# *BOREUS*

NEWSLETTER OF THE ENTOMOLOGICAL SOCIETY

OF BRITISH COLUMBIA

Volume 22, Number 1 July 2002

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## CONTENTS:

## Publications of the ESBC

***Journal of the Entomological Society of British Columbia***

The *Journal of the Entomological Society of BC* is published annually. Papers for the *Journal* need not have been presented at meetings of the Society, nor is it mandatory, although preferable, that authors be members of the Society. The chief condition for publication is that the paper has some regional origin, interest or application. Line drawings or photographs as candidates for the cover are also accepted. Contributions should conform to the standards outlined in the Journal and the Website (http://esbc.harbour.com/), and should be sent to the Editor, Dr. Ward Strong, BC Ministry of Forests, 3401 Reservoir Road, Vernon BC, Canada V1B 2C7; tel 250-549-5696; fax 250-542-2230; e-mail ward.strong@gov.bc.ca.

The deadline for submissions to be included in the 2002 issue is **September 1, 2002**.

***Boreus***

*Boreus*, the Newsletter of the Society is published in June and December. It contains entomological news, comments, reports, reviews and notices of meetings and other events. While emphasizing the Society's affairs, *Boreus* provides members with a forum for their views and news of British Columbia entomology. Please send correspondence concerning *Boreus* to the Editor, Cris Guppy, 4627 Quesnel-Hydraulic Rd., Quesnel BC, Canada V2J 6P8; tel 250-747-1512; e-mail cguppy@quesnelbc.com.

The deadline for submissions to be included in the December 2002 issue is **November 1, 2002**.

**Membership** of the Entomological Society of BC is available to anyone interested in entomology. Annual dues are Can$20 (regular member) or Can$10 (student member). Members receive the *Journal*, *Boreus* and *Occasional Papers* (the latter published intermittently).

**Inquiries** concerning membership and back issues should be sent to the Secretary/Treasurer, Dr. Robb Bennett, BC Ministry of Forests, 7380 Puckle Road, Saanichton, BC, V8M 1W4, Canada; tel 250-652-6593; fax 250-652-4204; e-mail Robb.Bennett@gov.bc.ca

**Cover**: *Boreus elegans* (Mecoptera: Boreidae); one of the more conspicuous snow scorpionflies in BC. Larvae and flightless adults live in, and feed on, moss and clubmoss. Adults appear in the fall and are active on snow on warm winter days.

# PRESIDENT'S CORNER


*Lorraine Maclauchlan*
*BC Ministry of Forests, Kamloops*


## A look ahead with the ESBC

Once again it is a busy year for the Entomological Society of British Columbia. We are currently preparing for the 2002 AGM to be held this year at the Pacific Forestry Centre in Victoria. I would like to urge as many members as possible to attend this year and bring a student or colleague that is curious about entomology in B.C. We are adding a special event to this year's AGM – a Silent Auction! I invite anyone interested, whether you can attend the AGM "in person" or not, to bring or donate an item of your own invention to the 2002 ESBC AGM. Items will be displayed in a Silent Auction at the morning coffee break and lunch, Tuesday September 24, 2002. Everyone will have the opportunity to view and bid on these items at this time. All proceeds will go to the ESBC Graduate

Student Scholarship fund. Ideas for items to contribute include: photographs, crafts, foodstuffs, artwork, books, treasured reprints, insect specimens, etc. Your imagination is the only limit!

September will come quickly, so start "foraging" and "creating" now! This should be a very entertaining event so please plan on participating- you might even find a few treasures. One of the donations at an event I recently attended was **ale brewed with** Mountain Pine Beetle Yeast! Now that takes forest entomology to a new plateau.

In 2003, ESBC is hosting the Joint Annual Meeting (JAM) of the Entomological Society of B.C. and Entomological Society of Canada in Kelowna. Planning is underway and we are trying to drum up more committee volunteers. So, if anyone would like to help out for this event, please contact myself or another member of the executive. It should be a great session.

I would like to take this opportunity the thank some very hard working members for their past and current work on various committees – our organization would be grounded if it weren't for people like you. Phil Jones has stepped down as editor of the *Boreus* and Cris Guppy has now taken over the reins. Thank you Phil! Dave Raworth is the outgoing editor of the JESBC and always maintained a high standard for this journal. His last edition as editor was the Centennial Volume, which was excellent in all ways. Ward Strong is now editor and has handed over his job as Web Editor to the very capable hands of Bill Riel. The ESBC is lucky to have so many dedicated and talented members and I extend my thanks.

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# SOCIETY BUSINESS

### Organisation of the 2003 Joint Annual Meeting the Entomological Society of B.C. and Entomological Society of Canada in Kelowna.

The following are extracts, slightly edited by Cris Guppy, from the full document written by the Annual Meeting Guidelines Committee of Terry Shore (Chair), Jon Sweeney, Linda Gilkeson, and Hugh Danks (ex-officio). This summary is intended to give a brief orientation to potential volunteers, who can then consider where they might like to fit in.

The Annual General Meeting of the Entomological Society of Canada has, with a few exceptions, been held as a Joint Annual Meeting with one of the Regional Societies. Because the Regional Societies are charged with organising the Joint Annual Meeting, the location of the meeting changes each year, thus a different team of meeting organisers is assembled each year. The guide has been written to assist them in organising the meetings by incorporating details and helpful hints from previous organisers. These guidelines are not intended to restrict the creativity and enthusiasm of organisers for providing a memorable Joint Annual Meeting. As with any enterprise, local conditions and preferences would be taken into account when planning a meeting.

It is best to break the job into small pieces and follow the adage that "many hands make for light work". Generally, members are happy to be involved in organising the meeting and when there is a lot of member involvement it brings the society together in a feeling of accomplishment. If a few individuals take on the whole responsibility not only is this feeling lost, but those individuals will become overburdened and stressed, and the likelihood of oversights will increase. Volunteers can contact Terry Shore the Pacific Forestry Centre in Victoria (250 363-0666 or tshore@pfc.forestry.ca).

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# COMMITTEE ORGANIZATION

### Calendar of Organisation Events

| Time Before Meeting | Action |
|---|---|
| 24 – 36 months | Invite the ESC to the region. If accepted, appoint General Chair |
| 20 – 30 months | General Chair to appoint committees.<br>Book meeting and sleeping accommodation.<br>Treasurer to set up bank account and contact ESC Treasurer regarding seed money. |
| 18 months | Develop Science Program including theme and invited speakers.<br>Begin Fundraising activities.<br>Develop meeting logo. |
| 12 months | A general notice of the meeting should be placed in the Bulletin and on the ESC Web page.<br>Committees should all be active and begin organizing their responsibilities.<br>All prospective speakers and moderators should be contacted. |
| 9 months | Arrange with ESC headquarters for mailing list or labels for ESC membership.<br>Have meeting announcements and forms translated to the other official language.<br>Regional President to recommend Criddle Award recipient to ESC Achievement Awards Committee. |
| 8 months | First notice of meeting should be prepared by the Publicity Committee in consultation with other chairs and mailed out. |
| 6 months | Regional President to write letters to key managers asking for their support in permitting attendance at the meeting.<br>Invite any local dignitaries to participate in opening ceremonies or banquet. |
| 4 months | Issue second mailout of meeting notices to members.<br>Arrange entertainment for the Banquet.<br>Committees should have their activities well organised by this time. |
| 2 months | Treasurer and General Chair should have a reasonable handle on the budget by this time and can make adjustments |

| | |
|---|---|
| 1 month | Committees should be taking care of final details. |
| 2 weeks | Program sent to printer. Registration packages organised. |

# Entomological Society of British Columbia

## 2002 Silent Auction

### WANTED {short description of image}

**Your contribution and participation in a silent auction to benefit the ESBC** Graduate Student Scholarship fund

*How can you help? By donating your talents!*

Silent Auction items will be on display for bidding at morning coffee break and lunch, Tuesday September 24, 2002. All proceeds will go to the ESBC Graduate Student Scholarship fund. Everything is welcome *e.g.* photographs, crafts, foodstuffs, artwork, books, treasured reprints, insect specimens, etc.

