *The Canadian Entomologist*, he has served on the Board of Directors, Moths of North America Project (1985 to present), as Vice-President (2002-present) and member of the Editorial Board, Wedge Entomological Research Foundation, Washington, D. C. He is also a Research Associate of the Smithsonian Institution (1998-present).

Dr. Lafontaine served as a Park Naturalist, Presqu'ile Provincial Park, Ontario (1969-1970). He accepted a position as Biologist, Biosystematics Research Institute, Agriculture Canada, Ottawa. Since 1980 he has served as a Research Scientist for Agriculture Canada. He has also served as Adjunct Professor, Department of Biology, Carlton University (1988-1994) and External Examiner, McGill University, Montreal, Canada (1987).

Lafontaine is the author and coauthor of more than 80 research papers and seven books. His research has focused on the systematics and zoogeography of North American Noctuoidea and the higher classification of the superfamily. He is the sole author of three extensive MONA volumes (1987, 1998, 2004) and the lead author of the volume on the Apameini). His recent works on the higher classification with Fibiger (2005, 2006) included detailed comprehensive morphological studies in addition to life history and molecular phylogenetics and brought to the fore the sheer magnitude and complexity of the world fauna of the Noctuoidea. It is for all of the above that the Committee recognizes Dr. J. Donald LaFontaine with the Karl Jordan Medal.

Dr. J. Donald Lafontaine

Announcements:

National Moth Week July 23-29, 2012
Exploring Nighttime Nature

The first annual National Moth Week (www.nationalmothweek.org) will be held July 23 – 29, 2012 and is actively seeking participants to help focus attention on moths and biodiversity. Individuals, groups and events are all welcome. National Moth Week brings together everyone interested in moths to celebrate these amazing insects. It is hoped that groups and individuals will spend some time during National Moth Week looking for moths and sharing what they've found. The goal is to have participation in all 50 states and anywhere else as well. We are partnering with many organizations and individuals with a focus on moths and biodiversity and together all of us can raise environmental awareness through moths.

National Moth Week is a celebration of moths and biodiversity. Why moths? With more than 10,000 species in North America alone, moths offer endless options for study, education, photography and fun. Moths can be found everywhere from inner cities, to suburban backyards and the most wild and remote places. The diversity of moths is simply astounding. Their colors and patterns are often dazzling or so cryptic that they define camouflage. Shapes and sizes span the gamut with some as small as a pinhead and others as large as a hand. Most moths are nocturnal creatures of the night, and need to be sought to see – others fly like butterflies during the day. Finding moths is easy and can be as simple as leaving a porch light on and checking it after dark. Serious moth aficionados use special lights and baits to attract them. Moths are also featured widely in literature and art providing a different angle for enjoyment and study. *Moth Nights* are often held by nature groups and allow an easy opportunity for an introduction or for more serious pursuits. During National Moth Week attend a Moth Night event, start one, get some friends and neighbors together and check the porch lights from time to time, set up a light and see what is in your own backyard, read literature about moths. But no matter what, participate; the richness of moths is sure to fascinate.

National Moth Week also offers an unparalleled opportunity to contribute meaningful scientific data about moth distribution. We encourage data collection and high quality photographic documentation of moths during National Moth Week and submission to appropriate databases for anyone interested in this important endeavor. Obtaining voucher specimens for museum collections and DNA analysis for certain Families is also encouraged by those familiar with these techniques. For many moth species distributional information is lacking or poorly documented, for others, DNA is clarifying phylogenetic relationships and identifying new species. National Moth Week observations and collections can fill in important data gaps and be of significant biological value. The contributions of amateur naturalists and citizen scientists form the foundation of many aspects of our understanding of moth ecology. We have partnered with many of the major moth databases around the country to facilitate the deposition of records obtained during National Moth Week. Many of these databases have also begun extensive distributional mapping projects that rely on the wealth of data provided by the professional scientific community, and of equal or perhaps even greater importance, everyone with an interest in moths, be it via casual backyard observations or from more structured studies. **All accurate data is important and of equal value.** While the vast number of moths and the difficulty identifying some species may seem overwhelming at first, there are numerous resources for help and we have partnered with many of these individuals and organizations. There are links on the website for resources seeking data about moths. National Moth Week observations can yield a wealth of valuable data for these excellent resources and we strongly encourage contributions to them.

Visit the National Moth Week website at www.nationalmothweek.org for more information, a wealth of resources and to register your National Moth Week location.

David Moskowitz, Senior Vice President, EcolSciences, Inc., 75 Fleetwood Drive, Suite 250, Rockaway, NJ 07866 **www.ecolsciences.com**.

Website for finding "lost" locations

Systematists, collectors, and historians of natural history often spend a lot of time trying to locate "lost" places where so-and-so collected such-and-such way back when. (For example, "Sisson,CA" is now Mount Shasta City, the present Castle Peak near Donner Pass used to be Mount Stanford--but there's a different Mount Stanford in the Sierra now!--and French Camp, CA used to be "Castoria.") The US Geologic Survey has done us all a huge favor by making available free on-line an enormous collection of historical topographic maps of the entire country, some going back to the 1880s. For information visit http://nationalmap.gov/historical/ (Contributed by Art Shapiro, Center for Population Biology, University of California, Davis, CA 95616 ***amshapiro@ucdavis.edu)***

Photo Caption Correction:

On page 68 of Volume 53, Number 2 (Summer 2011) of the News of the Lepidopterists' Society, there is a series of photographs. The middle photograph in the third row is labelled "Mathew Lehnert and Deb Meadows. The caption should read "Mathew Lehnert and Deb Matthews." Apologies to Debbie Matthews for the misidentification. (See photo on the back page of this newsletter).

Life History of the imperiled Leona's Little Blue Butterfly, *Philotiella leona* (Lycaenidae)

David G. James

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Leona's little blue butterfly, *Philotiella leona* Hammond and McCorkle, is arguably the most restricted and endangered butterfly species in the United States. Discovered in 1995, *P. leona* is restricted to less than 32 km² in the Antelope Desert of south central Oregon (Hammond and McCorkle 2000, Pyle 2002, Warren 2005, Miller and Hammond 2007, Ross 2008, 2009, Matheson et al. 2010). It is a highly specialized species occupying a volcanic ash and pumice ecosystem and dependent upon a similarly specialized larval host plant, Spurry buckwheat, *Eriogonum spergulinum* A. Gray. *Philotiella leona* is currently being considered for listing under the Endangered Species Act (Matheson et al. 2010). Apart from brief and fragmentary notes presented by Hammond and McCorkle (2000), Ross (2008, 2009) and Matheson et al. (2010), little is known of the biology of *P. leona.* James (in review) provides the first detailed study on the biology and life history of *P. leona*. Additional photographs and a summary of the life history of *P. leona* are presented here.

Philotiella leona was reared in the laboratory from gravid females, eggs and larvae collected from the Antelope Desert in Klamath County, Oregon during June-July 2011. Details on rearing methodology are presented in James (in review). Photographs were taken of eggs, all instars and pupae using a Canon digital SLR camera (EOS 1DS Mark II) mounted on a tripod. A Canon MP-E 65mm 1X – 5X macro lens was used together with a Macro Twin Lite MT – 24 EX flash lighting system.

Egg. The egg measures 0.4-0.5 mm in width and is pale whitish-yellow (Fig. 1). The micropyle is relatively wide and contained within a slight depression. The surface is covered with a network of ob-

