

# PEROMYSCUS NEWSLETTER

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NUMBER THIRTY-NINE

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SPRING 2005

**Cover:** Santa Rosa Island beach mice (*Peromyscus polionotus leucocephalus*)  
Composition by Janet Crossland and Clint Cook.

## ***Peromyscus Newsletter* Number 39**

This issue of *PN* will be my final one as editor. As many of you are aware, I retired from the University of South Carolina faculty five years ago, but continued a formal association with the Peromyscus Genetic Stock Center as a consultant and as editor of *PN*. In 1986, as Director of the PGSC, I along with Janet Crossland, launched this newsletter as a means of informal communication among researchers and others interested in peromyscine rodents, and to publicize the Stock Center. For our first issue we ran 175 copies by hand from the departmental copier. Our present readership approaches 900. We believe that *PN* has played a major role in making the Stock Center widely known in the US, Canada, Mexico and elsewhere.

The future of *PN* is now under review. Costs associated with producing and mailing are increasing and the feasibility of continuing it in its present format is being assessed. About ten years ago we considered producing it on-line, and there was some support for that approach, but most of the feedback favored retaining it in hard copy format. However, now, with static funding, and increasing costs to operate the PGSC it will be necessary to initiate an on-line version of *PN* and to cease producing it in the hard copy format. **Dr. Julie Weston** will become the new Editor. I feel certain that she will appreciate **input from our readership concerning changes and improvements in *PN* as it moves to a new on-line format beginning in autumn 2005.**

In the years we have published *Peromyscus Newsletter* and have operated the Stock Center we have enjoyed a wealth of encouragement and advice from our external and internal advisory committee members and from our NSF and NIH program officers. On pages 14 - 16 we acknowledge these individuals and the institutions they represent. We also note with gratitude others who have been noteworthy in advocating for and promoting the Stock Center, and for those who have assisted us in-house in a major way.

Also, on pages 11 - 14 we relate a brief history of the Peromyscus Genetic Stock Center and its antecedents at the University of South Carolina.

I personally thank all of those individuals and others who encouraged us and made the Stock Center, **PeroBase** and *Peromyscus Newsletter* possible.

Wally

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The Stock Center sponsors *PeroBase*, a comprehensive database for peromyscine rodents.

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***NEWS, COMMENTS and ANNOUNCEMENTS:***

The annual meeting of the **American Society of Mammalogists** was held at Southwest Missouri State University at Springfield MO June 15 - 19, 2005. The meeting was unusually rich in presentations centered on *Peromyscus* and allied genera. **Fifty-nine of the presentations addressed peromyscine biology.** The presentations ranged from molecular systematics, to physiology, behavior and ecology. Abstracts are available from ASM.

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There is significant progress in the **Phylogenetic Tree Project**. At the ASM meeting **Bill Kilpatrick, Robert Bradley, Ira Greenbaum and Duke Rogers met to review progress. They have proposed a tentative phylogeny unifying the peromyscine rodents. Also Mark Engstrom's lab presented a poster with a proposed phylogeny also based on nucleotide sequence data that is consistent with the tree Bradley is working on. It now appears that a consensus tree represented by most peromyscine species will be published early next year by these investigators. The initial tree will be based largely on mitochondrial DNA sequences. Nuclear genes will also be in the mix, but initially with less extensive coverage of the relevant taxa. STAY TUNED !!!**

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Also at the ASM meeting several presentations (**Enrique LESSA** and **Joseph COOK; Zachary HARLOW et al.; Amanda REEDER et al.**) addressed relationships and distribution of *Peromyscus maniculatus* and *Peromyscus keeni* in the Pacific Northwest from the Alexander Archipelago in southeastern Alaska in the north to the White Mountains of California and Yellowstone of Wyoming to the south. The role of glaciation and deglaciation and consequent sea level changes in present day distributions was discussed.

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An ASM symposium on Adaptive Evolution featured *Peromyscus* in three of the four presentations. **Jay Storz** discussed evidence for physiological adaptation in high altitude deer mice. **Hopi Hoekstra** addressed the ecological genetics of color adaptation in beach mice, and **Paul Vrana** explored the role of genomic imprinting in *Peromyscus* speciation.

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At the 2005 ASM meeting **Dennis Nyberg** and **Oliver Pergams** presented additional evidence that *P. leucopus* is replacing *P. maniculatus* as the predominant peromyscine species in the Chicago urban area. In the early 20th century *P. maniculatus* was the predominant species as shown by museum specimens.

