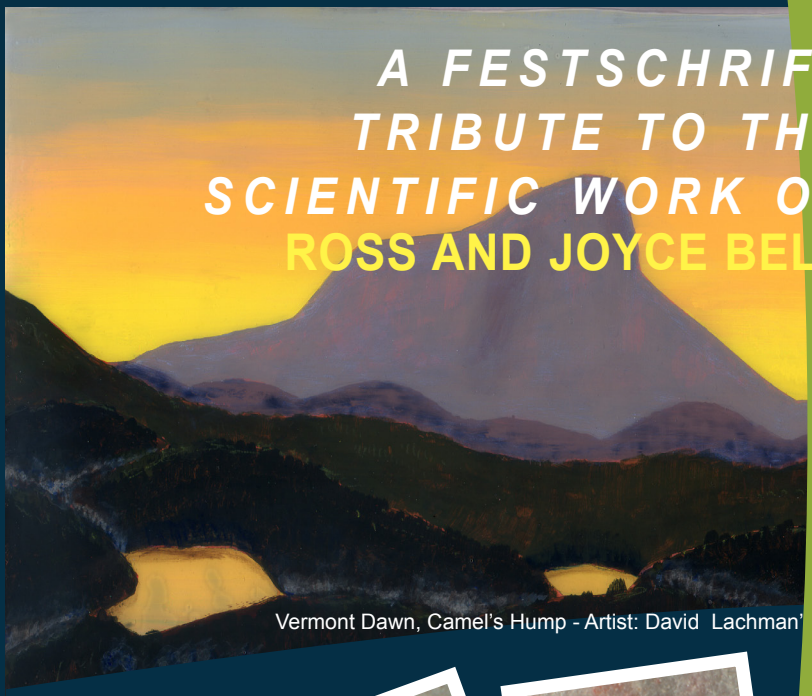
the BELLFEST
12-15 JUNE 2010

A FESTSCHRIFT TRIBUTE TO THE SCIENTIFIC WORK OF ROSS AND JOYCE BELL



Vermont Dawn, Camel's Hump - Artist: David Lachman'

Joyce and Ross Bell
at their home in South Burlington
August 1987

WELCOME TO THE BELLFEST

On behalf of the Department of Biology at The University of Vermont, it is my distinct honor to welcome you to 'Bellfest 2010', a festive symposium celebrating the life and works of Professor Emeritus Ross T. Bell. The program presentations, organized by Professor John Spence, include among renowned coleopterists many of Professor Bell's former students, associates, and former student's students. Indeed the Bell phylogeny is deep and highly branched! We are pleased that you have chosen to come to beautiful Burlington for what promises to be a memorable event to honour Ross and Joyce Bell, who have been Vermonters for more than sixty years. Professor Bell has distinguished himself throughout his long and illustrious academic career at the University of Vermont. We are proud that our beloved institution has served as the Bells' research quarters since 1955, with no signs of abating. Professor Bell's extraordinary scholarship, careful and dedicated work, and passion for 'the beetle' has influenced and inspired many. Together with Joyce, his tireless lifelong companion, Ross has traveled the world in search of elusive and exotic beetles. He has discovered species worldwide, produced taxonomic revisions and field guides, published numerous scientific papers, contributed significantly to our understanding of the natural history of northern New England and made expert contributions to the Tree of Life web project. He is rightly considered by many to be a foremost authority in carabidology, a walking encyclopedia of carabid lore and a fountain of knowledge that keeps on giving. He is afforded folk hero status by those, scientists and amateurs alike, who have been influenced by his work and benefited from his generosity, even those who have not had the privilege to meet him. Our understanding of the phylogeny and classification of Caraboidea bears a distinct and widely appreciated imprint of Ross Bell.

Our best wishes to Professor Bell at the time of this Festschrift. We also wish a joyful and productive meeting to all of our distinguished speakers and guests. May this occasion provide an opportunity to rekindle old friendships, relive encounters past, and forge ahead the science of beetles. Professor Bell's inordinate fondness for beetles is only matched by that of the omnipotent Creator. The beauty of their work will be on display here for all to enjoy.

Jim O. Vigoreaux,
Professor and Chair of Biology, University of Vermont

SCHEDULE OF EVENTS

(Except as indicated, events will be held in the North Lounge of the Billings Center, UVM)

SATURDAY, 12 June

19:00-21:00 **Bellfest Reception** (Marble Court, UVM Fleming Museum)

SUNDAY, 13 June

7:15-8:30 **Breakfast** (hosted for registered attendees)

Session I (Moderator: John Spence)

8:30-9:00 **Introduction to the Symposium** (George Ball & John Spence)

9:00-9:30 **Jonathan Leonard** (with Denise Martin) – "The Bells as graduate student mentors"

9:30-10:00 **George E. Ball** (with John H. Acorn & Danny Shpeley) – "Tiger beetle mandibles and epipharynges: Structure, diversity, evolution, and classification (Coleoptera: Carabidae: Cicindelitae)"

10:00-10:30 **Coffee and *Whatever* Break**

10:30-11:00 **David Barrington** – "Coleopterist at large in the Green Mountains: Ross Bell as mentor and naturalist in Vermont"

11:00-11:30 **Terry L. Erwin** - "Over the rainbow! The next to last pot of taxonomic gold in North American Carabidology: The Western Hemisphere Pseudomorphini (Coleoptera: Carabidae) with emphasis on the Southwestern deserts of the USA and Mexico"

11:30-12:00 **David H. Kavanaugh** – "*Nebria lacustris*: one or more species?"

12:00-13:00 **Lunch** (hosted for registered attendees)

Photo credit: Traci L Brown

Mountain Invertebrate Ecology, 1972

Session II (Moderator: Bob Davidson)

13:00-13:30	**James Liebherr** – "Hawaiian *Mecyclothorax* (Psydrini or Moriomorphini?): bioindicators outstanding in the field (: "
13:30-14:00	**David Maddison** – "Molecular and morphological surprises: Unexpected clades and grades in the phylogeny of *Bembidion*"
14:00-14:30	**Kipling Will** – "Can generalists be derived? Phylogeny and classification of the Pterostichitae of the world"
14:30-15:00	**Robert Acciavatti** - "Revised taxonomy and phylogeny of *Brasiella* tiger beetles (Coleoptera: Carabidae: Cicindelinae) on Hispaniola"
15:00-15:30	**Coffee and *Whatever* Break**
15:30-16:00	**David L. Wagner** (with Derek S. Sikes, Chistopher J. Raithel, Richard W. Enser, & Nicole B. Webster – "Tiger Beetles of Connecticut and Rhode Island (Coleoptera: Carabidae, Cicindela): Conservation status"
16:00-16:30	**Jessica Rykken** (with Brian Farrell) – "Boston harbor islands all taxa biodiversity inventory: Carabid beetles in an urban island park"
16:30-17:00	**John Rawlins** (with Chen Young and Robert Acciavatti) – "The strange case and life way of the boreal sprawler moth, *Brachionycha borealis*, a northern enigma (Lepidoptera: Noctuidae: Psaphidinae)."
18:00-21:00	**Banquet, Marble Court, UVM Fleming Museum** (banquet ticket required)

