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Finding *Polygonia gracilis zephyrus* larvae in Northern Utah

by Todd Stout

The year 2007 was extraordinary for finding larvae of *Polygonia gracilis zephyrus* (hoary comma) in the wild in northern Utah. Jack Skalicky found one larva in the vicinity of Mirror Lake Highway (UT 150), Summit County, Utah, whereas I found larvae in three separate locations on all three proven larval hostplant species of *Ribes* that Col. Clyde F. Gillette documented back in the 1980s.

Clyde proved *Polygonia gracilis zephyrus* larvae on *Ribes montigenum*, *Ribes viscosissimum*, and *Ribes cereum* in Beaver, Duchesne, and Kane counties respectively in 1982 and 1986. Another Utah collector to locate *Polygonia gracilis zephyrus* larvae in the wild was Larry Beutler. Between 1988 and 1993, Larry found hoary comma larvae in Colorado, Utah, New Mexico, and Nevada. In Utah, Larry found larvae in Tooele, Summit, Utah, Emery, Sanpete, Box Elder, Duchesne, Iron, Kane, and Garfield counties. According to Larry, most of the hoary comma butterfly larvae were found on *Ribes montigenum*.

After years of failure while looking on *Ribes cereum* in Salt Lake and Davis Counties, I became intrigued with the possibility of finally finding *Polygonia gracilis zephyrus* larvae. On 29 Jul 2006, while collecting with Jacque Wolfe near Elk Spring, Cache County, we found evidence of cast



Figure 1. *Polygonia gracilis zephyrus* adult emerges from its chrysalis. Photo courtesy Todd Stout.

larval skins as well as *zephyrus* parasitized ova on *Ribes viscosissimum* (Figure 2).

Part of the difficulty in finding *zephyrus* caterpillars on currants and gooseberries (*Ribes spp.*) is the fact that the hostplant can grow quite thick in *zephyrus* habitat. Furthermore, the larvae generally rest on the ventral surface of the leaf and do not make the conspicuous nests like *Polygonia satyrus* (satyr comma) on stinging nettle (*Urtica dioica*) (Figure 3).

Unlike *zephyrus*, *satyrus* larvae can be relatively easy to locate in their nests as larvae break the mid-vein of the leaf and fold back the dorsal side of the leaves. In fact, *Polygonia satyrus* larval nests are quite visibly distinctive as compared to those of *Vanessa atalanta rubria*, *Vanessa carye annabella*, and *Nymphalis milberti furcillata*. The nests of these three species differ in that they fold the ventral surface of the *Urtica dioica* leaf upwards and seal with silk. In other words, their larvae fold the

stinging nettle leaves in opposite directions as compared to hoary comma larvae.

Since the late 1980s, in spite of efforts, myself, Jacque Wolfe, and other local Utah collectors struggled to locate *Polygonia gracilis zephyrus* immatures in the field. Jacque later decided to travel to Montana where populations of this butterfly are much more robust and obtained immatures by collecting live females in the spring.

The difficulty of local collectors in finding *Polygonia gracilis zephyrus* larvae in the wild ended on 30 Jun 2007 when I returned to Cache County to look for larvae on *Ribes viscosissimum*. After profusely searching for about 90 minutes, turning over *Ribes viscosissimum* leaves, I was able to locate one third instar larva and one fourth instar larva on the ventral side of sticky currant (Figure 4).

A little over a week later, on 8 Jul 2007, Jack Skalicky found a fifth instar *Polygonia gracilis zephyrus* larva on *Ribes montigenum* (alpine prickly currant) near the Highline

Trail Trailhead just off the Mirror Lake Highway (Figure 5).

Nine days later, on 17 Jul 2007, while hiking near Guardsman Pass Road, Salt Lake County, I found three last instar *Polygonia gracilis zephyrus* larvae on *Ribes montigenum*. At this point, I was learning what Larry Beutler had noticed decades earlier in that *Polygonia gracilis zephyrus* last instar larvae tend to feed on the newest growth of leaves at the tips of the currant branches as well as make a visibly distinguishable strip pattern on the hostplant (Figure 6).