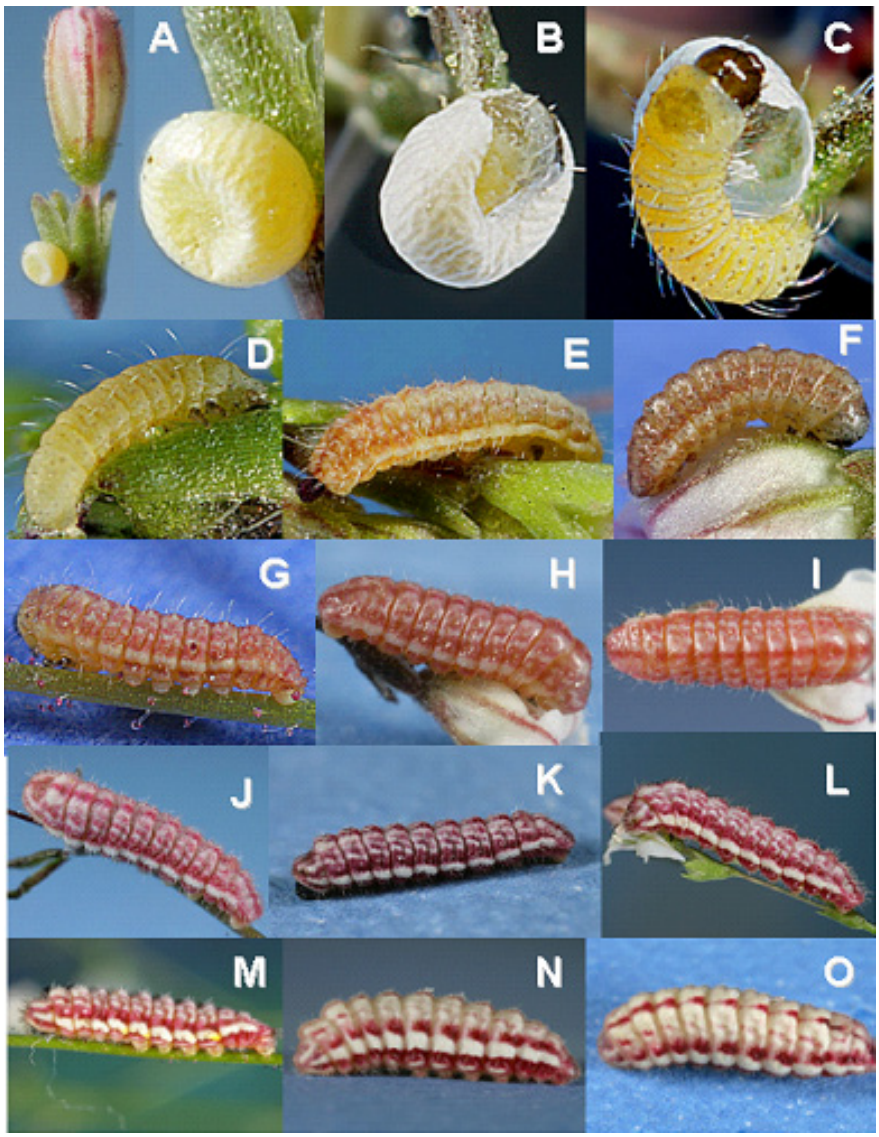

Figure 1. Images of the life history of *Philotiella leona* : egg-fourth instar. A: Newly laid egg 0.5 mm, B: egg hatching, C: newly hatched first instar 0.8 mm, D: early first instar 1.0 mm, E: mid first instar 1.5 mm, F: late first instar 2.0 mm, G: early second instar 2.0 mm, H: mid second instar 3.0 mm, I: late second instar 4.0 mm, J: early third instar 4.0 mm, K: mid third instar 5.0 mm, L: late third instar 6.0 mm, M: early fourth instar 6.0 mm, N and O: late fourth instar 8.0 mm (lateral and dorsal views).

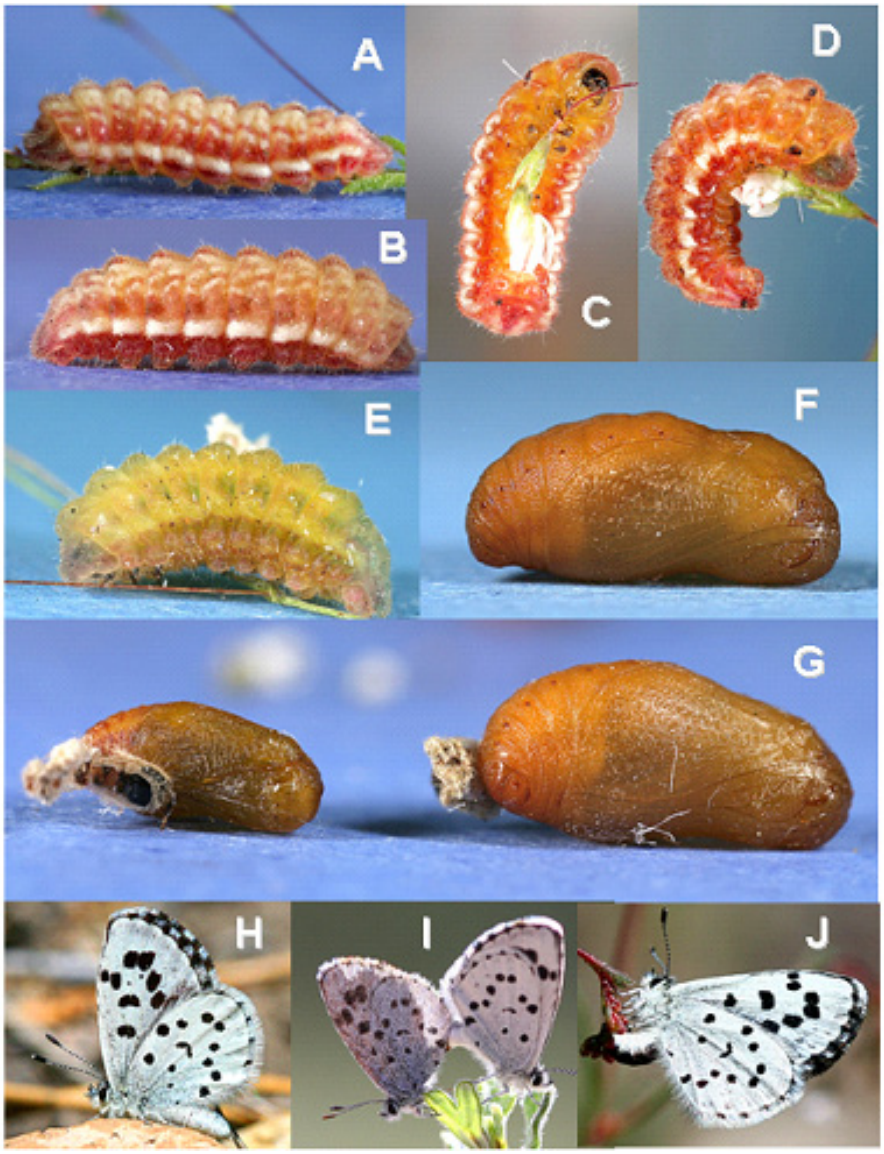

Figure 2. Images of the life history of *Philotiella leona*: late fourth instar-adult. A-D: late fourth instar showing color change, E: pre-pupa, F: pupa, G: pupae showing size range 4.0 mm (left) – 7.0 mm (right), H: adult female, I: copulating pair, J: ovipositing female.

scure ridges. Just prior to hatching the egg darkens with the larval head visible.

First instar. After hatching the first instar measures 0.8-1.0 mm. It is dull creamy-yellow, clothed with moderate length white setae arising from dark spots. The head is shiny brown (Fig. 1). After 24-36 hours of feeding, a green tinge develops. Light orange-red markings appear after 2 days forming a dorsal stripe and two indistinct lateral stripes. There is also a sub-spiracular pale stripe. Prior to molting the larva is suffused with increased reddish pigmentation and measures 2.0 mm (Fig. 1).

Second instar. After molting to second instar the larva measures 2.0 mm and is reddish with indistinct white markings which form two stripes laterally, the lower one better defined than the upper one. A darker red mid-dorsal stripe is present and the head is shiny black in this and all subsequent instars. Sparse, short white setae cover the body and the larva increases in length to 4.0 mm during this instar (Fig. 1).

Third instar. The early third instar measures 4.0 mm and is bright red with distinct white blotches dorsally and a prominent, wide sub-spiracular white stripe. The mid dorsal dark red stripe is broken into prominent spots, one per segment. The white setae are shorter and denser and the larva increases to 6.0 mm in length during this instar (Fig. 1-2).

Fourth instar. The final instar develops from 6.0-10.00 mm and is mostly white with vivid blood-red markings. These are an interrupted mid-dorsal stripe and two lateral stripes either side of the sub-spiracular white stripe. Short white setae densely cover the body. Ventrally, the larva is red with yellow claspers and black true legs (Fig. 1).

Pre-pupa. When the larva reaches 7.0-10.0 mm, the dorsal white markings become suffused with red and it shrinks to 5.0-7.0 mm. After ~ 24 hours the larva becomes a sessile and uniformly yellow colored pre-pupa (Fig. 2). A single strand of silk may girdle the pre-pupa.

Pupa. The pupa is uniformly orange-brown with darker wing cases and an indistinct mid-dorsal stripe on the abdomen. The spiracles are dark brown (Fig. 2). Pupa size ranges from 4.0-7.0 mm (mean 5.5 ± 0.25 (SE) (n = 11)) (Fig. 2). Pupation may occur on the host plant or on the ground.

The immature stages of *P. leona* show typical lycaenid characters particularly those found in the related genus *Euphilotes*. The egg appears to be smooth but on close inspection has fine undulating, irregular surface ridges. The micropyle-containing depression on the top of the egg appears to be unique among lycaenid species in the Pacific Northwest (James and Nunnallee 2011). The first instar, in common with *Euphilotes* spp., is maggot-like initially but develops color after feeding. The vibrant and contrasting red and white marked third and fourth instar larvae are cryptic on the reddish host plant and bear some resemblance to the last instar larvae of *Euphilotes columbiae* (Mattoni) and *Euphilotes enoptes* (Boisduval) (James and Nunnallee 2011). The apparent fourth instars of *P. leona*

shown in Ross (2008, 2009) and Matheson, et al. (2010) are identical to ours. The larva shown in Miller and Hammond (2007) is greener than ours but has a similar mid-dorsal dark red stripe. The apparent low incidence of green form larvae is unsurprising given their conspicuousness on the predominantly red host plant. Mature larvae of the related *P. speciosa* may be similar but in Allen et al. (2005) the larva of *P. speciosa* is dull red and lacks strongly contrasting white markings. Ballmer and Pratt (1988) described the ground color of *P. speciosa* larvae as 'green or yellowish'.