**Heather Brookhart** and **John Whitaker** in another ASM paper reported that *P. leucopus* was becoming the most common peromyscine in the three northwestern-most counties of Indiana. *P. maniculatus*, once common in these counties in the greater Chicago urban area, are now among the least common of small mammals.

In still a third ASM paper, **Kevin Rowe**, **Edward Heske** and **Ken Paige** reported that fragmentation of habitat in three other Illinois urban areas, as detected by microsatellite differentiation, results in genetic fragmentation of populations of *P. leucopus*.

All of these independent studies support the concept that *P. leucopus* replaces the prairie deer mouse (*P. maniculatus bairdii*) as urban development occurs in the U.S. Midwest.

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In yet another ASM presentation, **Gregg Marcello** and **Douglas Meikle** presented strong evidence that *P. leucopus* population densities are positively correlated with emergence of cicadas in forest edges in Ohio.

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A deer mouse fancier site to check out: <http://deermouse.sitemouse.com/bbs/view.cgi>  
This site is named **Deer Mice as Pets Forum**.

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**Randy J. Nelson's** new book, *AN INTRODUCTION TO BEHAVIORAL ENDOCRINOLOGY* (3ed), is now available

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**Dr. Hopi Hoekstra's** presentation at the Evolution 2005 meeting on her studies of natural selection on coat color in beach mice, *P. polionotus*, was one of the presentations highlighted in the 15 July issue of **Science** .

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Regretfully we are informed that **Dr. E.W. Pfeiffer** of the University of Montana has died. Dr. Pfeiffer, a long time subscriber to *PN*, was most noted for his extensive studies of the effects of Agent Orange and other toxins on wildlife. He made several trips to Vietnam to assess Agent Orange damage.

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# THE PEROMYSCUS GENETIC STOCK CENTER

## General

The University of South Carolina has maintained a genetic stock center for *Peromyscus* (deer mice and congeneric species) since 1985. The center was established under a grant from the Living Stocks Collection Program of the National Science Foundation and continues to be supported by NSF and the NIH Biological Models and Materials Research Program. It also receives support from the University and from user fees.

The major function of the Stock Center is to provide genetically characterized types of *Peromyscus* in limited quantities to scientific investigators and educators. Continuation of the center is dependent upon significant external utilization, therefore potential **users are encouraged to take advantage of this resource.**

## Policies and Procedures

The Stock Center currently maintains several categories of stocks of living animals:

- 1) Closed colony random-bred<sup>1</sup> “wild-type” stocks of seven species of *Peromyscus*.
- 2) Two highly inbred<sup>2</sup> stocks of “wild-type” *P. leucopus*.
- 3) Stocks of eighteen coat color mutations, mostly in *P. maniculatus*.
- 4) Stocks of nine other monogenic traits.

The Stock Center operates in strict compliance with the Animal Welfare Act and is located in an AAALAC approved facility. All animal care is performed by certified technicians. Stocks are monitored regularly for presence of disease and parasites and are free of hantavirus and 15 murine viruses.

The Stock Center also provides blood, organs, tissues, fetuses, skins and other biological materials from *Peromyscus*. The Stock Center operates a Molecular Bank where selected genomic libraries and probes are available. Other resources include a reference collection of more than 2,500 reprints of articles on peromyscine rodents, copies of which may be provided. The Stock Center is the primary sponsor of **PeroBase**, an on-line database dedicated to information regarding *Peromyscus* and closely related species.

Sufficient animals of the mutant types generally can be provided to initiate a breeding stock. Somewhat larger numbers, up to about 50 animals, can be provided from the wild-type stocks. Animals requested in greater numbers frequently require a “breed-up” charge and some delay in shipment.

