

# The International Lepidoptera Survey

n e w s l e t t e r

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## Thorybes clarification

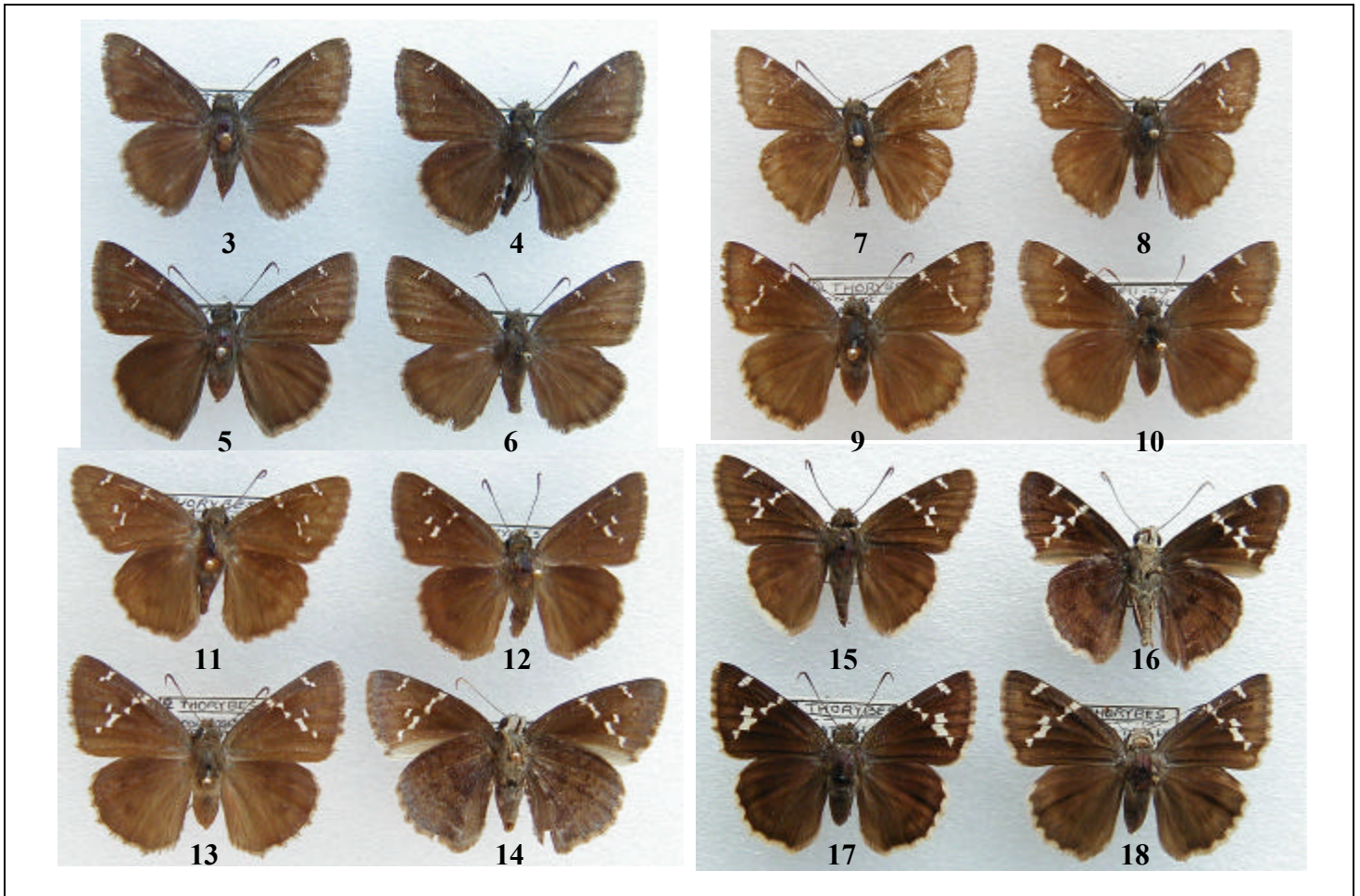
My first encounter with *Thorybes confusis* (Confused Cloudywing) and *T. bathyllus* (Southern Cloudywing) was in 1968 while living in Pensacola, Florida. By the time I moved to Charleston, South Carolina in 1970 I was confused by the appearance of numerous specimens I had encountered in those states. So I decided to take a more scientific look at these two species. The male genitalia of these two are large and easily examined without having to remove them from the abdomens of specimens. All that is needed is a pair of tweezers and a good hand lens or a good quality and strength standard magnifying glass. The left harpe of *bathyllus* is rounded and tends to be curved upward. In *confusis* the end of the left harpe is square and with small pointed barbs at the corners.

