

Friends of the Entomology Research Museum



Newsletter



Editor: Rick Vetter

Proofing Editors: G. Ballmer, D. Hawks, D. Yanega

FERM Officers

- President : Greg Ballmer
- Vice-president: Jeremiah George
- Treasurer: Dave Hawks
- Secretary: Dale Powell
- E-mails:
- ballmer@ucr.ac1.ucr.edu, jergeorge@hotmail.com
- david.hawks@ucr.edu, DAJRPOWELL@msn.com

THE ERM COLLECTION OF *APHYTIS*: A REPORT ON THE NSF-SPONSORED PROJECT

By Serguei Triapitsyn

Wasps of the genus *Aphytis* (Chalcidoidea: Aphelinidae) are among the most important parasitoids of armored scale insects (Diaspididae). Many of the species used in classical and augmentative biological control programs around the world, including type specimens and important voucher material, are represented in the ERM. Because of their minute size, and difficulty of preparation, these wasps are generally ignored by collectors and are not accumulated in most insect collections.

The ERM collection of *Aphytis* formed the basis for a world taxonomic revision of the genus by David Rosen and Paul DeBach in 1979. The monograph was based almost entirely on the UCR collection of *Aphytis*, and because of this, it is an invaluable resource for basic and applied scientists. The ERM collection of *Aphytis* is almost entirely comprised of reared and slide-mounted specimens collected from 74 different countries and territories over the last 70 years. The magnitude and scope of the collection make it irreplaceable.

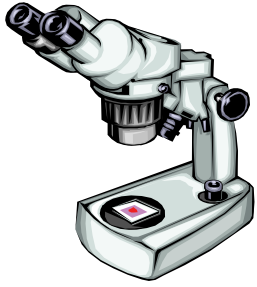
Before 1996, however, this collection was somewhat disorganized. The general slide collection (identified to species) was stored in six slide cabinets. Taxa were organized by their species group, not alphabetically (even within such a group). Some slides were given code (catalog) numbers, and often these numbers would substitute for actual label data. No card or any other form of catalog corresponding to these numbers could be found (the catalog had been presumed lost then but was found last year in the attic of the Old Entomology building). Numerous additional slides were scattered among other parasitic wasps in various slide boxes. Most of these represent UCR quarantine and insectary culture vouchers.

(continued on page 4)

- ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★
- ★ **FERM field trip-Coso Mountains** ★
- ★ Gordon Pratt is organizing a FERM collecting trip to the ★
- ★ Coso Mountains. The trip will be August 8-10 and will be ★
- ★ limited to 10 people besides Gordon and Cissy. If there ★
- ★ are enough 4 wheel drive vehicles, the group may get out ★
- ★ to Haiwee Spring, where there are a bunch of neat insects. ★
- ★ The other days will be at high elevation (above 7000 feet) ★
- ★ in the Coso Mountains. An organizational meeting needs ★
- ★ to be scheduled to determine details. ★
- ★ Because this is on military property, there are many regu- ★
- ★ lations that must be strictly followed. Each participant ★
- ★ must be a US citizen, 18+ years old, must provide Gordon ★
- ★ with their social security number before going on the trip, ★
- ★ and all drivers must provide license plate numbers. You ★
- ★ cannot go if you have attended an Al Qaeda training camp ★
- ★ in the last 24 months or have weapons of mass destruction ★
- ★ on your person or in your garage. Interested participants ★
- ★ who qualify should contact Gordon no later than July — ★
- ★ at 788-9703 or euphilotes@aol.com (email preferable). ★
- ★ This will be first come first serve. Don't procrastinate!! ★
- ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

The FERM Newsletter is published quarterly and contains articles written by FERM members. If you would like to submit an article, please send it as a Word/Wordperfect file using one of the following two methods: (1) an attachment via email to the editor (see below) or (2) a hard copy version on disk. Submissions will be published in the order they are received in accordance with space availability and relevancy to the FERM general readership. If you have questions please contact the FERM Newsletter editor:

Rick Vetter (vetter@citrus.ucr.edu)



NEWS FROM THE MUSEUM

by Doug Yanega

This past quarter has been fairly quiet in the Museum itself, though this is largely due to having only one student helper, and the excellence of the field collecting this spring. I put about 4,000 miles on my car between March and May, in fact, and brought back loads of nice insects, especially from several interesting sites in Arizona like the Bill Williams River and the Mohawk Dunes, as well as a trip to the Moapa Valley in Nevada where Greg Ballmer and I collected two new bee species. The student helper, Apostolis Kapranas, has been point-mounting small parasitic wasps that had been accumulating over the years, mostly collected by folks in Dr. John Heraty's lab. It's a fairly tedious and difficult process, but it's gotta get done, and Tolis is doing well at it. Ali Al-Wahaibi is now adding labels to these specimens and getting them into the database.

