Society for the Study of Evolution
American Society of Naturalists

Pennsylvania State University

June 15-18

Penn State 1989 SSE/ASN Annual Meeting

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SCHEDULE FOR 1989 SSE/ASN ANNUAL MEETING

THURSDAY, JUNE 15

Registration	5:00 8:30	Keller Center
Reception	7:30	Nittany Lion Inn

FRIDAY, JUNE 16

Registration	8:00	Keller Center
Symposia	8:30 12:00	
SSE: Cladistic Approaches to Evolutionary Innovation		Kern Auditorium
SSE: Phylogeny of Life as Recorded in Ribosomal Genes		Keller Auditorium
ASN Executive Committee Meeting	12:00	Nittany Lion Inn
NSF Systematic Biology Program W. S. Moore	12:30	115 Keller
Contributed Paper Sessions	2:00–5:30	
Phenotypic Plasticity		201 Keller
Life History Evolution: Reproduction		112 Keller
Polygenic Systems/Other Evolutionary Studies		113 Keller
Sexual Selection		115 Keller
Sex Ratio and Mating Systems		114 Keller
Hybridization, Hybrid Zones and Speciation		Keller Auditorium
DNA Evolution: Multiple Genes		401 Keller
Molecular Systematics		402-3 Keller
Poster Session	2:00 5:30	Lobby Keller Ctr.
Picnic	5:30 6:15	Bus from Lobby Keller Center
SSE Council Meeting	5:30	Nittany Lion Inn
Social	9:30	Leete Hall basement

MEALS WILL BE SERVED EACH DAY AT THE FOLLOWING TIMES:
Breakfast 7:15 8:00 am Lunch 12:00 1:00 pm

SATURDAY, JUNE 17

Symposia	8:30 12:00	
ASN: Young Investigators Symposium		Kern Auditorium
SSE: Evolution at the Molecular Level		Keller Auditorium
SSE General Business Meeting	12:00	402-3 Keller
ASN General Business Meeting	1:00	312 Keller
Contributed Paper Sessions	2:00–5:30	
Natural Selection		114 Keller
Life History Evolution: Growth and Natural Selection		115 Keller
Behavior Evolution		112 Keller
Population and Community Ecology		113 Keller
Macroevolution		401 Keller
Geographical Variation: Molecular		402-3 Keller
Analysis of Molecular Evolution		312-14 Keller
Gene and Genome Structure		305 Keller
ASN/SSE Banquet	6:30	Nittany Lion Inn
ASN Presidential Address	8:30 9:30	Keller Auditorium
DAVID B. WAKE "Convergent Evolution: Evidence of Natural Selection or of Design Limitations"		
Social	9:30	Leete Hall basement

SUNDAY, JUNE 18

Contributed Paper Sessions	8:30 12:00	
Morphology and Development		112 Keller
DNA Sequences and Phylogeny		305 Keller
DNA Evolution: Genes and Transposons		312-14 Keller
Population Structure		113 Keller
Geographical Variation: Phenotypic		115 Keller
Ecological Genetics		114 Keller
Plant Mating Systems and Inbreeding		401 Keller
Speciation and Isolating Mechanisms		402-3 Keller
SSE Presidential Address	1:00	Kern Auditorium
GEORGE C. WILLIAMS "Some troublesome anomalies in the data of evolution"		
Symposia	2:20 5:40	
ASN: The Population Biology of Disease in Animals and Plants		Kern Auditorium
SSE: Evolution at the Molecular Level		Keller Auditorium

SSE SYMPOSIUM: CLADISTIC APPROACHES TO EVOLUTIONARY INNOVATION

ORGANIZERS: Charles Mitter and Brian Farrell

8:30 MITTER, C., University of Maryland, College Park
Opening remarks.

8:35 REGIER, J., University of Maryland, College Park
Evolutionary changes in gene regulation generate morphological diversity of the moth chorion.

9:05 CODDINGTON, J., National Museum of Natural History
Cladistic tests of adaptational hypotheses: an example in spiders.

9:35 CARPENTER, J., Harvard University
Evolution of social organization in wasps.

10:05 BREAK

10:25 MAZER, S. J., University of California, Santa Barbara
Comparative approaches to the study of seed size evolution within and across angiosperm taxa.

10:55 FARRELL, B., and C. MITTER, University of Maryland, College Park
Macroevolutionary consequences of insect/plant interactions.

SSE SYMPOSIUM: THE PHYLOGENY OF LIFE AS RECORDED IN RIBOSOMAL GENES

ORGANIZERS: Elizabeth A. Zimmer and David Hillis

8:20 ZIMMER, E. A., Louisiana State University
Opening remarks.

8:35 LAKE, J. A., University of California, Los Angeles
Origin of the eukaryotic nucleus as determined by analysis of rRNA sequences.

9:05 WHITE, T. J., CETUS and University of California, Berkeley
Molecular evolution of the Fungi using the polymerase chain reaction and rRNA genes.

