Society for the Study of Evolution
and
American Society of Naturalists

Annual Meeting

Mountain Pine Beetle
*Dendroctonus ponderosae*

State University of New York at Stony Brook
Stony Brook, New York
June 21-24, 1982
<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday, June 20</td>
<td>3:00-9:00 p.m.</td>
<td>Registration</td>
<td>Roth Quad</td>
</tr>
<tr>
<td></td>
<td>3:00-9:00 p.m.</td>
<td>Mixer</td>
<td>Roth Cafeteria</td>
</tr>
<tr>
<td></td>
<td>8:00 p.m.</td>
<td>SSE Council Meeting</td>
<td>Graduate Biology 650</td>
</tr>
<tr>
<td>Monday, June 21</td>
<td>8:30 a.m.-12:00 noon</td>
<td>Registration</td>
<td>Lecture Hall Center</td>
</tr>
<tr>
<td></td>
<td>8:30 a.m.-12:00 noon</td>
<td>Symposium: Coevolution</td>
<td>Lecture Hall Center 100</td>
</tr>
<tr>
<td></td>
<td>12:00 noon-1:00 p.m.</td>
<td>SSE Business Meeting</td>
<td>Roth Cafeteria</td>
</tr>
<tr>
<td></td>
<td>1:00 p.m.-5:20 p.m.</td>
<td>Contributed Paper Sessions</td>
<td>Lecture Hall Center 106</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evolution</td>
<td>Lecture Hall Center 106</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Genetic Variability</td>
<td>Lecture Hall Center 102</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Geographic Variation</td>
<td>Lecture Hall Center 103</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gene Flow</td>
<td>Graduate Biology 038</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Host-Parasite</td>
<td>Lecture Hall Center 109</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Interactions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Life-History Variation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7:00 p.m.</td>
<td>SSE Banquet</td>
<td>Stony Brook Union Ballroom</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Presidential Address: Species Again, the Green Kind</td>
<td>by Otto Solbrig, Harvard University</td>
</tr>
<tr>
<td>Tuesday, June 22</td>
<td>8:30 a.m.-12:00 noon</td>
<td>Symposium: Evolutionary Controversies, Within and Without</td>
<td>Lecture Hall Center 100</td>
</tr>
<tr>
<td></td>
<td>12:00 noon-1:00 p.m.</td>
<td>ASN Business Meeting</td>
<td>Roth Cafeteria</td>
</tr>
<tr>
<td></td>
<td>1:00-5:00 p.m.</td>
<td>Contributed Paper Sessions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sex</td>
<td>Graduate Biology 038</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enzyme Kinetics</td>
<td>Lecture Hall Center 103</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Morphological Variation</td>
<td>Lecture Hall Center 106</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mitochondrial DNA, Transposable Elements</td>
<td>Lecture Hall Center 110</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Phylogeny and Evolutionary Rates</td>
<td>Lecture Hall Center 102</td>
</tr>
</tbody>
</table>
ASN Presidential Address 5:00-6:15 p.m. Lecture Hall Center 100

What Are the Real Problems With Evolutionary Theory?
by Richard C. Lewontin, Harvard University.

Cookout 7:00 p.m.
Roth Pond (Clear Weather)
Roth Cafeteria (Rain)

WEDNESDAY, JUNE 23

Contributed Paper Sessions
8:10 a.m.-12:00 noon Lecture Hall Center 110
Evolutionary Theory
Growth Rates, Chromosomes
Plant Demography
Adaptive Plant Variation
Gene Families, Amino Acid Sequences
DNA Heterogeneity

Lecture Hall Center 102
Lecture Hall Center 106
Lecture Hall Center 101
Lecture Hall Center 109

Lunch 12:00 noon-1 p.m.
Roth Cafeteria

Symposium: Molecular Evolution of DNA and Proteins 1:00-5:00 p.m.
Lecture Hall Center 100