The Deep Canyon databasing project is well underway, though it has slowed down since one of the two helpers was laid off recently. However, there are plans to submit a substantial NSF grant to give the project a boost. The regular Museum database is over 50,000 specimens now, and still growing; when this spring's material is labeled, that should put us well over the 55K mark. There's also a large amount of material generated by a Heraty/Pinto lab collecting trip to Australia coming in, but it's all in alcohol and unlikely to get processed any time soon. Finally, the compactor grant has expired, but there was a small excess of funds (an accounting glitch, actually, not extra money) which will be used to get a few more drawers, and then we'll be applying for supplemental money to make up for the shortfall. We've also managed to sell a fair number of old insect cabinets, and that's added around \$1,000 to our operating budget, which is very nice.

Got an idea for a FERM article???

Do you have anything buggy-related that might be of interest for the FERM newsletter? We really would be tickled pinkish if you would send "stuff" in. Remember, this newsletter won't have much in it unless we have material submitted from you folks that we can publish. Feel free to send in photos, articles, recent publications related to insect taxonomy or natural history and even stories about how the Entomology Research Museum has assisted you in your bug-related endeavors. Send them to vetter@citrus.ucr.edu, preferably as attachments (not in email text). Additional information is on the front page of this newsletter.



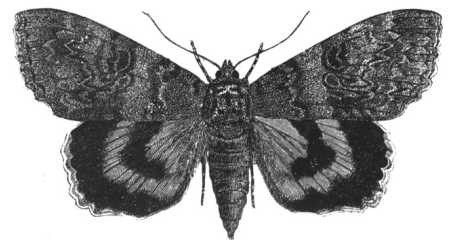
****Deadline for submission of material for next Newsletter is Sept 15th****

RECENT PUBLICATIONS BY FERM MEMBERS:

Gall, L. F. and D. C. Hawks. 2002. Systematics of moths in the genus *Catocala* (Noctuidae) III. The types of William H. Edwards, Augustus R. Grote and Achille Guenée. *J. Lepidopteran Society* 56:234-264.

Pratt, G. F. and D. M. Wright. 2002. Allozyme phylogeny of North American coppers (Lycaeninae: Lycaenidae). *Pan-Pacific Entomologist* 78:219-229.

Vetter, R. S., A. H. Roe, R. G. Bennett, C. R. Baird, L. A. Royce, W. T. Lanier, A. L. Antonelli, and P. E. Cushing. 2003. Distribution of the medically-implicated hobo spider (Araneae: Agelenidae) and its benign congener, *Tegenaria duellica*, in the United States and Canada. *Journal of Medical Entomology* 40: 159-164



IF YOU ARE A MEMBER OF FERM AND HAVE RECENT PUBLICATIONS THAT INVOLVE ARTHROPOD TAXONOMY OR NATURAL HISTORY, PLEASE SUBMIT THE CITATION TO RICK VETTER.



PINE : PARTNERS IN NATURE EDUCATION

FERM members are entitled to 20% discounts* on the following UCR Extension field nature study courses:

Natural History and Ecology of the Canadian Rockies: "The Crown of the Continent" \$295 (EDP 31N30)
Mon. 7-9 pm, July 21/Tue., Wed. 8 am-5 pm, July 22, 23/Thur. 8 am-3 pm, July 24

Natural History of the Ancient Bristlecone Pine \$190 (EDP 31N60)
Mon. 6-9 pm, Aug. 4/Tue., Wed. 8:30 am-4 pm, Aug. 5, 6

Earthquakes and California: Geology's Dynamic Duo \$95 (EDP 31N19)
Sat. 8 am-5 pm, Aug. 16

Introduction to Bird-Banding \$170 (EDP 31P21)
Tue. 5:30-9:30 pm, Sept. 9/Sat., Sun. 6 am-3 pm, Sept. 13, 14

A Field Study of Birds: Fall \$185 (EDP 32P23)
Tue. 7:30-9:30 pm, Sept. 16/Field trips all day Sat., Sept. 20, Oct. 4, 18, Nov. 1, 15