9:35 FIELD, K. G., Oregon State University
Evolution of the Metazoa: Evidence from rRNA.

10:05 BREAK

10:25 McPHERON, B., Pennsylvania State University
Insect phylogeny and rRNA sequence data.

10:55 ZIMMER, E. A., Louisiana State University
Ribosomal gene tracers of plant molecular evolution.

11:25 HILLIS, D., University of Texas, Austin
Ribosomal DNA and the phylogeny of vertebrates.

11:55 HILLIS, D., University of Texas, Austin
Closing remarks.

Contributed Papers: PHENOTYPIC PLASTICITY

CHAIR: H. Yonng

2:00 SCHEINER, S. and R. LYMAN, Northern Illinois University
The heritability of phenotypic plasticity (redux).

2:15 HERRE, E. A., Smithsonian Tropical Research Institute
Plasticity and selective regime in fig wasp sex ratio adjustment behavior.

2:30 TURNER, B. J., Virginia Polytechnic Institute and State University
Steroid-mediated sex inversion techniqnes: Evolutionary probes in all-female fish species.

2:45 SCHLICHTING, C., University of Connecticut
Phenotypic plasticity and integration in *Phlox drummondii*.

3:00 YOUNG, H., Duke University
Environmental "stress" influences pollen quality in wild radish.

3:15 GEHRING, J. L., University of Colorado
Effects of nutrient stress on males and females of a dioecious plant species, *Silene alba*.

3:30 BREAK

3:45 THOMPSON, D. B., University of Iowa
The evolution of diet induced plasticity in head size of grasshoppers.

4:00 PILSON, D., Duke University
Genotype-by-environment interactions affect natural aphid distribution patterns.

4:15 TABACHNICK, R. E., University of Michigan
Variation in fossil foraminifera populations: Exceptional plasticity?

4:30 TESSIER, A. J., Kellogg Biological Station
The allometry of reproduction in *Daphnia*: Maternal, genetic and environmental components.

4:45 TWOMBLY, S., University of Rhode Island
Phenotypic plasticity and life cycle variation in the freshwater copepod, *Cyclops scutifer*.

5:00 GEBHARDT, M. D., Zoologisches Institut Basel
Phenotypic plasticity for life history traits in *Drosophila melanogaster*.

5:15 SEIGEL, R. A. and N. B. FORD, Southeastern Louisiana University and University of Texas-Tyler
Phenotypic plasticity in life-history traits: Evidence from a viviparous snake.

Contributed Papers: LIFE HISTORY EVOLUTION: REPRODUCTION

CHAIR: M. C. Rossiter

2:00 MEAGHER, T. R., Rutgers University
Genetic correlation structure among life history traits in *Silene alba*.

2:15 LYONS, E. E., D. MILLER and T. MEAGHER, Amherst College, University of Wisconsin and Rutgers University
Sibship differences in response to density and water stress among male and female *Silene alba*.

2:30 BULT, A., Wesleyan University
Brood manipulations in the European kestrel: Effects on offspring and parent survival.

2:45 ROHWER, F. C., University of Maryland
The adaptive significance of breeding dates: Experimental manipulations of hatch dates.

3:00 ROGERS, A. R., University of Utah
The evolutionary economics of reproduction.

3:15 BERNARDO, J., Duke University
Egg size, body size and proximal variation in the terrestrial salamander, *Desmograthus ochrophacus*.

3:30 BREAK

3:45 ROSSITER, M. C., Pennsylvania State University
Non-genetic maternal effects in insects: Nutrition in parental generation influences F_1 life history traits.

4:00 GRUN, P., Pennsylvania State University
Paternal effects on growth in *Solanum*.

4:15 HERRE, E. A., Smithsonian Tropical Research Institute
Coevolution of reproductive characteristics in twelve species of New World figs and their pollinator wasps.

4:30 CALVO, R. N., University of Miami
Pollinator limitation, cost of reproduction and fitness in orchids: A transition matrix demographic model.

4:45 STEPHENSON, A. G., Pennsylvania State University
New evidence for non-random fertilization in *Cucurbita pepo*.

5:00 LEBERG, P. L., Savannah River Ecology Laboratory
Effects of outbreeding on population level processes of the mosquitofish

5:15 SERVICE, P. M., University of Kentucky
Evolution of male age-specific reproductive fitness components in *Drosophila melanogaster*.

Contributed Papers: POLYGENIC SYSTEMS/OTHER EVOLUTIONARY STUDIES

CHAIR: B. Riska

2:00 TURELLI. M., University of California, Davis
Dynamics of polygenic characters under selection.

2:15 GOLDSTEIN, D. B. and K. E. HOLSINGER, University of Connecticut
Maintenance of polygenic variation in spatially structured populations.

2:30 RISKA. B., T. PROUT and M. TURELLI, University of California, Davis
Laboratory estimates of heritabilities and genetic correlations in nature.