MONDAY, 14 June

7:15-8:30	Breakfast (hosted for registered attendees)

Session III (Moderator: David Maddison)

8:30-9:00	**Bob Nelson** (with Dasan Thamattoor) - "You can tell by the smell, it's a *Chlaenius*: Characterizing aromatic hydrocarbons in a defensive carabid secretion"
9:00-9:30	**Karen Ober** – "Phylogeography of *Scaphinotus petersi* on Arizona Sky Islands"
9:30-10:00	**Wendy Moore** (with Cara Gibson) – "iCarabid. Planning for NEON and beyond"
10:00-10:30	**Coffee and *Whatever* Break**

10:30-11:00 **Henri Goulet** – “Impact of herbicidal sprays in adjacent corn fields on the ground beetle diversity in an organic field in eastern Ontario”

11:00-11:30 **John Strazanec** (with Terry Carrington) - “Central Appalachian Carabidae: Eastern and western regional comparisons of fauna and habitat”

11:30-12:00 **James R. LaBonte** - “*Nebria brevicollis* (Fabricius) in North America: Benign or malign?”

12:00-13:00 **Lunch** (hosted for registered attendees)

Session IV (Moderator: Jessica Rykken)

13:00-13:30 **Jeff Freeman** – “Ecological observations on Tabanidae (Insecta: Diptera) of Vermont”

13:30-14:00 **Donald S. Chandler** - “Seasonality and diversity of the stream insects of northern New England … or chasing mayflies”

14:00-14:30 **Kamal Gandhi** (with Jordan Burke, Joe R. Milanovich & John C. Maerz) - “Invasion by exotic earthworms alters soil microarthropod communities in a northern hardwood forest”

14:30-15:00 **Colin Bergeron** - “Relevance of a national land classification system as a surrogate for biodiversity of ground-dwelling beetles”

15:00-15:30 **Coffee and *Whatever* Break**

15:30-16:00 **Joshua Jacobs** (with Tim Work, John Spence & David Langor) – “Prescribed burning with high severity fire required for the effective conservation of pyrophilous beetles”

16:00-16:30 **Timothy T. Work** – “The utility of LIDAR-based imaging to identify microhabitats for carabids”

16:30-17:00 **John R. Spence and Stephane Bourassa** (with Dustin Hartley and Joshua Jacobs) – “Local travel and community impacts of a dark invader (*Pterostichus melanarius Illiger*): Actions of airborne elements and the overland grunts”

TUESDAY, 15 June

All Day Field Trip (details TBA)

SPEAKERS AND ABSTRACTS OF PRESENTED PAPERS

Bob Acciavatti, Research Associate, Section of Invertebrate Zoology, The Carnegie Museum of Natural History, Pittsburg, PA, 15213-4080, USA (auriebob@comcast.net). ***Revised taxonomy and phylogeny of*** *Brasiella* ***tiger beetles (Coleoptera: Carabidae: Cicindelinae) on Hispaniola.***

Abstract. The *Brasiella* tiger beetle fauna on Hispaniola has more species diversity than previously recognized as all populations had been assigned to the insular endemic *B. dominicana* (Mandl). A comparative study of adult morphology, particularly male genitalic and female abdominal characters, for the *Brasiella* on Hispaniola proposes five previously unrecognized endemic, allopatric species in the mountainous regions throughout the second largest island of the Greater Antilles. *Brasiella dominicana* (Mandl) and the closely related *Brasiella bellorum*, n. sp., occur in the eastern and central portions of the Cordillera Central, Dominican Republic, respectively. *Brasiella philipi*, n. sp., from north slopes of this mountain range is more distantly related to the previous two species. *Brasiella rawlinsi*, n. sp., isolated in the Sierra de Baoruco, Dominican Republic, appears more closely related to the other species in the Cordillera Central than to *Brasiella darlingtoniana*, n. sp., nearby in the Massif de la Selle, Haiti. *Brasiella davidsoni*, n. sp., from the Massif de la Hotte, Haiti, is the most divergent *Brasiella* species on Hispaniola. However, certain synapomorphic characters shared by the last two species suggest a closer relationship to each other than to any of the other *Brasiella* species on Hispaniola. All six *Brasiella* species on Hispaniola belong to the *viridicollis* species group based on earlier published phylogenetic studies of Brazilian and West Indian tiger beetles.

I first met Ross and heard him speak at the Coleopterists Society Meeting in December 1983 at the ESA Meeting in Detroit, MI. I attended that meeting with Bob Davidson whom I had met only two years before while visiting the CMNH, Pittsburgh, PA, as I resided in nearby Morgantown, WV, after transferring there with the USDA Forest Service. Bob often talked about the pioneering taxonomic research by Ross and Joyce on Rhysodidae worldwide, contributions Ross had made to Carabidae taxonomy, and how Ross had influenced Bob's graduate study of *Chlaenius*. Needless to say, I was anxious to meet such influential entomologists and for nearly 30 years I have been honored to be welcomed into their home. During that period, either by myself or with Bob, I visited many times with Ross and Joyce at their home in Burlington, VT, and later at their retirement community in Shelburne, VT. These visits have been enjoyable and have permitted me to continue my friendship with both of them over the last few decades.

Photo credit: Traci L Brown

George E. Ball*, John H. Acorn and Danny Shpeley, *Professor Emeritus of Biological Sciences, Department of Biological Sciences, University of Alberta, CW405 Biosciences Bldg, Edmonton, AB, Canada T6G 2E9 (gball@ualberta.ca). ***Tiger beetle mandibles and epipharynges: Structure, diversity, evolution, and classification (Coleoptera: Carabidae: Cicindelitae)***.

Abstract. The range and pattern of variation in structure of mandibles and epipharynges within the supertribe Cicindelitae were assessed using stereo-electron (SEM) photos of these structures in seven exemplar taxa: *Amblycheila baroni* Rivers, *Omus dejeani* Reiche, *Picnochile fallaciosa* Chevrolat, and *Manticora tuberculata* DeGeer, (representing the omine complex); *Tetracha carolina* Linnaeus (representing Megacephalini); and *Cicindela longilabris* Say, and *Pogonostoma chalybaeum* Klug (representing the cicindeline complex). With *Ceroglossus* Eschscholtz (supertribe Carabitae) as the outgroup or orienting principle, a transformation series was recognized involving four mandibular characters (1, increasing number of terebral teeth; 2, development of retinaculum from simple to complex; 3, orientation from planar to more-or-less markedly curved ventrally, the curvature either simple or compound); and 4, development of a diastema between terebral teeth and retinaculum), plus enlargement and deepening of the epipharyngeal pedium, forming a circular pit. These transformation series, postulated to represent evolutionary change, parallel a reconstructed phylogeny based on evidence derived from DNA and larval features. The omine complex is basal, and probably paraphyletic, with one of its members (Manticorini) being the adelphotaxon of megacephalines + the cicindeline complex, the last named being monophyletic and including Cicindelini + Collyridini, which are highly divergent from each other. A new classification is required that reflects these relationships.