Other items of potential interest to entomologists that aren't self-made won't be refused – remember we're an eccentric bunch!

Your imagination is the only limit!

| | |
|---|---|
| If you have any questions, please contact: | **Lorraine Maclauchlan 250-828-4179**<br>**Lorraine.Maclauchlan@gems3.gov.bc.ca** |

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ENTOMOLOGICAL SOCIETY OF BRITISH COLUMBIA

**5th ANNUAL GRADUATE STUDENT SCHOLARSHIPS**

The Entomological Society of British Columbia announces the fifth annual Graduate Student Scholarship competition. Two $500.00 Scholarships (one M.Sc., one Ph.D.) are awarded each year at the Annual General Meeting. Scholarships are to be used to defray research paper or poster presentation related costs (including travel) incurred by graduate students for participation in conferences other than the ESBC AGM.

**For consideration, applicants must be:**

- Graduate students and ESBC members in good standing **and must submit:**
- name and locality of conference to be attended,
- title and abstract of research to be presented, and
- current CV

Abstract should be double spaced, 12 font, and a **maximum** of 200-250 words (based on processor electronic word count). Applications will be judged on the basis of scientific importance, quality of the application, and qualifications of the applicant. Applications from M.Sc. and Ph.D. students will be judged in separate categories; a singleton application in either category will be judged with applications in the other.

Deadline for receipt of applications for 2002 Scholarships is 31 August 2002. This year's Scholarships will be awarded at the ESBC AGM at the Pacific Forestry Centre, Victoria on Tuesday, September 24th 2002. Send applications to:

Robb Bennett
Secretary/Treasure, ESBC
BC Ministry of Forests
7380 Puckle Road
Saanichton, BC V8M 1W4

or by e-mail to: Robb.Bennett@gov.bc.ca

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# Entomological journals free (well, almost) to a good home

The following journals are available to anyone who is willing to pay shipping charges. Contact Robb Bennett (250 652-6593 or Robb.Bennett@gov.bc.ca).

*Journal of the Entomological Society of British Columbia* various volumes from 34 to 68.

*Annual Reports and Proceedings of the Entomological Society of Ontario* various volumes from 1935 to 1968 (includes index to all Reports from 1900-1937).

*Annual Report of the forest Insect and Disease Survey* complete set from 1939 to 1976.

*The Canadian Entomologist* 1961 to 1969 complete with a few newer and older issues as well.

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# 2002 Annual General Meeting

CALL FOR PAPERS & PARTICIPATION

The 2002 ESBC AGM will be held at the:

Pacific Forestry Centre, Victoria
506 West Burnside Road
**Tuesday, Sept. 24, 2002**

IMPORTANT: Submit titles & abstracts for presentations to Lorraine Maclauchlan by Aug. 31st. ABSTRACT: Fifty words, Journal of ESBC format, electronic copy to Lorraine Maclauchlan. REGISTRATION COST: $20 regular member, $10 student – payable at the door. STUDENTS: Remember - prizes for best MSc and PhD presentations and

Graduate Student Scholarship presentations.

Dr. Lorraine Maclauchlan Phone: (250) 828-4179
BC Ministry of Forests Fax: (250) 828-4953
515 Columbia Street
Email: Lorraine.Maclauchlan@gems3.gov.bc.ca
Kamloops BC V2C 2T7

# Welcome new members

The Entomological Society of British Columbia welcomes the following new, and relatively new, members:

**Muhammad Arshad**, Lahore Pakistan
**Neil Borecky**, Victoria
**Julie Brooks**, Granthams Landing
**Hector Carcamo**, Lethbridge Alberta
**Anathbandhu Chaudhuri**, Mississauga, ON
**Markus Clodius**, Penticton
**Nicholas Conder**, Victoria
**Riaz-Ud-Din**, Lahore Pakistan
**Leroy Harder**, North Vancouver
**Yvonne Herbison**, Kelowna
**Kelly Hicks**, Kamloops
**Ingrid Hoff**, North Vancouver
**Jeanne Horning**, Prince George
**Nicole Jeans-Williams**, Blind Bay
**Wade Jenner**, Burnaby
**Nataraj Krishnan**, West Bengal India
**Connie Larochelle**, New Aiyansh
**Donald Mack**, Glasgow Scotland
**Jamil Mansour**, Oakville Ontario
**B. W. Martinac**, Summerland
**George Opit**, Manhattan Kansas
**Isobel Pearsall**, Nanaimo
**Jennifer Perry**, Burnaby
**Bill Riel**, Victoria
**John Rumph**, Pullman Washington
**Azzam Saleh**, Bonn Germany
**Maxence Salomon**, Burnaby
**Lisa Shama**,Victoria
**Greg Smith**, Victoria
**John Swann**, Vancouver
**Howard Thistlewood**, Summerland
**Joanne Wilson**, Vancouver
**Patricia Woods**, Victoria
**Lawrence Wright**, Prosser Washington

# ARTICLES

## Hyperbole and hysteria on the path to enlightenment – a review of current *tegenaria* projects of relevance to canadian arachnologists

*Robb Bennett*

**Note: Rick Vetter (UC Riverside) is primary lead for much of the "*Tegenaria* effort" in North America. His work has resulted in a recent manuscript submission to Journal of Medical Entomology (see Vetter *et al.* in References) and some information presented below comes from that presently unpublished manuscript.**

Three non-native species of *Tegenaria* funnel-web weaving spiders are known to be established in North America, especially the Pacific Northwest (here taken to include British Columbia as well as the states of Washington, Oregon, Idaho, and Montana). *Tegenaria domestica* (Clerck) is a cosmopolitan synanthrope widespread in North America. *Tegenaria duellica* Simon (colloquially called the "giant house spider") is common from the Georgia Lowlands of southwestern BC south through the Puget Trough and Willamette Valley regions. The probably unjustifiably dreaded "hobo spider," *T. agrestis* (Walckenaer) has a coastal distribution similar to that of *T. duellica* but also has successfully invaded most of the rest of the Pacific Northwest.

Because of the facts that

· *T. agrestis* MAY be medically important,

· *T. duellica* is often a very BIG spider,

- both species are common in and around homes and disturbed habitats in areas of the Pacific Northwest, and
- both have become successful and highly visible invasive species,

a good deal of *Tegenaria* mythology, hyperbole, and hysteria has arisen in the region. In an effort to rectify this situation, various research projects are currently examining aspects of the biology of the North American populations of *T. duellica* and *T. agrestis*. Following is a summary of recent work on these two species.

## BACKGROUND

**Taxonomic note.** Confusion exists concerning the correct name for North American specimens of *T. duellica*. Some publications refer to these as *T. gigantea* Chamberlin & Ivie (e.g. Crawford & Vest 1989, Leech and Steiner 1992, Buckle and Randell 1995), others as *T. saeva* Blackwall (e.g. Roth 1968). However, the former is a junior synonym of *T. duellica* (Brignoli 1978, Platnick 1993 & 2002). *Tegenaria saeva* and *T. duellica* are very similar morphologically and easily confused. Both are reported to occur in western North America. All North American specimens of *duellica*/*saeva* morphology examined critically by myself agree with the published descriptions of *T. duellica*. It is my working opinion that *T. saeva* does not occur in western North America.

Both *T. agrestis* and *T. duellica* likely were introduced into the Puget Trough / Georgia Lowlands area in the first quarter of the 20th Century or earlier. The former was first recorded in North America in the Seattle area in the 1930's (Exline 1936). The latter showed up somewhat earlier on southern Vancouver Island. Both expanded their Pacific Northwest ranges considerably through the last century, apparently with *T. duellica* more common in coastal locations and *T. agrestis* dominating the interior. Anecdotal evidence suggests that, where the two species are sympatric, *T. duellica* "out-competes" *T. agrestis* although the nature of their relationship is unclear.

As with most dictynoid/amaurobioid spiders, these species mature, mate, and lay eggs in late summer and early fall. Males are rarely found at other times of the year but females and a range of sizes of immature specimens can

be found year round, at least on the south coast of BC. This suggests that both species take at least two years to reach maturity.