## Orders and Pricing

A user fee is charged for animals or materials provided by the Stock Center. A schedule of fees is shown in the table on the next page. Fees vary with species and type of service provided. User assumes the cost of all shipment. Animals lost in transit are replaced without charge. Tissues, blood, skins, *etc.* are supplied at a modest fee that includes technician time. Arrangements for special orders will be negotiated. Billing will be submitted upon satisfactory delivery. **Write or call for details or special requirements.**



## SCHEDULE OF USER FEES

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| Item                                                                                                             | Academic and Government | Commercial Users |
|------------------------------------------------------------------------------------------------------------------|-------------------------|------------------|
| <b>MATURE ANIMALS (each)</b>                                                                                     |                         |                  |
| Wild-type Stocks                                                                                                 |                         |                  |
| Smaller species ( <i>P. maniculatus</i> ,<br><i>P. polionotus</i> , <i>P. leucopus</i> ,<br><i>P. eremicus</i> ) | <b>\$ 22.50</b>         | <b>\$ 35.00</b>  |
| Larger species ( <i>P. californicus</i> ,<br><i>P. melanophrys</i> , <i>P. aztecus</i> )                         | <b>30.00</b>            | <b>40.00</b>     |
| Mutant and Inbred Stocks                                                                                         | <b>30.00</b>            | <b>40.00</b>     |
| Pregnant females (Smaller species)                                                                               | <b>40.00</b>            | <b>50.00</b>     |
| (Larger species)                                                                                                 | <b>55.00</b>            | <b>65.00</b>     |
| Special Attention (Diet, <i>etc.</i> )                                                                           | <b>40.00</b>            | <b>50.00</b>     |
| F <sub>1</sub> Species Hybrids                                                                                   | <b>30.00</b>            | <b>40.00</b>     |
| <b>TISSUE SAMPLES (Per sample)</b>                                                                               |                         |                  |
| Solid                                                                                                            | <b>25.00</b>            |                  |
| Fluid (Blood, urine, saliva, <i>etc.</i> ) per ml                                                                | <b>40.00</b>            |                  |
| Flat skins (each)                                                                                                | <b>35.00</b>            |                  |
| <b>MOLECULAR MATERIALS</b>                                                                                       |                         |                  |
| Extracted DNA, 20 µg                                                                                             | <b>100.00</b>           |                  |
| PCR Primers (500 µl @ 10 µM)                                                                                     | <b>10.00</b>            |                  |
| Genomic & cDNA libraries                                                                                         | <b>300.00</b>           |                  |

### OTHER CHARGES

Shipping costs = actual shipper's charges plus cost of mouse containers, packaging.

Lab fee for sample preparation.

Breed-up fees (for orders exceeding 50 animals) = *per diem* cage charges X cages required.

## Stocks Available

### WILD TYPE STOCKS

### ORIGIN

|                                                                        |                                                                                                                         |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <i>P. maniculatus bairdii</i><br>(BW Stock)<br>Deer Mouse              | Closed colony bred in captivity since 1948.<br>Descended from 40 ancestors wild-caught near Ann Arbor MI.               |
| <i>P. maniculatus sonoriensis</i><br>(SM2 Stock)<br>Sonoran Deer Mouse | Derived from about 50 animals wild-caught by Jack Hayes in 1995 near White Mountain Research Station CA.                |
| <i>P. polionotus subgriseus</i><br>(PO Stock)<br>Oldfield Mouse        | Closed colony since 1952. Derived from 21 ancestors wild-caught in Ocala Nat'l. Forest FL. High inbreeding coefficient. |
| <i>P. polionotus leucocephalus</i><br>(LS Stock)<br>Beach Mouse        | Derived from beach mice wild-caught on Santa Rosa Island FL between 1987-1988 and bred by R. Lacy.                      |
| <i>P. leucopus</i><br>(LL Stock)<br>White-footed Mouse                 | Derived from 38 wild ancestors captured between 1982 and 1985 near Linville NC.                                         |
| <i>P. californicus insignis</i><br>(IS Stock)<br>California Mouse      | Derived from about 60 ancestors collected between 1979 and 1987 in Santa Monica Mts. CA.                                |
| <i>P. aztecus</i><br>(AM Stock)<br>Aztec Mouse                         | Derived from animals collected on Sierra Chincua Michoacan, Mexico in 1986.                                             |
| <i>P. melanophrys</i><br>(XZ Stock)<br>Plateau Mouse                   | Derived from animals collected between 1970 and 1978 from Zacatecas, Mexico and bred by R. Hill.                        |
| <i>P. eremicus</i><br>(EP Stock)<br>Cactus Mouse                       | Originated from 10-12 animals collected at Tucson AZ in 1993.                                                           |

### INTERSPECIFIC HYBRIDS

|                                                                        |                                             |
|------------------------------------------------------------------------|---------------------------------------------|
| <i>P. maniculatus</i> X <i>P. polionotus</i><br>F <sub>1</sub> Hybrids | Bred by special order.                      |
| <i>P. leucopus</i> X <i>P. gossypinus</i><br>F <sub>1</sub> Hybrids    | Sometimes available by special arrangement. |