2:45 MABLE. B. K., University of Guelph
Evidence for pH-dependent regulation of isozyme expression at an asparate aminotransferase locus in triploid hybrids (genus *Hyla*).

3:00 LEAMY, L., University of North Carolina at Charlotte
Static and evolutionary allometry of morphometric traits in selected lines of mice.

3:15 RAWSON, P. and J. HILBISH, University of South Carolina
Heritability and genotype-environment interaction of growth in a high dispersal species.

3:30 BREAK

3:45 GARBUTT, K. and J. B. McGRAW, West Virginia University
Demographic growth analysis: A link between physiology and quantitative genetics in plants.

4:00 PARKER, M. A., State University of New York at Binghamton
Nonadaptive evolution of disease resistance in an annual legume.

4:15 PUGESEKA, B. H., Pennsylvania State University
Longitudinal analysis of aging in the California gull.

4:30 EVANS, R. V., University of Massachusetts, Amherst
Gene transfer by plasmids in *Escherichia coli*: Can it affect the rate of adaptive evolution?

4:45 GORDON, D. M., B. R. LEVIN and F. M. STEWART, University of Massachusetts and Brown University
Can natural selection be the composer as well as the editor of genetic variation?

5:00 NUR, U., University of Rochester
A general model for meiotic drive in *Drosophila*.

Contributed Papers: SEXUAL SELECTION

CHAIR: D. H. Clayton

BOAKE, C. R., University of Tennessee
Inheritance of courtship success and aggressive success in the picture-winged fly, *Drosophila silvestris*.

2:15 FUKUI, H. H. and M. H. GROMKO, Bowling Green State University
Genetic basis for remating in *Drosophila melanogaster*: Sixteen reciprocal crosses of the fast and slow selection lines.

2:30 WRIGHT, D. B., University of Massachusetts, Amherst
Evolution of sexual dimorphism in the peccaries (Tayassuidae): A cladistic case history.

2:45 McKAYE, K. R., University of Maryland, AEL/CEES
Sexual selection and the evolution of the cichlid fishes of Lake Malawi, Africa.

3:00 STAUFFER, J. R., K. R. McKAYE and S. LOUDA, Pennsylvania State University
An experimental field test of the importance of bower size to male reproductive success in a cichlid fish lek.

3:15 HOWARD, J. H., K. R. McKAYE, J. R. STAUFFER and R. P. MORGAN, Frostburg State University
Genetic evidence for runaway sexual selection and cichlid speciation.

3:30 BREAK

3:45 CLAYTON, D. H., University of Chicago
Mate choice in experimentally parasitized rock doves: Lousy males lose.

ANHOLT, B. R., University of Michigan
Measuring selection in a phenotypically manipulated population of damselflies.

4:15 HOUDE, A. and J. A. ENDLER, Princeton University and University of California, Santa Barbara
Variation in male color patterns and female preferences among guppy populations.

Contributed Papers: SEX RATIO AND MATING SYSTEMS

CHAIR: B. H. King

2:00 BOOMSMA, J. J., University of Utrecht
An inclusive fitness argument to explain bimodal sex-ratio distributions in ants.

:15 ORZACK, S. and E. D. PARKER, Jr., University of Chicago
The evolutionary significance of genetic variation for sex ratio traits within a natural population of a parasitic wasp.

2:30 KING, B. H. and S. SKINNER, Indiana University
Proximal mechanisms of sex ratio response of the parasitoid wasp *Nasonia vitripennis* to parasitised hosts.

2:45 CRESPI, B. J., University of New South Wales
Sex ratio selection under monogeny.

3:00 MUENCHOW, G., Ohio University
Gender-specific herbivory patterns and the evolution of dioecy.

3:15 GILE, S. R. and M. M. FERGUSON, University of Guelph
Unequal parental contributions to pooled gamete matings in rainbow trout.

3:30 BREAK

3:45 CRUZAN , M. B., State University of New York at Stony Brook
Female choice and partial compatibility in plants.

4:00 BOGART, J. P., R. P. ELINSON and L. E. LICHT, University of Guelph, University of Toronto and York University
Effects of temperature on the reproductive mode used by hybrid polyploid salamanders.

Friday Afternoon — Keller Auditorium

Contributed Papers: HYBRIDIZATION, HYBRID ZONES AND SPECIATION

CHAIR: R. S. Burton

2:00 ARNOLD, J. and M. ASMUSSEN, University of Georgia
The effects of migration and admixture on cytonuclear disequilibria.

2:15 SCHNABEL, A. and M. ASMUSSEN, University of Georgia
Disequilibria in nuclear-mitochondrial-chloroplast systems.

2:30 BARTON, N., University College London
Gene flow across hybrid zones in *Bombina* and *Podisma*.

2:45 MALLET, J., Mississippi State University
Estimates of selection and gene flow from linkage disequilibria in a *Heliconius* hybrid zone.