North American specimens of *T. agrestis* popularly are considered to be medically important; *T. duellica* is believed to be harmless. During the last half of the 20th Century, medical professionals began to blame cases of presumed "necrotic arachnidism" in North America on the brown recluse spider, *Loxosceles reclusa* Gertsch & Mulaik. This happened first in the United States (Atkins *et al*. 1957) where *L. reclusa* is native and later in Canada (Baldwin *et al*. 1988) where no population of *L. reclusa* is known to exist and no specimen has ever been collected. In spite of this, some medical and media professionals (and even some biologists) cling to the belief that *L. reclusa* is common in Canada and in parts of the United States where this spider is not known to occur (e.g. see Rose *et al*. 2001, Roche *et al*. 2001). However, in the Pacific Northwest, blame for "necrotic arachnidism" has gradually been shifted to *T. agrestis* (Vest 1987a, 1989, Akre & Myrhe 1991) although the evidence for its guilt is questionable at best.

*Tegenaria* spiders are difficult to identify without experience. Many of the +120 described species (including all three introduced species in North America) are generally similar looking, medium-sized brownish spiders. Species diagnostic characteristics are not discernable without magnification. In addition, a variety of other common North American spiders (e.g. other agelenids, various lycosids and amaurobiids, and even thomisids, salticids, and araneoids) are often misidentified as *Tegenaria*, especially *T. agrestis*. In the Pacific Northwest, both *T. duellica* and *T. domestica* are commonly misidentified as *T. agrestis*.

Although there is a general trend from larger to smaller size and from contrasting to dull patterning from *T. duellica* through *T. agrestis* to *T. domestica*, individuals of all three species show considerable variability of coloration, patterning and especially size. Identification of *Tegenaria* species is reliably accomplished only through microscopic examination of genitalic characters.

# CURRENT RESEARCH

## On the medical importance of *Tegenaria agrestis*

Vest (1987b) first suggested a link between necrotic arachnidism and *T. agrestis*. Based on his work, hobo spider necrotic arachnidism has joined loxoscelism as a popular default medical diagnosis for dermonecrotic lesions (see Vetter 2000, 2001). However, recent work (Binford 2001) has called Vest's conclusions into question. Noting that *T. agrestis* is considered harmless within its native range, Binford summarized four possible reasons for the apparent medical importance of this spider in North America: our populations may

- have evolved new venom components
- be behaviourally more likely to encounter humans
- have some unique microbial necrotizing factor associated with their venom or mouthparts, or
- have been falsely accused.

The first paper published by her addressing these possibilities (Binford 2001) demonstrated that

- there is no significant difference between the venoms of European and North American specimens of *T. agrestis*,
- venom or mouthpart associated microbes are unlikely to be causing necrosis associated with spider bites, and
- there is no solid evidence that *T. agrestis* is likely to bite or that its bite can cause necrotic lesions (i.e. it seems likely that *T. agrestis* is innocent).

Binford is continuing her research.

## On the distribution and abundance of *T. duellica* and *T. agrestis*

The North American distribution and abundance of *T. agrestis* and *T. duellica* are not well known. Roth's (1968) range maps are outdated and most recent publications list only broad state or regional occurrences (e.g. Baird & Akre 1993) and of *T. agrestis* only. To address this issue Rick Vetter lead a study encompassing BC, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming to map the ranges and determine the relative abundance of both spiders in North America. Nearly 2,000 specimens of *Tegenaria* were examined during the field seasons of 1999-2001. A manuscript describing this work (see Vetter *et al*. in References) has been submitted for peer review and a version of the results (Bennett 2001) has been presented at entomology meetings in 2001 and 2002 in BC. Following is a summary of the Vetter *et al*. results. NOTE: Data collection was *ad hoc* in nature and the results cannot be interpreted as a completely accurate reflection of the true distribution and abundance of hobo and giant house spiders in North America. Vetter *et al*. did the best they could with volunteer participants and limited funds.

***Tegenaria duellica*.** *Tegenaria duellica* is mostly restricted to the Georgia Lowlands / Puget Trough area west of the Coastal (BC) and Cascade (US) mountain ranges from south coastal BC to mid-coastal Oregon. Isolated outlier populations are found in towns across southern BC and in Edmonton (Leech & Steiner 1992) and Lethbridge AB (Dan Johnson and Robb Bennett *pers. obs.)* and in Saskatoon SK (Buckle & Randell 1995). Although at least on the BC south coast *T. duellica* may be very common around beaches and other open, natural areas, populations in the BC interior are apparently always isolated and synanthropic. For example, *T. duellica* is common in the Okanagan Valley towns of Penticton and Kelowna BC but has never been found in extensive pitfall trapping and other collecting in natural habitats in that general area (*pers. obs*., Blades & Maier 1996, Geoff Scudder *pers. comm*.).

***Tegenaria agrestis*.** In the Pacific Northwest, *Tegenaria agrestis* is much more widespread than *T. duellica*. It is found from southern BC east to central Montana and western Wyoming and south to southern Oregon and northern Utah. Two very isolated synanthropic populations are now known from northern Colorado. A couple of singleton specimens were recovered in Nevada. None were found in California. Recently, a single female was collected in Edmonton AB (Robin Leech *pers. comm*.).

**Relative abundance.** Fully ¾ of all specimens of *Tegenaria* collected by Vetter *et al*. were *T. agrestis*. The majority of these came from east of the Cascades and Coastal mountain ranges where *T. duellica* is rare (southern BC) or apparently absent (US). Where the two species co-occur in major urban areas west of the Cascades/Coastal ranges, *T. duellica* is usually more abundant. For instance, *T. duellica* comprised 57, 77, 70, and 71% of specimens captured in Victoria BC, Bellingham and Tacoma WA, and Salem OR respectively (N > 35 at each locality). In Pacific Northwest coastal areas, *T. agrestis* tends to be rare but locally common. This supports the notion that *T. duellica* may edge out *T. agrestis* where they are sympatric. Or perhaps they get along just fine and *T. duellica* is simply more fecund . . .

# Life history and species interactions

In North America, populations of *T. duellica* and *T. agrestis* are primarily synanthropic (Fig 1). However, in the Georgia Lowlands of south coastal BC, populations of *T. duellica* are commonly encountered in reasonably "natural" settings. Open marine beaches and shorefronts often support large numbers of this species as may openings in the dry Douglas-fir forests and Garry oak meadows of the area. At such sites, *T. duellica* typically occurs underneath or on the underside of objects. At beaches, driftwood above the high tide line is a normal habitat; in the woods, rocks and loose bark on logs often harbour specimens.

Recently I discovered strong populations of both *T. duellica* and *T. agrestis* co-occurring near Victoria BC at Island View Beach, an extensive shallow sandy beach backed by low dunes and abandoned marshy farm fields (Fig. 2). The dunes are heavily impacted and stabilised by invasive plants (especially grasses, broom (*Cytisus scoparius*), and woody Rosaceae), ditching, diking, and human recreational activities. However, some areas of old open sandy dunes persist in the backshore. Old driftwood in these areas supports large numbers of *T. agrestis* (Fig. 3), *T. duellica* (Fig. 4), and other interesting (native) spiders including the lycosid *Alopecosa kochii* (Keyserling) and the western black widow *Latrodectus hesperus* Chamberlin & Ivie. Often a single piece of driftwood will

support an apparently interconnected network of webs of widows and both species of *Tegenaria*. I have even collected an apparently happy and healthy male *T. agrestis* from within the web of a large female *T. duellica*.

To take advantage of this site and the possibly unique araneologically interesting things happening in it, I am hoping to produce a long-term study of the life histories and ecological interactions of its *Tegenaria* inhabitants. This may provide insight into why these spiders are such successful invaders, how they interact with each other, and how they affect the native spider fauna. Organised work started this past winter (2002) and is summarised below.

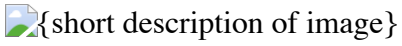


**Fig 1**. In the Pacific Northwest, *T. duellica* and/or *T. agrestis* may be very abundant around homes and other human dominated habitats.