### <sup>3</sup>COAT COLORS

### ORIGINAL SOURCE

|                                                           |                                                          |
|-----------------------------------------------------------|----------------------------------------------------------|
| Blonde <i>bln/bln</i>                                     | Mich. State U. colony (Pratt and Robbins, 1982)          |
| Albino <i>c/c</i>                                         | Sumner's albino deer mice (Sumner, 1922)                 |
| Ashy <i>ahy/ahy</i>                                       | Wild-caught in Oregon ~ 1960 (Teed et al., 1990)         |
| Black (Non-agouti) <i>a/a</i>                             | Horner's black mutant (Horner et al., 1980)              |
| <sup>4</sup> Brown <i>b/b</i>                             | Huestis stocks (Huestis and Barto, 1934)                 |
| California blonde <i>cfb/cfb</i>                          | Santa Cruz I., Calif., stock (Roth and Dawson, 1996)     |
| Dominant spotting <i>S/+</i>                              | Wild caught in Illinois (Feldman, 1936)                  |
| Golden nugget <i>b<sup>gn</sup>/b<sup>gn</sup></i>        | Wild caught <i>P. leucopus</i> (Horner and Dawson, 1993) |
| Ivory <i>i/i</i>                                          | Wild caught in Oregon (Huestis, 1938)                    |
| <sup>5</sup> Pink-eyed dilution <i>p/p</i>                | Sumner's "pallid" deer mice (Sumner, 1917)               |
| Platinum <i>plt/plt</i>                                   | Barto stock at U. Mich. (Dodson et al., 1987)            |
| <sup>4</sup> Silver <i>sil/sil</i>                        | Huestis stock (Huestis and Barto, 1934)                  |
| Tan streak <i>tns/tns</i>                                 | Clemson U. stock from NC (Wang et al., 1993)             |
| Variable white <i>Vw/+</i>                                | Mich. State U. colony (Cowling et al., 1994)             |
| White-belly non-agouti <i>a<sup>w</sup>/a<sup>w</sup></i> | Egoscue's "non-agouti" (Egoscue, 1971)                   |
| Wide-band agouti <i>A<sup>Nb</sup>/a</i>                  | Natural polymorphism U. Mich. (McIntosh, 1954)           |

### OTHER MUTATIONS AND VARIANTS

|                                                                       |                                                                     |
|-----------------------------------------------------------------------|---------------------------------------------------------------------|
| Alcohol dehydrogenase negative <i>Adh<sup>0</sup>/Adh<sup>0</sup></i> | South Carolina BW stock (Felder, 1975)                              |
| Alcohol dehydrogenase positive <i>Adh<sup>f</sup>/Adh<sup>f</sup></i> | South Carolina BW stock (Felder, 1975)                              |
| Boggler <i>bgl/bgl</i>                                                | Blair's <i>P. m. blandus</i> stock (Barto, 1955)                    |
| Cataract-webbed <i>cwb/cwb</i>                                        | From Huestis stocks (Anderson and Burns, 1979)                      |
| Epilepsy <i>epl/epl</i>                                               | U. Michigan <i>P. m. artemisiae</i> stock (Dice, 1935)              |
| <sup>5</sup> Flexed-tail <i>ff</i>                                    | Probably derived from Huestis flexed-tail (Huestis and Barto, 1936) |
| Hairless-1 <i>hr-1/hr-1</i>                                           | Sumner's hairless mutant (Sumner, 1924)                             |
| Hairless-2 <i>hr-2/hr-2</i>                                           | Egoscue's hairless mutant (Egoscue, 1962)                           |
| Juvenile ataxia <i>ja/ja</i>                                          | U. Michigan stock (Van Ooteghem, 1983)                              |
| Enzyme variants                                                       | Wild type stocks provide a reservoir of variants (Dawson, 1983)     |

<sup>1</sup> "Random bred" without deliberate selection, sib-sib matings avoided. <sup>2</sup> Inbred lines bred by sib-sib and/or parent-offspring mating for 21 generations or more. <sup>3</sup> Unless otherwise noted, mutations are in *P. maniculatus*. <sup>4</sup> Available only as silver/brown double recessive. <sup>5</sup> Available only as pink-eye dilution/flexed tail double recessive.