The information presented here and in James (in review) provide the basis for further laboratory and field studies on the biology and ecology of *P. leona,* urgently needed before effective and robust conservation strategies for this imperiled lycaenid can be developed.

Acknowledgments

I thank the Oregon Zoo Future for Wildlife Grants Program for providing partial funding for this research and Dave McCorkle for introducing me to Leona's Little Blue.

Literature Cited

Allen, T. J., J. P. Brock and J. Glassberg. 2005. Caterpillars in the Field and Garden - A Field Guide to the Butterfly Caterpillars of North America. Oxford University Press, 232 pp.

Ballmer, G. R. and G. F. Pratt. 1988. A survey of the last instar larvae of the Lycaenidae of California. J. Res. Lepid. 27:1-80.

Hammond, P. C. and D. V. McCorkle. 2000. A new species of *Philotiella* from the Oregon Cascade Range (Lepidoptera: Lycaenidae). Holarctic Lepidoptera, 6: 77-82.

James, D.G. (in review). Life history and biology of an imperiled butterfly, *Philotiella leona* (Lepidoptera: Lycaenidae) from south central Oregon. Ann. Entomol. Soc. Am.

James, D.G. and D. Nunnallee. 2011. Life Histories of Cascadia Butterflies. Oregon State University Press. 448 pp.

Matheson, B., S. Jepsen and S. Hoffman Black. 2010. Petition to list Leona's Little Blue Butterfly, *Philotiella leona,* as endangered under the US Endangered Species Act. Submitted by Xerces Society for Invertebrate Conservation, D. V. McCorkle and Oregon Wild.

Miller, J. C. and P. C. Hammond. 2007. Butterflies and Moths of Pacific Northwest Forests and Woodlands: Rare, endangered and Management-sensitive species. USDA Forest Health Tech nology Enterprise Team, FHTET-2006-07, 234 pp.

Pyle, R. M. 2002. The Butterflies of Cascadia. Seattle Audubon Society. 420 pp.

Ross, D. 2008. Surveys for Leona's Little Blue (*Philotiella leona*) in the Antelope Desert of Klamath County, Oregon. Report for High Desert Museum (Bend) and USFW (Portland, OR). 10 pp.

Ross, D. 2009. 2009 surveys for Leona's Little Blue (*Philotiella leona*). Report to the Xerces Society and United States Fish and Wildlife Service. 21 pp.

Warren, A. D. 2005. Butterflies of Oregon, Their Taxonomy, Distribution and Biology. C. P. Gillette Museum of Arthopod Diversity, Dept. of Bioagricultural Sciences and Pest Mgmt, Colorado State Univ., Fort Collins, CO. Lepidoptera of North America 6, 408 pp.

The Mailbag . . .

Dear Editor:

The bare-bones obituary for Prof. Atuhiro Sibatani ("Metamorphosis," Summer 2011) gives no hint of what a fascinating and complex figure he was. His interest in Lepidoptera was a tiny part of his scientific universe, which embraced evolution and developmental biology as well as molecular biology and physiological genetics. He was in fact a pioneer of molecular biology in Japan, going back to the 1950s. With reference to Leps, he published on a wide array of topics, including the anatomy of the genitalia, Lycaenid classification, visual physiology, and conservation. A true intellectual, he was intensely engaged with both philosophy and politics. He was a follower, but not an uncritical one, of the philosopher Kinji Imanishi, who taught a uniquely Japanese world-view that sought to unify the individual and collective dimensions of the biosphere in an evolutionary context; in his view resource partitioning and character displacement result not from competition, but rather a form of mutually-beneficial cooperation. Sibatani attempted to apply this philosophy in his own research, but always in a spirit of critical inquiry. It is not surprising that he later became very interested in structuralism, a somewhat holistic intellectual approach that emerged from anthropology and the humanities, but never gained much traction with biologists. He was a perceptive observer and often a trenchant critic of the intellectual and political climate in his native Japan--making many enemies in the process--and moved for several years to Australia in 1966. I hope at least a few readers of the NEWS will take the trouble to search his name on-line and discover for themselves that he was a man of many (cerebrally-interconnected) parts.

ARTHUR M. SHAPIRO

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Ron Robertson (1945-2009): Teacher, Collector

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For nearly 20 years, Ron Robertson was one of the most industrious and productive moth collectors in western North America. He and his late wife, Judy, donated nearly 50,000 insect specimens to the University of California, Berkeley, Ron's alma mater, but he left virtually no paper or electronic history to document their collecting efforts. As was true for many 20th Century collectors in the western U.S., he evidently kept no journal of his travels or documentation of his collections, no manuscripts, not even a correspondence file. So far as I know, he communicated with colleagues almost entirely by telephone and did not send typewritten letters or email. Much of the following summary is reconstructed from specimen data labels. An inexplicable and fascinating aspect is his sudden onset of collecting Lepidoptera in 1981 and equally abrupt cessation 19 years later.

Born Ronald Gene Arthurholdt, in Earlimart, California, in December, 1945, Ron was adopted by a stepfather, Eddie Robertson, after his biological parents were divorced when he was an infant. He was raised primarily by his mother, Wanda Massey, and the family led a subsistence level life, moving often, to San Francisco, Sacramento and agricultural towns in the Central Valley, ultimately settling in Las Vegas, where Ron met his future wife, Judy, in the sixth grade. As a young child, his family lived in San Francisco, and the nearby Golden Gate Park and California Academy of Sciences became Ron's playground, where he began an interest in natural history and butterflies. He developed a keen sense for observing the natural world around him – geological, biological, and people. As emphasized in the brief biography written by his family (Donahue 2009, Lepid News 51:33), Ron had a lifelong love of natural history, especially of the Great Basin and Southwest. Beginning as an 11-year old, he spent a great deal of time hiking in the Red Rocks area and Mt. Charleston near Las Vegas, where he became interested in geology. He completed high school working nights as a dishwasher in the casinos to help support his mother and half sister, and upon graduation with honors, he was awarded a scholarship to the Colorado School of Mines in Golden, where he spent two years.

In fall 1965, he left to enroll at the University of California, Berkeley. His undergraduate program was interrupted by service in the U. S. Marine Corps during the Viet Nam war, when fortunately, he was stationed at Camp Pendleton in southern California, and during that time he took chemistry and other basic courses at U. C. Irvine. After his military service, he worked for the BLM as a surveyor. During those years he stayed in touch with Judy by correspondence and made visits from southern California; she had completed an undergraduate degree and one year training as a Clinical Lab Scientist at the University of Utah and had taken a position at the U. C. Medical School in San Francisco. He returned to Berkeley, they were married in 1971, and he completed a B. S. degree in Biological Sciences in June 1972. They moved to Santa Rosa, where he obtained a teaching credential at Sonoma State University, and taught in the Sonoma School district, mainly biology in Middle School, for 31 years.

A compelling insight into Ron's lasting effect as a teacher is provided by Lisa Weiss, who professionally is a concert musician, but also works with endangered and confiscated turtles and tortoises for several international conservation organizations and is a long-time, regular participant in the annual butterfly count program orchestrated by NABA. She writes (*in litt.*): I was incredibly fortunate to have Ron Robertson as a biology instructor during my sophomore year in high school. As a teacher, Ron combined an approachable, humorous classroom manner and easy-going friendliness with high expectations. At a time when an awareness of ecology and conservation issues was still at the margin of public consciousness, he was passionate about wildlife and the environment. Growing up in pre-internet days, I was a self-taught bug- and birdwatcher with a roomful of field guides, Gerald Durrell stories, homemade butterfly nets and small captives in pickle jars, so with his comprehensive knowledge of natural history, Ron was the most excellent teacher I could have imagined. The effect of finding a mentor who was both a kindred spirit and a walking encyclopedia of natural history was seismic. Though I was already pursuing a path toward a career in music by then, Ron's teaching, his encouragement, and his personal example were the cornerstones for my natural history education and a lifetime involvement with wildlife study and conservation.