Furthermore, Larry and I (and quite possibly Clyde as well) have noticed that *Polygonia gracilis zephyrus* last instar larvae camouflage themselves very well against the spiny branches of *Ribes montigenum*. For example, the abrupt color change from orangeish to white between the fifth and sixth larval segments of fifth instar *zephyrus* larvae, remarkably correlates with a similar color change of the older orangeish prickly stems of *Ribes montigenum* to the younger, whiter spiny stems (Figure 7).

My last encounter with *Polygonia gracilis zephyrus* last instar larvae came as a surprise on 7 Aug 2007 along Farmington Canyon Road, near the fork that separates the Francis Peak Road from Skyline Drive. While looking on *Ceanothus velutinus* for a *Papilio eurymedon* larva to photograph, My eyes inadvertently wandered off to an adjacent *Ribes cereum* plant that happened to have similar *zephyrus* last instar strip patterns I had noticed earlier in Camas County, Idaho. (Figure 6, photo on right.)

After looking for a few minutes, I found two *zephyrus* larvae in plain sight feeding towards the end of the branches on newer growth of *Ribes cereum* (Figure 8).

In spite of years of frustration, 2007 truly was a breakthrough year for locating *Polygonia gracilis zephyrus* larvae in northern Utah. The next step is to follow in Clyde's footsteps and locate *Polygonia faunus hylas* larvae on *Salix scouleriana*. That will likely prove to be much more difficult.



Figure 2. Ova of *Polygonia gracilis zephyrus* on host *Ribes viscosissimum*. Photo taken 29 Jul 2006, Elk Spring, 4.7 miles SSW South Sink, 8800' UT: Cache County Photo courtesy Todd Stout



Figure 3. *Polygonia satyrus satyrus* last instar larva on host *Urtica dioica*. These nests can be very conspicuous on this host. Photo courtesy Nicky Davis.



Figure 4. *Polygonia gracilis zephyrus* young fourth instar on host *Ribes viscosissimum*. Larva was collected on 30 Jun 2007, 2.3 miles SSW of Bear Lake Summit, 8100' UT: Cache County Photo courtesy Todd Stout



Figure 5. *Polygonia gracilis zephyrus* fifth instar on Jack Skalicky's thumb. Photo courtesy Jack Skalicky



Figure 6. *Polygonia gracilis zephyrus* fifth instar larval feeding strip patterns on *Ribes montigenum* from Salt Lake County (left) and *Ribes cereum* from Camas County, Idaho (right). Photos courtesy Todd Stout.



Figure 7. *Polygonia gracilis zephyrus* fifth instar larva camouflages itself on *Ribes montigenum*. Larva was collected on 17 Jul 2007 in the vicinity of Guardsman Pass, Salt Lake County. Photo Courtesy Todd Stout.



Figure 8. *Polygonia gracilis zephyrus* fifth instar on host *Ribes cereum* from Farmington Canyon Road, Davis County. Photo courtesy Todd Stout.

Sightings of the Rare Elusive Northern Snow Swallowtail

by Alan Myrup

Each year by late February, the snow and cold of winter begins to take its toll on this old Lepidopterist. Rising to elevations above 11,000 ft., the tall, steep Wasatch Mountains above the city of Provo, Utah are still locked up in ice and snow. Places to hike in the back country are limited to areas where avalanches are unlikely. Besides, there are no butterflies that are willing to fly under such conditions except perhaps the rare, elusive Northern Snow Swallowtail (*Papilio snowi wasatchia*) which has not been sighted in years, although a few back country skiers claim to have seen the butterfly burst from a snowbank like a snowshoe hare fleeing from a hungry bobcat. After all, those flailing ski poles look a lot like net to a fleeing snow swallowtail.