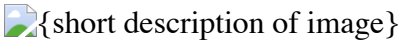


**Fig. 2**. At Island View Beach near Victoria BC, amidst frolicking groups of sunbathers and dog-walkers, large populations of *T. agrestis* and *T. duellica* (and *Latrodectus hesperus*) apparently peacefully co-exist under pieces of driftwood above the high tide line.

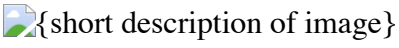


**Fig 3**. The dreaded hobo spider in its lair on the underside of rotting driftwood. At Island View Beach, adult female *T. agrestis* are smaller than sympatric *T. duellica* females, yellowish-brown, lack sternal spots, and have dark markings only on coxae IV.

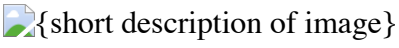


**Fig 4**. Female *T. duellica* recovering at the beach after being rudely awakened from a mid-winter nap and ripped from its web. At Island View Beach, adult female *T. duellica* are larger than sympatric *T. agrestis* females, greyish with strongly contrasting abdominal patterning, have 3 pairs of distinctive pale sternal spots, and paired dark markings ventrally on all coxae.

Under permit with the major property controller (Capital Regional District Parks), Richard Ring (University of Victoria) and I supervised student Jesse Senecal on a one term "Directed Studies" examination of the life histories of *T. duellica* and *T. agrestis* at Island View Beach. During 4 days in late February and early March, she collected egg cases and observed and measured carapace widths of over 100 juvenile and adult female specimens of *T. duellica* and *T. agrestis*. Of interest are the following results:

- numbers of adult females were similar for both species (*T. duellica* - 6, *T. agrestis* - 9, species determined by genitalic characters) but there were 7 times as many juveniles of *T. duellica* as *T. agrestis*.
- there was no overlap in size of adults – *T. duellica* females ranged from 4.25-5.0 mm, *T. agrestis* from 3.0-3.5 mm.

- there was no overlap in patterning and colouration of adults. All female *T. duellica* were greyish with strongly contrasting dorsal abdominal markings and distinct light sternal spots and paired dark marks ventrally on all coxae (Fig. 5). All female *T. agrestis* were yellowish brown with dark relatively unmarked abdomens, no sternal spots, and ventral coxal markings only on coxae IV (Fig. 6).
- most juvenile *T. agrestis* and *T. duellica* appear to have the same sternal and coxal markings as adults. All but 6 of 96 juveniles could easily be assigned to one group or the other.
- lab-reared juveniles just emerging from egg-cases lack the distinguishing somatic characters.
- "wild" juvenile *T. duellica* ranged in size from 0.75 to 3.25 mm, *T. agrestis* from 1.25 to 2.5 mm. Neither showed clear distinctions between size classes.

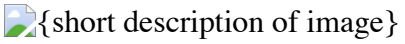


**Fig. 5**. *Tegenaria duellica* sternum. At Island View Beach, adult female (and most juvenile) *T. duellica* have three pairs of well-defined pale spots in the longitudinal sternal marks and paired dark marks ventrally on all coxae. At other localities these markings may be highly variable and often are like those of *T. agrestis*..

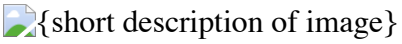


**Fig. 6**. *Tegenaria agrestis* sternum. At Island View Beach, adult female (and most juvenile) *T. agrestis* have longitudinally marked but unspotted sterna and a dark mark on the upper inner thigh region of coxae IV. At other localities these markings may be highly variable and unreliable for species identification, but adult *T. agrestis* never have distinctive paired pale sternal spots.

From these results the following conclusions may be drawn:

- although size and somatic characters are variable and may overlap across the North American ranges of these two species, at Island View Beach apparently all females and most juveniles can be eye-balled to species by a combination of size and coloration (adults) and abdominal, sternal, and coxal patterning (both adults and juveniles).
- wide size range and indistinct size classes of juveniles could be due to differential growth rates of individuals between or within egg cases and/or an extended period of egg case production by females and of hatching of eggs.
- lack of very small *T. agrestis* juveniles suggests that *T. agrestis* eggs laid in the fall had not yet begun to hatch.
- it appears both species may take at least two years to reach maturity at this site but, because of the overlap of size classes, we could not determine how many juvenile instars are present during the late winter period.
- at this snap-shot point, it seems that both species are doing well together (although perhaps one or the other are recent beach-goers and we have stepped into the scene at an early stage of their "interaction").

Looking towards the future, Senecal currently is rearing *T. duellica* hatchlings. She hopes to get a better handle on growth rates of siblings and non-siblings, number of instars to maturity, other life history data, and confirmation of diagnostic characters for identification of juveniles. She would also like to study the longer-term ecological relationships between the two species and between them and native spiders at Island View Beach. This has great potential for graduate work and she will be in the market this fall . . .

# Finally, taxonomic studies

Although at individual sites it may be possible with experience to eye-ball identify species of *Tegenaria*, the only consistently accurate way to identify them continues to be microscopic examination of male and female genitalic characters. Roths revision (1968) is dated, long out of print, and hard to come by but Rick Vetter (*pers. comm.*) is

close to completing a guide to synanthropic *Tegenaria* geared towards pest control specialists and other non-arachnologists. This will feature high-resolution digital images of genitalic and other characters and likely will be available in both print and electronic formats. In addition, I am working towards publication of a more traditional review of the taxonomy of *T. domestica*, *T. agrestis*, and *T. duellica*. I have some images done but much work remains and, if my record with publishing cybaeid taxonomy is anything to go by, it may be some time before this review will see printers ink. Oh well.

# IN CONCLUSION

Probably because *T. duellica* is big, *T. agrestis* has gained a nasty reputation, and both are common around homes in the Pacific Northwest, much public and considerable professional mythology and misinformation has arisen around these two species. Current research on a number of fronts should help to rectify this problem. However it is becoming apparent that *T. agrestis* probably is not the bad actor it is supposed to be. The real reasons to be interested in these spiders are that they are

- quite nifty in their own right,
- highly successful alien invasive species,
- easy to find and work with, and
- as such, truly wonderful tools to aid in understanding the biology of invasive species and what governs the distribution and abundance of animals.

Coming soon to a trash heap, woodpile, old garage, or vacant lot near you. Just add money and study.

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# Noteworthy British Columbia butterfly records

*Norbert G. Kondla, W. Dean Nicholson, David L.Threatful, Crispin S. Guppy, B. Christian Schmidt*

The recently published Butterflies of British Columbia (Guppy and Shepard 2001) is a veritable gold mine of useful information; most notably the detailed distribution maps. We wish to share the following noteworthy butterfly records. Most are noteworthy because they fill gaps in the distributions as shown in the book, or because they extend the reported flight period. Records are attributed to the appropriate author by abbreviation of the authors' names. Voucher specimens are available to support most of these records. Butterfly names used in the book are included in parentheses where these differ from the names used in this article.

Most records noted below were taken from unpublished information but some were also extracted from the reports or publications noted below and also from Kondla (1999) and Schmidt (1996). Knopp and Larkin (1996) provide additional records.

*Erynnis icelus* Radium in 2001 (NK).

*Erynnis propertius* DT collected 8 males and 1 female (freshly emerged) along the Klesilkwa River SSE of Hope in May of 2000. Knopp and Larkin (2002) report fresh butterflies in this same area, and historical collections by A.G. Guppy (CSG collection) also exist. In contrast to the interpretation of strays in the BC book, these collections clearly indicate the presence of a breeding population in the area.

*Erynnis persius* Fairmont Hot Springs in 2001 (NK); DArcy in 2001 (DT).

*Pyrgus centaureae* Brewer Creek near Invermere in 2000; Baldy Lake near Roosville in 2001 (DN); Red Mountain in 2000 (DT).

*Pyrgus ruralis* Munn Lake near Wilmer in 2000 (DN).

*Carterocephalus palaemon* various sites on the east and west sides of Kootenay River between Cranbrook and Canal Flats (DN); Poison Mountain in 2000 (DT); Hawkins Creek Forest Service Road near Yahk and Greenwood in 2000 (NK); Tulameen in 2001 (NK); Blowdown Pass in 2001 (DT).

