Fall 2014

Bulletin of the

Oregon Entomological Society

Oregon Dragonfly Survey *Aeshna* Blitz: Cottonwood Meadows Lake, Lake County, Oregon, August 2014

Steve Gordon

For the 2014 Fifteenth Annual Oregon *Aeshna* Blitz, the Oregon Dragonfly Survey group agreed to meet at Cottonwood Meadows Lake in Lake County. Members arrived on Friday, August 23rd, at the campground set among Ponderosa pine and mixed fir adjacent to the Lake. This year's ten participants were Steve Berliner, Sherry Daubert, Steve Gordon, Jim Johnson, Cary Kerst, Ron Lyons, Steve Valley, and Josh, Michelle and Xabrina Vlach. The Blitz timing and destination are established in late winter each year at a coffee shop in Albany. The group has no officers, no dues, no minutes, and no newsletter. The Blitz is the sole item at the meeting, and making Blitz plans fully taxes the group's decision-making powers. The objectives of the Blitz are: 1) to get into the field during the prime time of year to observe darners and other odonates, and 2) to investigate different parts of Oregon. As the group matures, the social aspects of the Blitz seem to take on increasing purpose.

Cary Kerst and Steve Gordon left for the Blitz on Tuesday, the 19th, and their first stop was the Salt Creek outlet at Gold Lake in Lane County. *Octogomphus specularis* (Grappletail) were absent this late in the season, but they recorded *Aeshna palmata* (Paddle-tailed Darner), *Somatochlora albicincta* (Ringed Emerald) and *Ophiogomphus morrisoni* (Great Basin Snaketail). This is a lovely spot and they enjoyed watching an American Dipper hunting in the rocky rapids. At Crescent Creek in Klamath County, they found more *O. morrisoni*, a single *Libellula forensis* (Eight-spotted Skimmer), two *Sympetrum danae* (Black Meadowhawks), *A. palmata*, and *Lestes disjunctus* (Northern Spreadwing).

One of the highlights of the first day was a weasel chasing a chipmunk toward Cary's truck on Sun Mountain Pass Road in Klamath County. Both hunter and hunted ran with tails erect and were so intent on the chase that they almost ran under the truck. At Kimball State Park along the Williamson River, we found no odonates.

At the Lava Beds National Monument Campground, Cary and Steve concluded that despite a warmer and drier summer than normal in Oregon, the odonate season was coming to an early end. The only *Aeshna* species recorded the first day was *Aeshna palmata*.

Blitz Attendees (left to right): Michelle, Xabrina, and Josh Vlach, Ron Lyons, Steve Berliner, Steve Gordon, Sherry Daubert, Jim Johnson, Cary Kerst, and Steve Valley. Photo by Steve Valley.

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Submit content to **Ron Lyons** <pondhawk@uci.net>. To be included on the distribution list contact **Jim Johnson** <jt_johnson@comcast.net>.

Cottonwood Meadows Lake. Photo by Steve Gordon.

Downy Woodpecker. Photo by Ron Lyons.

On Wednesday, the 20th, Cary and Steve toured Tule Lake National Wildlife Refuge and then headed east through Bonanza, Beatty, and Bly and searched possible bodies of water in the Lofton Lake region. Many spots were dry and full of cattle. At the Sprague River Wayside in Klamath County, *A. palmata* were common and one *Cordulegaster dorsalis* (Pacific Spiketail) was observed.

Cary and Steve spent the night in Lakeview where the motels and restaurants were busy hosting fire fighters. During the stay in Lakeview, they witnessed many travelers headed toward the Black Rock Desert in Nevada for the annual Burning Man Gathering. These folks were easy to spot in old Volkswagen vans, restored school buses, and rental trucks.

On Thursday, the 21st, Cary and Steve searched along Twenty-mile Creek south of Adel and found *Aeshna walkeri* (Walker's Darner) and *Argia agrioides* (California Dancer) at the "Ford" crossing on the creek. Heading back downstream, they stopped at the only known Oregon location for *Argia nahuana* (Aztec Dancer). They were surprised to find that the nature of the creek was dramatically changed from the previous year. Beaver dams had transformed the ankle-deep rocky waters into a series of thigh-high ponds. Along the creek and near the hot springs on the east side of the creek, Cary and Steve each handled approximately 20 dancer individuals and all were *A. nahuana*; they found no *A. agrioides*. Perhaps the habitat alteration has created a situation more favorable to the *A. nahuana*. At a stop at the same spot the previous year, the two species were present in about equal numbers. At this location, *Libellula saturata* (Flame Skimmers) were common as were *A. palmata* and *Agria vivida* (Vivid Dancers). Cary netted one *Archilestes californicus* (California Spreadwing). At the water gauging station farther downstream, Cary found *Argia lugens* (Sooty Dancer).

Aeshna palmata (Paddle-tailed Darner) eating a *Sympetrum* (Meadowhawk) at Cottonwood Meadows Lake. Photo by Cary Kerst.

Mating *Sympetrum obtrusum* (White-faced Meadowhawks) at Cottonwood Meadows Lake. Photo by Cary Kerst.

On the way to the Blitz on the 22nd, Jim Johnson found *Argia agrioides* (California Dancer) at Fishhole Creek, a new record for Klamath County (Odonata Central Record [<http://www.odonatacentral.org/>, OC] #426745). On the 22nd, Cary Kerst and Steve Gordon arrived at Cottonwood Meadows Lake and spent two hours along the shore, recording twelve odonate species.

Cottonwood Meadows Lake at 6,139 feet elevation is a beautiful spot. Its main purpose appears to be recreation and the water level was high. Motor boats are not allowed. The west end of the lake had a nice marsh and meadow which was a nice spot to look for dragonflies and damselflies. Osprey soared overhead and a Bald Eagle sat sentinel in a tall tree. As the group arrived at the campground and set up tents and campers, they discovered that autumn was in the air. On Sunday morning Ron Lyons recorded the temperature at 36° F. The campground was a great spot for Gray Jays and Clark's Nutcrackers. We found five species of woodpeckers, and at night we heard Northern Pygmy-Owls and Great Horned Owls calling, as well as Coyotes. One of the real treats in camp was Xabrina, who is now three years old, and full of fun.

In total the group identified sixteen species of dragonflies and damselflies at Cottonwood Meadows Lake (noted on the trip checklist). Among the highlights were four species of darners: *Aeshna palmata*, *A. interrupta*, *A. umbrosa*, and *Anax junius* (Paddle-tailed, Variable, Shadow, and Common Green Darners). In the marsh and meadow, dozens of *Sympterum obtrusum* (White-faced Meadowhawk) could be found; many in the mating "wheel" position.

On the way home, Ron Lyons stopped at the Bruneau Dunes in Owyhee County, Idaho and added two new county records: *Lestes congener* (Spotted Spreadwing, OC#426644) on August 26 and *Sympetrum pallipes* (Striped Meadowhawk, OC# 426647) on August 27. On August 26 he also added another species to the Bruneau Dunes list with *Anax junius* (Common Green Darner, OC#42665). He later found *Ischnura cervula* (Pacific Forktail, OC#426643), and *Argia emma* (Emma's Dancer, OC#426642) at Cottonwood Lake. Ron only saw seven katydids during his trip but this included a male *Idionotus siskiyou* (Siskiyou Shieldback) on the way to the Blitz (now pictured on the Singing Insects of North America website <http://entnemdept.ufl.edu/walker/buzz/l37pml.htm>) and found three *Polystoechus punctatus* individuals in the park.

Erythemis collocata (Western Pondhawk) eating a male *Argia nahuana* (Aztec Dancer) still connected to the female at Twentymile Creek, Lake County, Oregon. Photo by Cary Kerst.

All in all, the Blitz again achieved its objectives. Jim Johnson added a new Oregon county record. In Cottonwood Meadows Lake, we found a beautiful spot to focus our efforts. We discovered interesting observations both coming and going to the Blitz. We had a good time being with each other in the field. And as an added bonus, Ron Lyons added two new county records in Idaho. The trip odonate total was thirty-one species.