My first contact with Ross was sometime in 1956, when he acknowledged receipt of a reprint of my *Helluomorphoides* revision, told me about the Mexican foray that Joyce and he had returned from, offered to send me the cychrine material that he had, and asked to borrow my chlaeniines for the revision he was preparing at that time. I sent them, and before his revision was published, had occasion to request a copy of his key to subgenera, so that I could use it (with acknowledgement) in my revision of the carabid part of Ross Arnett's "Beetles of the United States". Over the years we maintained a rather irregular correspondence. His letters were full of useful carabid commentary and advice, presented in a delightfully humorous fashion. During the 1980's, I had the privilege of publishing in *Quaestiones Entomologicae* the great Bell & Bell basic series on the rhysodines. Kay and I first met Joyce and Ross in southern Arizona in 1960, when Kay, the boys, Ron Madge and I were enjoying a month of collecting. Joyce and Ross dropped in for a few days, on their return from their second Mexican sojourn. I think their descriptions of their Mexican work were instrumental in turning my attention to the carabids of that part of the world. During the 1980's and 1990's Kay and I visited the Bells on several occasions. We enjoyed their hospitality, including fine martinis that Joyce produced every evening. Trips with them by car took us interesting birding spots. During one of these forays, Kay got a new record of a gull species for the state....and so on.

Photo credit: Traci L Brown

David Barrington, Professor & Director, Pringle Herbarium, Department of Plant Biology, 310 Jeffords Hall, University of Vermont, Burlington, VT 05405-0086 USA (david.barrington@uvm.edu). ***Coleopterist at large in the Green Mountains: Ross Bell as mentor and naturalist in Vermont.***

Abstract. Ross Bell has been at the University of Vermont for a very long time working on obscure groups of organisms that no one cares about but so-called 'nurds' without any obvious source of funds. Ross has been particularly successful at attracting gullible young people into risking professional suicide by following his example, in a number of cases these students have ended up making substantive contributions to the science -- and they have had the temerity to blame Ross and Joyce for contributing to their success. Ross's technique has been simple: as much as possible spend time in the field with the students, in small groups, obsessed with the animals. It is the Bell's obsession with the animals that most deeply affects Ross's students, and it is the adoption of this passion in their own work that has led to their success and thus his as a mentor. Emblematic of this obsession is the insect net constantly set in the back of his car, ready at a moment's notice. His enthusiasm for the natural world has also influenced the development of entomology as a popular amateur activity here in the state. Perhaps most impressive to me in Ross' history was his idea of the ideal sabbatical: spending an entire year mining rotten logs in a New Guinea rainforest for beetles that never see the light of day. Finally, I note that Ross has done all of this while attaining purple-heart status for eye disease; Ross continues enthusiastic in his inquiry into the natural world to this day, undaunted by the contrariness of his trabeculae or retinae.

Ross Bell had been at UVM for years beyond memory when I arrived here, and I arrived here when the Vietnam War was still on and Nixon had just resigned in the uproar over Watergate. In those days, at the height of the environmental movement, it was actually sort of mainstream to go out in the woods and put names on plants and animals. Ross was one of the people who made me feel at home in my new job, mostly through he and his students welcoming me to be part of their community of naturalists. We have now shared students for decades, using a largely parallel approach -- fanatic devotion to hopelessly obscure groups of organisms. Our offices have looked remarkably similar; an absolute sea of obscure early systematics texts largely randomized in with the latest discoveries from the natural world. Ross's ability to carry on as a genuine taxonomist, working in a highly dedicated manner with his wife Joyce, in a world of people who have forgotten what a binomial is has continued to serve as an example to me -- and he is one of the two or three people who has led me to continue to wear my hand lens outside my shirt on a regular basis.

Colin Bergeron, PhD Candidate, Department of Renewable Resources, 751 General Services Bldg, University of Alberta, Edmonton, AB, Canada T6G 2E3 (cb1@ualberta.ca). ***Relevance of a national land classification system as a surrogate for biodiversity of ground-dwelling beetles.***

Abstract. Advances in knowledge of carabid beetle ecology and taxonomy strongly support the use of this taxon in landscape scale biodiversity monitoring and implementation of conservation strategies. Our study, located in NW Alberta, Canada, demonstrates that the structure of

carabid beetle assemblages is closely associated with the Canadian Forest Ecosystem Classification (CFEC) system. The units identified in CFEC provides a scientifically relevant management oriented template for national development of biodiversity monitoring and conservation planning. Distinct ecosystem classes support distinct carabid assemblages, and therefore these may be used as surrogates for monitoring carabid diversity. Furthermore, ecosystem classes uncommon on the landscape often result from variation in the natural disturbance regime and habitats associated with these ecosystems are associated with uncommon carabid species. From this perspective, broad conservation and biodiversity assessment plans that consider all CFEC components should promote the maintenance of biodiversity, including uncommon species most in need of priority attention. Of course more focused scientific work will be required to ensure that these surrogacy relationships hold over time, but this general approach offers a practical approach to planning whole landscapes that are sensitive to what is needed to support naturally occurring biodiversity in the face of anthropogenic disturbance.

Ross Bell had an important influence on how I do ecological work on ground dwelling arthropods, not only through his pioneer work on my favorite taxa the carabid beetles, but also through the transmission of his scientific philosophy and work ethic to my direct supervisor John Spence who in his turn, transferred these values to me. The thorough, enthusiastic and relaxed way I approach research on carabid beetle biology and ecology, as I understand, takes its roots in Ross Bell's attitudes. I had the opportunity to learn to know Ross Bell through the anecdotes (sometimes almost tales) that my supervisor John Spence likes to recount and I am looking forward to meet the man behind these tales.

Donald Chandler, Professor & Curator, Department of Biological Sciences, University of New Hampshire, Durham, NH, 03824 USA (dsc1@cisunix.unh.edu). ***Seasonality and diversity of the stream insects of northern New England, or chasing mayflies.***

Abstract. Season-long studies on the stream insect fauna around New Hampshire have led to production and keys for species identification of the major groups, and documentation of the species complexes of different streams in White Mountain National Forest. Data about two species of *Ameletus* mayflies led to comparisons of the faunas of different sized streams and of old-growth versus historically heavily logged streams. Between-year variation is high for abundances, but much less for species richness, while dominance by functional feeding group is stable. Explanations for the range of between-year variation are uncertain.

Ross and Joyce have been wonderful in welcoming me to their home to discuss beetles whenever passing through the Burlington area. Through their efforts the carabid collection at UNH is in perfect condition.