*Oarisma garita* Lavington Creek near Canal Flats, Dipper Lake near Kimberley (2001), and at Invermere (DN); Pend-dOreille valley in past 4 field years (NK); near Greenwood in 2000 (NK); Phoenix Ski Hill nr. Greenwood in 2001 (NK).

*Thymelicus lineola* Greenwood (NK) and Sparwood (S. Clow) in 1999; two disparate sites near Ft. Steele in 1999 and 2000, Fernie Ski Hill in 2000 (DN); Keeleyside Dam west of Castlegar in 2000 (NK); west of Vanderhoof in 2001 (CG).

*Hesperia juba* DT found a mix of freshly emerged and numerous worn specimens near Savona on 2000-X-3. This extends the known flight period. DT also found fresh specimens on 2000-5-22 near Vernon. Some literature suggests that this butterfly overwinters as an adult. It is implausible to think that such an active butterfly could emerge in the fall in a grassland environment, overwinter as an adult and still be in mint condition during the third week May in the following spring. Correctly identified BC specimens show that this butterfly is two brooded and does not overwinter as an adult. In 2001 this butterfly turned up in some new areas and non-traditional habitats; including the Skagit valley (DT and Dennis Knopp); summit of Mount Kobau, Record Ridge nr Rossland, Pend-dOreille valley (NK). This butterfly is not limited to the most xeric lowland habitats.

*Hesperia manitoba* (=*Hesperia comma manitoba*) Mt. Crawford and Sphinx Mtn. near Kootenay Lake in 1994 (BCS); Blowdown Pass in 2001 (DT).

*Hesperia colorado idaho* (=*Hesperia comma harpalus*) near Savona on 2000-10-3, late flight date (DT).

*Polites peckius* Conkle Lake road near Rock Creek and Pend-dOreille valley in 2000 (NK); also Malakwa (DT), and Bar Creek SW of Cranbrook in 2001 (DN).

*Polites sabuleti* found abundantly in a June flight and a September flight near Osoyoos in 2001 (DT).

*Polites themistocles* found at a number of sites between Grand Forks and the Rock Creek area in the past four field seasons (NK). Twice collected in early August, extending the known flight period (NK); Lavington Creek near Canal Flats in 2000 (DN) and also Malakwa (DT).

*Polites mystic* Warfield (NK) and also in the Pend-dOreille River valley (Kondla 1999); Moyie River north of Yahk in 2000 and Brewery Creek near Fort Steele in 1999 (DN).

*Ochlodes sylvanoides* along Kid Creek and Goatfel Forest Service Roads nr. Yahk in 2001; near Greenwood and Rock Creek in 1999 (NK); Arrow Park Ferry in 1999 (S.Clow).

*Amblyscirtes vialis* Hawkins Creek Forest Service Road near Yahk and Big Sheep Creek valley in 2000.

*Parnassius clodius* this butterfly is easy to see on Record Ridge, west of Rossland; also seen in downtown Castlegar and caught in back yard in Genelle (NK); also found over past four field seasons at Deadman Hill near Greenwood and Grassy Mtn. near Castlegar.

*Parnassius smintheus* found at Cranbrook, Kidd Cr. and Lavington Creek near Canal Flats in 2000 (DN); near Kitchener, near Roosville, and along McLatchie Rd. in the Flathead Valley in 2001 (DN); near Greenwood during the past three field seasons (NK).

*Papilio machaon hudsonianus* two specimens collected by F.A.H. Sperling on a low treed hilltop at milepost 150 on the Alaska Highway in 1982 and one female collected in low elevation muskeg near Pink Mtn. by Kondla in 1992. This is a new taxon for BC. The specimens are in the Canadian National Collection of Insects and Arthropods (Ottawa), and the subspecies identification is that of CG and NK (not Sperling).

*Papilio bairdii* Wycliffe and near Cranbrook in 2000 (DN); near Newgate in 2001 (DN).

*Papilio canadensis* Kuzkwa River north of Fort St. James in 2001 (CG).

*Papilio rutulus* Moyie River north of Yahk (DN); near Greenwood in 1999 (NK); Big Sheep Creek valley in 2000 (NK).

*Papilio eurymedon* Lavington Creek near Cranbrook (DN); Record Ridge west of Rossland in the past 4 field seasons, Big Sheep Creek valley in 2000, Grand Forks in 1999 (NK).

*Neophasia menapia* numerous sites in East Kootenay between Wasa and Elko 1999-2001 (DN); numerous records from Crawford Bay to Riondel, 1990 to 1996 (BCS); Brilliant the past three years, Grassy Mtn. near Castlegar in 2000 (NK); Goatfel Forest Service Road near Yahk and Record Ridge near Rossland in 2001 (NK).

*Pontia beckerii* Charbonneau Creek in the Pend-dOreille River valley in 1998 (Kondla 1999).

*Pontia occidentalis* Sphinx Mtn. & Riondel (BCS); Grand Forks the past 4 field seasons (NK).

*Pieris oleracea* Kuzkwa River north of Fort St. James in 2001 (CG).

*Pieris marginalis* near Rock Creek, Radium and Fairmont in 2001 (NK).

*Pieris rapae* Invermere (DN); Grand Forks, 20 km west of Panorama Ski Hill and Highway 3 at Kid Creek in 1998, Greenwood in 2000 (NK).

*Euchloe ausonides* Radium and Fairmont in 2001 (NK); Mt. Savona (DT).

*Euchloe lotta* Radium in 2001 (NK).

*Anthocharis stella* Invermere and Wilmer (DN); near Radium in 2001 (NK).

*Colias philodice* Goatfel Forest Service Road near Yahk in 2001 (NK).

*Colias eurytheme* in the past 4 years it has been found at Grand Forks, Creston, Kid Creek east of Creston, Panorama ski hill, Goatfel Forest Service Road near Yahk and Phoenix ski hill near Greenwood (NK); various sites between Cranbrook and Elko and east to Wigwam River (DN); also past records from Crawford Bay and Riondel (BCS).

*Colias alexandra* China Ridge near Princeton in 2001, flying with *Colias occidentalis*. (NK).

*Colias christina* Riverside Mountain in the Elk River valley in 1999 by S. Clow; near Athalmere in 1975 (CG); female found at Lavington Cr. near Canal Flats flying with *C. alexandra* in 2001 (DN).

*Colias occidentalis* several sites in the Tulameen and Otter valley areas in 2001 (NK).

*Colias interior* Lavington Creek near Cranbrook and Kimberley Nature Park (DN); Savona Mountain in 1999 (DT); Kuzkwa River north of Fort St. James in 2001 (CG).

*Colias meadii* Steeples Range near Cranbrook 2001 (DN).

*Colias nastes* the Steeples Range near Cranbrook in 2001 (DN).

*Lycaena cuprea* the Steeples Range near Cranbrook in 2001 (DN).

*Lycaena hyllus* Flathead River valley of extreme southeastern BC in 2000 (NK). This is only the second known record for the province.

*Lycaena dione* second known record for BC was found by DN in 2001 about 16 km SW of Cranbrook.

*Lycaena heteronea* First record of this butterfly in the east Kootenay area was turned up by S. Clow at Cabin Pass in 2000. It also flies in the alpine zone of Idaho Peak above the Slocan Valley in the west Kootenay area (NK).

*Lycaena dorcas* CG in 2000 and 2001: Spruce Lake near Quesnel; Black Lake, Fifteen Mile Lake and Coldspring Creek east of Quesnel; Coglistako River ca. 180 km west of Quesnel; several sites near Fort St. James. Most wetlands in the central interior north from Quesnel have this species, which was previously believed to be rare in the area. Lepidopterists need to get their feet wet!

*Lycaena dorcas arcticus* This subspecies is not mentioned in the BC book but it is present in extreme northwestern BC; found near Atlin in 1991 and 1995 and also in the northern Cassiar Mountains in 1995 (NK); Ferris (1977) reports it from Atlin and Chilkat Pass.