Aeshna Blitz Trip List August 2014

Anisoptera (Dragonflies)
Aeshnidae (Darners)
* *Aeshna interrupta*, Variable Darner
* *Aeshna palmata*, Paddle-tailed Darner
* *Aeshna umbrosa*, Shadow Darner
Aeshna walkeri, Walker's Darner
* *Anax junius*, Common Green Darner

Gomphidae (Clubtails)
Ophiogomphus morrisoni, Great Basin Snaketail

Cordulegasteridae (Spiketails)
Cordulegaster dorsalis, Pacific Spiketail

Corduliidae (Emeralds)
Somatochlora albicincta, Ringed Emerald

Libellulidae (Skimmers)
Erythemis collocata, Western Pondhawk
Libellula forensis, Eight-spotted Skimmer
* *Libellula quadrimaculata*, Four-spotted Skimmer
Libellula saturata, Flame Skimmer
* *Sympetrum danae*, Black Meadowhawk
* *Sympetrum obtrusum*, White-faced Meadowhawk
Sympetrum semicinctum, Band-winged Meadowhawk
* *Sympetrum pallipes*, Striped Meadowhawk

Zygoptera (Damselflies)
Lestidae (Spreadwings)
Archilestes californicus, California Spreadwing
* *Lestes congener*, Spotted Spreadwing
* *Lestes disjunctus*, Northern Spreadwing
* *Lestes dryas*, Emerald Spreadwing

Coenagrionidae (Pond Damsels)
Amphiagrion abbreviatum, Western Red Damsel
Argia agrioides, California Dancer
Argia emma, Emma's Dancer
Argia lugens, Sooty Dancer
Argia nahuana, Aztec Dancer
Argia vivida, Vivid Dancer
* *Enallagma boreale*, Boreal Bluet
* *Enallagma carunculatum*,Tule Bluet
* *Enallagma annexum*, Northern Bluet
* *Ischnura cervula*, Pacific Forktail
* *Ischnura. perparva*, Western Forktail

* = found at Cottonwood Meadows Lake

Trichoptera of Indigo Springs

Cary Kerst

Indigo Springs is a large spring complex along the Middle Fork of the Willamette River in the Willamette National Forest. The springs originate in an old growth Douglas fir and western red cedar forest and consist of a couple of large springs flowing a quarter mile into the Middle Fork of the Willamette. The water temperature is consistent throughout the year at 42–44° F. The flow is 10–20 cubic feet/second and plants and woody debris are present. There are a couple of additional small springs making for a more complex habitat. The Forest Service is working to reestablish Bull Trout in the springs and the Middle Fork of the Willamette.

On July 14, 2014, I set up a black light at the springs overnight. The resulting collection contained a numerous and diverse caddis fauna. Dave Ruiter provided species determinations and indicated that this was the most diverse single collection of Trichoptera he had ever seen. There were 36 species of Trichoptera in this single collection. The caddis species list from this site will likely increase with additional collecting during the spring/fall/winter seasons. I plan to take some additional samples to fill out the species list for the site. It will be interesting to see what a more complete species list looks like.

Indigo Springs. Photo by Cary Kerst.

Indigo Springs Trichoptera Species

Pedomoecus sierra Ross 1947
Brachycentrus americanus (Banks) 1899
Micrasema bactro Ross 1938
Anagapetus hoodi Ross 1951
Glossosoma pternum Ross 1947
Hydropsyche occidentalis Banks 1900
Hydropsyche oslari Banks 1905
Hydropsyche sp. Pictet
Parapsyche almota Ross 1938
Parapsyche elsis Milne 1936
Agraylea saltesea Ross 1938
Lepidostoma cascadense (Milne) 1936
Lepidostoma hoodi Ross 1948
Lepidostoma unicolor (Banks) 1911
Lepidostoma verodum Ross 1948
Oecetis avara (Banks) 1895
Oecetis inconspicua (Walker) 1852
Triaenodes frontalis Banks 1907
Triaenodes tardus Milne 1934
Ecclisocosmoecus scylla (Milne) 1935
Ecclisomyia simulata Banks 1920
Eocosmoecus frontalis (Banks) 1943
Hydatophylax hesperus (Banks) 1914
Dolophilodes dorcus (Ross) 1938
Dolophilodes novusamericanus (Ling) 1938
Polycentropus denningi Smith 1962
Polycentropus variegatus Banks 1900
Himalopsyche phryganea (Ross) 1941
Rhyacophila angelita Banks 1911
Rhyacophila grandis Banks 1911
Rhyacophila jewetti Denning 1954
Rhyacophila vao Milne 1936
Rhyacophila willametta Ross 1950
Rhyacophila sp. Pictet
Gumaga nigricula (McLachlan) 1871
Oligophlebodes sierra Ross 1944

Editor's Note: The most up-to-date classification hierarchy for Trichoptera can be found at <http://www.clemson.edu/cafls/departments/esps/database/trichopt/>.

Parsons et al. listed 133 species in their multi-year study nearby:

Parsons, G.L., G. Cassis, A.R. Moldenke, J.D. Lattin, N.H. Anderson, J.C. Miller, P Hammond, and T.D. Schowalter. 1991. Invertebrates of the H.J. Andrews Experimental Forest, Western Cascade Range, Oregon. V: An annotated List of Insects and Other Arthropods. USDA Forest Service Pacific Northwest Research Station General Technical Re port PNW-GTR-290. 168 p.

For other information on Oregon's Trichoptera see:

Anderson, N.H. 1976. The Distribution and Biology of the Oregon Trichoptera. Oregon State University, Agricultural Experiment Station, Techical Bulletin 134. 152 p.

which can be dowloaded as a searchable PDF from the Oregon State University Library, <http://ir.library.oregonstate.edu/xmlui/handle/1957/8679>.

The Funnybug Chronicles, Episode 3: "known knowns, known unknowns, and unknown unknowns" — *Loren Russell*

Donald Rumsfeld's notorious quote about epistemic modality (<http://www.brainyquote.com/quotes/quotes/d/donaldrums148142.html>) did not really enlighten us about weapons of mass destruction or the Bush Administration's case for war in Iraq (he crucially left out "unknown knowns"—what we think we know to be true that **isn't** true), but it describes a familiar problem in natural history: How do we move from a chance observation or discovery to a body of trust-worthy, generalizable knowledge?

By the late spring of 1976, I had one big known-known: I knew with certainty that the funnybug was a boreid (or sister-group to Boreidae as then known), but a very distinctive one. The peculiar forceps-like wings of the male funnybug were enough to confirm this, and I was finding a growing list of features in common with boreids, as well as an equally long list of uniquely funnybug features. I had a much longer list of known-unknowns: the categories that we tick off when we study an insect that make up the day-to-day business of entomology. Here we pretty much know what to look for. The funnybug would certainly have its own biology—in addition to adult morphology we could observe and describe its life cycle, phenology, feeding/host relationship, natural enemies, environmental tolerances, dispersal mechanisms, and much more. I had already made a little progress here: my collections suggested that the funnybug had a boreid-like seasonal pattern with adults active in the winter and disappearing or dying off at the end of the winter rainy season. And I was pretty sure I had found the larvae—these were in the same samples, were the right size, and shared a few diagnostic traits with boreids, but were very distinctive in their curculionoid form (straight bodied, legless) versus the scarabaeoid larvae of *Boreus* and *Hesperoboreus*. But this attribution remained to be proven—appropriately the larval eyes (7 on each side) outlined a question mark.

The unknown-unknowns? In these first months I had spent most of my effort "looking under the lamppost," like the proverbial drunkard who didn't have any idea where he'd lost his keys but hoped to find them where there was light. Through the spring of 1976, I had collected moss from maples and alders around Marys Peak and in likely-looking areas in the MacDonald Forest, along the South Santiam River, and in the Coast Range south and west of Eugene. I found pretty much the same arthropods, including *Hesperoboreus*, in most of these places. But no more funnybugs, other than at a grove of vine maple adjacent to Woods Creek Road, 400 meters to the west of Funnybug Notch. And that was it—the many lush, apparently identical sites just downhill along Woods Creek Road and TumTum Road on the north side of Marys Peak all lacked them. Was the Funnybug Notch population alone, the last stand for this evidently ancient creature? For a paleoendemic to be restricted to one site in the middle of the biologically homogeneous Oregon Coast Range seemed a bit odd, but perhaps the disastrous 19th and early 20th century forest fires had restricted its range to this tiny area? That idea seems naïve now, but at the time I wondered how anything this unusual could have remained undiscovered, unless it was very local and very rare.