Workshop: Opportunities for Evolutionary Research in Agricultural Systems 7:00 p.m.
Graduate Biology 054

THURSDAY, JUNE 24

Symposium: Polymorphisms of DNA and Proteins 8:30 a.m.-12:30 p.m.
Lecture Hall Center 100

Lunch 12:00 noon-1:00 p.m.
Roth Cafeteria

Symposium: Implications of Molecular Evolution 1:30-4:45 p.m.
Lecture Hall Center 100

Monday Morning, June 21

Symposium Coevolution Lecture Hall Center 100
8:30 a.m.
Montgomery Slatkin, University of Washington. Models of Coevolution

9:15 a.m.
Paul Peery, Cornell University. The Role of Chemistry in Coevolution Between Plants and Herbivorous Insects

10:00 a.m.
Coffee

10:30 a.m.
Charles Mitter, University of Maryland. Phylogenetic Aspects of Coevolution

11:15 a.m.
Douglas Futuyma, State University of New York at Stony Brook. Unresolved Issues in Coevolution

12:00
SSSA Business Meeting
Roth Cafeteria

1:00-5:20 p.m.
Contributed Papers

Conference Hosts


Monday Afternoon

Lecture Hall Center 106

Session Title: Evolution
Session Leader: I. Kornfield

1:00 Schneiderman, E.M. State University of New York at Purchase. Evolutionary ecology of lichens.


2:00 Pirlot, P. Universite de Montreal. Quantitative organisation and evolution of the marsupial brain.


3:00 Break


4:00 Boyer, J.F. Union College. Genetic consequences of interference behavior in age-structured populations.


4:40 Williams, F.M. Pennsylvania State University. Evenness without diversity.

5:00 Rosen, E.A. Theistic evolution, a compromise.

Monday Afternoon

Lecture Hall Center 110

Session Title: Genetic Variability
Session Leader: D. Graur

1:00 Collier, G.E. Illinois State University. Evolution of arginine kinase within the genus Drosophila.

1:20 Bissess, K. Th. Laboratorium voor Populatie en Evolutiebiologie. Different ways of ethanol-deterioration adapted in two sibling species of Drosophila melanogaster based on the dual function of ADH.


3:00 Break


4:00 Arnason, E. Harvard University and University of Iceland. Perturbation studies of esterase-5 in Drosophila pseudoobscura.


4:40 Graur, D. University of Texas Health Science Center. Relationship between gene diversity and population size.

5:00 Campbell, R.B. Purdue University. Neutral drift and punctuated equilibria.
Monday Afternoon

Session Title: Geographic Variation  Session Leader: P. Smouse

1:00
Shaklee, J.B. University of Georgia, West Virginia University, Rutgers University. Gene flow in the pulmonate snail, Melampus bidentatus.

1:20

1:40
Baroqer, W.H. Rutgers University. Population genetic studies of the American oyster, Crassostrea virginica (Gmelin), along the Atlantic coast and Gulf of Mexico.

2:00
Cole, T.J. Horn Point Environmental Labs. Population differentiation of Atlantic Coast blue crabs (Callinectes sapidus).

2:20

2:40
Etgas, W.J. University of Rochester. Inversion frequency dynamics along the Smoky Mountain cline in Drosophila robusta.

3:00
Break

3:20

3:40
Florence, L.Z. University of Alberta. Genetic differentiation along microhabitats in loblolly pine.

4:00
Innes, B.J. State University of New York at Stony Brook. Microgeographic variation in the asexual reproducing alga Enteromorpha lenza.

4:20

4:40
Mueller, L.D. Stanford University. The "sexy son" hypothesis: a population genetic model.

5:00
Monday Afternoon

Session Title: Host-Parasite Interactions  
Session Leader: M. Rossiter

1:00  
Vis, S., Duke University. Genetic covariance of female host plant preference and larval performance in an insect herbivore.

1:20  
Gould, F., North Carolina State University. Adaptation and cross-adaptation of an herbivore to secondary plant compounds.