By examining the genitalia of various Dorchester County, South Carolina samples, I found that the spring brood of *bathyllus* looks very much like, and often less spotted than, the summer brood of *confusis*. I also found that true spring *confusis* are almost unspotted on the dorsal wings of males and lightly marked in females. In both species their respective spring broods are much less spotted than their respective summer broods. Since then I have examined probably 3 to 4 hundred specimens in institutional and private collections. Invariably the spring brood of *bathyllus* (Figs. 7-10) is misidentified as *confusis* in these collections. I have also seen many summer *confusis* (Figs. 11-14) misidentified as *bathyllus*. Thus, the great majority of past sight records should be considered untrustworthy – even if by an otherwise knowledgeable lepidopterist.

This lack of accurate identification seems to me to be equal with collectors and watchers because both have based their determinations on the figures in the literature, which are sometimes inaccurate, incomplete, or only of the summer broods. Virtually all skipper experts have agreed with Allen in the Butterflies of West Virginia that many specimens can only be told apart by dissection. I think my findings as published here will now establish some standardized human visual keys that will make sight records very dependable from this point forward. Curators will now be able to sort their museum series definitively without dissection.



**Fig. 1.** Venter of summer male *Thorybes bathyllus*. Ex. Florida, Escambia County, Warrington, 5 July 1968. **Fig. 2.** Venter of summer male *Thorybes confusis*. Ex. Florida, Escambia County, Warrington, 5 July 1968. Both leg R. Gatrell. Note: white dash in anal area of *confusis*; differing color of fringe on hindwing (whitish in *bathyllus* and brown in *confusis*); alignment of forewing apical hyline spots (in line on *bathyllus* and last spot disjunct to apex on *confusis*); shape of hindwing (triangular in *bathyllus* and round in *confusis*).



**Figs. 3-6.** Spring brood of *T. confusis*. **3.** ♂, South Carolina, Dorchester Co., nr. Summerville, 24 April 1971. **4.** ♂, same data as 3 except 19 April 1973. **5 & 6.** ♀♀, same data as 3 except 21 April 1973. **Figs. 7-10.** Spring brood of *T. bathyllus*. **7.** ♂, same data as 3 except 27 April 1971. **8.** ♂, same data as 3 except 19 April 1973. **9 & 10.** ♀♀, same data as 3. **Figs. 11-14.** Summer brood of *T. confusis*. **11.** ♂, Missouri, Shannon Co., Alley Springs, 4 August 1966. **12.** ♂, Florida, Escambia County, Warrington 5 July 1968. **13.** ♀, South Carolina, Dorchester Co., Givhans Ferry Pk., 19 July 1970. **14.** ♀, same data as 12 except 6 July 1968. **Figs. 15-18.** Summer brood of *T. bathyllus*. **15.** ♂, same data as 11 except 2 August 1966. **16.** ♂, same data as 12. **17.** ♀, same data as 3 except 7 August 1971. **18.** ♀, same data as 3 except 12 July 1970. All leg. R. Gatrelle. All natural size.

The summer brood of *bathyllus* is very boldly marked (Figs. 15-18) and is the most often correctly identified brood segment within these two species. The hindwings of male *T. bathyllus* have a distinct almost white margin, and the four tiny hyaline spots at the apex of the forewing are ALWAYS in a straight line and look almost like one triangular spot. The summer brood of *confusis* (Figs. 11-14) has dark or only slightly lighter HW margins, their FW spots are not as pronounced but are usually very evident, the line of tiny spots at the apex ALWAYS has the last spot noticeably disjunct toward the apex. The arrangement or shape of the apical spots are the 100% distinguishing character in all brood and locations that will definitively separate these two species. Even specimens without dates can be correctly identified by this line of spots. The above figures show that the spring brood of *bathyllus* looks like (except for the apical spots) summer *confusis* (or even less spotted). The only sure way to tell them (without dissection) is the shape of the line of spots at the apex.