With the onset of hot dry weather in late May it was time to take stock and to begin writing up my collections. I had over 20 adults and a few of the putative larvae to work with and from this material I composed a draft of the species/genus description which I circulated to Ken Cooper and Jack Lattin, and later to George Byers. I needed a name of course—perhaps a Latin/Greek rendering of "funnybug"?

It seemed time-worthy to look for something nice that would connect with *Boreus* or "god of the north wind." I didn't want to settle for some "anomalo-X," "para-X" or "X-opsis" coinage. So I hit the ethnography shelves at the OSU library and contacted a couple of anthropologists I knew here and at the UW, guessing there would be an appropriate wind-god in North Coast Indian lore. I found no candidates. Whether the ethnographers failed to put "wind-god" in their vocabulary lists or the people-who-paddle simply don't make the same distinctions as people-who-sail, I have no idea. So I returned to the European mythologies—perhaps I would find that Boreus had more siblings (I knew Chionia, sister to Boreus was taken for a genus of wingless, winter-active cranefly. Like *Boreus*, these are most often seen on winter snow; I call these "robot-midges" for their wind-up toy gait). Eventually I found that there was a Latin personification of the northwest wind: Caurinus. In its adjectival form, "caurinus" has been applied to a number of northwest-American species: I already knew that the Northwestern Crow was *Corvus caurinus* and one of the species of "snapper" in the fish market was *Sebastoides caurinus*, and a glance at the index to Ricketts' *Between Pacific Tides* gave several more examples from our local marine fauna. But what were the chances that Caurinus, or any other classical-language god-let remained available as a generic name? I decided to look it up. In those pre-internet days, looking for available names meant going through the massive *Zoological Record* and its numerous annual and semi-annual supplements that occupied several shelves in the OSU Library. After several days of checking and rechecking the *Record*, I decided that *Caurinus* was available, and however sketchy its use as a Latin noun, a perfect counterpart to *Boreus*.

Moving along, I made a long list of species names, but epithets like "mirabile" and "anomala" seemed trite, and geographic references ("oregonensis") or patronyms a bit pedestrian. I weighed various descriptive epithets (e.g. "asciformis," "minutus") before settling on "dectes" (Greek for "biter"), referring to its remarkable mandibles. With their broad base and strong double articulation, huge apical tiger-beetle-like fangs and a large, nasty-looking hatchet blade in the molar area, *Caurinus* mandibles are completely unlike any other in Mecoptera, or in the entire mecopteran complex (fleas, flies, Lepidoptera+Trichoptera) for that matter.

From the form of the mouthparts (and predatory habits of many non-boreid mecopterans), several distinguished scholars have suggested that *Caurinus* is most likely a predator. But let's call the matter of its feeding behavior a known-unknown; we'll see about that later....

So this is how the Oregon Funnybug became *Caurinus dectes*, a very nice name in my opinion, and not the least for its flouting several of the linguistic niceties of taxonomic usage. I used a Latin adjective as a noun for the genus and a Greek noun as adjective (used "in apposition", I needed to say) for the species epithet. A bit of naughtiness in its formal name seems just right for the Oregon Funnybug.

Did I mention "unknown unknowns"? At the end of this first collecting season I thought I knew quite a bit about the funnybug's habitat structure—in particular I believed it would prove to be similar to that of *Hesperoboreus brevicaudus*—centered on and possibly limited to luxuriant draperies of *Rhytidiadelphus* and other mosses on vine maple and other deciduous trees. Further, I expected that I would find that the larvae and possibly the adults fed on these mosses (since all other boreids appear to be moss specialists), and I thought that the funnybug was likely localized at or around Marys Peak. Once again I was roused from my dogmatic slumber by a collection made by Paul Johnson. Paul had become interested in byrrhid beetles. Like boreids, the Byrrhidae are a small, mostly boreal group of specialized moss feeders (bryophages), and adults and larvae of the genera *Lioon* and *Lioligus* were an abundant bycatch in our search for boreids. As he pursued other byrrhids like *Cyrtinus* and *Byrrhus* that feed on terrestrial mosses, Paul was bringing in samples of bryophytes from substrates that didn't fit our idea of *Caurinus* habitat. In November 1976, one of Paul's samples, a bag of terrestrial mosses growing on gravel at the end of the Cascade Head summit road, produced a single male *Caurinus*. The following weekend we collected more *Caurinus* at the Cascade Head site and confirmed that no draped vine maple were nearby, and also found *Caurinus* at two new sites along the way.

The chase was now on, and we hardly looked back for the next 3 years! During the rest of the 1976-77 winter, Paul and I found a dozen more funnybug sites in the Coast Range, on headlands and in the fog belt along the northern Oregon coast, and all along the Siletz River from its headwaters near Valsetz to the Nehalem Bay estuary. We also found a site near Laurel Mountain with two species of *Boreus* (*B. californicus* and *B. elegans*) that lay only a couple of miles cross-country from the Siletz canyon where both *Caurinus dectes* and *Hesperoboreus brevicaudus* were present. A bit of off-road bushwhacking would likely locate a site with all 4 species within hopping distance—that would be the only place in the world where all 3 genera of Boreidae co-occur. (Or perhaps they did co-occur there—returning this winter, 35 years on, I've been unable to relocate the *Boreus* site in this heavily logged private and BLM landscape.) We found a few—just a few—inland populations, at Klickitat Mountain, inland from Cape Perpetua, near Nashville at the northwest corner of Lincoln County, and on a tributary of the Yamhill River west of Valley Junction. But we also found lots of negatives in apparently suitable habitat: no *Caurinus* were found on the coast south of Cape Perpetua, none in the Siskiyous, and none in the Oregon Cascades, other than a single collection near the Crown Point observatory at the western portal to the Columbia Gorge. Like the initial Cascade Head specimen, the Crown Point collection was from rampant moss on a bouldered hillside, far from any vine maple. *Caurinus dectes* has since been found at Oneonta Gorge (fide James "Ding" Johnson, University of Idaho), suggesting that it may be present all along the waterfall loop in the western gorge—perhaps someone will look for it there.

Previous Installments in the Funnybug Chronicles:

2013. The Funnybug Chronicles—Episode 1: In the Beginning… . Bulletin of the Oregon Entomological Society (3, Fall): 3–4.

2013. The Funnybug Chronicles—Episode 2: "strange if a boreid, stranger if it weren't". Bulletin of the Oregon Entomological Society (4,Winter): 14.

Contact Dr. Russell at <loren.russell@comcast.net> with any comments/additions/corrections/questions. He also has t-shirts with his drawing of a mating pair of *Caurinus dectes* available for purchase (see design in Episode 2).

UPCOMING MEETINGS

36th Northwest Lepidopterists' Workshop

The workshop will be held the weekend of October 18–19 at OSU in Corvallis, Oregon (see pages 19 and 20 for details). On October 17, Robert Pyle will speak on the "Butterflies of China" in Eugene (see Eugene-Springfield Chapter Meetings item below).

Entomological Society of America (ESA)

The annual meeting will be held in Portland, Oregon on November 16–19. Visit the ESA's website, <http://www.entsoc.org/entomology2014>, for details.

North American Butterfly Association (NABA) Eugene–Springfield Chapter Meetings

Meetings for the rest of 2014 are scheduled for:

Monday, October 13, 2014 with Jim and Sue Anderson

Friday, October 17, 2014 with Author Robert Pyle
Topic: The Butterflies of China
(Co-sponsored by Eugene Natural History Society)

Monday, December 8, 2014 with Idie Ulsh

For up-to-date information, please visit their website <http://www.naba.org/chapters/nabaes/>.