1:40  
Messina, P., Boyce Thompson Institute for Plant Research. Ontogenetic and interspecific variation in host preference of two goldenrod beetles.

2:00  

2:20  

2:40  

3:00  
Break

3:20  
Mock, B.A., University of Maryland. The influence of host age structure on parasite populations.

3:40  

4:00  
Rossiter, M., University of Texas. Selection for alternate host use by the gypsy moth: the effects of parasites, humans, and pathogens.

4:20  

4:40  
Mark, G., Cornell University. Houseflies selected for resistance to the parasitic wasp Masonia vespertina.

Lecture Hall Center 109

Session Title: Life history variation  
Session Leader: J. Collins

1:00  
Allan, J.D., University of Maryland. Life history variation in a freshwater copepod: evidence from population crosses.

1:20  

1:40  
Solts, D.A. and M.P. Mishfield. California State University and Benedict Estuarine Laboratory. Genetic differentiation of life history traits in two populations of Amargosa pupfish, Cyprinodon nevadensis.

2:00  
Travis, J., Florida State University. Ecological genetics of development patterns in larval anurans: sibling environment interactions.

2:20  
Taylor, F., University of New Mexico. A theoretical analysis of the fitness function associated with diapause induction in insects.

2:40  
Collins, J.P., Arizona State University. Effect of food and density on development of typical and cannibalistic salamander larvae in Ambystoma tigrinum nebulosum.

3:00  
Break

3:20  
Godt, M.J. and M.H. Smith. Savannah River Ecology Laboratory. Differences in fecundity and body size relationships in mosquitofish (Gambusia affinis) from ambient and thermally stressed environments.

3:40  
Polivanov, S., Catholic University of America. Predation on adult stage of North American papilionide.

4:00  
Sargent, R.C., State University of New York at Stony Brook. On the evolution of parental care in fishes with external fertilization.
Tuesday Morning, June 22

Symposium
Evolutionary Controversies, Lecture Hall Center 100
Within and Without

8:30 a.m.

9:15 a.m.
Garland E. Allen, Washington University. The Faces of Darwin: Materialism in Nineteenth and Twentieth Century Evolution Theory

10:00 a.m.
Break

10:30
Thomas Jukes, University of California at Berkeley. Equal Time for Nonsense: The Creationist’s Attack on Science (Dr. Jukes’ talk will be followed by an open discussion)

12:00
ASN Business Meeting

1:00-5:00 p.m.
Contributed Papers

Tuesday Afternoon
Graduate Biology 038

Session Title: Sex
Session Leader: W. Anderson

1:00

1:20
Boake, C.R.M. University of Chicago. Sexual selection and communication in a gregarious cricket.

1:40
Skinner, S.W. University of Utah. Field studies on the sex ratio and brood size in the wasp, Nasonia vitripennis.

2:00

2:20
Turner, M.E. University of Georgia. Sperm competition in Drosophila pseudoobscura.

2:40
Elbin, M.E. Bowling Green State University. Sperm wars: studies on the mechanism of sperm predominance.

3:00
Break

3:20

3:40

4:00

4:20

4:40
Tuesday Afternoon  Lecture Hall Center 103

Session Title: Enzyme Kinetics  Session Leader: W. Eanes

1:00  White, H.B. III. University of Delaware. Comparative "morphology" of coenzymes and the origin of enzymes.

1:20  Sampsell, B. Chicago State University. Effects of environmental temperature on ADH levels in D. melanogaster.


3:00  Break


4:00  Eanes, W.F. State University of New York at Stony Brook. Viability interaction and in vitro function at the glucose 6-phosphate dehydrogenase locus in Drosophila melanogaster.


4:40  Liu, E.M. and M.H. Smith. Savannah River Ecology Laboratory. MDH alleles with different thermal stabilities in largemouth bass populations from heat stressed and ambient ponds.