I dissected a lot of specimens 30 years ago and the only 100% correlation between the genitalia and the markings in all broods for both species was the alignment of the apical line of spots. Don't let the field guides or your eyes fool you. A lot of very experienced people have mistaken (and are mistaking) lightly marked spring *bathyllus* for *confusis* and more heavily marked summer *confusis* for *bathyllus*. For good identifying. — Ron Gatrelle

## Taxonomically Correct - Index of Scientific Butterfly Names<sup>ã</sup>

### Why do we need yet another North American names list?

Numerous inventory lists of butterfly names have been generated since the earliest works on North American butterflies. Among the more notable early ones were those of Skinner, Dyar and dos Passos. These and other early lists generally reflected the views of the editors. More recent lists represented the combined efforts of many researchers, authors, board or committee members, and were usually in the form of publications gaining widespread usage and acceptance that lasted for many decades. The most recent and probably best-known of these have been the “Check List of the Lepidoptera of America North of Mexico” (Hodges, *et. al.*, 1983), and “A Catalogue/Checklist of the Butterflies of America North of Mexico” (Miller & Brown, 1981). The latter remains a cornerstone publication of the Lepidopterists’ Society conjunctive with its updated “Supplement to: A Catalogue/Checklist of the Butterflies of America North of Mexico” (Ferris, 1989).

Unfortunately, such lists immediately become outdated from the date of publication due to continuing changes in our knowledge of lepidopteran taxonomy. Thus, new descriptions and treatments may not gain widespread recognition or even acceptance until a new “authoritative” list appears. Additionally, authors of a wide variety of books and guides are not bound to follow any of these lists and thus traditionally have been at liberty to accept any published list or personal arrangements. Additionally, they are at liberty to accept or reject new treatments that fit their predispositions, views or biases toward the available published research. Thus, each book comes with its own “list”, which is given a degree of legitimacy by it’s mere publication.

With the advent of the internet, additional new lists have flourished, some completely at the whim of the compiler or website owner. What results is the preponderance of new lists, causing a growing degree of confusion and ultimately frustration over which treatments are more recent, correct or valid. To overcome this, several new lists have come into use by larger organizations or institutions, which require more stable nomenclature. Among these are lists such as those generated by the Northern Prairie Wildlife Research Center of the United States Geological Survey, The Nature Conservancy and North American Butterfly Association. More recently, attempts have been made to form committees comprised of various experts to answer the need for a more current, comprehensive and accurate list of names.

One persistent flaw is present in virtually all of these lists, in that a single author, editor, or a group of committee members review available literature and make judgments over which treatments, revisions or descriptions are acceptable to – them. Some of these are presented with explanation, but others are not, thus leaving the user to wonder what happened to a familiar species or where unfamiliar new ones came from. In all cases, these lists imply a greater degree of legitimacy to their users. This is not necessarily good.

In recent years, there has been a disturbing trend toward eliminating the subspecies category from lists (or providing inconsistent or scant mention of a selected few) and combining taxa under broad genera or species groups, thus masking many taxa. This might be done for various reasons, perhaps intended as simplification toward a generalist audience, or to reflect the views of a “lumper” bias, in which the “unity” of organisms is stressed. A negative result of this is that the untiring efforts of many researchers (many of them historically pursuing the study of Lepidoptera as an avocation with their own time, money and resources) may be dismissed, ignored and ultimately forgotten in time. Many new species or subspecies are being described, or “elevated” from lower taxonomic rank – many of which may have an older “available” name. Worse yet, efforts to conserve or protect butterfly populations might be affected in an adverse way by this because precise taxonomic assignments can become unknown to conservationists or regulators within government agencies. The board members of TILS feel that such generalized or oversimplified lists are thus a disservice to both science and the target audience. In

light of recent advances in DNA research, much of our knowledge of butterfly evolution is being overhauled, and we are discovering that organisms display a much greater degree of diversity than ever imagined.