Geology and Natural History of Yosemite \$125 (EDP 32N20)
Sat. 9 am-6 pm, Sept. 20/Sun. 8 am-4 pm, Sept. 21

*******Spider Identification** \$215 (EDP 32P03) Sat. 9 am-4 pm, Oct. 4-Nov. 8

Birds of Anza-Borrego \$155 (EDP 32P25)
Fri. 7-9 pm, Oct. 10/Sat. 7 am-5 pm, Oct. 11/Sun. 8 am-2 pm, Oct. 1

ALSO OF INTEREST:

Astronomy \$60 (EDP 31P67) Sat. 5-10 pm, Aug. 23, 30

For current listing of courses at any time, bookmark www.unex.ucr.edu/ns/fns1/classes in your web browser.

For further information, contact: Natural Sciences UCR Extension 909.787.5804 909.787.2456 (fax)

*some restrictions apply



Friends of the Entomology Research Museum Membership Form

Check here if you are renewing (renew by July each year)

Name _____

Address _____

Interests _____

Telephone _____ Email _____

MEMBERSHIP CATEGORIES:

Please Check

| | | |
|-------------------|------------|--------------------------|
| Basic Membership | \$10.00 | <input type="checkbox"/> |
| Sustaining Member | \$25.00+ | <input type="checkbox"/> |
| Donor | \$100.00+ | <input type="checkbox"/> |
| Benefactor | \$500.00+ | <input type="checkbox"/> |
| Patron | \$1000.00+ | <input type="checkbox"/> |

Submit your membership form and dues to:

David C. Hawks, Treasurer
Friends of the Entomology
Research Museum
Department of Entomology - 041
University of California
Riverside, CA 92521-0314

Dues and other contributions are payable by check to the **UCR Foundation**, noting "**Entomology Museum**" on the memo line on your check. (It is very important to note "Entomology Museum" in order for your donation to be deposited in the Friends' UCR Foundation account.)

(continued from page 1)

Even worse, the condition of most of the specimens on those slides was very poor, primarily due to improper mounting technique. The choice of Hoyer's (a temporary, water-soluble medium) as a mounting medium and of an inferior ringing compound was disastrous, especially for the type material. Most of the slides, which were Hoyer's mounts, were completely or partially dehydrated; many also became dark with age, making it nearly impossible to see the embedded specimens (see Figure).

Thus, the majority of type and non-type material needed to be remounted in Canada balsam, a permanent medium better suited for preserving specimens. Together with the undetermined specimens, the ERM collection included nearly 30,000 specimens of *Aphytis* mounted on some 5,000 slides. The majority of these specimens (28,224) were mounted in Hoyer's on 4,380 slides. Additionally, primary and other type material of many *Aphytis* species were received from the National Museum of Natural History in Washington, D.C. (via Drs. Mike Rose and Mike Schauff) as well as from South Africa.

Remounting, by itself a very costly and time-consuming task, was even more difficult in this case considering the other major mistakes made in the course of original mounting (mostly during the 1970s), as follows: 1 - poor label data or presence of only code (catalog) numbers or Quarantine S & R numbers (which were found in Quarantine files); 2 - presence of several (often up to 100) specimens on the same slide under one or several cover slips (average of about 6.67 specimens per slide); 3 - presence of several species under the same cover slip. Finally, some labels peeled off and were disassociated from their slides.