3:00 DePAMPHILIS, C. W. and R. WYATT, University of Michigan and University of Georgia
Novel genetic structure of a broad hybrid zone in the woody plant *Aesculus* may be due to long-distance pollen dispersal.

3:15 BERT, T. M., H. CRUZ-LOPEZ and W. ARNOLD, Florida Marine Research Institute
The population genetics of hard clams (*Mercenaria sp.*): Complex patterns in allele frequencies reflect natural processes and the influence of man.

3:30 BREAK

3:45 HOFFMAN, S. M. G., University of Michigan
The "rare allele" phenomenon in a natural hybrid zone: Underlying molecular mechanisms.

4:00 BRADLEY, R. D., S. K. DAVIS, J. W. BICKHAN, S. LOCKWOOD and R. J. BAKER, Texas Tech University and Texas A&M University
DNA content and hybrid dysgenesis in a contact zone between two species of the pocket gopher, *Geomys*.

4:15 SANDQUIST, D. R. and J. C. HAFNER, University of Utah and Occidental College
Chromosomal variation and natural selection in a hybrid-zone population of pocket gophers (*Thomomys bottae*).

4:30 SMITH, M. W., M. C. GLIMCHER, R. W. CHAPMAN and D. A. POWERS, Johns Hopkins University and Hopkins Marine Station, Stanford University
Mitochondrial DNA and allozymes provide insight about the paleo- zoogeography of *Fundulus heteroclitus*.

4:45 ARNOLD, M. L., B. D. BENNETT and E. A. ZIMMER, Louisiana State University
Ribosomal DNA variation in Louisiana irises: Testing Anderson's paradigm.

5:00 DAWLEY, R., Bowdoin College
Perhaps clonal vertebrates are not as rare as we thought: A new clonal hybrid in the killifishes (Cyprinodontidae).

5:15 BURTON, R. S., University of Houston
Hybrid breakdown in physiological response: Evidence for regulatory polymorphism

Contributed Papers: DNA EVOLUTION: MULTIPLE GENES

CHAIR: D. M. Rand

2:00 HUGHES, A. L., University of Texas at Houston
Evolution of a multi-gene family: The class I MHC.

2:15 RAND, D. M., Harvard University
Evolution of repetitive sequences in cricket mitochondrial DNA's.

2:30 LOUIS, E. J., Brandeis University
Recombination and evolution of subtelomeric Y repeats in the yeast *Saccharomyces cerevisiae*.

2:45 GONZALEZ, I., Hahnemann University
Concerted evolution of *alu* elements in ribosomal DNA.

3:00 FITCH, D., M. GOODMAN and J. SLIGHTOM, Wayne State University
Evolution of gene conversions in the fetal globin genes of catorrhine primates.

3:15 MONCRIEF, N. D. and R. H. KRETSINGER, University of Virginia
Evolution of calcium-modulated proteins.

3:30 BREAK

3:45 YOKOYAMA, S., University of Illinois at Urbana Champaign
Molecular evolution of human visual pigment genes.

4:00 YOKOYAMA, R., University of Illinois at Urbana-Champaign
Molecular evolution of color visual pigment genes in blind cave fish, *Astyanax*.

4:15 DePAMPHILIS, C. W. and J. D. PALMER, University of Michigan
Evolution of chloroplast DNA under relaxed selection in beechdrops (*Epifagus virginiana*: Orobanchaceae), a nonphotosynthetic plant.

4:30 FORBES, S., University of Montana
Tests for phenotypic effects of mitochondrial DNA in hybrid populations of cutthroat trout.

Contributed Papers: MOLECULAR SYSTEMATICS

CHAIR: A. P. Platt

2:00 NADLER, S. A., Louisiana State University
New approaches to the study of host-parasite cospeciation.

2:15 BRAUN, M. J., Smithsonian Institution
A molecular phylogeny for the AIDS virus.

2:30 BRYANT, D. A., Pennsylvania State University
Phylogenetic relationships among Cyanobacteria, *Cyanophora paradoxa*, and chloroplasts.

2:45 MELNICK, D., A. WILLIAMS, M. ASHLEY and R. TENAZA, Columbia University
Mitochondrial DNA sequence divergence and taxonomy of the pig-tail monkey (*Macaca nemestrina*).

3:00 McDONALD, M. A., Savannah River Ecology Laboratory
Biochemical systematics of Antarctic notothenioids: The cold facts.

3:15 BEGUN, D., J. P. COLLINS, T. R. JONES and E. ROUTMAN, Arizona State University
An analysis of ancestry in isolated populations of salamanders using morphology, allozymes and mitochondrial DNA.

3:30 BREAK

3:45 CLARK, J. M., H. B. SHAFFER and F. KRAUS, University of California, Davis, University of Florida, Gainesville and National Museum of Natural History
Phylogeny of North American ambystomatid salamanders: The evidence from allozymes.