To reverse this trend, TILS is launching the TC-ISBN. The purpose of this list is not to compete with, or claim legitimacy over, any other established or proposed lists, but to present a more objective treatment of scientific butterfly names. In fact, it is not called a “list”. It is intended to be an **index** of available names for anyone interested in obtaining an “unfiltered” list of described taxa, and for researchers and authors intending to construct lists of their own. The TC-ISBN will follow a strict set of guidelines and chronological progression which will be followed whenever possible. The guiding premise is that all listed taxa are presented as accurately as possible, with respect for the work of researchers within a chronological timeframe. Ideally, each taxa should be viewed first as it was originally described, then reexamined in light of more recent research which compels changes in the nomenclature. In many cases, there was never any actual published work that justified prevailing usage (authors or listers simply made the changes). This may mean that some taxa, currently treated generally as subspecies of one or another species, may be re-elevated to the status of their original description. If the status of a described taxon is changed or revised by means of a published study, that change is reflected in the index. With every published change or revision, the most recent one is reflected, and it is assumed that researchers will use every available tool and published source upon which to refine our knowledge of butterfly taxonomy. The editor of the TC-ISBN will not make any changes based on unpublished “expert opinion” or “common knowledge”. The bottom line is that no changes are allowed to the index unless published in a scientific journal, bulletin or other forum intended as a monograph or similar-level treatment. New taxa introduced in books of a regional scope will be added as long as they comply with the International Code of Zoological Nomenclature and revised treatment of a taxon will need to be explained in detail. No changes are allowed from field guides, books or summary lists intended for a generalist audience.

While we envision the TC-ISBN to eventually be published in printed format, it will utilize the availability of the internet by means of online publication via the TILS website. This will result in accessibility by a much wider audience on an international scale. An advantage of online publication is that changes can be posted much more quickly than by traditional publication means. Another feature of the TC-ISBN is that it can easily be expanded to include worldwide butterflies. Though ambitious-sounding, a complementary list encompassing moths, the Taxonomically Correct - Index of Scientific Moth Names (TC-ISMN), is entirely possible and will depend on the success of the TC-ISBN.

To accomplish this goal, we are starting with the treatment published in the Lepidopterists’ Society Memoir No. 3 - “Supplement to: A Catalogue/Checklist of the Butterflies of America North of Mexico”. This will form the basis for any and all changes in nomenclature, and any departure from this list will be explained in a separate “Notes” section for each genus that provides the exact literature reference upon which that change is based. Some changes first introduced in the Miller & Brown list without explanation, or without published work as a basis, will be reversed, to the dismay of some. However, the TC-ISBN editor will be open to suggestions and input is solicited. Difficult or “problem” cases will be open to suggestion from anyone knowledgeable in the subject, who can shed light on the situation at hand, but published work always forms the basis of any change. If anyone feels compelled to disagree with any of the established treatments listed in the TC-ISBN, we welcome them to either point out existing work supporting their view, or invite them to submit a paper to TILS for publication in The Taxonomic Report (TTR). TTR is a forum for taxonomic descriptions, revisions or treatments and is open to all.

Harry Pavulaan, TC-ISBN Editor  
494 Fillmore Street  
Herndon, Virginia 20170-3310

## Index Sample

### KEY to levels of taxa:

**SUPERFAMILY** Author (date)

**FAMILY** Author (date)

**SUBFAMILY** Author (date)

**TRIBE** Author (date)

**Genus** Author (date)

*species* Author (date)

*s. subspecies* Author, date

=*synonym* Author, date

*infrasubspecific name* Author, date - taxon level

**PAPILIONOIDEA** Latreille (1802)

**PAPILIONIDAE** Latreille (1802)

**PAPILIONINAE** Latreille (1802)

**PAPILIONINI** Latreille (1802)

***Pterourus*** Scopoli, 1777

***glaucus*** (Linnaeus, 1758)

***g. glaucus*** (Linnaeus, 1758)

=*antiloachus* (Linnaeus, 1758)

=*turnus* (Linnaeus, 1771)

=*alcidamas* (Cramer, 1775)

=*lauri* Fabricius, 1938

*fletcheri* (Kemp, 1900) - aberrant

*dietzi* (Gunder, 1927) - aberrant

*gerhardi* (Gunder, 1927) - aberrant

*ehrmanni* (McDunnough, 1938) - aberrant

***g. maynardi*** (Gauthier, 1984)

=*australis* (Maynard, 1891)

***troilus*** (Linnaeus, 1758)

***t. troilus*** (Linnaeus, 1758)

=*ilioneus* (J. E. Smith, 1797)