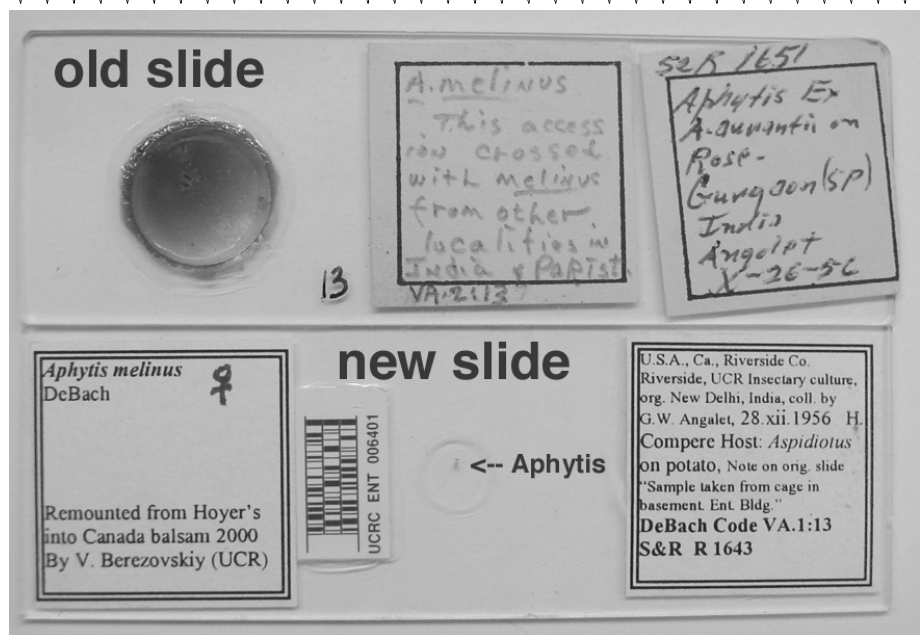
So much work needed to be done, in fact, that there was no way we could afford to do it all ourselves, so we sought support from NSF, to restore the collection by remounting a significant portion in Canada balsam, mounting specimens individually, and properly labeling and databasing them (using bar codes). So, Drs. Heraty, Pinto, and myself requested almost \$140,000 in funds from the NSF Collections Improvement Grant Program for a four-year period starting in 1998. The grant reviewers unanimously urged NSF to give the project highest priority, though they saw it as regrettable that such a thing should have been necessary, since it could have been avoided had the slides been done correctly by the original workers. The application was funded on the first attempt, accordingly, which isn't all that common.

The remounting was done by Vladimir Berezovskiy, the Principal Museum Preparator, and Marina Planoutene, a Postgraduate Researcher. Labeling and databasing were done by two undergraduate students employed by this project, Jeremiah George and Kaylan Le, as well as by Jung-Wook Kim, whose thesis research involved these specimens - so there was an immediate and direct benefit to him of having this work done. Ernest White (the former Quarantine SRA) provided missing data on those specimens of *Aphytis* that were quarantine vouchers, by searching the old quarantine files.

Ultimately, the total number of the specimens remounted from Hoyer's into Canada balsam was 7,408 (a single specimen per each new slide), all of which were labeled and data-based. Since it would have taken over a decade (and a lot more money) to remount every specimen, highest priority was given to types and exemplars, so all Hoyer's-mounted type specimens, including the types on more than 500 original slides, were remounted into Canada balsam. Representatives of 85 of 87 valid species of *Aphytis* and collected in more than 50 different countries were remounted from Hoyer's into Canada balsam; other species are known only from specimens originally mounted in Canada balsam.

Finally, separate scientific publications are being prepared by Jung-Wook Kim (for the *lingnanensis* species group) and myself (for all other groups), in which all the *Aphytis* species at ERM will be catalogued. None of this would have been possible without NSF's support, like our compactor grant, like the grants supporting research by our affiliated systematists (Drs. Heraty and Pinto) and their graduate students, and, ultimately, like so much of the science done in this country; we and future generations of researchers are grateful that we have such a resource available, a use of tax dollars of which we hope you approve.

See *Aphytis* as the Bug o' the Issue insert



FERM Annual Meeting Report

By Greg Ballmer

FERM's 4th Annual Meeting was held on February 15, 2003 at the UCR Entomology Museum Building. Attendees feasted on a sumptuous and eclectic pot-luck meal, including Rick Vetter's very special (secret formula) chili, Gordon Pratt & Cecilia Pierce's grilled meats and vegetables, and a variety of other main dishes, snacks and desserts. Following the meal, Museum Curator (and past FERM President) Doug Yanega lead a tour of the recently installed museum compactor storage system. Attendees then migrated to the new Entomology Building conference room for the pre-talk book auction and the featured presentation by UCR's own Rick Vetter.

Rick's slide show account of the "Natural and Unnatural History of Spiders" also included their arachnid relatives: the long-legged spider look-alike harvestmen, scorpions, whip scorpions, pseudoscorpions, mites, and ticks. We were treated to a wide-ranging account of some of the more unusual and fascinating spiders, which comprise a very old, very diverse, and highly successful group of arthropods. Once again, Rick reminded us that, in spite of frequent rumors and gossip to the contrary, the notorious brown recluse (violin) spider (*Loxosceles reclusa*) does not occur in California, although the brown widow (*Latrodectus geometricus*) recently has become established here. In order to head off the expected flood of misinformation, which often accompanies the arrival of exotic arthropods, we were informed that the brown widow is not more poisonous than the endemic black widow (*Latrodectus hesperus*) and is unlikely to cause any more health problems than many common house spiders. [See Rick's article and insert photo of the brown widow in the Spring 2003 FERM newsletter.] Rick's inimitable style and colorful slide images (who can forget the happy face spider of Hawaii?) made for one of FERM's more highly entertaining and educational programs.