Tuesday Afternoon  Lecture Hall Center 106

Session Title: Morphological Variation  Session Leader: W. Atchley

1:00  Leamy, L. California State University. Static phenotypic, genetic, and environmental allometry of morphometric traits in inbred and hybrid house mice.

1:20  Archie, J. University of Hawai'i. Curvilinearity in allometry: the evolution of statistical artifacts.

1:40  Zera, A.J. State University of New York at Stony Brook. Genetic structure of the wing polymorphic waterstrider Limnoporus canaliculatus.


2:20  Baumgartner, J.V. State University of New York at Stony Brook. Climinal variation and lateral plate morphs in California stream populations of the threespine stickleback, Gasterosteus aculeatus.


3:00  Break


Tuesday Afternoon
Lecture Hall Center 110

Session Title: Mitochondrial DNA, Transposable elements
Session Leader: M. Kidwell

1:00

1:20

1:40
Ferris, S. Stanford University School of Medicine. Flow of mitochondrial DNA across a hybrid zone.

2:00
Asmussen, M.A. University of Georgia. Use of restriction fragment length polymorphisms as genetic markers: theoretical considerations.

2:20

2:40

3:00
Break

3:20

3:40

4:00

4:20
Chao, L. Northwestern University. Selection for transposable elements in Escherichia coli

Tuesday Afternoon
Lecture Hall Center 102

Session Title: Phylogeny and Evolutionary Rates
Session Leader: C. Sibley

1:00
Gojobori, T., W. Li, and M. Wei. University of Texas at Houston. Evolutionary rates of mammalian mitochondrial genes.

1:20
Reynales, T.E. University of California at Santa Barbara. GENCODE: a nucleic acid simulator with eccentric rates of substitution.

1:40
Helm-Rychnowski, K.M. University of California at Berkeley. Relative rates of nuclear and mitochondrial DNA evolution in birds.

2:00
Scott, A.F. Johns-Hopkins University. The nature and rate of genomic evolution based on comparison of homologous DNA sequences from man and gorilla.

2:20
Nixson, J. University of Michigan. Nucleotide sequence comparison of mitochondrial DNA in higher primates.

2:40
George, M. Jr. San Diego Zoo. Mitochondrial DNA evolution in the genus Equus.

3:00
Break

3:20
Walker, W.F. Dalhousie University. The phylogenetic history of fungi and related organisms according to 5S rRNA sequence data.

3:40
Doolittle, W.F. Dalhousie University. Genome plasticity in archebacteria.

4:00
Sibley, C.G. Yale University. Clustering, branching, and time: the elements of phylogeny determined by DNA-DNA hybridization.

4:20
Zimmer, E.A. Stanford University. Ribosomal gene variation within and between species of corn and its ancestors.

4:40
Jorgensen, R. University of California at Davis. Novel evolutionary variation in the structure and transcription of the chloroplast genomes of legumes.
Wednesday Morning, June 23, Contributed Papers

Wednesday Morning
Lecture Hall Center 110

Session Title: Evolutionary Theory
Session Leader: J. Felsenstein

8:10
Williams, M.B. University of Delaware. What is evolutionary theory about? A different view on units of selection.

8:30
Diehl, S.R. University of Texas. Sympatric speciation in Rhagoletis (Diptera: Tephritidae).

8:50
Wade, M.J. University of Chicago. The influence of population on individual fitness.

9:10
Emigh, T.H. and A.E. Antlfinger. North Carolina State University and University of Nebraska at Omaha. Uses of the biplot with evolutionary and genetic data.

9:30
Chakraborty, R. University of Texas Health Science Center. The rate of accumulation of variability in polygenic traits in natural populations.

9:50
Levinton, J.S. and D.J. Lonsdale. State University of New York at Stony Brook. Latitude, physiological differentiation, and a possible mechanism of clinal speciation.

10:10
Break

10:30
Giles, B. Ottawa Research Station, Agriculture Canada. How does population variation affect taxonomic separation?