=*anethi* Fabricius, 1938

*texanus* (Ehrmann, 1900) - individual variant

*radiatus* (Strecker, 1900) - aberrant

*flavus* (Dufrane, 1946) - aberrant

*obliteratus* (Dufrane, 1946) - aberrant

*berioi* (Dufrane, 1946) - aberrant

*addenda* (Dufrane, 1946) - aberrant

***t. fakahatcheensis*** Gatreille, 2000

***palamedes*** (Drury, 1773)

***p. palamedes*** (Drury, 1773)

=*chalcas* (Fabricius, 1775)

=*flavomaculatus* (Goeze, 1779)

***p. leontis*** (Rothschild & Jordan, 1906)

***pilumnus*** (Boisduval, 1836)

***victorinus*** (Doubleday, 1844)

***rutulus*** (Lucas, 1852)

***r. rutulus*** (Lucas, 1852)

=*hospitonina* (LeCerf, 1912)

*ammoni* (Behrens, 1887) - individual variant

*fannyae* (Gunder, 1927) - aberrant

***r. arizonensis*** (W. H. Edwards, 1883)

***victorinus*** (Doubleday, 1844)

***eurymedon*** (Lucas, 1852)

=*albanus* (C. & R. Felder, 1864)

=*lewisii* (W. F. Kirby, 1884)

*cocklei* (Gunder, 1925) - aberrant

*columbiana* (Gunder, 1927) - aberrant

***multicaudatus*** (W. F. Kirby, 1884)

***m. multicaudatus*** (W. F. Kirby, 1884)

=*daunus* (Boisduval, 1836)

*ragani* (Barnes, 1928) - aberrant

***m. grandiosus*** (Austin & J. Emmel, 1998)

***m. pusillus*** (Austin & J. Emmel, 1998)

***canadensis*** (Rothschild & Jordan, 1906)

***c. canadensis*** (Rothschild & Jordan, 1906)

*deficiens* (Dufrane, 1946) - aberrant

***c. arcticus*** (Skinner, 1906)

### NOTES specifying changes from Ferris (1989):

#### *Pterourus glaucus glaucus*

*ehrmanni* Authorship corrected to: McDunnough (1938).

Hodges, R. W., 1983. "Check List of the Lepidoptera of America North of Mexico". E. W. Classey Limited and the Wedge Entomological Research Foundation, London, xxiv + 284 pp.

#### *Pterourus troilus troilus*

*ilioneus* - Placed into junior synonymy under *troilus* by Gatreille (2000), who determined that the names *troilus* and *ilioneus* are based on exactly the same subspecific population.

Gatreille, R. R., 2000. "A New North American Swallowtail Butterfly: Description of a Relict Subspecies of *Pterourus troilus* (Papilionidae) From the Southern Tip of Florida." Taxonomic Report 2(4):1-14.

*texanus* - Determined by Gatreille (2000) to represent an individual variant as originally described.

Gatreille, R. R., 2000. "A New North American Swallowtail Butterfly: Description of a Relict Subspecies of *Pterourus troilus* (Papilionidae) From the Southern Tip of Florida." Taxonomic Report 2(4):1-14.

*flavus* - Amended (from *flava*).

Hodges, R. W., 1983. "Check List of the Lepidoptera of America North of Mexico" . E. W. Classey Limited and the Wedge Entomological Research Foundation, London, xxiv + 284 pp.

*obliteratus* - Amended (from *obliterata*).

Hodges, R. W., 1983. "Check List of the Lepidoptera of America North of Mexico" . E. W. Classey Limited and the Wedge Entomological Research Foundation, London, xxiv + 284 pp.

### *Pterourus troilus fakahatcheensis*

Described as *Pterourus troilus fakahatcheensis* Gatlrele, 2000 (TL – Florida: Collier County, Fakahatchee Strand area).

Gatlrele, R. R., 2000. "A New North American Swallowtail Butterfly: Description of a Relict Subspecies of *Pterourus troilus* (Papilionidae) From the Southern Tip of Florida." Taxonomic Report 2(4):1-14.

### *Pterourus rutulus rutulus*

*ammoni* - Determined by Austin (1998) to represent a color form.

Austin, A., 1998. "Type Data For Butterflies Described From Nevada" in Systematics of Western North American Butterflies, T. C. Emmel, Editor, Mariposa Press, Gainesville, FL., xxviii + 878 pp.