Terry L. Erwin, Curator of Coleoptera and Chair, Department of Entomology, National Museum of Natural History, Smithsonian Institution, POPB 37012 NHB, CE 723, MRC 187 (Research), E-512, MRC, Washington, DC 20013-7012, USA (erwint@si.edu). ***Over the rainbow! The next to last pot of taxonomic gold in North American Carabidology: The Western Hemisphere Pseudomorphini (Coleoptera: Carabidae) with emphasis on the Southwestern deserts of the USA and Mexico.***

Abstract. The Western Hemisphere Pseudomorphini was last revised by Notman in 1925 based on very few known species (24) and paltry few specimens (44). A recent study of collections from throughout the Americas (1707 specimens) has revealed numerous new species contained in three new genera plus the nominate genus, one new subgenus of the nominate genus, and a change in status of a previously described subgenus. *Manumorpha* (Type species – *Manumorpha biolat* Erwin & Geraci, new species, Perú), *Samiriamorpha* (Type species – *Samiriamorpha grace* Erwin & Geraci, new species, Perú), *Yasunimorpha* (Type species – *Yasunimorpha piranha* Erwin & Geraci, new species, Ecuador), and of *Pseudomorpha* (*Tuxtulamorpha* Erwin & Geraci) (Type species – *Pseudomorpha tuxtula* Liebheer & Will, México) were described and their respective type species designated by Erwin & Geraci (2008). *Notopseudomorpha* Baehr 1997, was also accorded generic rank with *P. laevissima* Chaudoir as type species by those authors. In the publication of this presentation, the subgenus *Tuxtulamorpha* Erwin & Geraci will be elevated to generic status. A summary of the contained species in each higher-level taxon and their overall distributions is provided. A hypothesized phylogeny is reconstructed at the genus level based on structural attributes of adult beetles. Life history and desert related distributions are discussed.

During my tenure as a Postdoc with Philip J. Darlington Jr. at the MCZ in 1969-1970, I had the opportunity to go collecting with Ross and Joyce in Vermont and know them more personally, but the connection was first made before that when Ross served on my dissertation committee at the University of Alberta at the request of George E. Ball. Poor thing, Ross, he had to read my dissertation in only 3 week's time and figure out how to tell the Brachinus with "brown" elytra from those having "blue" elytra. I have followed his studies on carabid beetles and early on in my career used his *Chlaenius* revision often and subsequently his and Joyce's many excellent papers on the rhysodines.

Jeff Freeman, Professor Emeritus of Biology, 110 Gables Place, Rutland, VT 05701, USA (jcf2361@myfairpoint.net).

Ecological Ecological observations on Tabanidae (Insecta: Diptera) of Vermont.

Abstract. To honor Ross and Joyce Bell for their years of work with invertebrates this journey centers at Camel's Hump. Their quiet passion has brought us together and sent us out. Ross's 1972 course about invertebrates of the mountains stressed discovering more about several groups in July and August above 2500 feet. In years since we have a checklist of 72 species of tabanids in Vermont and, with those huge compound eyes such as we see on these insects, how polarized light may be of importance in the ecology of these strong flying insects. Canopy traps make use of polarized light, motion, heat and carbon dioxide so as to mimic a large mammal. Such traps are among several in use for tabanids. Mountain habitats are wetter, colder, steeper and have lots of muscoid flies.

Ross Bell taught a course called “Mountain Invertebrate Ecology” in 1972 (see photo pg. 4). His comments and questions helped me see things differently and in the years since the quest for what species are out there was always with me. Ross and Joyce have been wonderful hosts for gatherings relating to insects and other invertebrates.

Kamal Gandhi*, Jordan Burke, Joe R. Milanovich & John C. Maerz, *Assistant Professor, Daniel B. Warnell School of Forestry, University of Georgia, 180 E Green St., Athens, GA 30605, USA (kgandhi@warnell.uga.edu).

Invasion by exotic earthworms alters soil microarthropod communities in a northern hardwood forest.

Abstract. Exotic earthworms native to Europe and Asia are rapidly altering biotic populations and communities in invaded habitats of North America. As earthworms change the physical and chemical properties of soil through intermixing of horizons, the impacts of earthworms are expected to be relatively high on native soil microarthropod species. We studied the effects of exotic earthworms on communities of soil microarthropods, specifically oribatid mites, in deciduous forests of central New York. During 2008-2009, all soil mites were extracted from two 1m^2 plots in the following forest stands: 1) with no earthworms (control); 2) with epigaeic and endogaeic earthworms, but anecic earthworms such as *Lumbricus terrestris*, a deep soil-dwelling species, were absent; and 3) with all the three guilds of earthworms. Soil samples were collected in the spring and fall of each year, and all soil mites were extracted with Berlese funnels. Results suggest that forest stands with no earthworms had the greatest number of oribatid mites, with few mites present in stands with epigaeic and endogaeic earthworms, and almost none in the stands that had *L. terrestris*. In 2008, twice as many mites were collected in October than in May indicating seasonal variation in mite populations. Similar to density,

species richness of oribatid mite was greater in plots without earthworms than in plots with earthworms, especially the ones with the anecic earthworms. The species communities of forests with no earthworms were drastically different from those of forests with earthworms indicating that earthworms can alter faunal successional pathways. Overall, as invasion by exotic earthworms continues to expand in the northern forests, so do their indirect and direct adverse effects on the native biota.

Ross Bell was my M.S. advisor's (John Spence), MSc advisor! I met Ross Bell for the first time when I interviewed for a faculty position at the University of Vermont. I mentioned to the search committee chair that Ross was John's mentor, and that I had greatly admired Ross's work on carabids. So, the search committee chair graciously arranged for us to have lunch together. Although Ross was not well at that time, he was a great host, and I had a very nice time chatting with him about carabids. The best way to describe Ross's influence on my career has been his papers on carabid biology, and his influential training of John and that pool of knowledge flowing down to the next generation. As an graduate advisor myself now, I will be likely (and hopefully successfully!) passing that torch to the next generation of entomologists.

Henri Goulet, Research Scientist, Agriculture and Ari-Food Canada, 960 Carling Avenue, Ottawa, ON, Canada K1A 0C6 (henri.goulet@agr.gc.ca). ***Impact of herbicidal sprays in adjacent corn fields on the ground beetle diversity in an organic field in Eastern Ontario.***

Abstract. In the past 30 years the diversity of ground beetles has been plummeting in agricultural ecosystems of eastern Ontario and southern Quebec. Not only are sprayed sites affected, but we were surprised to find that sites with no history of pesticide use were also greatly impacted if adjacent to sprayed sites. We compare the diversity of an organic site with other sites in the region with or without an history pesticide use. Ground beetles are not all impacted equally. The most sensitive species are day active spring breeding species, followed by night active spring breeding species.

My first contact with the Bells gets back to the early 1960's when I was in highschool at Rigaud, QC. Though I could hardly speak any English, I was in contact with Ross and other great carabidologists at the time. One of the most memorable events was the arrangements Ross made to bring Carl Lindroth from Boston (Carl was studying types at the MCZ) to Burlington. This gave André Larochelle and I a unique opportunity to meet for the first time the Bells and Carl. I met Ross again during an eastern trip with Dave Kavanaugh in 1971, then in Maine in 2002, and finally today. It has always been a special privilege to meet the Bells. Yes, Ross had a good influence on my career.