## Other Resources of the *Peromyscus* Stock Center

Highly inbred *P. leucopus* (I<sub>30+</sub>) are available as live animals or as frozen tissues.

Two lines developed by George Smith (UCLA) are currently maintained by the Stock Center.

Limited numbers of other stocks are on hand, but not currently available. Inquire.

Preserved or frozen specimens of types given in the above tables.

Flat skins of mutant or wild-type coat colors of any of the stocks listed above.

Reference library of more than 2500 reprints of research papers, articles and reports on *Peromyscus*. Single copies of individual articles can be photocopied and mailed. Please limit requests to not more than five articles at any given time. There will be a charge of 10 cents per photocopied page after the initial 20 pages.

Photocopies of back issues of *Peromyscus* Newsletter (\$5 ea.) or single original back copies, when still available, without charge.

Materials are available through the *Peromyscus* Molecular Bank of the Stock Center. Allow two weeks for delivery. Included is purified DNA or frozen tissues of any of the stocks listed above. Several genomic libraries and a variety of molecular probes are available. (Inquire for more information)

***For additional information or details about any of these mutants, stocks or other materials contact: Janet Crossland, Colony Manager, Peromyscus Stock Center, (803) 777-3107, e-mail [crosslan@biol.sc.edu](mailto:crosslan@biol.sc.edu)***

PLEASE CALL WITH INQUIRIES

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# A BRIEF HISTORY OF THE PEROMYSCUS GENETIC STOCK CENTER

Wallace D. Dawson

The Peromyscus Genetic Stock Center at the University of South Carolina was established April 1, 1985, under a NSF Biological Resources Program grant. The Stock Center has been continuously supported since that time by NSF, NIH, user fees, and institutional funds. However, the Stock Center has antecedents dating back 90 years. About 1915 Dr. Francis Sumner of Scripps Institute established a laboratory colony of deer mice (*Peromyscus maniculatus*) to study the association of pelage color and natural habitat. Several recessive coat color mutants appeared in his colony, two of which, pink-eye dilute and albino, still exist as direct lineages in the Stock Center. One of Sumner's proteges, Ralph R. Huestis, continued these lines at the University of Oregon and isolated several other mendelian traits, some of which are also still retained in the Stock Center. In the 1930's, Lee R. Dice initiated extensive studies of *Peromyscus* at the University of Michigan. At Michigan several additional monogenic traits were identified that modified coat color, morphology and behavior. Sumner's and Huestis's stocks were also perpetuated at Michigan. Dice and his associates additionally developed two "wild-type" closed colony stocks of *Peromyscus*: the BW stock of *P. maniculatus* and the PO stock of *P. polionotus*. These wild-type stocks, as well as some of the monogenic mutant stocks, eventually were assimilated into the colony that became the foundation for the Stock Center.

William McIntosh was a Ph.D graduate student who worked with Dice in the late 1940s, and subsequently assumed a faculty position at Ohio State University where he established an extensive *Peromyscus* colony that existed from 1954 until 1962. I was a graduate student at Ohio State at this time working with McIntosh and was using both *P. maniculatus* and *P. polionotus*. Upon receiving my degree in 1962 I joined the faculty of the University of South Carolina. My research start-up consisted of a dozen galvanized metal mouse cages with water bottles and \$50 for mouse chow. I soon obtained an in-house grant of \$400 to buy additional cages and supplies. Initially I maintained only the two wild-type stocks mentioned above and about four of the coat color mutants that I thought could be studied by a hoped-for graduate student. My first grad student, Mike Maddock, soon joined me and he did some work on gene

interactions among the coat color stocks. My entire animal facility was located in a small two-room penthouse atop the then new Life Sciences Building. I was given space for about 120 cages in one of these rooms shared between the Biology Department and the College of Pharmacy. The facility also housed laboratory mice (*Mus*) and rats (*Rattus*) and rabbits, and sometimes other small vertebrates. From the beginning I maintained meticulous breeding records of all of the *Peromyscus* following the example of Bill McIntosh as he had learned it from Lee Dice. These records still exist in the Stock Center archives.