### *Pterourus multicaudatus grandiosus*

Described as *Papilio multicaudatus grandiosus* (TL - Mexico: Chiapas, Ochuc)

Austin, A. & J. Emmel, 1998. "A Review of *Papilio multicaudatus* Kirby (Lepidoptera: Papilionidae)" in Systematics of Western North American Butterflies, T. C. Emmel, Editor, Mariposa Press, Gainesville, FL., xxviii + 878 pp.

### *Pterourus multicaudatus pusillus*

Described as *Papilio multicaudatus pusillus* (TL - Nevada: Elko County; north end of Independence Mountains (Bull Run Mountains), Nevada State Route 11A, 2.9-6.7 road miles east (=northeast) of Nevada State Route 226, 1800-2000 m).

Austin, A. & J. Emmel, 1998. "A Review of *Papilio multicaudatus* Kirby (Lepidoptera: Papilionidae)" in Systematics of Western North American Butterflies, T. C. Emmel, Editor, Mariposa Press, Gainesville, FL., xxviii + 878 pp.

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## THE TAXONOMIC REPORT - PREVIEW

There are three months left in the 2001 calendar year. The minimum number of TTR issues we hope to produce each year is eight. So far we have published only four but articles are in process that will enable us to meet or exceed our target number of issues for 2001 - provided there are no unforeseen difficulties. One issue that is nearing publication will describe a new species of swallowtail from the eastern United States in the genus *Pterourus*. Harry Pavulaan and David Wright discovered this new taxon while conducting their continued research on the sibling species found within the genus *Celastrina*. This is in some ways quite a cryptic species and in others very obviously and easily distinguishable from its sibling *Pterourus glaucus glaucus* with which it is fully sympatric.

Pavulaan and Wright also hope to finally get the long awaited official scientific description of the already recognized Cherry Gaul Azure published before the end of the year. There is one other in depth *Celastrina* paper they are hoping to have published this year. This latter paper will answer some of the loose ends in reference to taxa in the eastern US but at the same time raise others relative to the western US complexes. Like the already published segments of their *Celastrina* work, these upcoming papers are the result of many years of study in the field, rearing, and microscopic examination.

We have one paper submitted on the little known butterfly fauna in a remote part of Pakistan. This is currently still in review. There are several papers “in the works” dealing with primarily the western Canada butterfly fauna that we hope to see published in TTR this year and into 2002 and 03.

We remain in need of articles for publication. Our in-process list is a short one so there is no backlog of papers to hold new ones up for months or years. Potentially, we would be able to produce a great many issues each year. This is dependant on only two factors – submitted manuscripts and adequate publication funds.

Funding remains very tight. Donations to help with publication are always needed and greatly appreciated. There are many projects we at The International Lepidoptera Survey have an opportunity for involvement with. But like all nonprofits, funding is our greatest need. Tax deductible contributions may be made by mail or by credit card through the donations area of our web site (address below).

Our web site continues to gain popularity among the international lepidopteran community. We are now averaging between 25 and 35 individual visits per day at this site. We have over 50 visitors per day at least two or three times each month. Our one day record is 64 visitors. Again, these are individual daily visitors and not hits – which run from 200 to over 1000 a day. Each month these visitors are from more than 30 countries. If you have not visited the web site lately several new photos and additions are continually being made.

Our innovative and flexible publication process may seem odd to some traditionalists or formalists, but we are finding it very effective in bringing new taxonomic information and proposed new taxa to the public light. As we enter into the 21<sup>st</sup> century the time consuming methodologies of the past, relative to manuscript review and publication, are no longer workable or acceptable. The single most beneficial step we have implemented is that of informal interactive peer review. The contact of authors with reviewers greatly speeds the process and the pro/con interaction insures an accurate and balanced product. In this system, reviewers can no longer allow manuscripts to just sit on their desks for months without attention as authors will be emailing or calling them to find out what the hold up is. Authors can also expect to be directly challenged by, or clarification sought from, reviewers. The primary beneficiary is the lepidopteran community.



**Figure A.** Original figure of *Papilio cornelius* Fabricius, 1793 after Drury. **Figure B.** Original figure of *Hesperia juvenalis* Fabricius, 1793 after Drury. These are just two examples of the kinds of problems taxonomists face when they begin to examine the older names and their original descriptions. Note that *cornelius* is not only a *Cyllopsis gemma* (1808) but the older name. David Wright is doing some work on this. The *juvenalis* figure is very likely an *Erynnis horatius*. Don Lafontaine brought this to our attention. A neotype needs to be designated for the name *juvenalis* to absolutely affix this name with the taxon long known as such in nature.