Josh Jacobs*, Timothy T. Work, John R. Spence and David Langor, *PhD Candidate, Département des sciences bilogiquess, Université du Québec à Montréal, Case postale 8888, succursale Centre-ville, Montréal, Québec, Canada H3C 3P8 (josh@roofchop.com). ***Prescribed burning with high severity fire required for the effective conservation of pyrophilous beetles.***

Abstract. Fire is an important habitat in boreal forests. Changes in climate and fire suppression are altering natural fire cycles potentially threatening fire associated biodiversity. It becomes important to identify which aspects of biodiversity are associated with these habitats and their specific habitat requirements if we want to maintain biodiversity in managed landscapes. We used pitfall traps to monitor the assemblages of epigaeic beetles in areas affect by different severity of burning in two prescirbed burns at the EMEND research site in north-western Alberta. Eleven species were found more frequently and in higher abundance in the burned area, however only two species, *Sericoda quadripuncata* and *Sericoda bembidiodes* were not found in other disturbed habitats at the EMEND research site. These species appear to prefer burned areas where the entire litter layer has been consumed, arrive very quickly after the burn, reach their peak abundance the year following the fire event and then rapidly decrease in abundance. Successful ecosystem management requires a strong understanding of natural processes which are necessary to develop sustainable management strategies.

As a sort of academic grand child of Ross Bell (he supervised my MSc supervisor, John Spence, for his MSc) I know Ross through the stories told by John on many long drives, wading through a pond or just over refreshments. As an undergraduate student I worked on several projects helping in the collection of several hundreds of pitfall traps.

However, the day I really began to wonder about this group was a sunny afternoon in a fresh burn. I was sitting on a log with John and David Langor we noticed a huge abundance of small beetles running around on the black mineral soil. The discussion those beetles created following that day continues. The knowledge and passion that Ross Bell has shared with the carabid world is unprecedented and the excitement he was able to create in his young students continues to get passed on through their students and I'm sure it will continue through generations.

David H. Kavanaugh, Senior Curator, Department of Entomology, California Academy of Sciences, 55 Music Concourse Drive, San Francisco, CA 94118, USA (dkavanaugh@calacademy.org). *Nebria lacustris**: one or more species?***

Abstract. The question of whether *Nebria lacustris* represents a single species or two or more will be revisited in light of morphological, ecological, and molecular evidence.

Both Joyce and Ross have been incredibly supportive of my research on *Nebria* right from the start, generously sharing their specimens, data, and decades of personal observations and musing about these wonderful beetles. Their knowledge of the *Nebria* species of New England is unequalled. They've helped me both in the field and in the lab, and I remain most grateful to them. I first met Ross and Joyce in 1970, when Bart Chiolino and I drove from Edmonton across Canada to attend the ESC/ESA joint Annual Meetings in Montreal, and Bart and I detoured down to Burlington beforehand. The next meeting was

in June, 1973, while collecting material for my dissertation project on a whirlwind trip East with Henri Goulet. On that trip, my VW bus blew an engine in Barre, VT; and Ross came to pick us up and take care of us for several days while the engine was being repaired. I have fond recollections of that time with Ross and Joyce.

James R. LaBonte, Taxonomic Entomologist & Curator, Oregon Department of Agriculture, Plant Division, 635 Capitol Street N.E., Salem, OR 97301-2532. (jlabonte@oda.state.or.us).

***Nebria brevicollis* (Fabricius) in North America: Benign or malign?**

Abstract. *Nebria brevicollis* (Fabricius) is one of the most frequently encountered and widely distributed carabid beetles in Europe. Until recently, the only North American records were based on two single specimens, both from the 1930's in southeastern Canada. In 2008, this species was found in five counties and at fifteen sites in northwestern Oregon. As of the end of May, 2010, it has been found in a total of nine counties and 32 sites, with a north-south range of ~180 km and an east-west range of ~90 km. I believe it is present in southwestern Washington, across the Columbia River from Portland, although this has not been verified. The ecological amplitude of *N. brevicollis* in Oregon rivals that of the most eurytopic native carabid species, e.g., *Pterostichus algidus* LeConte and *Scaphinotus marginatus* (Fischer von Waldheim). It has been found in highly degraded heavy industrial sites, agricultural fields, city parks, gardens, second growth woodlands, mature conifer forests, montane rock gardens, and otherwise pristine stands of old growth noble fir, with elevations ranging from essentially sea level to 1,249 meters. Climates at these locales vary from that of the Mediterranean Willamette Valley floor, where snow

rarely occurs and summers are hot and dry, to the summit of the Oregon Coast Range, where deep snow may be present from November through April and summers are cool. The carabid communities in which *N. brevicollis* has been found may be composed predominantly of fellow exotic species, e.g., at heavily perturbed sites, to those where it is the only exotic species, such as at the Coast Range summit. *Nebria brevicollis* is clearly an invasive species: it is not restricted to anthropogenic habitats, is rapidly expanding its North American range, and can be abundant in essentially pristine settings. What is not clear is whether it is or will become a damaging species. Although it is already the most abundant carabid species in some settings, based upon pitfall catches, it is unknown whether this represents competitive superiority, trap vulnerability (although based on hand collecting this appears unlikely), or utilization of previously untapped or non-limiting resources. I have placed pitfall monitoring stations at several locales and will be conducting gut content analyses in an attempt to address this question.

Ross Bell's contributions to carabidology have been of immense aid to me. His work has been extremely useful in my efforts to document the carabid fauna of Oregon. For instance, his 1960 revision of North American *Chlaenius* Bonelli provided me a much greater understanding of this genus in Oregon, enabling me to confidently identify a relatively obscure species previously unknown from the state. On a personal note, while I don't know Joyce and Ross well, their warmth and graciousness was memorable on the few occasions we've met.

Jonathan Leonard* and Denise Martin, *Senior Lecturer, College of Agriculture and Life Sciences, 208 Morrill Hall, University of Vermont, Burlington, VT 05405 USA (jonathan.leonard@uvm.edu). ***The Bells as graduate student mentors.***

Abstract. Both Joyce and Ross Bell were excellent mentors of graduate students who were interested in ecology and evolution. They were the most field-oriented of the Biology/Zoology faculty at UVM and introduced many students to the fauna of northern Vermont and New York State. This presentation shares images and stories from the 1980s and 90s of field trips with the Bells.

I met Ross and Joyce as a graduate student in 1980. Ross was on my Masters (1983) and Ph.D. (1993) committees, and both Ross and Joyce became friends and mentors of my wife and I. We went on many collecting field trips together in New York, Vermont, New Hampshire, and Maine.

James Liebherr, Professor & Curator, Department of Entomology, Comstock Hall, Cornell University, Ithaca, NY, 14853-2601 USA (jkl5@cornell.edu).

Hawaiian** Mecyclothorax **(Psydrini or Moriomorphini?): bioindicators outstanding in the field.