*Lycaena helloides* Crawford Bay in 1994 (BCS).

*Lycaena nivalis* Greenwood and Phoenix Ski Hill areas in 1999, 2000 and 2001 (NK).

*Satyrium titus* near Cranbrook and near Wigwam River near Elko in 2000 (DN); also near Elko in 2001 (NK) and (DN).

*Satyrium californicum* this butterfly is present at the confluence of the Columbia and Pend-dOreille River valleys (Kondla 1999).

*Satyrium sylvinum* found at Phoenix ski hill in 1999, 2000 and 2001(NK).

*Satyrium saepium* found at Phoenix ski hill in 2000 (NK); several records for Riondel (BCS). In contrast to comments in Layberry et al. (1998), NK found this species very abundant in large stands of *Ceanothus velutinous* above the Castlegar airport and DT has found it to be common at times on the north rim of Shorts Creek canyon near Fintry at 5000 feet.

*Callophrys affinis* Kamloops in 1994. In 2000 on Record Ridge near Rossland, near Rock Creek, along Rock Creek-Bridesville road (NK); elevations up to 1000 metres elevation.

*Callophrys sheridanii* Bluebell Mtn. near Crawford Bay in 1994 (BCS).

*Mitoura spinetorum* (=*Loranthomitoura spinetorum*) Savona Mountain in 1999 (DT) and Pend-dOreille valley in 2001 (NK); near Wardner, Ft. Steele and Findlay Cr. near Canal Flats in 2001 (DN).

*Mitoura rosneri* Ssp. *plicataria* in the Skagit valley in 1999, 2000 and 2001 (DT); ssp. *rosneri* in the Pend-dOreille valley in the past four seasons (NK).

*Deciduphagus augustinus* (=*Incisalia augustinus*) this butterfly has been collected in northeastern BC at mile 211 of the Alaska Highway in 1971 (Newcomer 1972). CG has specimens from Bear Lake (north of Prince George)

and NK has specimens from near Valemount. The remaining localities shown in the BC book are actually *D. iroides*, all in the CSG collection.

*Deciduphagus iroides* (=*Incisalia iroides*) Schmidt (1996) reports oviposition on bearberry near Kootenay Lake. Mt. Savona in 2001 (DT) and Kid Creek & Hwy 3 in 2001 (NK).

*Deciduphagus mossii* (=*Incisalia mossii*) Mount Kobau on 2000-VI-23 (DT) and Record Ridge near Rossland on 2000-VI-30; late flight dates; found once at low elevation site near Riondel but not seen since site was invaded by knapweed (BCS); Mt. Savona by DT and in Pend-dOreille valley by NK in 2001.

*Deciduphagus polios* (=*Incisalia polia*) near Rock Creek in 2000; near Radium in 2001 (NK).

*Incisalia eryphon* along Hawkins Creek Forest Service Road SE of Yahk in 2000 and 2001 (NK); Mt. Savona in 2001 (DT).

*Strymon melinus* near Kikomun Creek Provincial Park (DN).

*Celastrina echo* near Elko and Greenwood in 2000, near Rock Creek in 2001, near Radium and Fairmont Hot Springs in 2001 (NK).

*Everes amyntula* Kuzkwa River north of Fort St. James in 2001 (CG).

*Euphilotes battoides* Tulameen and Otter valley area, and Record Ridge near Rossland in 2001 (NK).

*Plebejus anna* (=*Lycaeides anna*) in the lush alpine meadows of Idaho Peak above the Slocan valley and also on Grassy Mountain near Castlegar (NK). This may look like a significant range extension but this butterfly has previously been reported in the west Kootenay area from high elevation habitat north of Bear Lake and Payne Mine (Dyar 1904). Shorts Creek canyon and Blowdown Pass in 2001 (DT); Tulameen/Princeton area in 2001 (NK).

*Plebejus melissa* (=*Lycaeides melissa*) near Elko in May 1987 (NK); near Kikomun Provincial park in August of 1999, 2000, 2001 (DN). Sympatric with *Plebejus idas* on Rock Creek-Bridesville road.

*Aricia saepiolus* (=*Plebeius saepiolus*) near Tulameen, Phoenix Ski Hill near Greenwood, Big Sheep Creek valley W of Rossland, Grassy Mtn. near Castlegar in 2001 (NK); near Greenwood and Nelway in 2000 (NK).

*Aricia icarioides* (=*Icaricia icarioides*) abundant on Record Ridge W of Rossland the past several field seasons.

*Aricia lupini* (=*Icaricia acmon*) near Norbury Lake Provincial Park in 2000, Baldy Lake near Roosville, Cliff Lake near Cranbrook in 2001 (DN); Poison Mtn in 2000 (DT); near Greenwood and along the Lodgepole forestry road SE of Elko in 2000 (NK); Tulameen/Otter valley area in 2001 (NK).

*Agriades rusticus megalo* (=*Agriades glandon megalo*) near Tulameen and Grey Creek Pass east of Kootenay Lake in 2001 (NK).

*Polygonia satyrus* along Hawkins Creek Forest Service Road near Yahk, Record Ridge near Rossland in 2000 (NK); near Greenwood and on Grassy Mtn. near Castlegar in 2001 (NK).

*Polygonia faunus* Skagit valley in 2001 (DT).

*Polygonia gracilis zephyrus* (=*Polygonia zephyrus*) numerous records for Crawford Bay and Riondel (BCS); Hawkins Creek and Goatfel Forest Service Roads near Yahk in 2000 (NK); Skagit valley and west end of Kamloops Lake in 2000 (DT); Kid Creek Forest Service Road east of Creston in 2001 (NK).

*Polygonia oreas threatfuli* this normally hard to find butterfly was common near Rock Creek in 2000 (NK); found at a number of sites between Wardner and Cranbrook in 2001 (DN).

*Polygonia oreas silenus* along the Klesilkwa River SSE of Hope in 2000 and 2001(DT).

*Polygonia l-album* (=*Roddia l-album*) Castlegar, Radium and Goatfel Forest Service Road in 2001 (NK).

*Nymphalis antiopa* numerous sites between Cranbrook and Golden, including Fairmont and Invermere (DN); near Greenwood and Nelway in 2000 (NK); west end of Kamloops Lake in 2000 (DT); Radium, Kid Creek east of Creston and Goatfel Forest Service Road near Yahk in 2001 (NK).

*Nymphalis californica*: large numbers at numerous sites from Cranbrook to the Flathead drainage in summer and fall 2001 including a specimen seen flying near Cranbrook on Nov. 4 (DN).

*Aglais milberti* numerous sites between Cranbrook & Golden, including Fairmont and Invermere (DN); DT saw this species in flight at Kalamalka Lake Provincial Park on 2000-II-14; near Greenwood (NK) and west end of Kamloops Lake in 2000 (DT).

*Vanessa atalanta* found in and around Cranbrook and at White Swan Lake in 2001 (DN), possibly the first official records for the East Kootenay.

*Vanessa virginiensis* Silver Star Mtn. in 2001 (DT), the third provincial record of this butterfly.

*Vanessa cardui* Pend-dOreille valley in 2000 and 2001 (NK); 2001 saw a large migratory invasion of this butterfly in southern BC with numerous additional localities: Rock Creek, Radium, Grand Forks, Greenwood, Princeton, Goatfel Forest Service Road near Yahk, numerous sites along the highway from Cranbrook to Radium (NK).

*Vanessa annabella* Idaho Peak in 1999; Grand Forks and Pend-dOreille valley in 2001 (NK), a number of locations between Wasa and Cranbrook in the spring and fall of 2001 (DN).

*Speyeria leto* (=*Speyeria cybele leto*) flying freshly emerged in the Pend-dOreille River valley on September 12, 1999 (NK); this was a very late flight season for many butterflies in the west Kootenay area.

*Speyeria zerene* – Conkle Lake road and Greenwood in 2000 (NK); Goatfel Forest Service road near Yahk in 2001 (NK).

*Speyeria callippe* a straggler from the Grand Forks population was found along a power line clearing on Record Ridge near Rossland in 1998 (NK).