4:00 KNIGHT, R. A., L. D. DENSMORE and E. D. RAEL, Texas Tech University and University of Texas at El Paso
Evolution of new world *Agkistrodon* (Reptilia: Viperidae): Mitochondrial DNA and venom proteins.

4:15 KUMIRAI, A., Texas Tech University
Phylogenetic relationships in *Rousettus* (Chiroptera: Pteropodidae) inferred by electrophoresis.

4:30 MILLER, J. C., University of Texas
Molecular systematics of *Lycopersicon*.

4:45 PLATT, A. P., University of Maryland Baltimore County
Electrophoretic and morphometric comparisons among admiral butterflies (*Limenitis*: Nymphalidae).

5:00 BLEDSOE, A. H. and R. J. RAIKOW, University of Pittsburgh
Application of a quantitative assessment of congruence between molecular and nonmolecular estimates of a phylogeny.

POSTER SESSION

ABSHER, R., M. V. ASHLEY, and D. J. MELNICK, Columbia University
Levels of intraspecific mitochondrial DNA variation within macaque species.

ARNASON, E., University of Iceland
Morph distribution and thermal environment of *Cepaea hortensis* in Iceland.

BAILEY, W., D. FITCH, J. SLIGHTOM, and M. GOODMAN, Wayne State University
Molecular evolution of the primate *psi-eta-globin* locus : Species phylogeny, modes and rates of spontaneous change.

BEUKEBOOM, L., University of Rochester
Transmission dynamics of the parasitic paternal sex ratio (PSR) chromosome in *Nasonia vitripennis*.

BREEUWER, H., University of Rochester
Speciation in the *Nasonia* sibling species complex.

BULT, C. J., University of New Hampshire
Isozyme and phenotypic trait variation within and between natural populations of the wild soybean, *Glycine max*.

DANZMANN, R. G., M. M. FERGUSON, F. W. ALLENDORF, and K. L. KNUDSEN University of Windsor, University of Guelph and University of Montana
Metabolic effects of a regulatory gene (PGM 1-t) in rainbow trout.

DIFFENDORFER, J. E., G. E. SVERNDSEN, and M. M. WHITE, Ohio University
Spatial genetic structure of the short-tailed shrew (*Blarina brevicauda*).

FERGUSON, M. M., University of Guelph
Disease resistance and enzyme heterozygosity in rainbow trout.

FOLTZ, D. W. and S. E. SHUMWAY, Louisiana State University and Maine Department of Marine Resources
Relationships among metabolic rate, weight and heterozygosity in a marine snail.

GOODNIGHT, C., University of Vermont
Intermixing ability in two species communities of *Tribolium* flour beetles.

HATFIELD, J. S., Patuxent Wildlife Research Center, U. S. Fish and Wildlife Service
A new U statistic for testing independence of departure directions applied to black crowned night-herons leaving a nesting colony.

HOLLOCHER, H., Washington University
Dynamics of the Y chromosome in the abnormal abdomen syndrome of *Drosophila mercatorium*.

KAPLAN, S. R. and M. A. RILEY, Harvard University
Nucleotide polymorphism at the *xanthine dehydrogenase* locus in *Drosophila pseudoobscura*.

KASS, D. H., F. G. BERGER, and W. D. DAWSON, University of South Carolina
The concerted evolution of the LINE 1 interspersed repeat family in *Peromyscus*.

KING, D. G., Southern Illinois University at Carbondale
Cellular differentiation and evolutionary innovation in the cardia of flies.

KIPP, D. V. and C. W. BIRKY, JR. The Ohio State University
The molecular evolution of genes and pseudogenes in the alga *Polytoma*.

KNAAK, C., R. K. HAMBY, M. L. ARNOLD, M. D. LABLANC, and E. A. ZIMMER Louisiana State University
A ribosomal RNA phylogeny in flowering plants.

LAFFAN, E. and C. LYNCH, Wesleyan University
Limits to selection: Different paths to the same phenotype.

LOGSDON, J. M., Jr., P. J. CALIE, and J. D. PALMER, University of Michigan
Evolutionary loss of a chloroplast intron in *Pelargonium hortorum* (geranium): Evidence for reverse transcription and gene processing in chloroplasts?

MEAR, J., State University College at Buffalo
Characterization of plasmids in *Aeromonas hydrophila* isolated from brown bullheads from the Buffalo River.

McELROY, D. M., University of Maine
Coloration in African cichlid fishes: A quantitative assessment.

MORAN, P., University of Maine
Molecular variation and zoogeography of lobsters in the North Atlantic.

NORRIS, E. S. and R. C. WOODRUFF, Bowling Green State University
Transposable DNA elements and microevolution: The role of P-elements in natural populations of *Drosophila*.

PALAPOLI, M., University of Michigan
The population structure of a cyclical parthenogen: Clonal diversity of *Daphnia galeata mendotae* in Lake Michigan.

PARKER, E. D. and E. M. NIKLASSON, McNeese State University and University of Lund
Genetic variation and plasticity in diapause sensitivity in *Nasonia vitripennis*.