A Trip to Nevada and Utah

text and accompanying photos by Rick Westcott

During late June of this year I had the good fortune to collect with fellow entomologists in Nevada and Utah. I drove to Reno, from there continuing for two days with Jeff Knight (Nevada Department of Agriculture) to meet our Utah companions (Clint Burfitt, Utah Department of Agriculture and Food, and Shawn Clark, Brigham Young University) at the old ghost town of Frisco (<http://en.wikipedia.org/wiki/Frisco,_Utah>, Figures 1 and 2), northwest of Milford. Along the way, in eastern Nevada, Jeff hoped to set a light trap (Figure 3) to be picked up later by one of his field personnel, but found the battery dead. From Frisco, with the assistance of modern technology that got us a bit lost at first, we made our way over the Wah Wah Mountains, a place from which I dearly wanted to label at least one buprestid beetle for my collection. The bups were few—they were few everywhere on this trip—and of common species, but I grabbed a couple nevertheless, one representing a new adult flower-visitation record for Utah's state flower, the Sego Lily, *Calochortus nuttallii* (Figure 4). We found a great campsite all to ourselves in pinyon-juniper woodland (Figure 5), with good places to set lights (Figure 6). Night collecting produced a fair number of moths, mostly Noctuidae and odds and ends of coleopterans. The Wah Wahs reach about 9400 feet and we crossed the road summit at almost 8100 feet, where white fir, *Abies concolor*, grows. The western side of the canyon is made lush with narrow meadows fed by a spring and creek, but quite overrun by cows–no surprise there!

From the Wah Wahs we drove to Beaver Dam State Park in far southeastern Nevada (<http://parks.nv.gov/parks/beaver-dam-state-park/>) tucked against the Utah state line. At Modena, Utah we decided to rely again on modern technology, plugging in the shorter "Scenic Route" (Figure 7). Mistake! We were lucky that both vehicles made it through what, perhaps, used to be a decent road, but it had long since fallen to

Figure 1. Charcoal kilns at Frisco, Utah.

Figure 2. Shawn Clark, checking sweeps at Frisco, Utah.

Figure 3. Jeff Knight, west of Ely, Nevada.

Figure 4. Sego lily, *Calochortus nuttallii*, with visiting checkered beetle, *Trichodes ornatus*, Wah Wah Mountains, Utah.

"serious off-roaders." Needless to say, this cut into our collecting time that afternoon in this interesting and diverse place; however, we were able to spend much of the next morning there beating and sweeping for our booty. This part of Nevada is known to harbor some more southeasterly species of insects, one notable coleopteran being the dynastine scarab *Xyloryctes thestalus*, which we collected at lights. It reaches its westernmost known limit here. The park boasts diverse vegetation, ranging from the more typically Great Basin pinyon-juniper woodlands to vegetation that is more heavily populated with oaks and other plants found at similar elevations in southern Utah and Arizona. In the latter vegetation type we collected two species of Buprestidae unrecorded from the state, albeit one of them from a single specimen. The other is found east to the Atlantic Coast. The park is the westernmost known limit for both.

From here we drove to the Beaver Dam Mountains in the far southwestern corner of Utah. It had been years since I was there, and I was so disappointed to see how badly they had been burned by a wildfire. Jeff—ever the slave to work and a shower—had decided to take a motel in St. George, so he left the rest of us to camp at a nice site with diverse vegetation located around 5500 feet (Figure 8), which narrowly escaped the burn. It was very dry here in late June, as it was most other places where we traveled except at the highest elevations, which were mostly in northern Nevada. I did not collect a single buprestid in the Beaver Dam Mountains, but was given a few of them that Shawn collected during his sweeping for chrysomelids. While I was generally disappointed in buprestid collecting, Shawn was happy with his booty, as usually he is. More than once he has told me that 1) there are always chrysomelids, and 2) all chrysomelids are good. I can attest to the truth of the former, leaving the other open to debate; and those that sit out on twigs often give me pause, making me think they are buprestids.

The next day, Clint and Shawn left to Provo and Salt Lake City, while Jeff and I headed for Ely, Nevada, where we spent our second night in the Motel 6. On the way we stopped to sweep wild buckwheat near Moapa, an area that, on September 9, received 4 inches of rain in 2 hours, causing a section of I-15 to wash away! Of course it was as dry as a bone when we were there. We ate lunch just inside the Weepah Spring Wilderness (<http://www.blm.gov/nv/st/en/fo/ely_field_office/blm_programs/wilderness/wilderness_area_information/weepah_spring_wilderness.html>). This place is reputed to contain one of the largest and most well-known concentrations of petroglyphs in Nevada. I am sure we did not drive in far enough, as Figure 9 shows the best example I could locate. That afternoon we encountered a brief, heavy hail/rain storm, right in Ely. Next morning I learned that not only *Homo sapiens* hangs out at Motel 6, Ely (Figure 10)! We left early next morning and drove 300 miles back to Reno, where I jumped in my trusty little 'Echo' and beat it 500 miles to home—it was a very long day! In spite of what I considered limited collecting success, perhaps due largely to dry conditions, it was a very interesting adventure, with good camaraderie and good weather. I hope we can do it again.

Figure 5. Clint Burfitt. Dinnertime in the Wah Wah Mountains, Utah.

Figure 6. "Not much here, let's check the other light": Shawn Clark, Clint Burfitt, Wah Wah Mountains, Utah.

Figure 7. "The Honeycombs" along the "Scenic Route".

Figure 8. Jeff Knight, Shawn Clark, Clint Burfitt, Rick Westcott. Beaver Dam Mountains, Utah.

Figure 9. Petroglyph, Weepah Spring Wilderness, Nevada.

Figure 10. Little brown bat, Motel 6, Ely, Nevada.

Insects Through the Eyes of an Artist

Stacey Thalden[1]

I am a Nature Illustrator and recently moved to Portland, Oregon, from Burlington, Vermont. Being new to the area, I was excited to learn about the Oregon Entomological Society and am delighted to share my creative practice with bulletin readers.

Astounded by the visual harmony found in nature, I create paintings that honor insects and other natural beings. I am currently creating a series of 2D and 3D paintings that magnify the extraordinary colors, patterns and proportions displayed by beetles. It is my hope that these paintings create a window into the natural world, where nature can be appreciated, seen anew and celebrated.

My connection to nature started as a small child climbing trees, overturning rocks and playing in streams. This was coupled with classes in drawing, painting, and ceramics. As an adult, I pursued an education in design while I explored nature in my pastime. It was not until 2004 that I recognized a strong desire to combine my fascination of the natural world along with creative expression. With this realization, I joined the Masters Program at Goddard College, in Vermont, and received an interdisciplinary degree with a focus on Painting and Entomology. I found the more I researched and observed the more I was awe-inspired by the visual harmony found in nature.

Now that I am settled in Portland, I spend my time creating intricate and colorful paintings in my studio, teaching classes on insect illustration, and hiking in the beautiful Oregon landscape.

"Goliath Beetle" rendered in acrylic paint and Prismacolor® pencil. Image by Pushdot Studio used by permission. © S.Thalden 2014.

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The Cimbicid Sawflies of Oregon (Hymenoptera: Cimbicidae)

Ron Lyons

Of the sawflies (Superfamily Tenthredinoidea), individuals in the Cimbicidae are recognizable by the presence of club-like antennae (Figure 1).

Smith (1979) indicated that there are 2 subfamilies with 3 genera in North America:

Subfamily Abiinae: *Zaraea* (now *Abia* [see Taeger and Blank 2011])
Subfamily Cimbicinae: *Cimbex*, *Trichiosoma*

Goulet (1992: p. 60-65) has the most complete write-up I came across for the members of this family. (According to the key on page 61, Figure 88 on the same page should be labeled "Head of *Zaraea*" [now *Abia*].) The following characteristics can be used to separate the North American genera:

Abia – small body size (compared to the other genera)
Cimbex – small labrum (upper lip), no tooth-like projection on metafemur
Trichiosoma – large labrum, tooth-like projection on metafemur

The number of recognized species in each genus is apparently small but Goulet and others have commented on the need for study and revision, particularly of *Cimbex* and *Trichiosoma*. Sawfly expert David Smith (priv. comm.) feels that *Abia* needs work as well. David wrote that the classification in use today is the one presented in Smith (1979: p. 26–28). He indicated that the species determinations in collections may not necessarily agree to those given in this publication. Instead they might reflect the unpublished revision made by McMaster (1976) in her M.Sc. thesis.