Ron valued careful observation, fresh thinking, and precise work. He had a talent for kindling conversation, and what began as a lecture often generated into a far-ranging class discussion. Humor was key, whether delivered in the form of his ironic deadpan or in some hilarious anecdote which might crack up the whole class. Once, during a presentation on invertebrates, Ron took off on a comic but heart-felt rant about the automatic habit most people have of squashing insects and spiders found indoors. The

lecture devolved into an uproarious stand-up comedy routine, and Ron's mock horror-film refrain, "there's a bug—KILL IT!" became a running joke in our classroom. Yet in a subtle, side-door way, he was advocating a new way for his students to look at living creatures which was compelling and memorable. Threads of literature and philosophy were often woven in with science studies. Ron talked animatedly of books, authors and ideas. During class, he often took the students on walking field trips to ponds or wooded areas near the campus, where we surveyed plant communities, observed birds and sampled aquatic life. It was perhaps simply seeing how Ron was out-of-doors that made the biggest impression on me; he always seemed so completely at home, familiar, so happy to be there. He taught us how to take field notes, helped identify legions of insects and plants, showed us the right way to look under a rock, introduced us to the fascinations of bird behavior, and supervised my backyard Brown Towhee study. Later, I was fortunate to meet Judy and to tag along with the two of them on birdwatching trips, and I saw that she possessed this same mysterious quality of outdoor harmony and belonging. Even as a teenager I had some sense of how rare and special that was, and how lucky I was to share their company.

From an early age Ron was a collector, rocks, postage stamps, bottle caps, baseball cards, feathers, anything different, unusual, or new to him. Evidently none of his early insect collections survived, but later he and Judy produced enduring collections, primarily of moths, mosses, and lichens. We do not know the stimulus that compelled Ron to collect Lepidoptera in earnest, but suddenly in 1981, at age 34, he began collecting butterflies and larger moths in Sonoma County and elsewhere in northern California, documented by beautifully spread specimens, each with a hand-printed label. The following year, with their younger daughter, Kelly, still a baby, the family began making summer camping trips in a VW camper van, during which he collected moths widely over the Southwest, eastern California, Nevada, southern Utah, Colorado, and especially Arizona. According to his daughters, the daily format was always the same: locate a USFS campground, carry one or two UV light traps away from camp, and run a BL sheet that he would check all evening; the following morning sort and field pin selected specimens from the traps; then pack up and move to a new camp. Along the way he taught his daughters natural history, how to recognize butterfly species on the wing; how to hold a snake; how to spot lizards, for which he had particular fondness, pressed to a rock; and how to identify tiger beetles in the Mojave Desert.

At first Ron collected primarily butterflies and larger moths, but by 1983 he began picking up pyraloids, particularly pyraustines, and larger tortricids, of which he assembled a diverse array, but he only occasionally took smaller micros that required double-mounting. His collecting was primarily limited to the summer months when he wasn't teaching, and he spent the rest of the year preparing and identifying specimens. Even so, he collected in California sporadically in the spring, especially diurnal moths (e.g., *Gyros*, *Saturnia, Ctenucha, Hemaris, Annaphila*); and in most years between 1983-1991, the family made spring vacation trips to Anza-Borrego or the deserts of eastern California, Inyo County, Death Valley, southern Utah, northern Nevada. The sand dunes of the eastern Mojave were a favored haunt.

In 1990-92 Robertson continued his education in a M.S. program at Sonoma State U. As a research project, he carried out inventory of Noctuidae at coastal dune sites, comparing Salt Point State Park and Bodega Bay, Sonoma Co. with Dune Lakes, San Luis Obispo Co. He sampled these and other dune sites frequently and compiled lists of noctuids at each site, but he did not complete the study.

Robertson joined The Lepidopterists' Society in 1982, and Ron and Judy were members of the Pacific Coast Entomological Society from 1986 to 2005. The family often oriented their summer travels to include Pacific Slope or National meetings when they were held at western field stations, e.g., Meadow Valley, CA, in 1984, San Bernardino Mts. in 1985, Chiricahua Mts., AZ, in 1986, Albuquerque in 1989, eastern Oregon in 1990, Colorado in 1993, Utah, in 1996. We don't know when or why he selected Noctuidae, the largest and to some of us the most difficult moth group to study --- with more than 1,400 species in California, probably twice that number in the Southwest --- it would seem a daunting field to encompass. But in the early 1980s, he began visiting UC Davis on Saturdays to educate himself by organizing and curating the large collection of noctuids they had inherited from Bill Bauer, a former private collector in Petaluma, and his protégé, Steve Buckett, a former student at Davis. Quite likely, Bob Schuster, the UCD collection manager until his untimely death in 1989, encouraged his cooperation, which helped steer him in the direction of Noctuidae.

Although Ron collected independently of other lepidopterists and most often in places others had not collected, he kept in touch with active noctuid specialists and provided specimens for their projects. Three species were described in his honor: *Cerastis robertsoni* Crabo and Lafontaine, 1997; *Copablepharon robertsoni* Crabo and LaFontaine, 2004; and *Apamea robertsoni* Mikkola and Mustelin, 2006, for which evidently he had donated the specimens, as his collection contained no paratypes of them. Ultimately he emerged as the best resource in California for information on current research in noctuids and for identification of western noctuids. He provided his expertise and specimens to several western institutions, including California Academy of Sciences (CAS), Canadian National Collection (CNC), Colorado State University (CSU), California State U., Sonoma (CSU Sonoma), U. C. Berkeley (UCB) and Davis (UCD). He donated freely of his time and was an enormous help with identifications for numerous persons attempting to conduct local inventories and provide records

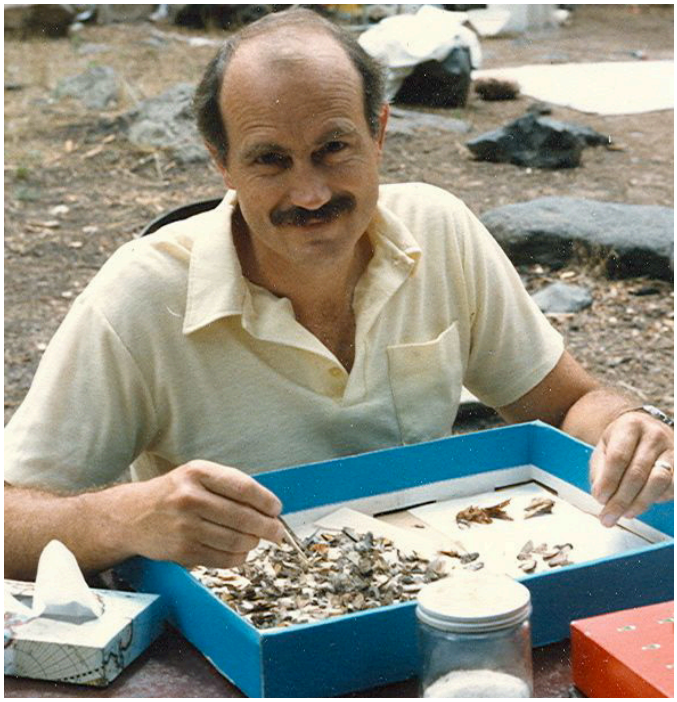
for Kelly Richers' California counties moth list. We all learned a great deal from him.

In 1992, disenchanted with teaching, due to parental intervention, he took a two-year leave and worked half time at the CAS, during which he cataloged noctuids for their database. During this interval, he worked Saturdays for several months in 1994 on contract at UCB, organizing and identifying our considerable backlog of unidentified noctuids, which had accumulated owing to my reluctance to get involved with them.

Also along the way, Judy developed an interest in beetles, and despite Ron's complaints that she was using up all his pins and boxes, built an appreciable collection – ultimately they donated nearly 8,000 Coleoptera to the Essig Museum. Over the years, they also gave more than 8,000 insect specimens to the CAS, including a few Lepidoptera, but mostly Neuropterida, for which Ron seemed to have taken an interest in collecting. In 1993, the family spent time in Colorado in connection with the annual meeting of The Lepidopterists' Society and Ron stayed on several days to identify and help curate the collection at CSU, then donated about 300 singleton gap-filler noctuids.

In August, 1999, after a few years' hiatus from summer expeditions, Ron made collections in southern Nevada and Utah, northern and southern Arizona. Then, as abruptly as when he began, he ceased collecting moths and began dismantling his collection. During 2000-2008 he donated more than 10,000 specimens, primarily geometrids, arctiids, pyraloids, and tortricids, to UCB. Along with Judy, they turned their attention to mosses and lichens. His daughters imagine that leaving Lepidoptera and taking up the study of lichens and mosses were independent events. Ron always wanted his collecting to be useful, and it may be that he stopped when it seemed his efforts were becoming redundant. The summer trips ceased after the girls were grown, and were replaced by hiking in Marin and Sonoma counties and observing rock outcroppings with lichens. They joined the California Lichen Association and the British Lichen Society and had become local experts and were working on a local field guide by 2006 when their respective losing battles with cancer began.

In January 2009, the family bequeathed the remainder of their insect and lichen collections to UCB. The insects totaled 39,370 specimens, primarily Lepidoptera (30,750), all pinned and labeled and mostly sorted to species; and there were 7,714 Coleoptera. Together with more than 10,000 Lepidoptera Ron had donated during 1990-2008,



Ron Robertson

the collections comprise the largest private donation of Lepidoptera ever made to the Essig Museum of Entomology, UCB. Systematists and biogeographers will reap harvests of their data for decades to come.