*Speyeria atlantis* There are numerous additional records for this species in BC; found by NK over the past 20 years Pink Mtn.; Andy Bailey Recreation Area SE of Fort Nelson, Mile 122 Alaska Highway, Bullhead Mountain, Heritage Highway near Tumbler Ridge, near Buckinghorse River Provincial Park, Cranberry Marsh and Jackman Flats near Valemount, Km 21 Holmes River forest Service Road near McBride, Castle Creek near McBride, vicinity of Louis Lake NE of Kamloops, Pend-dOreille River valley, Kid Creek east of Creston, Conkle Lake road near Rock Creek, Flathead River border crossing (also S. Clow); found by DN - on Indian Head Mountain near Windermere, Ram Creek near Skookumchuk, Lavington Creek near Canal Flats and Galloway; found in 2000 and 2001 by CG at: Blackwater River (about 40 km NW of Quesnel), E of Quesnel on Barkerville Hwy at 2400 Road, Spruce Lake, Black Lake, and Fifteen Mile Lake all east of Quesnel, Baezaeko River at 6500 Road, about 140 km W of Quesnel; several sites near Fort St. James. This species is widespread in the central interior north from Quesnel, in association with wetlands or open wet forest.

*Speyeria mormonia* found at Lavington Creek near Canal Flats and Brewery Creek near Invermere in 2000, and Watch Peak near Invermere in 2001 (DN); Crawford Bay on 24 May 1994, one of the earliest known provincial flight dates (BCS); several sites in Flathead valley in 2000 (NK).

*Boloria selene* (=*Clossiana selene*) Winlaw in the Slocan valley in 1989 (BCS); Big Sheep Creek valley west of Rossland in 2000 (NK); a number of sightings in the East Kootenay from Elko to Canal Flats (DN). Found in 2000 and 2001 by CG: Barkerville highway east of Quesnel near 2400 road, vicinity of Black Lake and Coldspring Creek east of Quesnel, Spruce Lake near Quesnel, Baezaeko River ca. 140 km west of Quesnel;

several sites near Fort St. James, including Kuzkwa River. This species is widespread in the central interior north from Quesnel, in association with wetlands.

*Boloria bellona* (= *Clossiana bellona*) Rock Creek and Grand Forks area 2000/01(NK); Kuzkwa River north of Fort St. James in 2001 (CG).

*Boloria eunomia* (= *Clossiana eunomia*) This butterfly was found by D. Threatful on Red Mountain (see article in previous issue of Boreus). This record is worth repeating because it is an absolutely HUGE range extension. Kuzkwa River north of Fort St. James in 2001 (CG).

*Boloria epithore* (= *Clossiana epithore*) in 2000 found at Moyie River north of Yahk, White Bear Lake near Kimberley and Brewer Creek near Invermere (DN); Riondel and Powder Creek north of Riondel (BCS); Record Ridge near Rossland, Tulameen/Otter valley area, Gray Creek Pass east of Kootenay Lake in 2001 (NK); Hawkins Creek road near Yahk and near Greenwood in 2000 (NK), Cliff Lake near Cranbrook in 2001 (DN).

*Boloria freija* (= *Clossiana freija*) found at Lavington Creek near Canal Flats (DN); Radium in 2001 (NK); Mt. Savona in 2001 (DT); Ashnola road in 1998 (NK).

*Boloria astarte* (=*Clossiana tritonia astarte*) Indian Head Mountain near Windermere in 1999, Watch Peak near Invermere in 2000 and the Steeples Range near Cranbrook in 2001(DN).

*Boloria grandis* (=*Clossiana chariclea grandis*) near Flathead border crossing in 2000 (NK).

*Phyciodes cocyta* (=Phyciodes tharos) Gray Creek Pass and Grand Forks in 2000 (NK); Otter Valley and Rock Creek in 2001 (NK); Francois Lake in 2001 (C. Gilham); Kuzkwa River north of Fort St. James in 2001 (CG).

*Phyciodes pulchellus* (=*Phyciodes pratensis*) Gray Creek Pass, Tulameen/Coalmont, Otter Valley, Greenwood and Grand Forks 2000 (NK); Kuzkwa River north of Fort St. James in 2001 (CG).

*Phyciodes pallidus* Ashnola road near Crater Mtn. in 2000 (NK).

*Phyciodes mylitta* common between Riondel and Crawford Bay (BCS); Greenwood in 2001, Rock Creek in 2000 (NK); west end of Kamloops Lake in 2000 (DT).

*Euphydryas editha* numerous high altitude sites on both sides of the Rocky Mountain Trench between Roosville and Watch Peak near Invermere, 1999-2001 (DN).

*Chlosyne damoetas altalus* (*Charidryas whitneyi*) Steeples Range near Cranbrook in 2001 (DN).

*Limenitis lorquini* Goatfel Forest Service Rd near Yahk, east of Gray Creek Pass in 2001 (NK).

*Limenitis arthemis* Kuzkwa River north of Fort St. James in 2001 (CG).

*Coenonympha california* Winlaw in the Slocan valley in 1989 (BCS).

*Cercyonis pegala* numerous records for Riondel and Crawford Bay (BCS); Goatfel Forest Service Road near Yahk in 2001 (NK).

*Erebia epipsodea* found at Riondel (BCS); Record Ridge and Big Sheep Creek valley in 2000/01 (NK).

*Oeneis jutta chermockorum* (= *Oeneis jutta reducta*) found at Findley Creek near Canal Flats in 2000 but not 2001(DN); near Nazko and Quesnel in 2001 (CG); Kuzkwa River and other sites north of Fort St. James in 2001 (CG).

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# NOTES

## Dr. Geoffrey G.E. Scudder Appointed to the Order of Canada

Her Excellency the Right Honourable Adrienne Clarkson, Governor General of Canada, announced new appointments to the Order of Canada July 4, 2002. The new appointees included four Companions (C.C.), 28 Officers (O.C.) and 65 Members (C.M.). Geoffrey G.E. Scudder, C.M. was one of those honoured. His reputation for excellence is vast and far-reaching. An entomologist, he is a world authority known for important research, including the discovery that certain species can help track the effects of environmental degradation and global warming. Head of the University of British Columbia's renowned Department of Zoology for 15 years, he has also served in other leadership roles, notably as President of the Entomological Society of Canada and of the Canadian Society of Zoologists. In addition, he is very active in promoting conservation, particularly in British Columbia, where he is involved with numerous biodiversity projects.

Thanks to Dr. Robert A. Cannings for forwarding the information from the Order of Canada website, with minor editing by the *Boreus* editor.

**Paul Riegert**

Paul Riegert, 103 Mayfair Cres., Regina, SK, S4S 5T9, died 9 May 2002 at age 78. He is survived by his wife Betty and several children and grandchildren. Paul suffered a massive brain aneurysm on 23 April. At the time, Paul and Betty were in Saskatoon visiting their daughter. The doctor did not have much hope for recovery. Paul was well-known for his four booklets on the Entomologists of Manitoba, Saskatchewan, Alberta, and British Columbia. He has also been very interested in his family tree and had just completed writing his life history. He wrote another book, From Arsenic to DDT: A History of Entomology in Western Canada. Paul spent 24 years at the Dominion Entomological Laboratory, Saskatoon, and then in

1968 he joined the University of Regina. Paul has been active with the Entomological Society of Canada, particularly with the Heritage Committee.

Submitted by Ed Becker

# COMMENTS

## Comments on the Comments – Genus Names Again

Norbert G. Kondla

In Boreus 21(1) I reported on some butterfly genus names that were not mentioned in the recent book *Butterflies of British Columbia*. At that time I did not express any personal opinions on the merits of the genus names and taxonomic interpretations published by Johnson (1992) and Balint and Johnson (1997). The purpose of the note was to share the information with Boreus readers so they could examine the said publications if they wish and form their own taxonomic opinion. Recently Shepard (2002) has provided his opinion on these names so it is now timely for me to express my views and address some errors in the material presented by Shepard. Readers should note that Shepards reference to Johnson (1993) is incorrect and there are errors in his citations for both papers under discussion.