Four of the recognized species have been recorded from Oregon: *Abia americana* (Cresson), *Cimbex americana* Leach and *C. pacifica* Cresson and *Trichiosoma triangulum* Kirby.

Abia larvae feed on members of the honeysuckle family as well as *Symphoricarpos* sp. and *Menyanthes* sp. (Goulet 1992). *Cimbex* and *Trichiosoma* larvae are found on deciduous trees such as alder, willow and birch. Stein (1974) lists a number of other trees that can be used by *Cimbex americana*.

I found one adult female *A. americana* alive in a spider web at a white window on the south side of my home near Bandon in Coos County on April 27, 2014 (Figure 2). It is listed by Parsons et al. (1991: p. 98) from the Andrews Forest.

Stein (1974) provides information on the life history and photos of the various stages of *C. americana*. It is described as a metallic blue-black wasp with yellow markings along the sides of the abdomen. Of particular interest are three points:
– adults emerge over a period of approximately 30 days;
– adults mate on the foliage or on the ground under the tree;

Figure 1. Female *Cimbex pacifica* (Oregon State Arthropod Collection). Photo by Ron Lyons.

Figure 2. *Abia americana* (Oregon State Arthropod Collection). Photo by Ron Lyons.

– individuals from 2 successive generations emerge during the same season.

Stein points out that "adults cut transverse gashes in the bark of small limbs and branches with powerful mandibles to feed on the sap." Haggard and Haggard (2006: p. 122) show photographs of a larva and an adult on its cocoon. They noted that a larva they had "remained dormant as a larva in a cocoon case for 2 years before pupating and emerging."

C. pacifica (Figure 1) is the only cimbicid sawfly Schuh and Mote (1948: p. 128) refer to (very briefly!) when talking about insect pests in Oregon. On May 29, 2004, I photographed an adult on a willow leaf at my home.

Goulet (1992) has a nice line drawing of an adult *Trichiosoma triangulum*. Haggard and Haggard (2006: p. 122) have photographs of an adult and a larva. Based on their picture, I photographed a larva of *T. triangulum* on willow on June 9, 2006 (Figure 3). This past spring I was able to observe a number of individuals over an extended period and report on these observations in the following article.

Acknowledgements

I would like to thank sawfly expert David Smith for helping me understand the uncertainties of cimbicid classification, clearing up my confusion as to the *Cimbex* species, and providing his key to the various species.

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Figure 3. Larva of *Trichiosoma triangulum* (Oregon, Coos County, near Bandon, on willow leaf, June 9, 2006). Photo by Ron Lyons.

Observations of the Cimbicid Sawfly *Trichiosoma triangulum* in Southern Oregon (Hymenoptera: Cimbicidae)

text and accompanying photos by Ron Lyons

Introduction

Trichiosoma triangulum is a large hairy sawfly (Figure 1). It has a black head and thorax, and a black abdomen marked with varying amounts of red. Any red markings begin with the tip of the abdomen and work up along the sides. In very strongly marked individuals, the top of the abdomen may become red too (Figure 2). The femora of the legs are black and the femora of the hind legs each have a noticeable tooth on them. The tibiae and tarsi are orange-red. The head and thorax are covered with grayish pile; the abdomen also has grayish pile but it does not appear as dense as that on the thorax. The wings are infused with yellow. The labrum (upper lip) is large and partially obscures the mandibles when the face is viewed from the front (Figure 1); from the side the labrum makes the face look lumpy. Like the other cimbicid sawflies, the antennae are clubbed.

Three of the specimens I found in the Oregon State Arthropod Collection (OSAC) did not follow the color pattern described above—they were reddish brown all over. One of these was collected in Oregon but the locality was just written as "Or."

Based on the specimens deposited (different dates for 42 localities) in the collections at Oregon State (OSAC), the Oregon Department of Agriculture (ODA) and Southern Oregon University (SOU), *T. triangulum* has been found in 17 counties in Oregon (see Figure 3). Collection dates from these Oregon specimens range from April 12 to August 16 with the bulk (36) in the May – July period. (One of the specimens in an unpublished list provided by Chris Looney [priv.

Figure 1: *Trichiosoma triangulum* (dorsal, lateral and face-on views of 3 different adults). Note the hairiness of the thorax and abdomen. Hairs can even be seen on the upper surface of the femora. Note the expanded labrum (upper lip) partially obscuring the mandibles, and the small tooth visible on the femur of the hind leg.

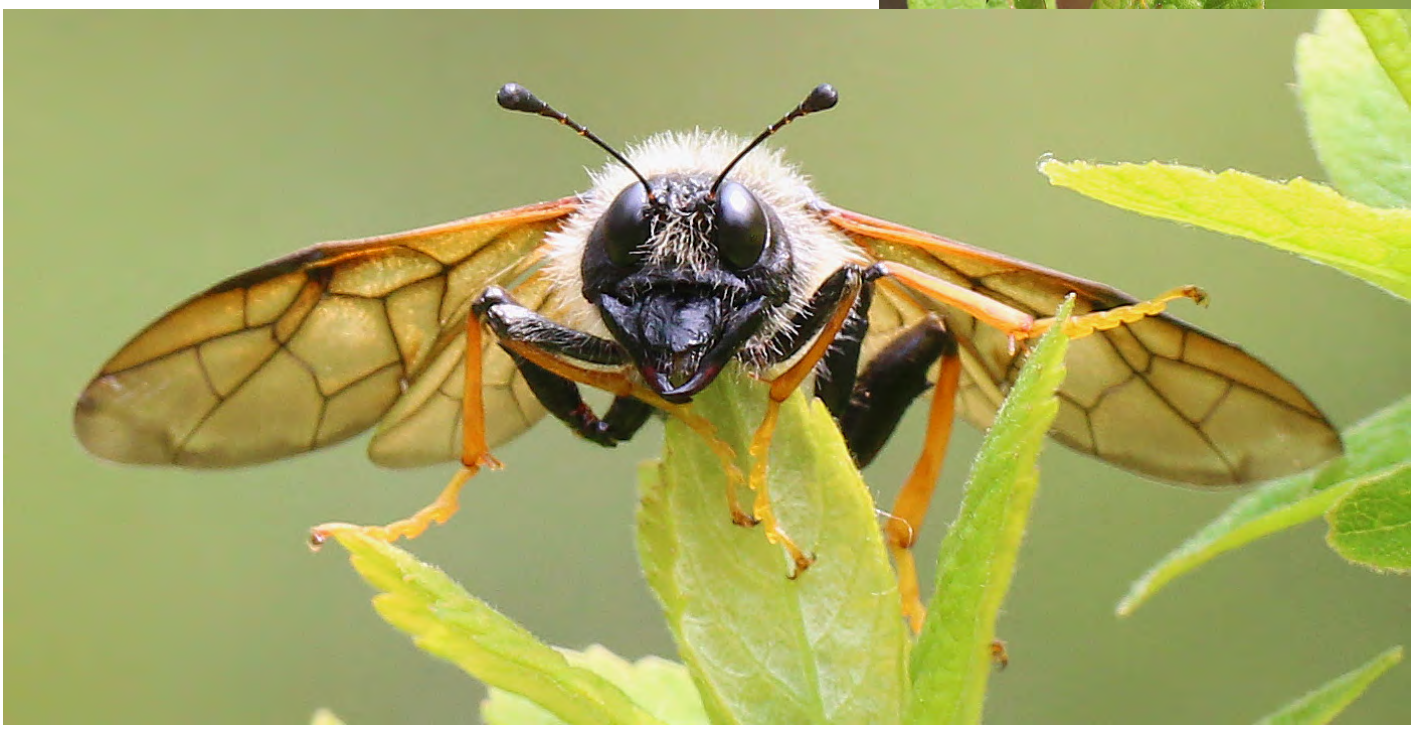

Figure 2. Abdomens of 2 specimens from the Oregon State Arthropod Collection showing some of the variation in the red coloration. On most of the individuals I photographed the red coloration was not as extensive.