PIGLIUCCI, M., S. BENEDETTELLI and F. VILLANI, Istituto Agroselvicoltura, CNR
Comparison of different analytical approaches to the study of genetic variability in chestnut (*Castanea sativa* Mill.).

POLANS, N. O., Northern Illinois University
Plastid transmission in pea: Evidence for trace biparentalism.

SAWAYA, T., Smithsonian Institution
A molecular investigation of speciation in the chickadees *Parus carolinensis* and *P. atricapillus*.

SHAW, K. L. and A. R. Templeton, Washington University
Population genetic subdivision due to habitat fragmentation in the eastern collared lizard *Crotaphytus collaris collaris*.

SHE, J. X., University of Florida
Is there a phylogeny in the genus *Mus*?

SPERLING, F. A. H. and J. R. SPENCE, Cornell University and University of Alberta
Allozyme and morphometric characters across a hybrid zone between *Limnoporus dissortis* and *L. notabilis* (Heteroptera: Gerridae).

TEVENS, L., University of Vermont
Cytoplasmically-mediated reproductive incompatibility in flour beetles, genus *Tribolium*.

WHITE, M. M., Ohio University
Age class and population genetic structuring in pteronarcyid stoneflies.

WHITE, P. S., Texas Tech University
Rapid isolation of high quality mitochrondrial DNA from reptilian blood.

WILLIAMS, A. K., M. V. ASHLEY, and D. J. MELNICK, Columbia University
Evolutionary relationships among Sulawesi macaques as revealed by mitochondrial DNA analysis.

WOODDRUFF, R. C. and J. N. THOMPSON, JR., Bowling Green State University and University of Oklahoma
Have clusters of premeiotic mutation been overlooked in evolutionary theory?

WOLFF, K. and S. ROGSTAD, Washington University
DNA "fingerprinting" in *Plantago* species.

ZENG, Z., B. SCHAAL, and M. SACHS, Washington University
Restriction length polymorphism of *Adh-1* locus in *Zea mays*.

ASN YOUNG INVESTIGATORS SYMPOSIUM

ORGANIZER: American Society of Naturalists

CHAIR: H. Wilbur

8:40 SINERVO, B., University of California, Berkeley
Evolution of egg size and clutch size in lizards: Testing the causes of clinal variation.

9:25 WESTNEAT, D., Cornell University
Reproductive tradeoffs and genetic parentage in birds.

10:10 BREAK

10:30 MOORE, A. J., Northwestern University
Sexual selection and sexual dimorphism in the dragonfly, *Libellula luctuosa*.

11:15 HOUDE, A., Princeton University
Female choice and the evolution of guppy (*Poecilia reticulata*) color patterns.

SSE SYMPOSIUM: EVOLUTION AT THE MOLECULAR LEVEL

ORGANIZER: Robert K. Selander

8:30 SELANDER, R. K., Pennsylvania State University
Introduction to the Symposium

8:40 NEI, M., University of Texas Health Science Center
DNA polymorphism and adaptive evolution.

9:25 CLEGG, M. T., University of California, Riverside
The evolution of chloroplast-encoded genes.

10:10 BREAK

10:30 YOKOYAMA, S., University of Illinois, Urbana-Champaign
Molecular evolution of the HIV and related viruses.

11:15 CHARLESWORTH, B. and C. H. LANGLEY, University of Chicago and National Institute of Environmental Health Sciences
Population genetics and evolution of transposable elements in *Drosophila*.

(Continued Sunday Afternoon)

Contributed Papers: NATURAL SELECTION

CHAIR: J. Conner

2:00 HEY, J., Museum of Comparative Zoology, Harvard University
Natural selection and genetic variation: Average effects revealed by a coalescent approach.

2:15 DYKHUIZEN, D. E., State University of New York at Stony Brook
The effect of ecological complexity on rates of natural selection.

2:30 GROMKO, M. H., Bowling Green State University
Unpredictability of correlated response versus predictability of direct response to selection.

2:45 ENDLER, J. A., University of California, Santa Barbara
The variable light environment on the forest floor and its implication to the evolution of animal color patterns.

3:00 KING, R. B., Indiana University
Color pattern polymorphism in Lake Erie water snakes: Differences in crypsis among morphs and age classes.

3:15 BOULDING, E. G., University of Washington
Genetic differentiation of intertidal snail populations driven by opposing selection pressures on exposed and protected shores.

3:30 BREAK

3:45 BROWNE, R. A., Wake Forest University
Habitat partitioning and fidelity among asexual clones of the brine shrimp (*Artemia*).

4:00 KETCHAM, R. B. and R. M. EISENBERG, University of Delaware
Ecological diversity among clones: Soil amebae and their use of bacterial resources.

4:15 SIMMS, E. L., wake Forest University
Resistance to fungal pathogens in the morning glory *Ipomoea purpurea*.