I acknowledge with sincere thanks the late Judy Robertson, Lisa and Kelly Robertson, Lisa Weiss (Vacaville, CA), Marc Grinnell (Santa Rosa, CA), Norman Penny (CAS), Paul Opler (CSU), John Nordin (Laramie, WY), and Jeff Smith (UCD) for providing personal recollections to make this tribute possible.

THE LEPIDOPTERISTS' SOCIETY
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The Marketplace

IMPORTANT NOTICE TO ADVERTISERS: If the number following your advertisement is "531" then you must renew your advertisement before the next issue! Remember that all revisions are required in writing.

Books/Videos

For Sale: Contributions of the C. P. Gillette Museum, Colorado State Univ., write or email: paulopler@comcast.com for a list of publications, including the following: Butterflies of Oregon by Andy Warren: $43.00, Butterflies of Colorado, part 4. Lycaenidae and Riodinidae by Mike Fisher: $65.00, Studies on Boulder County, Colorado butterflies by Janet Chu:$33.00, Butterflies of Kern and Tulare Counties, California by Ken Davenport: $18.50. Send check to "Gillette Publications" or inquire to Dr. Paul Opler, Dept. of Bioagricultural Sciences, Colorado State University, Ft. Commins, CO 80523-1177 531

For Sale: High quality critically aclaimed book, The Butterflies of Venezuela, Pt. 2 (Pt. 1 also in stock). 1451 photographic figs.(84 color plates) display all 196 species (355 subspecies) of Venezuelan Acraeinae, Ithomiinae, Libytheinae, Morphinae, and Nymphalinae. 8 new species, 91 new subspecies. Laminated hardback. Details, reviews, sample plates at: www.thebutterflies ofvenezuela.com Price GBP £110 (+ p&p). Please contact the author/publisher, Andrew Neild: 8 Old Park Ridings, London N21 2EU, United Kingdom; tel: +44(0)20 8882 8324; email: andrew.neild @blueyonder.co.uk 531

For Sale: "Butterflies of Central America, Vol. 1, Papilionidae, Pieridae and Nymphalidae". $79 US Shipments; $88 International. 284 color plates, 8 photos/plate. Covers Oaxaca to Panama. Order at www.neotropicalbutterflies.com through Paypal, or send a US check to Kim Garwood, 721 N. Bentsen Palm Drive, #40, Mission, TX 78572 531

For Sale: Butterflies of Southern Amazonia, a photographic checklist. A spiral bound book with 350 color pages, 8 photos/page, of almost 1,350 species from southeast Peru and Rondonia and Mato Grosso, Brazil. Mostly live photos but includes some specimens too. $98 plus shipping $7.50 in the US or $16 international. You can order it with a credit card or by paypal at www.neotropicalbutterflies.com, or contact Kim Garwood at kimgrwd@sbcglobal.net, or mail a US check to Kim Garwood, 721 N Bentsen Palm Dr #40, Mission TX 78572. We also have Butterflies of Northeastern Mexico, for the states of Tamaulipas, Nuevo Leon and San Luis Potosi, Mexico. This includes over 600 species, one third of the Mexican species. The cost is $30 plus shipping. 531

Specimens

Needed: Any A1 papered butterflies and moths, world-wide species, large and small, to help rebuild my collection that suffered a loss awhile back. Common and rare are all welcome. Any donations will be noted and very much appreciated. Mail to: Fred Bower, 288 Willow Street, Apt. 53, Lockport, New York 14094. 534

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 worker 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.

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.**

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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 your 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.

Tiputini Biological Station, Ecuador

Canopy Observations, Incredible Riverside Congregations, and Two Rare Spectacular Male Riodinids

Steve Fratello

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I reported some highlights of my first trip to the northern upper Amazon in News of the Lepidopterists' Society, Volume 48, Number 2, Summer 2006, "The Yasuni Research Station in Yasuni National Park, Ecuador". In that article, I related my good fortune of having had the opportunity to visit the Tiputini Biological Station (TBS) for one day, during my extensive stay at the YRS. With its remoteness, pristine forest, abundant wildlife, extensive trail system and great access to the canopy, I knew I must return to TBS. This dream/plan came to fruition, when my girlfriend Danusia and I visited TBS for 9 days in Jan/Feb 2009. This report contains some lepidoptera highlights from that trip.

Canopy Observations

Having spent approximately 1,000 days exploring the world's tropical rainforests and so little of that time in the canopy, I was dying to further explore this seemingly infinite frontier. During that first visit to TBS, I had visited one of the canopy towers, and this access to the canopy in pristine Amazonia was the greatest draw for a return trip to TBS. Little did I know that TBS has two canopy towers and also a canopy walkway: the two canopy towers are built around emergent Kapok or Silk Cotton Trees (*Ceiba pentandra*, Bombacaceae) and the canopy walkway has a ladder up to a platform in an emergent giant fig tree. It is only slightly exaggerating to say that we lived up in the canopy during the day; as numerous hours, mostly in the mornings and late afternoons, were spent in the canopy for most of the days of our visit. From just nine days of canopy observations at TBS, by extrapolation, I feel it is obvious that diverse butterfly species of all families utilize the canopy and upper forest levels in Neotropical lowland rainforests. For the many species observed, an interesting but difficult study would be to ascertain what percentage of their activity periods are spent in the upper forest levels.

A surprise to me, was that a few individuals of a *Melinaea* species (large tiger-striped Ithomiine) were frequent around the crowns and environs of both emergent Kapok Trees. Not surprising was to see various *Adelpha* species (Nymphalidae: Limenitidinae) in the canopy, as ground observations often reveal this genus in the upper forest levels along forest edges and in light gaps. I observed at least five *Adelpha* species around the crown of one of the Kapok Trees, including the distinctive and gorgeous *A. mesentina* Cramer. Other sun loving Nymphalids observed perching, basking and feeding among the Kapok crowns include: *Temenis laothoe* Cramer, a *Callicore* species (Biblidinae) and *Historis acheronta* Fabricius (Nymphalinae: Coeini). Though a couple of these last species mentioned were attracted to human deposited minerals high up in the canopy, there is no doubt that animal attractants and rotting fruits would have had the same effect.

A sublime spectacle is seeing various Lepidoptera fly over and among the byways of the canopy tree crowns. Commonly observed in this manner were: *Aphrissa statira* Cramer, *Phoebis* species (Pieridae: Coliadinae), *Philaethria dido* Linnaeus (Heliconiinae: Heliconiini) and *Urania leilus* Linnaeus (Uraniidae). Other species were also observed such; a most glorious sight was seeing an *Agrias* species (Nymphalidae: Charaxinae) coursing among the canopy byways, with brilliant flashes of deep blue and red as seen from above. Gorgeous green and black *P. dido* is a very widespread Neotropical Heliconiini largely frequenting the upper forest levels, coming down to lower levels in light gaps and along forest edges, sometimes found feeding from sediments along watercourses. *U. leilus* can be found from the top of the canopy to ground level along watercourses. It would be interesting to study if there is any temporal or/and seasonal correlation as to what level of the forest *U. leilus* frequents. Though not often observed (because of seasonal scarcity) on this Neotropical trip, many *Morpho* species (Morphinae: Morphini) utilize the upper forest levels, especially males of various species patrolling along forest watercourses from the middle story to subcanopy level.

Only a couple of Riodinids were observed in the canopy. One was a medium-sized, orange, black marked, presumed *Emesis* species; a presumed male, it perched on top of leaves with spread wings. The other was another medium-sized species, a stunning male *Alesa prema* Godart, discussed in the third section. Of approximately ten Hairstreaks observed during this trip, only one was seen in the understory, all others in the canopy. Noteworthy were a ventral green, presumed *Cyanophrys* species, which was mostly resting on leaves in the high canopy in the late afternoon, and a large Hairstreak, ventral blue *Evenus tagyra* Hewitson/*floralia* H.H. Druce, resting on a large heart-shaped aroid leaf, approximately 100 ft up in the canopy at 6 PM. Even considering my scant time observing lepidoptera in the canopy of Neotropical lowland rainforests, I believe it is safe to conjecture, that the canopy is a prime microhabitat for a majority of Neotropical lowland rainforest Hairstreaks, at the least, seasonally and temporally.

One Hesperid was observed in the canopy, a Hesperiine that was feeding from flowers of one of the common canopy bromiliads. This activity took place at approximately 50m above ground, the bromiliads resting on the hugh limbs of one of the tower Kapok Trees. No Papilionidae were observed in the canopy, but my extensive ground explorations of Neotropical lowland rainforests have entailed seeing a few Papilioninae in the upper forest levels in light gaps and along forest edges: *Battus* species (Troidini), *Papilio thoas* Linnaeus (Papilionini), possibly a few Leptocircini and even understory dwelling *Parides childrenae* Gray (Troidini), a male observed feeding from canopy blossoms in the towering and magnificent lowland rainforest of southwest Costa Rica's Osa Peninsula.