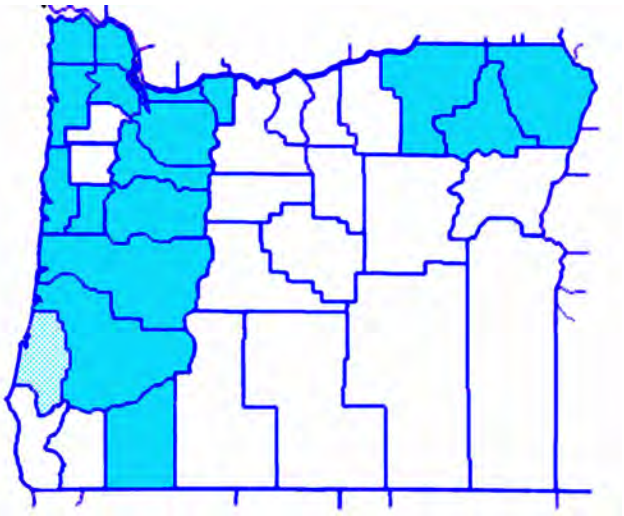

Figure 3. Distribution of *Trichiosoma triangulum* in Oregon based on specimens contained in the Oregon collections (solid color). Coos County. the site of this study, is indicated by the halftone area.

comm.] was collected on March 27 and one of the specimens at OSAC was collected on September 5. Both of these specimens were collected in Washington.) Based on the label information, multiple specimens (between 2 and 14) were collected on the same day at 8 sites between June 1 and mid-July.

The observations discussed in this article were made at my home (elevation ~200 feet) near Bandon in southern Coos County, Oregon. Since no specimens from Coos County were present in the three collections indicated above, this raises the total number of counties where *T. triangulum* has been found to 18.

Observation Period

On April 10, 2014, I found a dead female *T. triangulum* caught in a spider web on a white south facing window at my home.

On April 12th, I noticed some *T. triangulum* wasps flying over a small thicket of *Spiraea douglasii* (hardhack or steeplebush [Pojar and MacKinnon 2004: p. 81]: Figure 4) near the house. These wasps were large and easy to see; other than the occasional *Bombus* queens and early butterflies, they were definitely the largest insects flying about at that time. I saw multiple wasps daily in the same area between April 12 and May 11 (excluding 3 days with inclement weather and 1 day I was away). The maximum number I found at any one time was about 10 on April 15. After May 11, my coverage has more gaps but I only ever saw single wasps in the area; during this period there were several intervals when no wasps were seen. The last wasp I saw was on June 2.

On sunny days during this period, one or more wasps could be found in the thicket approximately from 11 am to 4 pm. The beginning of the activity period corresponded to the time when the patch was well illuminated; it was still well illuminated at quitting time. The actual starting time was affected by the weather; the actual ending time varied somewhat but by 4 pm the wasps had usually left. In general the wasps did not remain in the thicket overnight but it did happen. In one case 2 wasps got caught by a change of the weather around noon and ended up staying through the night.

While other areas of the property were occasionally used later in the day, the wasps appeared in the thicket first and preferred this area. (Excluding the dead female, there was only one occasion when I found a wasp outside this area first—it was on a *Digitalis purpurea* leaf in the sunlight around 10 am.) Most of the activity I saw occurred over, or very close to, the thicket.

The air temperature measured in the sun about 3 feet off the ground was generally in the upper 60s to low 70s F. There were times when the temperature dropped to the low 60s when clouds obscured the sun, and a couple of days with highs in the mid to upper 80s F and even low 90s.

The Habitat

A low-lying area supports a small (~0.5 acres) grove of alder and willow, interspersed with some rhododendron and cherry. The understory is composed mainly of black raspberry, thimbleberry, and Himalayan blackberry. The ground has a lot of surface humus/debris from fallen branches, leaves, and grasses. In the winter the ground is wet to mushy. A small pond forms at the lowest point if there is sufficient rainfall, and runs off along a shallow drainage through the area. The area immediately surrounding the grove to the north, east and west is slightly higher, the dominant large plants being Douglas fir, Pacific madrone, and rhododendron. A narrow area of lawn, with a small garden runs along the south side of the grove; the lawn itself is bordered on the south by more Douglas fir, Pacific madrone and rhododendron. While somewhat isolated in the immediate area, there are other low lying areas nearby that also support alder-willow groves.

A thicket dominated by *Spiraea douglasii*, generally 3–6 feet in height, is tucked into a notch along the southern edge of the

Figure 4. *Spirea douglasii* thicket looking east. (Some of these plants were blooming by early June [see inset]). The trees in the background are willows and alders. The area circled in white seemed to a preferred area for the wasps. In fact, all the matings that I saw were in or near this area. For the most part, my observations were made from the west side of the thicket.

alder-willow grove. It is interspersed with young willow, Himalayan blackberry and black raspberry. The thicket is sheltered on the east and north sides by the grove and on the west side by the house. The south side is open to the lawn.

The wasps preferred a portion of the ticket (Figure 4), an area about 20 feet by 20 feet; a smaller area (indicated in Figure 4) in the northwest corner of this block was used the most consistently throughout the entire observation period. Due to the surrounding trees, the sun does not begin to illuminate this part of the thicket (other than with dappled sunlight) until around 10:00 am. On sunny days, the section remains illuminated until late in the afternoon.

I think the selection of this patch as the preferred habitat had more to do with its location and structure than its composition. The numerous leaves of the *Spirea* were similar in size to the size of the wasps. They were easy for the wasps to hold on to and big enough to support basking wasps without problems; the wasps could orient themselves as desired. The remains of the flower spikes were small enough to grasp easily, or even sit on top of. Individuals that landed on thin branches or *Juncus* stalks appeared to spend more energy holding on in the breeze. The structure of the *Spirea* provided many sight lines so that other perched wasps could be watched, and flying wasps could be seen.

Based on the fact that the wasps appeared about the same time each day, weather permitting, I think the patch was visible from their emergence site. I have no real evidence for this. However, I did find one wasp walking around on the ground in the woods nearby when I was doing some clean up. Subsequent searches did not turn up any others, and no cocoons were found.

Diurnal Activity

During the observation period, on sunny days, one or more wasps would generally arrive in the area between 10:30 and 11:00 am. The exact timing of the arrival was affected by the presence of the local marine layer or clouds; no wasps would show up if it was cloudy or the weather was inclement. The wasps engaged in 3 activities—perching, flying and, very occasionally, mating. In all the hours that I watched, I did not see any wasps feeding here.

a) Perching

The wasps spent most of their time perched, relatively inactive (Figure 1). They basked in the sun, reorienting in their chosen spot as necessary, rather than moving around on the plants. They preferred to perch on the leaves of the *Spirea douglasii*. They did use the dead flower spikes and the Himalayan blackberry leaves, but less frequently. (They did not perch on the trunks or branches of the trees or a cut up willow nearby.) They seemed to prefer surfaces on which they could rest more or less horizontally. They did not necessarily pick the highest points on the plants but they were near the top so they were exposed to the full sun, i.e. they were not buried in the vegetation. Usually, when they were not watching me, they were looking towards the trees on the north side of the thicket. When 2 or more wasps were present, I noticed that at least some seemed to position themselves so they had a direct sight line to another perched wasp. All the perched wasps I photographed appeared to be males.

b) Flying

Perching periods were interrupted by short flying periods. From

Figure 5. Some images of pursuits (extracted from much larger images) from various days. Top: Group pursuit (3 wasps shown in each image). Middle: Closeups of wasps to show the flight posture. Bottom: Two images showing possible "takedowns."

the photographs (Figure 5), the wasps generally fly with the femora of their front legs pressed up against the sides of their thorax. The middle and hind legs hang down or trail behind; both are bowed outwards. (To me the wasps look like they are riding very small invisible horses.) The contrasting black and orange-red coloration on the middle and hind legs, and the red area at the tip of the abdomen of most individuals are prominent in flight, as is the white pile on the thorax and the front of the face. The insects seem to bounce and sway from side to side as they fly, probably a consequence of their weight and the normal dangling position of the middle and hind legs.

I divided the flight activity into 3 general categories: patrol/display, pursuit and takedown (see next section).