10:50

11:10
Thomas, W. University of California at Davis. Phenotypic models for the maintenance of sex.

11:30
Nyberg, D. University of Illinois at Chicago. The fitness consequences of sex and recombination: an experimental study.
### Lecture Hall Center 102

#### Wednesday Morning

**Session Title:** Plant Demography  
**Session Leader:** A. E. Antlfinger

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker &amp; Institution</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:10</td>
<td>Schlichting, C. University of Texas at Austin.</td>
<td>Phenotypic plasticity of annual <em>Phlox</em> species.</td>
</tr>
<tr>
<td>8:30</td>
<td>Schmidt, K.P. and D.A. Levin. University of Texas at Austin.</td>
<td>Comparative demography of hybrid and varietal populations in a zone of secondary intergradation in <em>Phlox drummondii</em>.</td>
</tr>
<tr>
<td>8:50</td>
<td>Levin, D.A. University of Texas at Austin.</td>
<td>Character displacement in <em>Phlox</em>.</td>
</tr>
<tr>
<td>9:10</td>
<td>Lechowicz, M.J. McGill University.</td>
<td>Does maximizing photosynthetic capacity maximize fitness in <em>Xanthium strumarium</em> (<em>Compositae</em>).</td>
</tr>
<tr>
<td>10:10</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>Jasieniuk, M. McGill University.</td>
<td>The reproductive success of chasmogamous and cleistogamous flowers of <em>Oxalis montana</em>.</td>
</tr>
<tr>
<td>10:50</td>
<td>Antlfinger, A.E. University of Nebraska at Omaha.</td>
<td>Field germination of selfed and outcrossed seeds of <em>Impatiens capensis</em>.</td>
</tr>
<tr>
<td>11:10</td>
<td>Buckley, D. Ohio University.</td>
<td>The spatial demography of clonal growth in an expanding asporophytic genotype of <em>Drosera sensibilis</em> L.</td>
</tr>
<tr>
<td>11:30</td>
<td>Cook, R.E. Cornell University.</td>
<td>Clone demography in a woodland violet.</td>
</tr>
</tbody>
</table>

---

### Lecture Hall Center 106

#### Wednesday Morning

**Session Title:** Adaptive Plant Variation  
**Session Leader:** T. Givnish

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker &amp; Institution</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:10</td>
<td>Robichaux, R. University of California at Berkeley.</td>
<td>Variation in water relations among species in the Hawaiian silversword alliance (<em>Compositae</em>).</td>
</tr>
<tr>
<td>8:30</td>
<td>Chardon, R.L. Cornell University.</td>
<td>Paedomorphosis on rain forest understory palms: relevance to shade adaptation.</td>
</tr>
<tr>
<td>8:50</td>
<td>Givnish, T.J. Harvard University.</td>
<td>On the adaptive significance of leaf height in forest herbs: a game theoretic model.</td>
</tr>
<tr>
<td>10:10</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>Stiles, E.W. Rutgers University.</td>
<td>Fruit flags: two hypotheses.</td>
</tr>
<tr>
<td>11:10</td>
<td>Janson, C.H. University of Washington.</td>
<td>Things aren't always black and white — the evolution of fruit characteristics and dispersers.</td>
</tr>
</tbody>
</table>
Wednesday Morning
Lecture Hall Center 101

Session Title: Gene families, amino acid sequences
Session Leader: M. Dayhoff

8:10 Sederoff, R. North Carolina State University. The evolution of maize mitochondrial DNA.

8:30 Villa-Komaroff, L. University of Massachusetts Medical School. Evolution of a gene related to insulin.

8:50 Dirgaiczyk, A. Baylor College of Medicine. Structure and evolution of the serum albumin family.

9:10 Wu, B. Harvard University. Evolution of two repetitive DNA sequence families in natural populations of Anolis carolinensis.