The program also included an entertaining auction sale of several entomological reference books, many donated by Ted Fisher, which generated about \$260 in revenue for FERM. Regarding a spider folklore book, furious bidding was made between Leland Lubinsky and Dave Hawks, with Dave bidding on the book to give to his mother who was in attendance. However, Leland's persistence caused Dave to drop out downhearted, whereupon in a very touching gesture when the triumphant Leland got the book, he immediately gave it to Dave's mom. —thanks to the various people who bought the other books, too!

Dues are Due!

By Dave Hawks

I'm happy to report that FERM continues to grow by several new members each year, and, as of June 2003, we're up to 163 members! In terms of expenditures, FERM spent about \$9,000, mostly as matching funds offered in the NSF compactor grant. About \$1,500 was spent for the printing of Newsletters, one collecting grant, the Annual Meeting, and a few incidentals. This time last year, our balance was at about \$25,000. Presently, we have close to \$20,000, so we've already made up a few thousand dollars-worth of our share of the compactor expenses. In other words, FERM continues to be a strong support group for the UCR Entomology Research Museum, and we can be proud of our success.

However, for those of you who haven't contributed since January 2003, it's dues time again! Please cut out or photocopy the dues form in this issue and send it along with your check to me. Your contributions will continue to keep FERM strong so that we, in turn, can continue to provide the support the Entomology Museum deserves. Thanks!!

Publication Review: Lawrence F. Gall & David C. Hawks. Systematics of
moths in the genus *Catocala* (Noctuidae). III. The types of William H.
Edwards, Augustus R. Grote, and Achille Guenée.
Journal of the Lepidopterists Society. 56(4), 2002, 234-264

By Roger A. Burks





(continued from previous page)



Another significant contribution by Gall & Hawks is the inclusion of a dorsal photograph or original drawing of the primary type specimen of each species in this article. This is significant for two reasons. First, according to the current (2000) Code of Zoological Nomenclature, designation of an illustration of a specimen as a holotype (Art. 73.1.4) or lectotype (Art. 74.5) is to be treated as designation of that specimen itself. In cases where the actual specimen cannot be located, the illustrations alone can be accurate enough to serve adequately in preserving stability of the species name. Second, this should also serve to make each of these species more easily identifiable by other workers who have not personally seen these types, making risky transportation and handling of these types necessary much less frequently.



Gall & Hawks' article is a worthy contribution to the systematics of the large genus *Catocala*, but it addresses so many different difficulties involved in the study of species described in the 19th century that it can serve as a valuable educational example for systematists not specializing in Lepidoptera as well.



Black stripes in monarch butterfly larvae increase when reared in colder tem-

 **peratures**
by Rick Vetter 

 Here is a little item that we thought would be of interest to many FERM members. When larvae of the monarch butterfly, *Danaus plexippus*, are reared at differing temperatures in the lab, those reared at lower temperatures have a greater portion of the area of their striping dedicated to the black stripes, presumably for increasing their body temperatures through absorption of heat via sunlight. This effect is well-known for other insects, such as adult moths or butterflies which increase their proportion of melanic scales if reared under low temperatures or decreasing daylight. 

 Solensky, M. J. and E. Larkin. 2003. Temperature-induced variation in larval coloration in *Danaus plexippus* (Lepidoptera: Nymphalidae). *Annals of the Entomological Society of America*. 96:211-216. 