Some lepidopterists question whether it even exists at all, sighting some illogical explanation about misidentification of cabbage whites or mumbling about BYU students accidentally splashing white paint on a nectaring tiger swallowtail while whitewashing the “Y” on Y Mountain. Others believe its rarity in

collections is due to the fact that it only flies during blizzards and few are willing to venture out under such dangerous conditions. Some have claimed to have seen several flying at once during a particularly strong snow storm. The very idea sounds “flakey” to me. A few collectors, such as Thodd I-saw-it Stout, insist they have seen it and even photographed it. (See one of Thodd’s photos of the snow swallowtail taken in a blizzard on Mt. Timpanogos with his fancy new digital camera in Figure 1.)

I personally believe this long-lived swallowtail is active throughout the year, producing a new covering of mottled gray scales each spring, perfect camouflage against the background of limestone talus slopes on Mt. Timpanogos in summer and replacing them with all white scales each winter making them virtually invisible against a background of snow.

“The once common butterfly now seems to be decreasing in numbers.” proclaimed Dr. “Wrong” Whaley, a

swallowtail expert from Utah Valley Unifarsity. “In summer, the butterfly’s larvae feed voraciously on *Snowmation whitei deflakerratum*, a rare plant that grows in the boulder fields on the steep talus slopes. Biologists have observed bears, which have been increasing in numbers in recent years, migrating up to these high slopes in summer searching for food. They dig deep into the talus searching for the snow swallowtail’s larvae hiding in the cracks between the boulders. The high fat content of the larvae are very nutritious and increase the bear’s chances of surviving through the winter.” said Whaley.

Few collectors have been willing to venture out onto these treacherous slopes in order to find this shy, reclusive butterfly. But I’m tired of winter and I’m “itchin” to get out and go collecting just about anywhere. There is a snow storm coming this weekend. Perhaps I will strap on my snowshoes and head for the high slopes to learn the truth about the elusive Northern Snow Swallowtail.

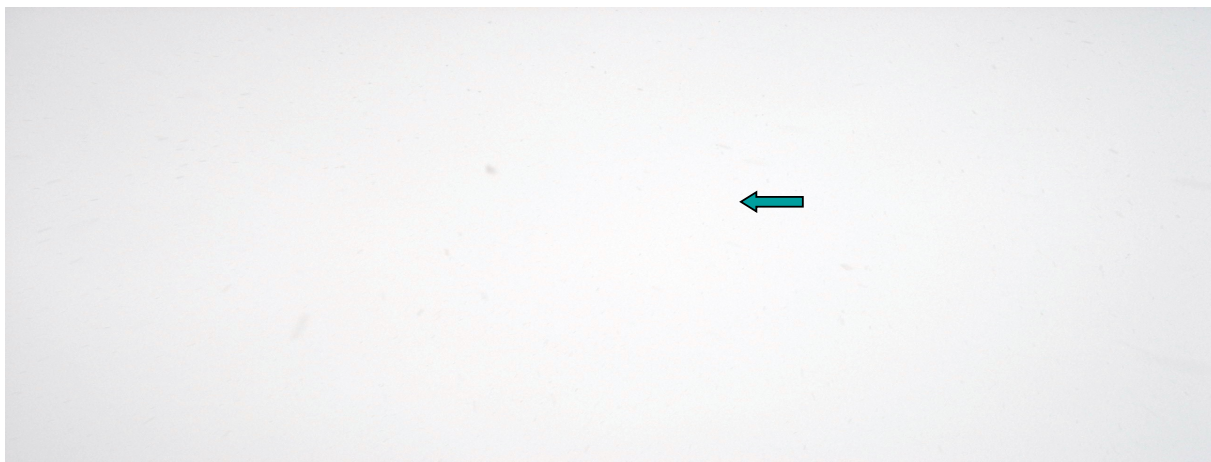


Figure 1. Northern Snow Swallowtail (see arrow, right center) photograph taken in “white out” conditions during a blizzard on Mt. Timpanogos. Photo Courtesy of Thodd I-saw-it Stout.

ULS Member Kenn Anderson Finds Fossil Butterfly in the Green River Shale Formation of Eastern Utah

by Alan Myrup



Figure 1. Fossil butterfly showing outer edge of right forewing and hindwing. Note the clear marginal spots and submarginal crescents between wing veins.