Patrol/display flights occurred whether there were a lot of wasps or only one wasp. At some point, a perched wasp would rise up a foot or two above the vegetation and fly in several small quasi-circles over the vegetation. If no other wasps rose up to meet it, the wasp would drop back down to the vegetation, usually landing in the same area that it left from but not the same spot. Sometimes the landings seemed pretty good, while other times the landings seemed pretty clumsy. Occasionally I noticed a wasp make would make what I called a "grand patrol/display". In this case, the "circle" covered would include the whole thicket, perhaps reaching out over the lawn or even the house. Patrol/display flights were undertaken more frequently by wasps in the thicket area than wasps who had found perches away from this area.

If there was more than one wasp in the active area, any wasp that conducted a patrol/display flight would usually cause other wasp(s) to begin flying too. The wasps would then fly about chasing each other (Figure 5), until they eventually all dropped back down to the vegetation. (Their flight activity at these times reminded me of the aerial dogfight scenes one sees in war movies.) They seemed to avoid flying into each other, although it didn't seem to be due to lack of effort (see next section). Sometimes a couple of wasps would start to circle one another, and in some cases they spiraled upwards (at most to tree top height, about 25 feet up) until one broke off. While circling upwards it sometimes appeared that at least one of the wasps would drop its abdomen as it circled. There were also instances when it appeared that some sort of deliberate gentle contact occurred between the two wasps during these flights.

This group flight/pursuit was repeated over and over again followed by periods of rest or inactivity. After a chase, the wasps appear to take a bit of time to settle down before they finally land. While they often returned to land in the same area from which they had taken off, they did not necessarily settle down on the same perch. They also did not seem to prefer to land near another wasp (like you might expect if one was a male and the other a female). However, in many cases the wasps appeared to position themselves so that they had a direct sightline to at least one other wasp. That way if one wasp took off the other could follow right away.

Sometimes, particularly late in the days, individual wasps did not participate in the group activities. These perched wasps were not harassed by the other wasps. Late in the day, the area covered by a sortie seemed to be smaller as was the time spent on the wing, so there was less chance of getting a response. Generally other insects were ignored, but I did see a couple of times when a wasp would rise up in response to some passing dragonfly, butterfly, moth, fly or bee (any pursuit was very limited).

Some wasps got chased out of this active area but found their way back while others perched elsewhere. One wasp chased out of the area, took up residence on a nearby patch of rushes (*Juncus* sp.) about 12–18 inches in height. This patch was also in use on another day. A leaf on a nearby young lilac tree, similar in height to the maximum height in the thicket, was used on a couple of days. I found a wasp perched in the garden on grass and mint leaves on two days, and another on the young leaf of a Shasta daisy. All of these wasps tended to orient themselves so they faced north towards the thicket. I did find one on a young *Digitalis purpurea* plant in the yard one afternoon, well away from the area of action. I only found a wasp on the lawn once.

The highest number of individuals in the active area occurred at the beginning of the observation period. As the number of wasps in the active area dropped off, whether through attrition, collection or moving to alternate (nearby or not) areas, the activity of the remaining males declined. Patrol/display flights would go unanswered and be relatively short in duration.

c) Mating

Occasionally there were collisions, accidental or deliberate takedowns in which both wasps would drop straight down out of the air onto the vegetation. In a small number of cases mating ensued. In the majority of cases, however, the participants recovered and flew off, one almost immediately, the other after a slight delay. Were these failed mating attempts, cases of mistaken identity or deliberate attempts to eliminate or otherwise intimidate the competition? The collisions and subsequent crash landings undoubtedly produced some of the wing damage apparent on some individuals so there is a potential physical cost to this behavior.

In four cases, the participants were seen mating: April 13, April 15, April 28 and May 6 (takedown not seen). There were a number of males about when the first 2 matings occurred. On April 28, there were only 2 males in the thicket; on May 6, there was only one male around.

I am not sure when coupling actually occurs. In the first instance, I saw the pair after they hit the vegetation. In the second instance, they appeared to be in contact by the time they hit the vegetation, as they didn't land well and tumbled though together to the next level of leaves. I spotted them pretty quickly and they were already mating. In the first case, both individuals were on some leaves and the pair moved around a bit while joined (Figure 6). In the second case, one supplied the support and the other appeared to be just

Figure 6. Mating on *Spirea douglasii* April 13, 2014. The upper wasp is the female.

Figure 7. Mating on *Spirea douglasii* April 28, 2014. Of the pair, the wasp in the foreground is the female. The watcher came close but did not touch or otherwise interfere with the mating pair.

hanging freely or at best merely stabilized with its feet touching a leaf. Both couplings were short, about 2 minutes each based on the timestamps on my photographs. They were not harassed by the other wasps, perhaps because they were down in the vegetation, rather than out in the open. Mating finished, they disconnected and flew off.

In the third case, the pair landed and stayed on the top of the plant right out in the open. There seemed to be some jostling around at the beginning but it wasn't clear to me what was happening. Mating was a bit longer this time lasting between 5 minutes 15 seconds and 6 minutes. At one point another wasp landed near the pair, and proceeded to watch. While the pair moved away, and the watching wasp did get fairly close (Figure 7), it did not physically interfere with the mating. It flew away only to return and watch some more before finally leaving.

In the fourth case, a wasp had been in the thicket area and then apparently left, at least I thought it had. I went off to do other things and was headed back into the house when I noticed it was back. By the time I retrieved my camera and got back to the thicket, I found that mating was in progress. The pair split after about 1 minute 30 seconds. The total mating time would have been at most a little over 2 minutes. In this case, the pair mated on the top of the plant right out in the open.

I could not separate the males from the females visually, so I don't know when the females arrived or how they came into the active area. (The males and females look alike and the female ovipositor is small and not easily seen from most angles.) I did not see where the females went after mating.

Some Other Miscellaneous Observations

On April 24 I saw a wasp fly into a nearby alder, landing on a bare spot of a thin branch. During the course of the afternoon, it moved slowly up the branch towards the main truck of the tree, pausing occasionally. It spiraled up the branch so that sometimes it was in the sun, sometimes it was out of the sun. The wasp remained on the branch untill nightfall, and presumably stayed there all night. On April 25, a wasp landed in a similar area on a different alder. It also moved slowly, spiralling up the branch and pausing occasionally. In a low resolution video, it was apparent that when it paused it was swinging its body back and forth from side to side. Perhaps it was using its jaws to slice the bark so it could feed on sap (see comments on *Cimbex americana* in the previous article). It was however too far away to be sure.

One wasp flew in on a dicey day (April 24) and proceeded to sit in the sun and preen itself. In particular it used its hind legs to scrape the folded wings, bending them down over the end of its abdomen (Figure 8). It stayed in the same area, and reoriented its body to the sun periodically. After more than an hour in the variable sunlight, it flew away. (I observed this same preening behavior exhibited by a couple of wasps that had remained overnight during inclement weather.)

One May 11, the male wasp which appeared in the thicket first had somewhat damaged wings. It was displaced early in the day after a short confrontation by a wasp without any real damage to its wings.

Some *Rhionaeschna californica* dragonflies (California Darners)

Figure 8. Wasp preening on April 24, 2014. The wasp used its hind leg to scrape along the wing bending the wing down over the tip of its abdomen. When its leg reached the end of the wing, the bent wing would flip back up.

occasionally seemed interested in the wasps but did not purse any of them. In one case, a wasp got caught in a small orb web in the vegetation, but it managed to extricate itself.

Three wasps were collected (April 24, April 28 and May 12) and sent to Nathan Schiff for DNA analysis.

Some of the pictures of males show what appears to be a worn spot at the end of the abdomen, in the sense that the hairs are missing. Based on the mating posture I think it is possible that these spots are an indication that the male has mated or attempted to mate at least once.

Summary

In this article I have provided a representative sample of the activities that I observed. While I saw lots of activity, and made a lot of notes, I undoubtedly missed a lot or did not record what, in retrospect, might have been relevant behavior. A lot was going on, especially during the early days when a lot of wasps were present.

I would be interested to hear of others' experiences with these, or other, cimbicid wasps. Locality records would also be useful for all the species found in Oregon.

On the Photography

Perched wasps were relatively easy to photograph, although the density of the local vegetation made it hard to get very close. I was regarded with interest—many individuals positioned themselves so they could watch me or the camera, at least for a while. However, the insects did not appear unduly agitated and I was not charged as some insects do when you get too close.