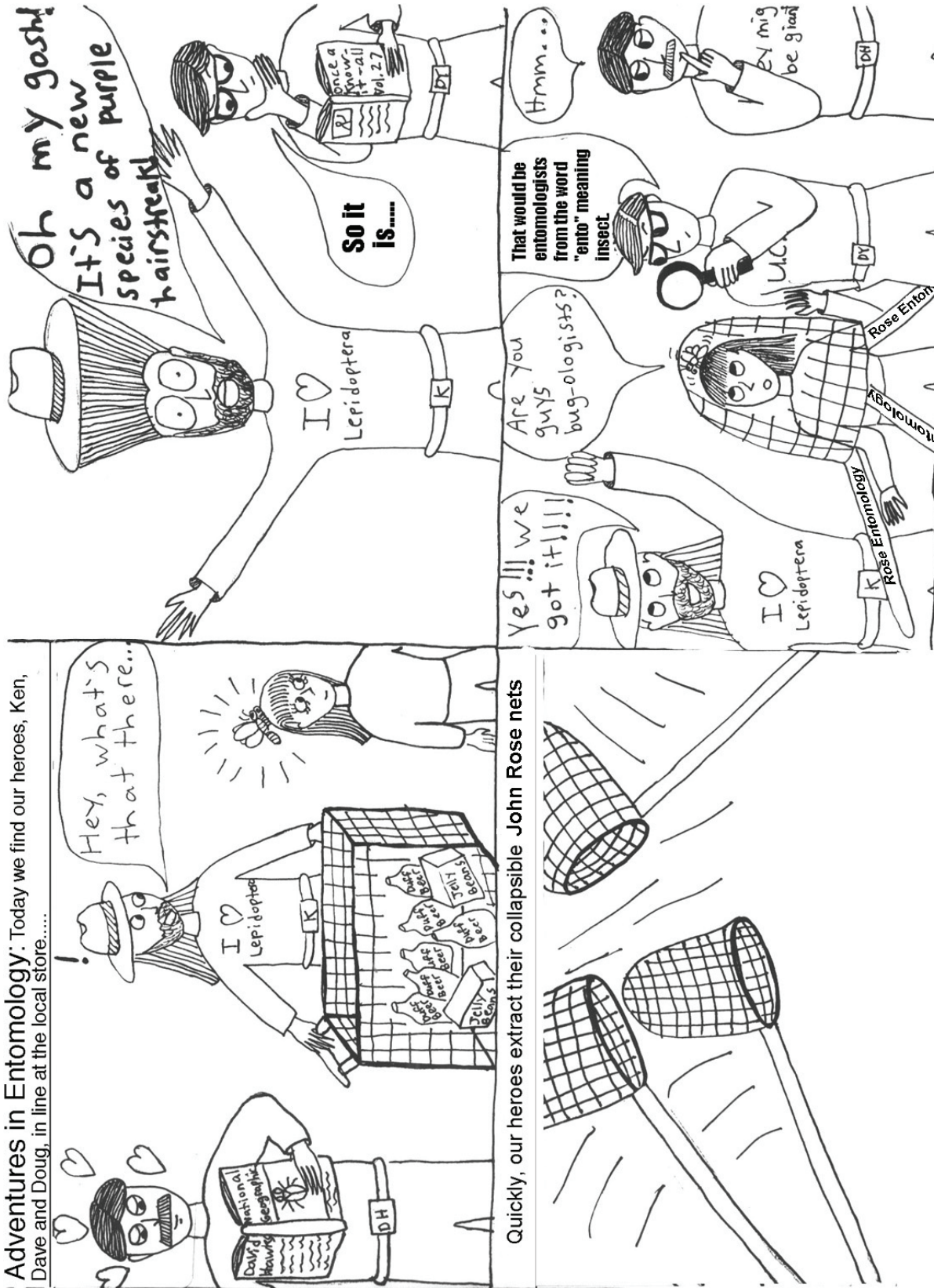


Thoughts and Comments Section

Against our better judgment, we pass along the suggestion that the FERM newsletter should have a section where you, the readers, (yes, that does mean YOU), have a chance to send in a short comment about something entomological. This could be a note about finding a weird or rare insect alerting others to its presence, the need for insects for a study (like my yellow-jacket survey), seeking some piece of entomological gear or trying to unload it, etc. We don't want this to become either the want ads section or the editorial page where people spout off inanities until the cows come home. But considering that several people have apparently suggested that this might be a way for FERM members to contribute to the newsletter without having to write a formal story, this might be a neat way to encourage more interaction amongst the readership (and we know you are out there). And as always, any submission will be subject to severe, fastidious scrutiny by the persnickety FERM editors [Editor's Note: DARN RIGHT!] as far as applicability of the interest of the material to the FERM readership, length and language (hey, no potty mouths!! Do you kiss your mother with those lips????)

Comics Section

This is a comic strip (our first!) contributed by teenage FERM member Zac Porcu with a little editorial cleaning up with Photoshop. We here at this establishment feel Zac was rather kind in his portrayal of some of the fictional characters involved in the strip. (Note: according to fictional character Dave Hawks, "entom-" actually means "segment" so entomology is the study of things with segments.)



This has been another chapter in the adventures of Entomology

- Zachary Porcu Feb/March, 2003