Abstract. Hawaiian species of the genus *Mecyclothorax* have been the focus of protracted taxonomic effort that has elucidated a very diverse archipelagic radiation. This focus has yet to address the phylogenetic relationships of *Mecyclothorax* species within the various psydrine lineages. However taxonomic characterization has demonstrated the utility of the species to define discrete areas of endemism, with such areas forming the context for comprehensive conservation of the State's native terrestrial ecosystems. This presentation provides an overview of the *Mecyclothorax* fauna of a comprehensively sampled Hawaiian Island, the West Maui Mountains, or Mauna Kahalawai. Habitat occupation and speciation patterns in *Mecyclothorax* are compared with those of the two other Hawaiian carabid radiations; the precinctive Hawaiian genus *Blackburnia* (Platynini), and Hawaiian species of *Bembidion* (Bembidiini). These carabid diversity patterns are compared in turn to patterns exhibited by two iconic Hawaiian taxa—drosophilid "fruit" flies and achatinellid land snails—with the carabids shown to be the most useful group for evaluating the current status of West Maui's montane ecosystems.

As a graduate student I decided to work on the *Agonum extensicolle* group, of which *Agonum decorum* exhibits color polymorphism of the prothorax. The populations surrounding Lake Champlain are anomalously dark compared to the usual eastern North American

populations that are more brilliantly ferruginous. As a poor student on the west coast there was no way that I would have the time or money to get to New England to collect these, and my study organisms exhibited the disturbing tendency to become exceedingly rare whenever I looked for them anyway. However, Ross, and Bob, and Brian knew the territory and collected a large series that filled the bill for my electrophoretic studies. The combination of natural history knowledge and graceful volunteerism helped me out, and I am happy to acknowledge that during a celebration for Ross and Joyce. That sort of attitude is an inspiration to pass along; the ultimate gift a professor can make. So Ross and Joyce, may *Sericoda* continue to fly to your campfire, and Platynus crawl under your tent.

David Maddison, Director, Oregon State Arthropod Collection and Professor, Department of Zoology, 3029 Cordley Hall, Oregon State University, Corvallis, OR 97331 USA (david.maddison@science.oregonstate.edu). ***Molecular and morphological surprises: Unexpected clades and grades in the phylogeny of*** *Bembidion*.

Abstract. The basic structure of the phylogeny of *Bembidion* is inferred based upon DNA sequences of 28S and 18S ribosomal DNA, arginine kinase, wingless, CAD, topoisomerase, and cytochrome oxidase I; about 260 species of *Bembidion* and near relatives from around the world were sampled. One surprise among many is that the *erasum* group, in overall appearance a typical *Bembidion*, is not a member of the genus. Several very large clades are well supported. One in particular contains *Bembidion* in the strict sense, along with the subgenus *Notaphus*, and many other subgenera with relatively small adults (e.g., *Trepanedoris*, *Furcacampa*, *Trepanes*, *Semicampa*). To

this clade also belongs all southern-Hemisphere *Bembidion*. All South American *Bembidion*, except for those that belong to the *Notaphus* complex, form a clade. I will explore one particularly unexpected clade in South America, and the novel morphological structures that confirm the molecular results. I will give a pictoral overview of the major clades of the entire genus, and discuss morphological correlates.

Ross played two notable roles in one of my favorite groups of carabids, the subgenus *Pseudoperyphus* of *Bembidion*. In July of 1981, in response to a request from me, then a starting graduate student at the University of Alberta, Ross went out to obtain specimens of *Pseudoperyphus* for me, fixed appropriately for chromosomal studies. Not only did he do a superb job preserving the specimens (the chromosomes were in great shape!), but apparently also risked life and limb to do so. And, the resulting specimens were a key component that allowed me to unravel the complexity of this group - he provided the first specimens I had examined cytogenetically of what I would eventually come to know as true *Bembidion honestum*, *B. antiquum*, as well as *B. rufotinctum*. When I was finishing up this project 20 some years later, I realized that I had one female from New Hampshire whose DNA sequences didn't make sense to me. I eventually convinced myself that it might be a species I had previously not known about, but it wasn't until I went back to the museum drawers and found a good series of matching specimens collected by Ross on the Moose River in NE Vermont in the 1960s that it became obvious that the last piece of the *Pseudoperyphus* puzzle was in place. That new species became *Bembidion bellorum*, in part honoring the generosity Ross displayed 27 years earlier toward a beginning graduate student.

Wendy Moore* and Cara Gibson, *Assistant Professor and Curator, Department of Entomology, University of Arizona, 1140 E. South Campus Dr., Forbes 410, Tuscon, AZ 85721-0036 USA (wmoore@email.arizona.edu). ***iCarabid. Planning for NEON and beyond.***

Abstract. Imagine if we knew precisely how many carabid species (described and undescribed) there are in the world, and where each is distributed. Never has the time been better, nor the need greater for making this idea a reality. The National Ecological Observatory Network (NEON) has chosen carabids as a focal insect taxon with which to monitor the effects of climate change over the next 30 years across the USA. In this talk, we present a concept for an NSF proposal that, if funded, would allow our community to harness the power of the Internet and unite toward this lofty goal. We seek your input and participation in this endeavor.

Although I've never met Ross, he and Joyce have influenced me through their extraordinary work on rhysodines. Now they are second only to paussines on my list of favorite beetles, and I find myself looking for them whenever I'm in their habitat. In fact, some of my happiest moments in the field occur as I'm peeling bark, filled with anticipation of finding these marvelous beetles. Thank you Ross and Joyce!

Bob Nelson* and Dasan Thamattoor,
*Professor and Director, Quatemary Paleoentomology Laboratory, Department of Geology, 5804 Waterville Hill, Colby College,Waterville, Maine 04901-8858 USA (renelson@colby.edu). ***You can tell by the smell, It's a*** *Chlaenius****: Characterizing aromatic hydrocarbons in a defensive carabid secretion.***

Abstract. Anyone who has collected carabids of the genus *Chlaenius* is aware that the nearby presence of a specimen can often be detected by a whiff of the air, and one only once makes the mistake of trying to "pooter up" a small specimen in a mouth-powered aspirator. Early work by Eisner, by Kanehisa, and by Moore and Wallbank showed that m-cresol (= 3-methylphenol or 3-hydroxytoluene) was a major active ingredient in the defensive secretion of various species of *Chlaenius*, though Moore and Wallbank also identified 5% "unsaturated hydrocarbon (?)". However, these early studies all relied on physical dissections of specimens and chemical extraction of soluble organic compounds from the generating glands and associated pygidial reservoirs. Utilizing much more advanced equipment, we have been able to analyze samples of the actual air space above individual live specimens, to evaluate more accurately the highly aromatic component of the discharge. Preliminary work on *Chlaenius sericeus* suggests that dimethylamine [(CH3)2NH] is also an important component of this material. This compound (m.w. = 45.09, density 0.68, b.p. 7.4°C, very soluble in water) is much more volatile than m-cresol (m.w. = 108.15, density 1.03, b.p. 202.2°C, only slightly water-soluble), and likely is a significant component of the detectable scent of the beetles, particularly with increased distance. Additional light-weight organic compounds may also be present, but results from multiple specimens of *C. sericeus*, and of different species, have not yet provided consistent results. Work is continuing on this intriguing problem.