Incredible Riverside Congregations (II)

On my first trip to the Ecuadorian upper Amazon, a superb highlight (as reported in my previous article) was the phenominal array of lepidoptera attracted to urine soaked sediment on one of the banks of the Tiputini River at the YRS. If anything, these congregations were even more spectacular, at one spot chosen along the Tiputini at the TBS. Congregations were baited on three separate days; unfortunately on the first day, only a short time was available to observe the ensuing congregation in the late morning. Part of this congregation included a stunning group of *Urania leilus*, which were joined by a *Diaethria* species (Biblidinae) and the impressive Pyrrhopygine, *Mysarbia sejanus* Hoppfer. Besides a few other species, close by in a separate sub-congregation, were a handful of the congeneric Whites: *Perrhybris pamela* Stoll and *P. lorena* Hewitson (Pieridae: Pierinae), outstanding seeing them feed together. A couple of days later, this spot still attracted a few lepidoptera when visited in the early morning, including the diurnal moth, *Xanthyris flaveolata* Linnaeus (Geometridae: Sterrhinae), a common riverside lepidopteran in this region. This moth, plus other diurnal moths and several Riodinids, constitute a conspicuous Amazonian presumed mimicry complex.

The next two times this spot along the Tiputini was baited with urine, occurred on two consecutive days. Each day, a couple of hours from early to mid-afternoon were spent marvelling at the ensuing congregations; simply put, these congregations were staggering. On the first of these days, approximately 40 species were recorded overall: *Eurytides callias* Rothschild & Jordan, *Eurytides dolicaon* Cramer, *Protesilaus telesilaus* C. Felder & R. Felder, *Protesilaus* species (Papilioninae: Leptocircini), *Phoebis philea* Linnaeus, *Phoebis argante* Fabricius, *Rhabdodryas trite* Linnaeus (Pieridae: Coliadinae), *Perrhybris lorena*, *Itaballia demophile* Linnaeus, *Glutophrissa drusilla* Cramer (Pieridae: Pierinae), *Pseudopieris*? species (Pieridae: Dismorphiinae), numerous Nymphalids including *Dryas iulia* Fabricius, *Agraulis vanillae lucina* C. Felder & R. Felder (Heliconiinae: Heliconiini), mimetic *Castilia perilla* Hewitson, *Tegosa*? species (Nymphalinae: Melitaeini), *Historis acheronta* Fabricius, *Historis odius* Fabricius, *Baeotus japetus* Staudinger, *Baeotus deucalion* C. Felder & R. Felder (Nymphalinae: Coeini), *Doxocopa linda* C. Felder & R. Felder, *Doxocopa pavon* Latreille (Apaturinae), *Marpesia crethon* Fabricius, *Marpesia chiron* Fabricius, *Marpesia themistocles* Fabricius, *Marpesia petreus* Cramer (Biblidinae: Cyrestini), *Callicore cynosura*? Doubleday, *Catachore kolyma*? Hewitson, *Dynamine* species (Biblidinae: Biblidini), *Adelpha* species (Limenitidinae), *Riodina lysippus* Linnaeus, *Monethe albertus* C. Felder & R. Felder, *Emesis* species, *Lasaia* species (Riodinidae) and several Hesperids including a spectacular presumed Pyrrhopygine.

The next day I did not keep tabs on the number of overall species at the congregation during the time observed, but estimate it was similar to the first day's tally of approximately 40 species. As to be expected in a lowland tropical rainforest, there was a substantial difference between the species observed on the two days, consecutive as they were; a number observed on the first day were absent the next, and on the second of these days, there were a substantial number of new species observed: *Protesilaus molops*? Rothschild & Jordan, *Pyrisitia venusta*? Boisduval (Coliadinae), *Melete lycimnia* Cramer, a different? *Melete species*, *Pieriballia viardi* Boisduval (Pierinae), *Morpho achilles* Linnaeus (Morphinae), *Adelpha epione* Godart (Limenitidinae), *Notheme erota* Cramer, *Caria mantinea*? C. Felder & R. Felder, *Napaea*? species (Riodinidae), *Ocaria ocrisia* Hewitson (Lycaenidae: Theclinae) and a few Hesperids including *Heliopetes alana* Reakirt and a *Mylon* species (Pyrginae).

As related in my first YRS article, these incredible riverside congregations are a stunning lepidoptera highlight in themselves, especially when combined with the harmony of beauty in a pristine Amazonian setting. A few exceptional highlights within this overall highlight include the following, as well as the previously mentioned *Urania* gathering. As always, if present, the most exquisitely shaped Leptocircini are stunning; in these congregations, five species attended, including congeneric *E. callias* and *E. dolicaon* feeding together, *E. dolicaon* with a simply gorgeous venter. Among the most breathtaking of Neotropical Nymphalids are the four *Baeotus* species, which bear a striking resemblance to the distantly related Palaeotropical *Charaxes*. Seeing two individuals of different species at the same congregation, only for a brief time period there together, was a major highlight of this trip. *B. japetus* is the most easily recognized species by its ventral pattern; *B. deucalion* males are the most easily recognized dorsally, as they have yellow-orange median bands like the other three species' and probably their females (still undescribed?), not blue as in the other three species' males; and I strongly assume it was a *B. deucalion* male and not another species' female that visited the river bank. Among seemingly innumerable spectacular Riodinids, scintillating aqua *Lasaia* species and glittering green *Caria* species are some of the most respendent. Both are not uncommon along the banks/edges of Amazonian rivers, oxbow lakes and creeks. It is somewhat curious that

Looking out over the canopy in Northwestern Amazonia; taken from upper platform (50m above forest floor) on the west canopy tower, in emergent Silk Cotton or Kapok Tree.

Congregation on bank of Tiputini: *Eurytides callias*, *Protesilaus* sp., *Glutophrissa drusilla, Perrhybris lorena, Itaballia demoplhile*, another pierine sp., *Castilia perilla*, and a pyrgine skipper.

Alesa prema (Riodinidae)

Myscelia capenas (Nymphalidae)

Pandemos pasiphae (Riodinidae)

Caria mantinea ? (Riodinidae)

All photos taken by Steve Fratello and Danusia Antonowicz

in my approximately 115 days in upper Amazonia, I never saw either in large forest light gaps; and never saw either in hundreds of days in the Guyana lowlands.

It is notable that the unidentified and only Hairstreak to visit the river bank congregation at the YRS is probably the same species, *O. ocrisia*, that was present at the TBS congregation; and the only Neotropical Hairstreak I have seen do so. Also notable is that *A. statira* was missing from the congregations, as many Pierids including numerous *Phoebis* were present, and I am fairly certain I saw *A. statira* during canopy observations.

Two Rare Spectacular Male Riodinids

There is no doubt that male *Pandemos pasiphae* Cramer and *Alesa prema* are very spectacular Riodinids, the former one of the larger Riodinid species. As for rarity, I had never seen either species during approx 500 days exploring Amazonian (including Guianan subregion) lowland rainforests, and there are relatively few specimens in the major museum Riodinid collections (AMNH and USNM) that I have studied. If more common than collections indicate, that most be locally or in microhabitats not frequented by most collectors. While on the edge of the TBS cocha (oxbow lake) at approximately 9 AM, I spied a medium-sized blueish butterfly flying erractically and fairly low (2 to 3m) around the lakeside and its vegetation. Very curious as I had never seen anything like it previously, great fortune was to see it land under a leaf approximately 2m above the ground. When it landed under a leaf, this was a good indication that it was a Riodinid, as this is the habit of numerous species. Cautiously approaching, I was astounded to see a gloriously fresh *P. pasiphae* male with wings spread, the dorsal surface washed with an incredibly lovely pastel lavendar (flash photo shows it more blue). It stayed in this or a second resting spot (can't recall) for a good quarter of an hour until it was disturbed and sent winging by my too close camera approach. My only other encounter with the species was one specimen of the mostly whiteish female, strongly sexually dimorphic, collected by one of my partners along a large creek during an expedition to Guyana's Iwokrama Mts. Is it possible that *P. pasiphae* is a riparian species?