By 1964 I had received my first NIH grant to study hormonal differences between *P. maniculatus* and *P. polionotus*, and their hybrids. This and related work on hormone growth effects was the focus of much of my research over the next several years, but I remained primarily interested in speciation and genetics. By the late 1960s I had established a correspondence with Ralph Huestis who was about to retire and wanted to pass his stocks of *Peromyscus* to me to accept "in trust". Among these were several mutant stocks that Huestis had identified and, also, some of Sumner's mutant stocks. We accepted these and continued to maintain the additional mutations. Fortunately, by 1970 an additional animal facility had been renovated in the adjacent Science Annex Building. The colony was housed in this building until 1999. Not long afterward Harold Egoscue of Utah State sent us stocks of several mutant deer mice he had identified. During the late 1960s and 1970s we began to utilize electrophoresis to identify and analyze the protein genetic polymorphisms in our stocks, and, with graduate students and others, published several papers. Our interest was focused on developing additional genetic markers to advance the gene map of *Peromyscus*. We also experimented with artificial insemination and conducted some studies of prenatal development of interspecific hybrids. We temporarily kept small numbers of *P. floridanus*, *P. truei*, *P. gossypinus* and *P. leucopus*, none of which were retained as continuing stocks. Unfortunately, much of our work during this interval was of limited interest to NIH and NSF. NSF funds for *Peromyscus*-related research were being directed to field studies, and NIH showed preference for more traditional animal models. By 1977 there remained only Michigan State University, University of Michigan and the University of South Carolina holding significant pedigreed stocks of *Peromyscus* in a laboratory setting. After a sabbatical at the Smithsonian in 1979, I initiated discussions with John A. "Jack" King of Michigan State and Morris Foster at Michigan about forming a consortium to maintain laboratory stocks of *Peromyscus*. However, because of Dr. Foster's death and Dr. King's approaching retirement, the consortium idea was abandoned.

In the early 1980s the National Academy of Science sponsored a study of laboratory animal resources and recognized that many long-established collections of lab animals were being abandoned because of increasing costs of animal care and higher maintenance standards for facilities. The report warned that potentially valuable laboratory animal resources were being lost, and recommended greater federal support for animal resources. NSF responded to this in the mid 1980s by increasing funding for non-traditional animal species. We applied, initially without success, for funding from NSF in 1984, but re-wrote the proposal and it was funded in 1985 and has been continuously funded since that time. Federal funding from NIH began in 1998 largely in response to the role of *Peromyscus* in two emerging diseases of concern, Lyme and hantavirus.

The first three years of the Stock Center were disappointing as it was underutilized, but by 1990, with the encouragement of James Edwards, then acting program officer at NSF, and significantly more funding, utilization greatly increased. For about six years beginning in 1990 a satellite Center was established at the University branch campus at Aiken SC under the direction of Dr. Suellen Van Ooteghem. Back-up stocks of the coat color mutants and all of the behavior mutants were maintained at that location. The Aiken Center was not cost effective and was closed in 1996.

Beginning in the mid-1980s the Stock Center began establishing permanent wild-type stocks of other species of *Peromyscus*. These included *P. californicus*, *P. eremicus*, *P. melanophrys*, *P. aztecus* and *P. leucopus*. Also, highly inbred lines of both *P. maniculatus* and *P. leucopus* were added.

A major factor in the success of the Stock Center was the selection of Janet Crossland as Colony Manager. Since its inception in 1985 she has been, and continues to be, a key factor in the management of the Center. She established cordial relationships with Stock Center clients located in nearly all of the U.S. states and several foreign countries. She supervises virtually every aspect of the day-to-day operation of the Center. She also handles much of the training of new personnel and student helpers. Since the Stock Center was established four post-doctoral researchers, ten graduate students and innumerable undergrads have assisted in its functions both as clerical and technical helpers and/or as researchers. Many scientists have visited the Center and utilized its resources on site.

In 1999 the Stock Center animals were moved into a new state-of-the-art animal facility located in the new Graduate Science Center on campus. The associated laboratory and administrative offices were moved to the same building the following year. Following my retirement in 1999, Michael "Mike" Dewey assumed directorship of the Stock Center. Mike, a member of the South Carolina faculty since 1978, had extensive experience with laboratory mice (*Mus*) and was director of the mouse transgenic facility on campus. He also had served on the Stock Center's Departmental Oversight Committee for several years. I moved to St. Louis, but remained as a consultant and editor of *Peromyscus Newsletter*. I am relinquishing both positions. Of course, I will continue to follow the progress of the Stock Center. Mike Dewey has introduced new technologies to the Center and greatly enhanced its research capabilities and brought his own talents to the Center. With continued support by the faculty and administration of the University, and continued external grant funding, the *Peromyscus* Genetic Stock Center should thrive and remain a valuable asset.