Shepard refers to *Neue Entomologische Nachrichten* as a privately published and unreviewed series but then does not explain the relevance of this to whatever reasons he had for not accepting the taxonomic interpretations contained therein. The unstated suggestion is that we should not recognize the published taxonomic interpretations because of where they were published. A considered taxonomic interpretation would in fact use available information regardless of where it is published and would also use unpublished information that is relevant to the case at hand. It is interesting that Shepard would make reference to private publication in this case but neglect to point out that two of the books he cites as support for his preferred interpretation are also privately published. I understand the phrase privately published to mean not published by a publicly funded organization.

Shepard asserts that Johnson "proposed that the genus *Incisalia* be split into two genera. What Johnson actually did was to publish a review of the taxonomy of callophryine elfins that focussed primarily on the palearctic taxa, but also included his interpretation of the nearctic taxa. He placed existing and newly named species group taxa into 6 genera; 3 in the old world and 3 in the new world.

The results of the elfin research published by Johnson (1992) was the result of over 15 years of research and is based to a large degree on his Ph.D. thesis, which certainly was subjected to the extensive peer review and scrutiny that such documents normally receive. His 1992 paper also acknowledges additional review. The paper was published by a Ph.D. entomology taxonomist, was reviewed, meets the standards of the International Code for Zoological Nomenclature and is based on many years of work. I see no logical reason for anyone to dismiss this paper without any comment on technical content.

It is also interesting that Shepard accepts the genus *Loranthomitoura*, despite the fact that authors of other recent books have not used it. In addition, the technical argument for the elfin and blues treatments is stronger than that used for *Loranthomitoura*, which is based on the arrangement of hairs on the caterpillar and host plant.

Layberry et al. (1998) did not recognize *Loranthomitoura* as either a genus or a subgenus. As with the other names under discussion; they were silent on the topic. It is highly speculative to draw any conclusions from the lack of mention of a taxonomic or nomenclatural issue in a book. No recent North American book has used the genus spelling of *Plebeius* as used in *Butterflies of BC*. Regardless of how various books spell the name; *Plebeius*

is incorrect, with the correct genus spelling and authorship being *Plebejus* Kluk, 1780 for the reasons provided by Balint et al. (2001). *Plebeius* was, however, a valid choice of spelling at the time the book was published.

The paper on the blues is a global review that made use of extensive (over 900) genitalic examinations and over 500 figures in crafting the re-aligned genera. Use of genitalia to define genera is a traditional approach to genus-level taxonomy in butterflies. The authors reduced 33 genera to 9 genera so people who like fewer and larger genera will find this treatment to be reasonable. People who think that some of the genera are too large or who do not like some of the genus definitions are free to publish their preferred interpretation and the technical reasons to support it. Readers can then decide which interpretation they find most convincing.

Shepard alleges that "… no book published since 1993 on western North American butterflies …accepts this." A book is an inanimate object that cannot accept anything. Only people can form taxonomic interpretations. The question that Shepard does not answer is why the authors of recent books have not used the *Deciduphagus* etc interpretations. There are certainly a number of reasons. These may include philosophical preferences for larger or smaller genera, authors not having read the papers under discussion, or not agreeing with the technical arguments that have been advanced. As with *Butterflies of British Columbia*; the authors of the referenced recent books have not stated their technical nor any other reasons for not using the published results of this research.

Shepard selectively uses references to other books as justification for not using the Balint and Johnson interpretations. He does not point out that said books are silent on the topic and hence readers cannot even assume that the authors have read the relevant papers and cannot reasonably assume that the books reflect a deliberate taxonomic decision. Using this logic of what other books say or do not say would suggest that we should not use the Shepard interpretation of the *Parnassius phoebus* complex (which I happen to agree with) because it was not used in other recent books (eg. Gorbunov 2001; Glassberg 2001).

Anything can be argued by referencing other published interpretations but this is simply arguing taxonomy by "popularity poll". Counting name usage and assuming the majority name is the best name has nothing to do with taxonomy or science

Shepard states: "This will preserve the stability of names in North American butterfly publications until future work offers an acceptable alternative." There is no stability to preserve. The taxonomy and hence the resulting nomenclature of North American butterflies has been unstable through time because different people have and will continue to publish differing taxonomic interpretations. Whether or not any particular interpretation is 'acceptable' is a matter of personal choice on the part of the readers of the various books and journal articles. Nobody has been elected to decide for the rest of us what constitutes an acceptable taxonomic interpretation.

It is significant that nothing has been published to counter the Balint and Johnson interpretations on technical grounds. The papers have either not been known to the writers of various books or they have not been used for unstated reasons. Unstated reasons are no reasons. Shepard references differences between European and North American workers with respect to genus level taxonomy in the blues. This is true but it is one reason why it makes good sense to use the Balint and Johnson interpretation until someone publishes a different version that is more convincing. The authors live in Europe and in North America and hence their paper presents perspectives from both continents. There are other examples of differing taxonomic preferences and genus level nomenclature on the two continents. For example, the authors of *Butterflies of BC* used *Clossiana* rather than *Boloria* at the genus level. This is not consistent with the prevailing North American usage although it has been the traditional European preference. However, Gorbunov (2001) used the more inclusive genus *Boloria*. This reality of differing published taxonomic interpretations is no reason to ignore published research.

Dr.'s Balint and Johnson are international lycaenid experts and I will be using their interpretation until something better is presented to me. People who want to continue to ignore published works by experts just because some recent books have not referenced said publications; are of course most welcome to do so.

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## New Book: Dragonflies

**Introducing the Dragonflies of British Columbia and the Yukon**, by Robert A. Cannings. Published by the Royal BC Museum (2002). 96pp.

This is a superb field guide to the adults of ALL the dragonflies of BC and the Yukon, with wonderful colour photographs of the known species. Hopefully someone will volunteer to do a full book review for the next issue of Boreus. It has already become part of my “use every day” library, and is a pleasure to use. … Cris Guppy.

## New Website: Conifer Defoliators

The first installment of the *Conifer Defoliating Insects of British Columbia* is now available on the web and can be found at http://www.pfc.cfs.nrcan.gc.ca/entomology/defoliators/. About 30% of the estimated 140 species of conifer defoliators known to occur in British Columbia are currently posted on this site. Work on this project will continue in 2002-2003. I will keep you posted as new species are added to the site. Enjoy Bob Duncan

## Book Information Updates: Entomological Interests

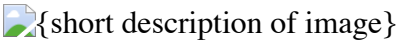
Please update the information on your entomological interests – The Biological Survey of Canada's "Annotated List of Workers on Systematics and Faunistics of Canadian Insects and Certain Related Groups" has been published from time to time in paper format. This information is now available in the form of a searchable database on the Survey's website. Although the database is updated whenever new information is received, many of the entries have not been revised since 1996. We therefore invite you to look at your entry on our website and let us know what needs to be changed. An online form is available to submit updates. The introduction to the list is at: http://www.biology.ualberta.ca/bsc/english/listofworkers.htm. Thank you in advance for your cooperation. ... Donna Giberson

## Moths near Quesnel

My wife and I habitually leave outside lights switched on all night at our home on ten acres outside Quesnel, in central BC. This encourages the bears, cougars, foxes, coyotes, weasels, etc. to remain at a bit of a distance. We moved to Quesnel in the fall of 1993, and the abundance of moths attracted to the lights has of course varied considerably between years. Of particular note is the extreme decline in moth abundance over the past three years. The last warm summer was 1998, while the summers of 1999, 2000, and 2001 were very cool and wet. From May through July in 2000 there were only two nights where the air temperature at nightfall was above 10o C, the minimum temperature at which most summer moths will fly. This year moth abundance at the lights has been

extremely poor, with less than a dozen moths resting on the walls in the morning (rather than the 50-100 in a "normal" year). The exception to this decline is the Satin Moth, *Leucoma salicis* (Lymantriidae), which has had outbreak populations about 50 meters elevation above our house on Dragon Mountain.

*Cris Guppy*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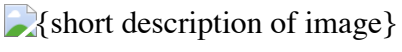
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Satin Moths attracted to light at Tim Hortons.