Figure 2. Fossil butterfly wing and leaf from the Green River Shale Formation south of Vernal in Eastern Utah.

fossils are extremely rare, with less than fifty species known world wide. So when ULS member Kenn Anderson brought a fossilized butterfly wing (Figures 1 & 2) to a Utah Lepidopterists' Society meeting, I was very interested. Butterfly fossils are so rare that each new find is likely to be an undescribed species. I encouraged Kenn to photograph the fossil and send me a copy which I forwarded by email to Dr. Thomas C. Emmel at the University of Florida, in Gainesville.

Dr. Emmel was excited about Kenn's fossil and offered to examine it and publish an article about it. I forwarded Dr. Emmel's reply to Kenn Anderson and they will be sharing information in preparation for that research.

Kenn collected the fossil while on a field trip with a class from Utah Valley State Collage (soon to be Utah Valley University). The class was searching for fossils in the Green River Shale Formation south of Vernal in eastern Utah. The Green

River Shale Formation was formed during the Eocene Epoch approximately 48 million years ago from a series of fresh water lakes in what is today northeastern Utah, western Colorado and the southwest corner of Wyoming. Kenn's fossil comes from what is known as "Lake Uinta," the largest of the ancient lakes. According to scientists, the area at the time was thought to be subtropical, more moist and milder than the "cold desert" climate found there today.

A wide range of fossils, both plants and animals, have come from the Green River Shale Formation. The most famous are the fossil fish from Fossil Butte National Monument in Lincoln County, Wyoming. I personally have collected several species of mollusks from Green River Shale beds in Spanish Fork Canyon (US Hwy 6), in Utah County, Utah. Many plants and insect fossils including, beetles, crickets, true bugs, flies, ichneumon wasps and even a damselfly have been collected in the vicinity of Bonanza, south of Vernal

in Uintah County, the area where Kenn's fossil butterfly was found.

The most prolific location for butterfly fossils in the US is the Florissant Formation in Colorado, with at least eleven known specimens, many from Florissant Fossil Beds National Monument. Several moth and butterflies have been preserved in amber, many coming from areas in the Dominican Republic. Note: Dr. Emmel coauthored a book called: "Florissant Butterflies: A Guide to the Fossil and Present-day Species of Central Colorado."

We will all be looking forward to reading Kenn Anderson's and Dr. Emmel's report about this fossil in the future.

References

1. The Virtual Fossil Museum
www.fossilmuseum.net
2. Wikipedia: The Free Encyclopedia
<http://en.wikipedia.org>
3. <http://www.ucmp.berkeley.edu/tertiary/eoc/greenriver.html>

A *Limenitis archippus* x *Limenitis weidemeyeri* Hybrid from Utah

by Alan Myrup

I knew the butterfly flying along the willows was very unusual. It flew like a viceroy (*Limenitis archippus*), but appeared much darker than a typical northern Utah viceroy. My son Kevin, age nine at the time, was between me and the butterfly. Although he was quite good with a net, he, like many young collectors, tended to leap after butterflies rather than approach them with patience and stealth. I managed to convince him to hold still while I approached carefully and netted the butterfly.

As I opened the wings, I was stunned! It had the general color and appearance of a viceroy, but displayed a nontypical band of white spots just inside the thin black mesial band of the hind wing (Figure 3). In fact, if

that band of white spots were a little wider, it would appear very similar to the white band on the dorsal surface of the western admiral (*Limenitis weidemeyeri*) (Figure 1). The ventral surface also appeared to have some markings similar to the western admiral.

Was this butterfly a nontypical viceroy, an aberration of color and pattern, or was it a hybrid of *Limenitis archippus* and *Limenitis weidemeyeri*? Most aberrations are melanic in nature, showing darker areas obscuring the normal color of a butterfly. However, this specimen exhibited color and pattern of both species. In the Table below, several characteristics of the hybrid butterfly are compared to both "parent"

species. I have also included photos (dorsal and ventral) of the hybrid butterfly along with photos of the western admiral and viceroy for comparison. After examination of the characteristics, it is my opinion that the butterfly is a hybrid of *Limenitis archippus* and *Limenitis weidemeyeri*.