\* \* \* \* \*

### **Peromyscus Genetic Stock Center**

**Personnel:**

Director: Wallace D. Dawson (1985-1999)  
 Director: Michael J. Dewey (1999 - )  
 Colony Manager: Janet P. Crossland (1985- )  
 Director Aiken SC Stock Center: Suellen Van Ooteghem (1990-1997)  
 Director of Animal Care: Robert Beattie DVM (1987-2005)  
 Principle Animal Caretakers: Charlotte Joyner, Derrick Thompson, Jeff Attlesey, Ginger Peters

### ***PeroBase***

**Personnel:**

|                                                        |                                                           |
|--------------------------------------------------------|-----------------------------------------------------------|
| John Rose PI (1997- )                                  | External <b><i>PeroBase</i></b> Advisory Committee (1998) |
| Wallace Dawson Co-PI (1997- )                          | Robert Robbins                                            |
| Michael Dewey Co-PI (1999- )                           | Janan Eppig                                               |
| Neville Yoon, Web design (1999-2004)                   | Richard Dorrey                                            |
| Paige Meeker, Files management (1997-2000)             |                                                           |
| Andrew Pushlar, Preliminary site design (1997-1999)    |                                                           |
| Steve Collins, Data entry (1999-2004)                  |                                                           |
| Melanie Haynes, Data entry (1999-2002)                 |                                                           |
| Angela Dicks, Data entry (1999-2000)                   |                                                           |
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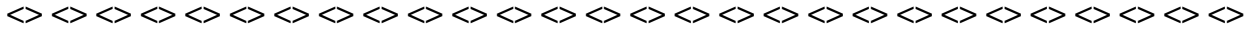
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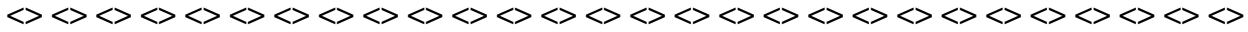
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### **Road-Crossing Behavior in White-Footed Mice**

Previous trapping studies centered on roads suggest that roads are effective barriers to movement of white-footed mice. Last year we presented results from a study on displacement of white-footed mice (*Peromyscus leucopus*) from their home range to examine the road-crossing ability of mice using their innate homing ability in Nolde Forest near Reading, PA. In that study, only one of 30 mice returned to their original home range. In 2004 we used radio transmitters to track nine mice for up to two weeks after release. Interestingly, roads were found not to impede the movement of mice as all four radio-collared mice released near roads established new home ranges within Nolde forest after successfully crossing a road. None of the nine mice released returned to their original home range. This suggests that roads do not impede movement but instead are used as convenient boundaries when establishing a home range. Furthermore, we suggest that the homing ability of white-footed mice is limited to less than 500 m.

\* \* \*

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### **Examining Gene Flow in a Population of *Peromyscus maniculatus* in the Warner Mountains using Mitochondrial DNA Sequence of the Cytochrome *B* Gene**

The purpose of this study was to examine gene flow in a population of deer mice, *Peromyscus maniculatus*, along a transect crossing the Warner Mountain range of Northern California. During the summer of 2002, specimens were collected using eleven live-trap sites along a west to east transect that extends over the Warner Mountains in Modoc County, California. The transect incorporates both the steep eastern face, and the gradual western face of the range. Taking into account slope aspects, we examined the effect of mountain topography on gene flow among this population of deer mice. We hypothesized that mice from the western, gentle slope would show more genetic homogeneity than mice from the steeper eastern slope. During collection, a small sample of ear tissue was removed from each mouse using a biopsy punch. We extracted DNA from forty-three of the tissue samples using Promega Wizard Extraction kits. A 600 base pair portion of the mitochondrial DNA cytochrome *b* gene was amplified by polymerase chain reaction using primers L14724 and H15906 (Irwin et al. 1991, J. Mol. Evol. 32). Samples were sequenced on an ABI-310 capillary sequencer. Sequencing analysis of all samples will be completed by August 13<sup>th</sup>. Results indicate gene mixing between sample populations from the steep eastern slope and the gradual slopes of the west. This essentially negates the original hypothesis that steep slopes would hinder gene flow in deer mice. However, the analysis does reveal what appears to be two maternal lineages within this purported single species of *Peromyscus maniculatus*.

\* \* \*

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