9:30 Hardison, R.C. Pennsylvania State University. Evolution of the beta-like globin gene family of rabbits.

9:50 Go, M. Kyushu University. Correlation between exons and protein structural units.

10:10 Break

10:30 Martin, S. University of California at Berkeley. Transcriptional silencing and the evolution of a pseudogene.

10:50 Rohl, R. Max Planck Institute. Evolutionary aspects of ribosome assembly.


Wednesday Morning
Lecture Hall Center 109

Session Title: DNA Heterogeneity
Session Leader: R. Milkman

8:10 Yokoyama, S. Washington University School of Medicine and the Jewish Hospital of St. Louis. Magnitude of DNA rearrangements during the development of the ciliate Tetrahymena thermophila.

8:30 Golding, G.B. University of Alberta. Expected frequencies of codon use as a function of mutation rates and codon fitnesses.

8:50 Tajima, F. University of Texas at Houston. Evolutionary relationship of DNA sequences in a finite population.


10:10 Break

10:30 Kreitman, M. Harvard University. DNA sequence variation at the ADH locus in D. melanogaster.

10:50 Milkman, R. University of Iowa. Nucleotide sequence in wild E. coli strains.


11:30 Levinthal, M. Purdue University. The evolution of metabolic pathways in Escherichia coli requires regulatory gene mutations.
Wednesday Afternoon, June 23

Symposium Evolution of DNA and Proteins Lecture Hall Center 100

1:00 p.m. Marshall H. Edgell, University of North Carolina. Evolutionary Changes of the Globin Genes

1:45 p.m. Thomas Jukes, University of California at Berkeley. Silent Nucleotide Substitutions in Gene Evolution

2:30 p.m. Wen-Hsiung Li, University of Texas at Houston. Evolution of Duplicate Genes and Pseudogenes

3:15 p.m. Break

3:30 p.m. Norman Arneheim, State University of New York at Stony Brook. Concerted Evolution of Multigene Families

4:15 p.m. Wesley M. Brown, University of Michigan. Evolution of Animal Mitochondrial DNA

Wednesday Evening, June 23

Workshop 7:00 p.m. Opportunities for Evolutionary Research in Agricultural Systems Graduate Biology 054

Organizer: F. Gould, Department of Entomology, North Carolina State University

Panel Members: H. Alexander, Department of Plant Pathology, University of Minnesota
D. Boucher, Department of Biology, McGill University
R. Roush, Department of Entomology, Mississippi State University
B. Tabashnik, Pesticide Research Center, Michigan State University

Format: Each participant will speak for 15 minutes, and then there will be an open discussion.

Thursday Morning, June 24

Symposium Polymorphisms of DNA and Proteins Lecture Hall Center 100

8:30 a.m. Robert K. Selander, University of Rochester. Protein Polymorphism and the Genetic Structure of Populations

9:15 a.m. Richard K. Koehn, State University of New York at Stony Brook. Polymorphism and Natural Selection

10:00 a.m. Break

10:15 a.m. Haig H. Kazazian, Johns Hopkins University. Polymorphism and Evolution in Globin Genes

11:00 a.m. John C. Avise, University of Georgia. Polymorphism of mitochondrial DNA

11:45 a.m. Masatoshi Nei, University of Texas at Houston. Patterns of Protein and DNA polymorphism

12:30-1:30 p.m. Lunch Roth Cafeteria

Thursday Afternoon

Symposium Implications of Molecular Evolution Lecture Hall Center 100

1:30 p.m. Motoo Kimura, National Institute of Genetics, Mishima. The Neutral Theory of Molecular Evolution

2:15 p.m. Barry G. Hall, University of Connecticut. Evolution of New Metabolic Functions

3:00 p.m. Break

3:15 p.m. Allan C. Wilson, University of California at Berkeley. The Role of Gene Regulation in Evolution

4:00 p.m. Walter M. Fitch, University of Wisconsin. Reconstruction of Phylogenies from Molecular Data