4:30 CREGO, C. L., Northern Illinois University
Selective influence of predators on sibling species of the genus *Asterogmia*: Can differential parasitoid attack explain morphology divergence in leaf galls?

4:45 OTT, J. R., University of Maryland
Selection for small body size in *Acanthoscelides alboscutellatus* (Coleoptera: Bruchidae) imposed by its host plant, *Ludwigia alternifolia* (Onagraceae).

5:00 CONNER, J. and S. VIA, Cornell University
Estimates of selection on body size traits in the flour beetle, *Tribolium castaneum*.

Contributed Papers: LIFE HISTORY EVOLUTION: GROWTH AND NATURAL SELECTION

CHAIR: T. Mitchell-Olds

2:00 BARROWCLOUGH, G. F. and R. F. ROCKWELL, American Museum of Natural History
Estimation of variance in lifetime reproductive success based in demographic parameters.

2:15 HOULE, D., North Carolina State University
Variability of fitness correlates.

2:30 TAYLOR, F., University of New Mexico
Evolution of the mean phenotype in temporally variable environments.

2:45 BLOUIN, M., Florida State University
Genetic, environmental and developmental causes of shape variation in hylid treefrogs.

3:00 STANHOPE, M., Simon Fraser University
Natural selection of life history traits in an esturine amphipod.

3:15 FRUMHOFF, P. C., Harvard University
Individual-level selection, colony-level selection, and life-history variation in social insects.

3:30 BREAK

3:45 MICHELL-OLDS, T., University of Montana
Genetics of pathogen and insect resistance in *Brassica campestris*.

4:00 STRACHAN, J. L. and T. MITCHELL-OLDS, University of Montana
Evolutionary genetics of plant defense: Glucosinlates in *Brassica campestris*.

4:15 DORN, L. A. and T. MICHELL OLDS, University of Montana
Tradeoffs between growth rate and plant size: Genetic correlations and selection response in *Brassica campestris*.

4:30 EVANS, A. S., University of Chicago
The functional and adaptive significance of leaf physiological characteristics: Variation across nutrient environments in rapid-cycling *Brassica campestris*.

4:45 WEIDER, L. J. and H. G. WOLF, University of Windsor and Max-Planck-Institute for Limnology
Life history variation in a cyclically parthenogenetic hybrid species complex.

Contributed Papers: BEHAVIOR EVOLUTION

CHAIR: D. C. Queller

2:00 REINTHAL, P. N., American Museum of Natural History
Phylogenetics and the evolution of foraging behavior in the rock-dwelling cichlid fishes of Lake Malawi.

2:15 DUGATKIN, L. A. and D. S. WILSON, State University of New York at Binghamton
Rover: A strategy for exploiting cooperators in a patchy environment.

2:30 LYONS, K. J., University of California, Santa Cruz
Individual variation in diet in the female California sea otter, *Enhydra lutris*.

2:45 LOFDAHL, K., University of Illinois
Individual genetic differences in learning and memory in *Drosophila melanogaster*.

3:00 HOELZER, G. A., University of Arizona
The function of partial clutch filial cannibalism in the Cortez damselfish.

3:15 LOUULLO, T. J. and K. R. McKAYE, University of Maryland
Parental care by Lake Malawi catfish: Interspecific brood adoptions, trophic eggs and parental foraging for young.

3:30 BREAK

3:45 MORTON, E. S., Smithsonian Institution
Extra-pair fertilizations and the evolution of colonial breeding in the purple martin.

4:00 QUELLER, D. C., J. E. STRASSMANN and C. R. HUGHES, Rice University
Genetic relatedness and altruism in primitively eusocial wasps.

4:15 STRASSMANN, J. E., D. C. QUELLER and C. R. HUGHES, Rice University
Relatedness and social structure in tropical swarm-founding wasps.

4:30 GREGG, T. G., A. McCRATE, S. HALL and A. RYPSTRA, Miami University
Insectivory and social digestion in *Drosophila* larvae.

Contributed Papers: POPULATION AND COMMUNITY ECOLOGY

CHAIR: M. Hunter

2:00 WEEKS, S. C., Rutgers University
A Monte Carlo simulation of the frozen-niche-variation model.

2:15 GAGGIOTTI, O. E., Rutgers University
Are clones generalists or specialists?: Predictions and tests using *Porciopsis*.

2:30 ANTLFINGER, A., University of Nebraska at Omaha
Stage-classified population dynamics of *Panax quinquefolium* (American ginseng).

2:45 WRIGHT, D. D., University of Florida
Mortality and dispersal in juvenile opossuns, (*Didelphis virginiana*).

3:00 HOLOMUZKI, J. R., Transylvania University
Fish predation and ontogenetic shifts in habitat use and activity in a stream-dwelling isopod.

3:15 ZERBA, K. E. and J. P. COLLINS, Arizona State University
Spatial heterogeneity and individual variation in diet of a top predator in small, lentic, freshwater systems.