The butterfly was collected in typical viceroy habitat in Powell Slough, a wetland area adjacent to Utah Lake, Orem, Utah County, Utah on a clear, sunny day, 22 July, 1989. Western admirals are more common in the nearby mountain canyons, usually in June, but also fly along the river courses that work their way down into the valley to the lake. So there is some overlap in habitat between the two species.

A Comparison of Characteristics of a *Limenitis archippus* and *Limenitis weidemeyeri* Hybrid

Characteristics	Viceroy	Hybrid	Western Admiral
ground color (d/v)	burnt orange brown	burnt orange brown (darker)	velvet black
wing veins (d/v)	scaled in thin black lines	scaled in thin black lines	similar to ground color
marginal crescent spots (vhw)	white	dull white	white/blue; more elongate
black mesial band (dhw)	present	present	obscured by black background
apical spots (dfw)	one white spot	two white spots	four white spots
white mesial band (dhw)	absent	narrow band of white spots	broad white band
white mesial band (vhw)	absent	narrow band of white spots	broad white band
basal/discal wavy lines (vhw)	absent	basal/discal wavy lines (brown)	basal/discal wavy lines (black)

Western Admiral, Admiral/Viceroy cross and Viceroy Photographs, dorsal and ventral surfaces



Figure 1. *Limenitis weidemeyeri* (Western Admiral) dorsal



Figure 2. *Limenitis weidemeyeri* (Western Admiral) ventral



Figure 3. *L. archippus* x *L. weidemeyeri* dorsal



Figure 4. *L. archippus* x *L. weidemeyeri* ventral



Figure 5. *Limenitis archippus* (Viceroy) dorsal



Figure 6. *Limenitis archippus* (Viceroy) ventral

Contents of This Issue

	Page
Finding <i>Polygonia gracilis zephyrus</i> larvae in Northern Utah by Todd L. Stout	1
Sightings of the Rare Elusive Northern Snow Swallowtail by Alan Myrup	4
ULS Member Kenn Anderson Finds Fossil Butterfly in the Green River Shale Formation of Eastern Utah by Alan Myrup	5
A <i>Limenitis archippus</i> / <i>Limenitis weidemeyeri</i> Hybrid from Utah by Alan Myrup	6
Western Admiral, Admiral/Viceroy cross and Viceroy Photographs, dorsal and ventral surfaces: by Alan Myrup	7
Contents of this Issue	8
North American Butterfly Association Butterfly Count in Utah County, Utah	8

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North American Butterfly Association Butterfly Count in Utah County, Utah

The North American Butterfly Association (NABA) will be holding its 34th annual 4th of July butterfly count this coming summer 2008. Butterfly enthusiasts throughout the US have participated in these counts in nearly every state. This year, we invite Utah butterfly enthusiasts to join with us in establishing a new count circle in Utah County. In past years, "Ranger Steve" Mueller has sponsored a butterfly count in the Bryce Canyon area in southern Utah. To my knowledge, no count has ever been done in northern Utah. It is our intention to continue the butterfly count in Utah County for many years to come.

In the past, these counts have provided information about the geographical distribution of butterfly species as well as help monitor changes in their populations over time. These butterfly counts reveal the effects of weather and habitat change on butterfly populations. It will be interesting to see the results of our counts from year to year.

Plan on spending the day with us on Saturday, 28 June 2008. We will be meeting at Timpview High School, Provo, Utah at 8:00 AM. From there, we will coordinate groups to count butterflies in the various habitats within our 15-mile diameter circle. This circle not only includes farmland and wetlands along Utah Lake, but also includes many mountain trails such as Rock Canyon, Big Springs Hollow, and Aspen Grove. A participation fee of \$3.00 for each observer is used to offset the cost of compiling and publishing the count results. For more information, please contact Alan Myrup at alanm@provo.edu or www.naba.org.