I was embarrassed when I first met Ross and Joyce in the 1980s to discover that, much to my surprise, they were both indeed still very much alive and active ... legends (like Carl Lindroth or Philip Darlington) almost always seemed to be those who have gone before, and who I therefore could never hope to meet. But to meet two people so accomplished and so low-key, while holding knowledge that seemed boundlessly encyclopedic, was more than a little intimidating! I just wish that circumstances had allowed more time to share carabid lore and collecting experience. I'm still, along with Dick Dearborn, hoping to find a rhysodid in Maine!

Karen Ober, Assistant Professor, Department of Biology, University of the Holy Cross, Worcester, MA 01610 USA (kober@holycross.edu). ***Phylogeography of*** *Scaphinotus petersi* ***on Arizona sky islands.***

Abstract. The Sky Islands of Arizona are a unique complex of mountain ranges in Southeastern Arizona have been isolated from each other by intervening valleys of grassland or desert since the last glaciation. The hot, dry valleys act as barriers to the movement of upland forest species. *Scaphinotus petersi*, a flightless ground beetle, is endemic to the fragmented boreal forests on the 'Sky Island' mountain peaks of southeastern Arizona. Populations of *S. petersi* have been separated long enough that individual peaks now host different subspecies based on their morphology. The current hypothesis for the evolution of this and several

other species in the region is that the forests, which require cool and wet conditions, were more widespread and 'connected' the peaks during the Last Glacial Maximum (LGM), ~ 20,000 years ago. As climate warmed and dried during the Holocene, forests retracted upslope and the beetle populations became separated by a 'sea' of desert. This work is a preliminary examination of the phylogeographic relationships of populations isolated on different Sky Islands based on molecular sequence data from mitochondrial genes. Preliminary results from molecular divergence dating indicate *S. petersi* populations have been isolated much longer than the LGM.

As a student of carabid and adephagan beetle evolution, Ross Bell's work on adephagan systematics has been one of the foundations and strong influences of my research. My very first major insect collecting trip was to California to find wrinkled bark beetles. I experienced euphoria ripping off the bark of an old pine log and finding my very first wrinkled bark beetle. I was breathless!

John Rawlins*, Chen Young and Robert Acciavatti, *Curator, Section of Invertebrate Zoology, The Carnegie Museum of Natural History, Pittsburgh, PA, 15213-4080 USA (rawlinsj@carnegiemnh.org). ***The strange case and life way of the boreal sprawler moth,*** *Brachionycha borealis****, a northern enigma (Lepidoptera: Noctuidae: Psaphidinae).***

Abstract. Naturalists know that studying the natural history of species in a world of vanishing and unknown biodiversity has no equal for pure exhilaration and satisfaction. This wonder is exemplified by Ross and Joyce Bell's lifelong journey in search of rhysodid beetles, and by the authors of this study on one of the rarest moths in all the great woodlands of the northeastern Nearctic, the boreal sprawler moth, *Brachionycha borealis* (Lepidoptera: Noctuidae: Psaphidinae; Psaphidini). The quest, the adventure, the mystery, and the unequaled pleasure of sharing discovery characterize this saga, uncovering the life way of a Holarctic relict: the quest for the moth itself; the adventure of understanding the phenology and behavior of adults; the mystery of the larval and pupal stages; and the sharing of discovery about this remarkably rare but locally abundant species, its hostplants and diet-breadth, its pupal biology and overwintering, its phylogenetic relationships to Old World congeners and New World sister genera, and an understanding of limiting factors that influence the conservation management of a species confronted with habitat loss in our warmer world.

Ross has been a long-term research associate of Carnegie Museum of Natural History, has published several papers through our *Annals of Carnegie Museum*, and has been a staunch supporter of the museum's programs, mission, and collection development involving Carabidae. He is one of our heros; he and Joyce are often mentioned in the bugrooms at CMNH.

Jessica Rykken* and Brian Farrell,
*Research Associate, Museum of Comparative Zoology, Harvard University, 26 Oxford Street, Cambridge, MA 02138, USA (jrykken@oeb.harvard.edu). ***Boston harbor islands All Taxa Biodiversity Inventory: Carabid beetles in an urban island park.***

Abstract. The Boston Harbor Islands All Taxa Biodiversity Inventory (ATBI) is a collaborative effort between the Museum of Comparative Zoology at Harvard University and the National Park Service to combine scientific research and public education in an urban island park. Primary objectives of the first phase of the ATBI are to: (1) catalog the insect fauna across the Boston Harbor Islands national park area; (2) engage, educate, and excite the public about biodiversity on a very local scale through outreach and educational activities; and (3) use biodiversity data to inform park resource management. As part of the ATBI, we have sampled carabid beetles intensively on nine of the islands in the park. To date, we have cataloged 128 species, including six new records for Massachusetts, and 18 exotic species. I will discuss the distribution of carabid species across islands in an island biogeography context, and examine distribution patterns relating to wing morphology and the proportion of exotic to native species. Also, I will present a visual quiz in three dimensions (with glasses) for carabid taxonomists!

I was in the Field Naturalist masters program at UVM in 1993 when I took Field Zoology with Ross. Ross told us about a thousand amazing stories about insects, played us records of singing insects, took us out to interesting places to catch insects, and sat down patiently with us to work through insect keys. His knowledge and passion and enthusiasm were really what set me down the road to wanting to become an entomologist. The next year, with Ross's help, I ended up collecting almost 10,000 carabids in the Green Mountains for my final project. I couldn't turn back. Since then, both Ross and Joyce have always been generous in offering their expertise and support on projects and ventures.

Derek S. Sikes, Chistopher J. Raithel, Richard W. Enser, David L. Wagner*, and Nicole B. Webster, *Professor, Department of Ecology & Evolutionary Biology, University of Connecticut, 75 N. Eagleville Road, U-43, Storrs, CT 06269-3043, USA (david.wagner@uconn.edu). ***Tiger beetles of Connecticut and Rhode Island (Coleoptera: Carabidae, Cicindela): Conservation status.***

Abstract. We review the current status of tiger beetle species in Connecticut and Rhode Island by contrasting recently obtained data with historical records of the region. Our assessment based on 750 museum records indicates that of the 16 species of tiger beetles known from the two states only five (*C. repanda, C. sexguttata, C. punctulata, C. scutellaris, C. duodecimguttata*) appear to be widespread and secure. Of the remaining, one has been extirpated (*C. dorsalis*), one is federally listed as Threatened (*C. puritana*), and six others are state listed by Connecticut (*C. formosa, C. hirticollis, C. lepida, C. marginata, C. purpurea, C. tranquebarica*). (Rhode Island does not have legislation

that extends protection to state-rare invertebrates.) The proportion of imperiled cicindelines is among the highest known for any terrestrial invertebrate lineage. Another strong message that emerged from our study is that there exists an urgent need to protect, purchase, and manage early-successional habitats in the Northeast.