Catch us on the web at <http://www.tils-ttr.org>

## *Mitoura grynea smilacis* aberrants



Five of the six specimens to the left were originally slated to be included in *TTR 3:4 – An Examination of the Mitoura (Lycaenidae) in the Southeastern United States: With the Description of a New Subspecies of Mitoura hesseli* – but space did not permit this. Only Figure 3 here was included in that paper (Fig. 34).

The specimens figured here are as follows. 1) *M. grynea grynea* ♀, Mississippi, Oktibbeha Co., Clayton, 28 March 1973, leg. C. Bryson. This specimen is typical of populations in the western south. They are clearly nominate *grynea*. (Oktibbeha County is located in east central Mississippi.) 2) *M. grynea grynea* ♂, Iowa, Johnson Co., Hwy. 220 Cemetery, at William's Prairie 25 July 1974. This specimen is from east central Iowa where populations begin to show traits of western populations – more fulvous on the ventral forewing, stronger red in the thecla spot, basal bars. The last I knew

this site was to be flooded by the State to make a lake! If so, it was senseless as many scarce species were found at William's Prairie (mostly surrounded by fields).

3) *M. grynea smilacis* ♀, Georgia, Bryan Co., off Hwy. 204 nr. Ogeechee River, 19 March 1977. This *smilacis* form with two small basal spots on the hindwing is the most frequent. Note that this specimen and the aberration in Fig. 6 were collected the same date and location. 4) *M. grynea smilacis* ♀ topotype, Georgia, Chatham Co., nr. Fort Pulaski, 20 March 1976. This is a normal form with straight basal bars at the base of the hindwing. *Smilacis* never have these spots as chevrons or offset chevrons as is usual in *grynea grynea*. In *smilacis* these spots normally range from absent to bars. Individuals 3 & 4 show the maximum variation within subspecies *smilacis*. Note that the median white spots in cells M1 – M3 are vertical as opposed to the usual toward horizontal alignment of the M3 spot in *grynea grynea*. Also note how the first median spot at the inner margin of the hindwing is strongly basad. This is given as a key in some field guides as belonging to only *M. hesseli* so watchers can distinguish it from *grynea* in the field without collection. This is obviously not applicable for southern *smilacis*, *swadneri* or *hesseli* which all have this spot inwardly disjunct.

5) *M. grynea smilacis* aberration ♂, South Carolina, Colleton Co., Edisto Beach, 5 April 1975. This specimen was collected within 60 seconds of another almost identical specimen taken by Steve Roman, my field companion that day. Steve's specimen was symmetrical and looked like the left side of this one. Also note the large amount of brown scaling on this specimen. The brown does not come from hybridization as there is no other species with which to hybridize in that area. Thus, brown is a color fully within the genetic makeup of this and likely other *Mitoura* species/subspecies. Conversely, it should not surprise us that green scale color is found on some of the usually brown *Deciduphagus* taxa. 6) *M. grynea smilacis* aberration ♂, Georgia, Bryan Co., Hwy 204 nr. Ogeechee River, 19 March 1977. This aberration is in an entirely different direction. Natural aberrant specimens are important as they disclose hidden genetic traits that may reveal past or potential future evolutionary movement.

These specimens are greatly enlarged but are sized in scale relatively toward each other. All were collected by Myself except for number one.

– Ron Gatrelle



RESEARCH REQUEST

*Agriades aquilo?*

There seems to be a significant loose end with respect to *Agriades aquilo* Boisduval (Lepidoptera: Lycaenidae). The name is based on material collected from 3 locations on two continents (actually 3 continents if one wishes to treat Europe as a separate continent). My research to date has not been able to turn up any lectotype or neotype designation and the location of the syntypes (if they exist) is still unknown to me. It is possible that the name was actually based on butterflies from more than one species. Some authors have treated *aquilo* as a junior synonym of *glandon* but I am unaware of any published or unpublished data or rationale for this interpretation.

Does anyone know where the types are so that color images can hopefully be secured ? I would also be grateful for assistance with access to any relevant European or Asian literature on the nomenclatorial and taxonomic dimensions of this issue. I think we should be clear about what butterfly or butterflies this name actually refers to before drawing any conclusions about its taxonomic placement. Thank you one and all for helping to sort this out.

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