The encounter with male *A. prema* was just as surprising. While on the canopy walkway, approximately 100 ft above the forest floor, my girlfriend Danusia pointed my attention to a brilliant greenish-blue butterfly whirring around at great speed close to one of the tree crowns, which was adjacent to one of the platforms. Considering the color, the size and being in the canopy, I assumed it was a large spectacular Hairstreak. After the hoped for landing occurred, no words can describe my amazement at the species I was seeing, and the glory of this obviously freshly emerged beauty (photo shows it more blue than its true aqua color). It alternately perched on the tip of leaves, wings spread, with the high speed sorties previously mentioned. Sometimes it perched for many minutes, a good thing for us, as I had foolishly left our camera in my pack on the ground; this perching behavior afforded me the time to go down to the forest floor and retrieve the camera for the subsequent photos. The striking blue-green eyes as seen in the photo, are according to DeVries (1997), characteristic of the small tribe Eurybiini (*Alesa* and *Eurybia*), as is also myrmecophilous (symbiotic with ants) caterpillars. The highly sexually dimorphic female is larger, predominantly light brown with dark brown bands, with some of the gorgeous aqua resticted to a few spots on both fore and hindwings, those on the hindwings, submarginal and ringed with light yellow. This one encounter points to a canopy existence for this species, but it will take much more than this one encounter, to solve the ecological mysteries of this and so many other Riodinids.

Visiting the Tiputini Biological Station and Bird and Mammal Observations

Though remote, visiting TBS is straightforward and not difficult. TBS is a major scientific research station in this section of Amazonia, jointly managed by the Universidad San Francisco de Quito and Boston University, with a very efficient and friendly administration and staff for its functioning. Our visit was seemless, from the planning stages, transportation to and from, and our nine day stay. Important information for visitors is found on the TBS web-site, www.usfq.edu.ec/tiputini/ . Don't hesitate to contact me for additional information.

As in so many other biotic groups, the greatest bird biodiversity by far is in Amazonia. Besides being the most biodiverse, the Amazon avifauna would probably be considered by most, to also be the most spectacular and exotic. A great deal of this tremendous avifauna is often difficult to observe well, as it resides in the upper forest levels. Great access to the canopy at TBS solved this problem and afforded me some of the best bird viewing I have ever had. A highlight was seeing numerous, marvelous mixed tanager flocks in and around the crowns of the emergent Kapoks, the aptly named multi-colored Paradise Tanager usually a member of these flocks. Remoteness and no hunting pressure from the native AmerIndians of this part of Amazonia, correlates to a mammal fauna to be expected of pristine Amazonia. Ten or so species of monkey are found at TBS, we saw eight. The Pygmy Marmoset, the world's smallest monkey, is easy to observe, as a feeding tree (tree gum feeder) is adjacent to a major trail. A highlight for us was, on a few occasions, being surrounded by a large troop of Woolly Monkeys including mothers carrying young, both as we ascended the canopy tower and on the top platform. An ongoing camera-trap project has revealed 8 individual jaguars visiting the reserve tract and it was great to see nocturnal photos of the two mysterious, elusive Amazonian canids: the Bush Dog and the Small-Eared Dog! The northwestern Amazon mammal fauna is resident in all its glory!

Author's Notes: *Myscelia capenas* (Nymphalidae: Biblidinae) males were seen a number of times, just as in my previous visit to the Yasuni Research Station. In this

Protesilaus molops ? (Papilionidae)

Urania leilus (Uraniidae)

Perrhybris pamela and *P. lorena* (Pieridae)

Xanthyris flaveolata (Geometridae)

All photos taken by Steve Fratello and Danusia Antonowicz

part of Amazonia, they can be considered not uncommon.

Nomenclature follows Lamas et al. (2004).

All photos were taken with a Canon Powershot S3 IS; most in natural light, a few using flash in the forest interior.

Collections Researched

American Museum of Natural History, New York.
National Museum of Natural History, Washington, DC.

Literature Cited

D'Abrera, B. 1984. Butterflies of the Neotropical Region, Part II. Danaidae, Ithomiidae, Heliconidae & Morphidae. Victoria: Hill House.

D'Abrera, B. 1987. Butterflies of the Neotropical Region, Part III. Brassolidae, Acraeidae & Nymphalidae (Partim). Victoria: Hill House.

D'Abrera, B. 1987. Butterflies of the Neotropical Region, Part IV. Nymphalidae (Partim). Victoria: Hill House.

D'Abrera, B. 1994. Butterflies of the Neotropical Region, Part VI. Riodinidae. Victoria: Hill House.

D'Abrera, B. 1995. Butterflies of the Neotropical Region, Part VII. Lycaenidae. Victoria: Hill House.

DeVries, P. 1987. The Butterflies of Costa Rica And Their Natural History. Papilionidae, Pieridae, Nymphalidae. Princeton: Princeton University Press.

DeVries, P. 1997. The Butterflies of Costa Rica And Their Natural History. Volume II: Riodinidae. Princeton: Princeton University Press.

Garwood, K. & Lehman, R., Carter, W. & Carter, C. 2007. Butterflies of Southern Amazonia. A Photographic Checklist of Common Species. McAllen: RiCale Publishing.

Lamas, G. (Ed.) et al. 2004. Atlas of Neotropical Lepidoptera. Checklist: Part 4A Hesperoidea – Papilionoidea. Gainsville: Scientific Publishers.

Lewis, H. 1973. Butterflies of the World. Chicago: Follett Pub. Co.

Neild, A. 1996. The Butterflies of Venezuela. Part 1: Nymphalidae I (Limenitidinae, Apaturinae, Charaxinae). London: Meridian Publications.

Neild, A. 2008. The Butterflies Of Venezuela. Part 2: Nymphalidae II (Acraeinae, Libytheinae, Nymphalinae, Ithomiinae, Morphinae). London: Meridian Publications.

Continued on p. 96

JEREMY HOLLOWAY

1995 RECIPIENT OF THE KARL JORDAN MEDAL, HONORED AT SYMPOSIUM ON BORNEO BIODIVERSITY

Jacqueline Y. Miller

McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History, University of Florida, P. O. Box 112710, Gainesville, FL 32611-2710 **jmiller@flmnh.ufl.edu**

Jeremy Holloway, 1995 recipient of the Karl Jordan Medal was honored during a one day symposium on Borneo Biodiversity on July 6, 2011 at the Natural History Museum, London. This symposium featured presentations by Dr. Holloway and others on current and past biodiversity research in Brunei, Kalimantan, Sabah, and Sarawak, with a meeting to develop collaborative biodiversity research in such "hotspots" as Borneo and expand collaborative local partnerships at both the scientific and governmental levels.

In 1995, the Lepidopterists' Society recognized Dr. Holloway with the Karl Jordan Medal for his work on Macrolepidoptera, using Lepidoptera as a bioindicator group for assessing the effects of climatic variation in insect communities in addition to the results of human management and alteration of ecosystems (see News of the Lepidopterists' Society, 1995 (4):85). He further incorporated this information into his landmark research studies on the systematics, biogeography and rich biodiversity of the moths of Southeast Asia and Australasia which at the time included seven parts of *The Moths of Borneo* series. As of this year, Dr. Holloway has completed 18 monographs in this series that now covers more than 4500 species, all illustrated in color and aimed toward all entomologists in tropical Asia and Australia for the identification of Lepidoptera of importance to man in agriculture, horticulture, forestry, land management, and conservation. For those of us who curate collections on a world-wide basis, this compendium of generic and specific diagnoses, including life history and other associated information contained therein, is truly a major contribution to the scientific community and our study of Lepidoptera.

Following his early retirement in 1996, Dr. Hollway not only worked on the *Moths of Borneo* monographs but continues to publish on a wide range of topics in the fields of biogeography and biodiversity. Along with Professor Robert Hall, he co-edited and co-authored a volume on the *Biogeography and Geological Evolution of SE Asia* in 1998. He also recently led a team in producing a volume on the families of Malesian moths and butterflies, the third volume in the *Handbook of Fauna Malesiana* series. His research studies have added markedly to our knowledge of the distribution of various families, such as the Geometridae with the GONGED database. He also contributed to the molecular phylogeny for a stable family level classification of the Noctuoidea.

Please join me in congratulating Dr. Holloway in recognition of these recent honors and his remarkable lifetime achievements.

Tiputini Biological Station

Continued from p. 95

Acknowledgements

Thanks to my girlfriend Danusia for being such a splendid partner for our entire Ecuador trip, including taking many excellent Lepidoptera photos. Dr. Jason Hall and Dr. Keith Willmott, experts on the Ecuadorian butterfly fauna, strongly suggested that I visit this magnificent Amazonian locale. I am overjoyed that I followed their kind advice. Moth expert Dr. Jim Miller kindly lent his expertise concerning a common Amazonian diurnal Geometrid, and Dr. James Adams kindly made the determination of the Asthenidia sp. (Oxytenidae). Much thanks to the entire TBS staff we dealt with, and especially to Consuelo de Romo, Jose Macanilla and Rene Torres. Consuelo coordinated our trip, it could not have been more seamless. Jose was our guide for our first two days at TBS; we could not have had better, with his quiet, humble personality and great forest knowledge and 'eyes'. Even with my vast tropical rainforest experience, Jose showed us so many things we would not have seen otherwise. One of many highlight was when Jose on consecutive days called in spectacular Great Jacamars for close-up views. Rene Torres, the station manager during our visit, was super; in every way extremely welcoming and helpful. David Romo Vallejo, TBS Co-Director, kindly gave us the researchers' rate for our stay, in recognition of my tropical rainforest education business. Thanks to the enthusiasts, collectors and authors, especially of the works I referenced, whose passion, determination and hard work has cast great light on the gargantuan Neotropical fauna; and personally, greatly helped me have a fair knowledge of this fauna. For another immersion into pristine Amazonia, with its unfathomable beauty and staggering variety of life, I thank God.