I still berate myself for missing an opportunity to spend a day in the field with Ross and Joyce during my postdoctoral year at the University of Vermont. Ross was a legend with faculty and grad students at UVM and widely regarded to be a consummate naturalist and taxonomist. He was supportive of my work during my stay and, in part, upon his urging compiled a list of the state's microlepidopteran leafminers, which I later shared with Grehan et al. (1995). Ross' knowledge of Vermont's geology, plant communities, and collecting locales was a godsend for a transplanted westerner. Thanks for everything Ross and best wishes!

John R. Spence*, Stephane Bourassa, Dustin J. Hartley and Joshua Jacobs, *Professor and Chair, Department of Renewable Resources, 751 General Services Bldg, University of Alberta, Edmonton, AB, Canada T6G 2E3 (john.spence@ualberta.ca). ***Local travel and community impacts of a dark invader (*** *Pterostichus melanarius* **Illiger*) over a 20 year period: actions of airborne elements and the overland grunts.***

Abstract. *Pterostichus melanarius* Iliger is among the most successful European invaders of North America, right up there with *Homo sapiens*, the biotic element that has most facilitated the arrival and spread of this unlikely pterostichine invader across Canada and the northern tier of the USA. We show on two scales that P*. melanarius* employs both flight and overland movement to take new ground in central Alberta and that it's local rate of population expansion into even mature forest habitat can be impressive. The impact of this species on other elements of the ground-beetle fauna is slow, subtle and difficult to demonstrate experimentally. However, long term data from natural systems suggests that the success of *P. melanarius* is associated with the demise of other carabid populations and that this invasion is an excellent example of Charles Elton's 'two-step' dance of global faunal homogenization, with one interesting twist.

'I was fortunate to meet Ross and Joyce Bell when I did; otherwise I might have well have become a disillusioned pig farmer! Taking Ross' Field Zoology course and then serving as its GTA convinced me that there was (afterall) a happy intersection set between '*capital*-Science' and things I liked to do. In fact, it turned out to be much larger than I thought. The Saturday morning sessions (at first, *after* duck hunting)

when Ross read important passages from Jaennel to me and we looked at all manner of beetles together in the museum brought me to understand that folks writing in other languages had interesting and important things to say, that evolution wasn't just about men and monkeys and that patient encouragement of young people can work. I did not understand the transformation that I underwent at UVM, nor fully appreciate the critical contributions that Ross and Joyce made to it ... not until later when I discovered how unfortunately rare such warm-hearted and unselfish people are in higher education. In other dimensions, I learned that G&T was not necessarily a sissy drink but among the best thirst quenchers on a hot summer evening, that it is perhaps more sensible to go around snarling farm dogs (and their metaphorical equivalents) that attack one's vehicle from a roadside ditch rather than run over these dogs (even those that lay in wait) and that one should never leap from a high rock onto Gleason Brook in snowshoes, no matter how thick the ice seems to be (slow and steady is best). The Bells gave me a way to do natural history for a life-time, an honest fascination with carabid beetles, my introduction to the wonderful scholarly community of carabid enthusiasts and an effective and highly satisfying whole-person model for working with young people in a way that helps them reach higher than I am able. With a few other things that I have gotten from others, this was bountiful provision for an interesting, exciting and satisfying life ... and surely much better than growing porkchops!!'

John Strazanec* and Terry Carrington, *Research Assistant Professor, Plant & Soil Science / Entomology, West Virginia University, 1090 Ag. Sci. Bldg., Evansdale Drive, Morgantown, WV, USA 26506-6108 (jstrazan@wvu.edu). ***Central Appalachian Carabidae: Eastern and western regonal comparisons of fauna and habitat.***

Abstract. As part of a long-term study on the effect of gypsy moth, *Lymantria dispar* (L.) (Lepidoptera: Lymantriidae), and its control on nontarget organisms, ground beetles (Coleoptera: Carabidae) were studied for possible secondary effects. The study sites for the project were in the eastern and western regions of the central Appalachian Mountains. Ground beetles were sampled with pitfall traps and under canvas bands attached to trees. We measured various abiotic and biotic variables for possible relationships with ground beetle richness, abundance, and distribution.

I met Ross and Joyce Bell within the first few months of coming to UVM to finish up my bachelor's degree. Ross, based on nothing but a gut feeling, allowed me to volunteer in the museum. I had a general interest in nature, but this became focused when I pulled out an insect drawer to find cockroaches Ross had collected in the Virgin Islands, and I was hooked. He encouraged me to go to the Academy of Natural Sciences to identify the material. I had a couple of classes with Ross, he then helped me get a summer entomology job in Oregon, before going with him and Joyce to New Guinea. These experiences no doubt helped me get into graduate school to earn an M.S. and Ph.D. in Entomology.

Kipling Will, Associate Professor and Associate Director of the Essig Museum, Environmental Science, Policy and Management, University of California, Berkeley, CA 94720, USA (kipwill@berkeley.edu). ***Can generalists be dervived? Phylogeny and classification of the Pterostichitae of the world.***

Abstract. Pterostichite beetles are typically considered to be generalized Harpalinae that have an abundance of plesiomorphic features for the subfamily. However, an analysis of exemplars representing pterostichite lineages worldwide and most tribes of Harpalinae, suggests that we need to rethink some presumed character transformation polarities and assumed ecological trajectories. I will also present ideas on changes to the classification of Pterostichini and related tribes.

It was Ross' papers that influenced me the most. I continue to look to Ross' targeted and clear summary papers on groups that are taxonomically special and phylogenetically difficult, e.g. Trachypachidae, *Gehringia, Solenogenys* and of course, Rhysodini, and treatments of morphological systems, such as the coxal cavities, and their bearing on the classification of Adephaga.

Tim Work, Professeur, Département des sciences bilogiquess, Université du Québec à Montréal, Case postale 8888, succursale Centre-ville, Montréal, Québec, Canada H3C 3P8 (work.timothy@uquam.edu). ***The utility of LIDAR-based imaging to identify microhabitats for carabids.***

Abstract. Relating arthropod biodiversity to larger landscape units such as forest stands and ecological land-types have been important in establishing management strategies and identifying conservation priorities. With increased understanding of how carabid communities change with forest structure, application of novel approaches to forest inventory such as LIDAR may be useful for identifying preferred microhabitats related to micro-topography and hydrology. We compared LIDAR images of surface topography in mixed boreal stands in northwestern Québec with carabid catch rates to verify whether increased catches, particularly of females, corresponded with specific microtopography which was presumably linked to preferred sites for oviposition and larval development.

I have only met Ross once on a visit with John Spence and Jan Volney. We spent much time looking for a gift for Ross and settled on a CD of piano music. We later found out that John's gift put Ross on the market for a CD player. This anecdote seems to be a fable that is often repeated as technological 'breakthroughs' seem to propel themselves rather than propel larger scientific questions.

NOTES

Photo credit: Traci L Brown