Flying wasps, on the other hand, were very difficult to photograph. Their motions were influenced by the presence and actions of other wasps—they do not hover, seldom fly in a straight line, and move quickly through the field of view of the camera. Part of the time I set the focus somewhere in the middle of the flight area and just took pictures as I saw wasps flying through the field. While the wasps in these images were always out of focus, some were less out of focus than others and I could usually tell what was going on. I never managed a well focused shot of a flying wasp, despite a great deal of effort.

Too late in the time period, I came up with an option that I think could produce some better flight images. I could set up the camera to focus on a perched wasp and start photographing it as soon as another wasp began flying nearby, on the assumption that the one I was focussed on would soon take off in pursuit. (Of course, it might be the first one to leave, in which case, I wouldn't be ready.) It is easier to anticipate lift off when the number of wasps around is small, simply because you can watch their activities more easily. I didn't notice any particular behavior that would signal when a wasp was about to take off.

The minimum exposure time for stopping the the wing motion of flying wasps is around 1/1600 second or so. It was hard for me to get an adequate depth of field at this speed.

Low resolution videos were helpful in interpreting some of the activity described.

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36th Northwest Lepidopterists' Workshop

When: Saturday and Sunday, 18 and 19 October 2014

Where: Cordley Hall, Oregon State University, Corvallis, Oregon

Hosts: Drs. Paul Hammond and David McCorkle

Sponsored by the Integrative Biology Department and Arthropod Collection, Oregon State University

Saturday Program, 18 October

9:00 AM Register at Cordley Hall, room 2113 (east wing). No fee.
Workshop Preview: Arrange study specimens, etc. Cordley Hall room 1070 (west wing)

10:00 Welcome and announcements, Cordley Hall room 2113 (east wing)

10:30 Activity reports: new state and county records, meeting reports, book announcements, etc.*

12:30 PM Group picture. Location to be announced.

12:45 Lunch at local restaurants.

2:00 Workshop session: Cordley Hall room 1070. (Preceded by a brief orientation to this year's groups if requested.)

Groups of emphasis for this year:
Butterflies: Acmonoid Blues and Hairstreaks
Moths: general moths, micromoths especially Pyralidae
Also specimens of any Lepidoptera from recent field trips or of special interest.
Information exchange and specimen gift exchange is encouraged.

1:00–2:00 Parallel Session: Starting out with Butterfly and Moth Collecting: Youth Workshop. Cordley Hall room 1064

3:00–4:00 Oregon State Arthropod Collection Open House.

5:00 Workshop session conclusion

5:30 Buffet dinner at Izzy's Restaurant, Corvallis (north on 9th)

7:15 Ag 4001: Brief planning session followed by the evening lecture:

Jim Reed – Klickidoptera: the Rewards and Challenges of Teaching High School Entomology.

9:30 Meeting recessed until Sunday morning.


Ron Lyons

* Please bring your Northwest collecting records in written form (include the state, county, location and date, and if available, range and township or longitude, latitude coordinates and altitude.) Oregon records should be submitted to Dan Ross. Washington state butterfly records should be submitted to Ann Potter. Moth records for Washington and all records for British Columbia and Idaho should be submitted to Jon Shepard. This material will be written up for inclusion in the Lepidopterists' Society Season Summary.

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Program continued...

Sunday Program, 19 October

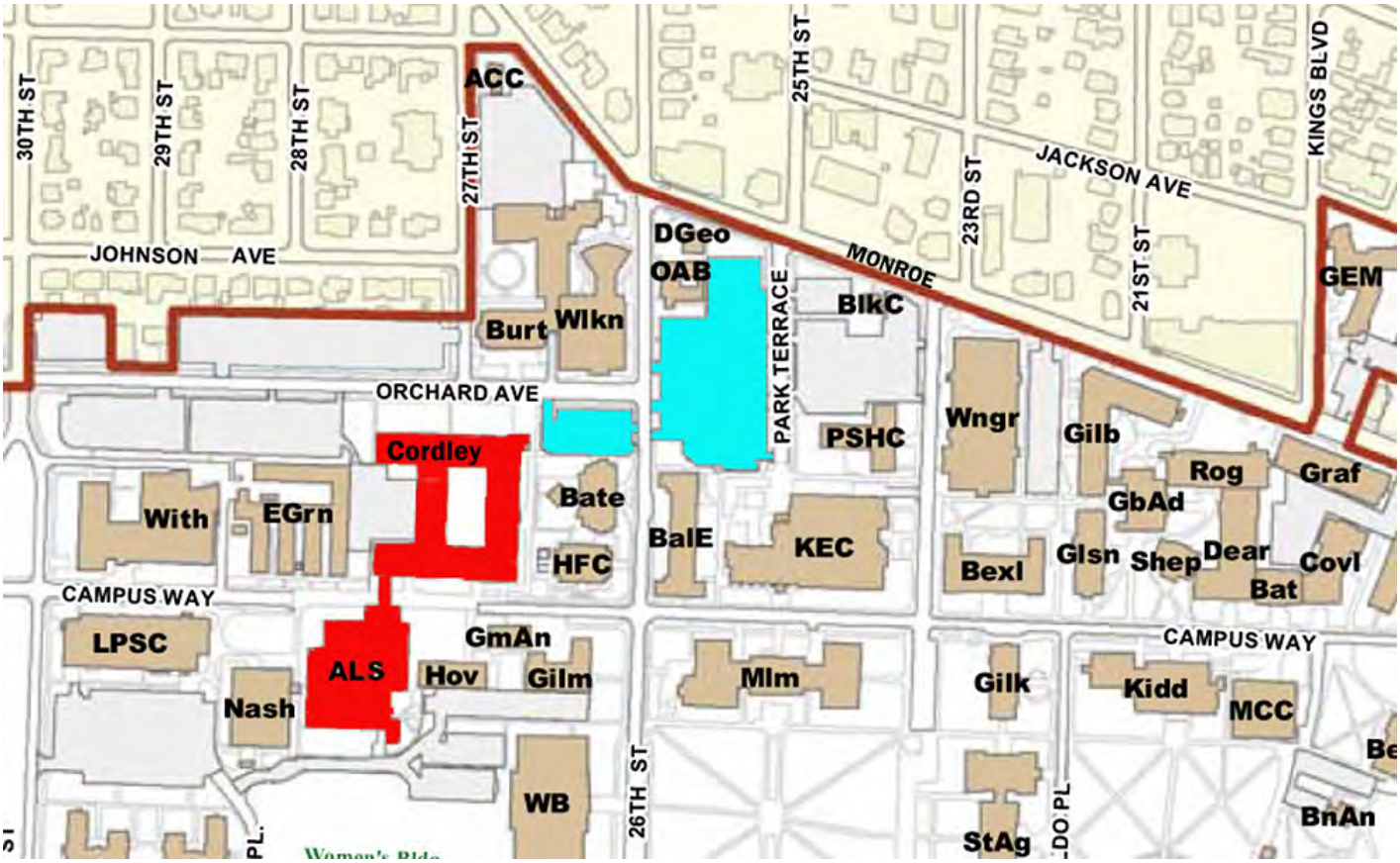
8:30 AM Workshop session resumed, Cordley Hall room 1070 (west wing)

10:00 Field trip reports and other contributions. PowerPoint, etc. Cordley Hall room 2113 (east wing)
This is your opportunity to contribute a presentation on or related to Lepidoptera, e.g. field trip report, favorite images, etc.

Please notify Paul Hammond prior to this meeting of your equipment needs and if your presentation is likely to exceed 10 minutes.

"12:00" Meeting concluded

The map below shows Cordley Hall and the ALS Building in red. Most of the meeting takes place in Cordley Hall. The Saturday evening presentation in Ag 4001 is on the 4th floor of the ALS building, reached from the 3rd floor of Cordley via a sky bridge.



The smaller of the two parking areas colored in turquoise is the one favored by participants as it is the one closest to the weekend entrance for Cordley Hall. Access this lot via Orchard Ave or take Park Terrace and drive through the larger parking lot. Street parking is also available along Orchard Ave.

For a full campus map, visit <`http://oregonstate.edu/campusmap/`> and click on "PDF Map" at the bottom of the page.