Membership Update...

Julian Donahue

INCLUDES ALL CHANGES RECEIVED by 11 Nov. 2012

"Lost" Members (publications returned: "temporarily away," "moved," "left no address," or "addressee unknown"):

Easter, Jennie (Stillwater, Oklahoma)
Easter. Kiley (Stillwater, Oklahoma)
Matheson, Sarah M. (Ottawa, Ontario, Canada)
Nagle, Ray B. (Tucson, Arizona)

New and Reinstated Members: members who have joined/renewed/been found/or rescinded their request to be omitted since publication of the 2010 Membership Directory (not included in the 2008 Membership Directory; all in U.S.A. unless noted otherwise)

Eldredge, Eric (Ph.D.): 76 Carson River Drive, Fallon, NV 89406-9497.
Fowler, Noah: 1 Paul Holly Drive, Loudonville, NY 12211-1705.
Goetze, Jim R. (Ph.D.): 1764 Aransas Pass Drive, Laredo, TX 78045-8464.
Gonzalez, Zander: c/o Val Collins, 314 Tabaret Street, Kanata, Ontario K2M 0B8, **Canada.**
Hall, Ethan: 13778 Vice Admiral Drive, Riverton, UT 84096-6935.
Hicks, Tyler Leon (Mr.): P.O. Box 241, Ridgefield, WA 98642-0241.
Johnson, Ammon: 656 Spruce Glen Road, Murray, UT 84107-4009.
Johnson, Jarom: 656 Spruce Glen Road, Murray, UT 84107-4009.
Kekkonen, Mari: Finnish Museum of Natural History, P.O. Box 17, University of Helsinki, FI-0014 Helsinki, Helsinki, **Finland.**
McCollum, Sherman: 174 East 2100 South, Orem, UT 84058-8000.
Santos de Oliveira, Jose: Rua Prof. Paul Pederneiras 163, Vila Marte, São Paulo, SP 04250-040, **Brazil.**
Warriner, Michael D.: 2909 Shotgun Lane, Austin, TX 78748-1924.
Wiley, Bruce E. (M.D.): 4 Maplewood Drive, Kennebunkport, ME 04046-6114.

Address Changes (all U.S.A. unless noted otherwise)

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Einem, Gerald E.: 2826 NW 16th Avenue, Gainesville, FL 32605-3732.
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Oemick, Donald A.: 431 Stillwood Drive, Newnan, GA 30265-5552.
Pautsch, Richard: 1200 South Dairy Ashford Street, Apt. 228, Houston, TX 77077-2348.
Pfeiffer, Bryan M.: 5 St. Paul Street, Unit 2, Montpelier, VT 05602-3033.
Pfeiler, Edward J. (Ph.D.): 5191 North Calle Oreo, Tucson, AZ 85718-4930.
Powell, David: 11001 North 7th Street, Apt. 1184, Phoenix, AZ 85020-1142 [new 2011 member; address incorrectly published in 2011 News #2]
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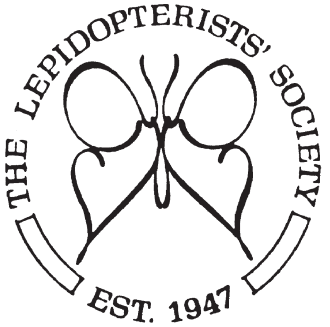
Strenge, Dennis L.: P.O. Box 507, Silverdale, WA 98383-0507.
Woodward, Bob: 5529 Jaguar Court, White Beark Lake, MN 55110-2249.



www.lepsoc.org

Membership

The Lepidopterists' Society is open to membership from anyone interested in any aspect of lepidopterology. The only criterion for membership is that you appreciate butterflies or moths! To become a member, please send full dues for the current year, together with your current mailing address and a note about your particular areas of interest in Lepidoptera, to:

Kelly Richers
Assistant Treasurer,
The Lepidopterists' Society
9417 Carvalho Court
Bakersfield, CA 93311

Dues Rate

Active (regular)	$ 45.00
Affiliate (same address)	10.00
Student	20.00
Sustaining	60.00
Contributor	100.00
Institutional Subscription	60.00
Air Mail Postage, **News**	15.00

Students must send proof of enrollment. Please add $ 5.00 to your Student or Active dues if you live outside of the U.S. to cover additional mailing costs. Remittances must be in U.S. dollars, payable to "The Lepidopterists' Society". All members receive the **Journal** and the **News** (each published quarterly). Supplements included in the News are the Membership Directory, published in even-numbered years, and the Season Summary, published annually. Additional information on membership and other aspects of the Society can be obtained from the Secretary (see address inside back cover).

Change of Address?

Please send permanent changes of address, telephone numbers, areas of interest, or e-mail addresses to:

Julian P. Donahue, Assistant Secretary, The Lepidopterists' Society, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007-4057.
Julian@donahue.net

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Contact Julian Donahue for information on mailing list rental.

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Requests for missed or defective issues should be directed to: Ron Leuschner (1900 John Street, Manhattan Beach, CA 90266-2608, (310) 545-9415, **ron leusch@aol.com**). Please be certain that you've really missed an issue by waiting for a subsequent issue to arrive.

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Submissions of potential new Memoirs should be sent to:

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Send inquiries to:
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Send book reviews or new book releases for the **Journal** to:

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Submission Guidelines for the News

Submissions are always welcome! Preference is given to articles written for a non-technical but knowledgable audience, illustrated and succinct (under 1,000 words, but will take larger). Please submit in one of the following formats (in order of preference):

1. Electronically transmitted file and graphics—in some acceptable format—via e-mail.

2. Article (and graphics) on diskette, CD 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. Include printed hardcopies of both articles and graphics. The new InDesign software can handle most common wordprocessing software and numerous photo/graphics software. Media will be returned on request.

3. Color and B+W graphics should be good quality photos suitable for scanning or—preferably—electronic files in TIFF or JPEG format at least 1200 x 1500 pixels for interior use, 1800 x 2100 for covers.

4. Typed copy, double-spaced suitable for scanning and optical character recognition. Original artwork/maps should be line drawings in pen and ink or good, clean photocopies. Color originals are preferred.

Submission Deadlines

Material for Volume 53/54 must reach the Editor by the following dates:

Issue	Date Due
53 4 Winter	Immediately
54 1 Spring	Feb. 28, 2012
2 Summer	May 20, 2012
3 Fall	Aug. 15, 2012
4 Winter	Nov. 15, 2012

Reports for Supplement S1, the Season Summary, must reach the respective Zone Coordinator (see most recent Season Summary for your Zone) by Dec. 31. See inside back cover for Zone Coordinator information.

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Eurytides dolicaon (Papilionidae)
(see Tiputini article, pg. 93)
Steve Fratello and Danusia Antonowicz

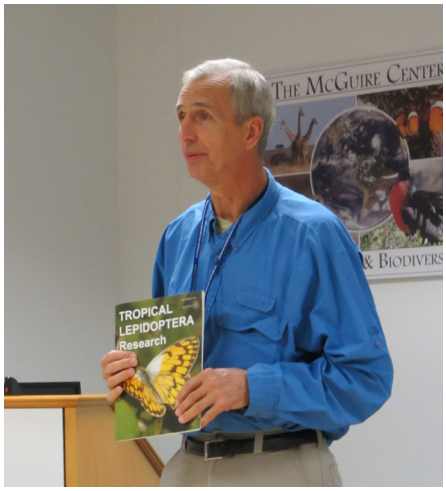
Echydna punctata (Riodinidae)
(see Tiputini article, pg. 93)
Steve Fratello and Danusia Antonowicz

Southern Lepidopterists' Society (SLS) and Association for Tropical Lepidoptera (ATL) joint meeting photos 2011 (see article, pg. 78)

Art Shapiro gives the keynote presentation on 39 years of butterfly monitoring in northern California.
Photo by Charlie Covell

Bob Patterson, founder and caretaker of the Moth Photographers Group website, reminiscing on the joys of early childhood, or perhaps just enjoying a sandwich.
Photo by Andy Warren.

Debbie Matthews, incoming Chair of SLS.
Photo by Charlie Covell



Jon D. Turner, Exec. Director of ATL.
Photo by Charlie Covell

Andrei Sourakov, Editor of Tropical Lepidoptera Research and Brian Scholtens, Editor of Journal of the Lep Soc and outgoing Chair of SLS. Photo by Andy Warren

Akito Kawahara talks about larval cases of *Hyposmocoma*. Photo by Andy Warren