3:30 BREAK

3:45 DELPH, L. F. and C. M. LIVELY, Rutgers University
The evolution of floral color change: Pollinator attraction versus physiological constraints in *Fuchsia excorticata*.

4:00 HUNTER, M., Pennsylvania State University
A reversal of competitive advantage between two species of insect herbivore: Don't get mad, get even.

4:15 HALL, P., Boston University
Changes in tree species diversity and taxonomic assemblage in three tropical rain forests of northwest Borneo.

4:30 FAUTH, J. E., Duke University
Complex interactions in an experimental temporary pond community.

4:45 JAENIKE, J., University of Rochester
Mycophagous *Drosophila* and their nematode parasites.

5:00 SRYGLEY, R. B., University of Texas-Austin
Testing the evolutionary association of palatability and body temperature in neotropical butterflies.

Contributed Papers: MACROEVOLUTION

CHAIR: C. H. Janson

2:00 VAN VALEN, L. M., University of Chicago
Two partly new approaches to evolution.

2:15 ROSS, R. M. and T. M. CRONIN, U.S. Geological Survey, Reston
Temporal and geographic morphologic variation within lineages of *Loxoconcha* (Ostracoda) from Micronesia.

2:30 BELL, M. A., State University of New York at Stony Brook
High-resolution microstratigraphy and detection of biological species in Miocene stickleback fishes.

2:45 McMILLAN, W. O., University of Hawaii
Direct versus planktonic larval development: The evolutionary implications of a shift in life history strategies in two Australian sea urchins.

3:00 JANSON, C. H., State University of New York at Stony Brook
Measuring evolutionary constraints: A Markov model.

3:15 GRIMALDI, D., American Museum of Natural History
Repeated occurrence and correlated features of broad-headed males in the Drosophilidae (Diptera).

3:30 BREAK

3:45 VRIJENHOEK, R. C., Rutgers University
From no-hopers to hopeful monsters.

4:00 ECKHARDT, R. B., Pennsylvania State University
Morphological polymorphisms in the hominoid nasal region: implications for cladistics.

4:15 HOUDE, P., Princeton University
Molecular and morphological evolution of finfoots (Aves: Gruiformes: Heliornithidae).

4:30 DAMUTH, J., University of California, Stanta Barbara
Interspecific allometry of energy-use in mammalian guilds and Cope's Rule.

4:45 PLACE, A. R., Center of Marine Biotechnology
Origin and significance of chitin digestion in planktivorous seabirds.

5:00 STRAUSS, R. E., University of Arizona
Developmental variability and heterochronic evolution in poeciliid fishes (Cyprinodontiformes).

Contributed papers: GEOGRAPHICAL VARIATION: MOLECULAR

CHAIR: K. Goddard

2:00 SLATKIN, M. and W. P. MADDISON, University of California, Berkeley
A cladistic method for estimating levels of gene flow from DNA sequence data.

2:15 BERNATCHEZ, L. and J. J. DODSON, Universite Laval
Origin of sympatric populations of lake whitefish in the Allegash Basin.

2:30 SMITH, D. R., University of Michigan
Gene flow in Africanised honey bees.

2:45 PALUMBI, S. R., University of Hawaii
How big is the ocean? Mitochondrial DNA sequences and population structure in sea urchin.

3:00 GODDARD, K., The American University
Population structure in winter flounder (*Pseudopleuronectes americanus*) along the northeast seaboard.

3:15 HOLMAN, J. D., Texas A&M University
Allozyme variation, genetic subdivision, and gene flow in the phyllostomid bat, *Sturnira lilium*.

3:30 BREAK

3:45 BAKER, A. J., Royal Ontario Museum
Mitochondrial DNA and allosymic divergence in peripherally isolated populations of chaffinches in the Atlantic Islands.

4:00 STINE, O. C., Johns Hopkins Medical Institutes
The genetic structure of populations with alternative chromosomes bearing the sickle cell mutation: A restriction analysis of mitochondrial DNA.

4:15 BOYCE, T. M., Cornell University
Ecological and genetic polymorphisms in pine weevils.

4:30 TURNER, B. J., J. F. ELDER, Jr., T. F. LAUGHLIN and W. P. DAVIS, Virginia Polytechnic Institute and State University and EPA Environmental Research Laboratory
DNA fingerprinting and genetic heterogeneity in two clonal fishes. *Poecilia formosa* and *Rivulus marmoratus*.

4:45 ELDER, J. F. and B. J. TURNER, Virginia Polytechnic Institute and State University
Geographic variation of a satellite DNA in the pupfish *Cyprinodon variegatus*: Concerted evolution at the population level?

5:00 ASHLEY, M., W. DITTUS and D. MELNICK, Columbia University
Extreme mitochondrial DNA sequence divergence within a population of toque monkeys, *Macaca sinica*.

5:15 ZOUROS, E., Dalhousie University and the University of Crete
The exceptionally large mitochondrial DNA of the sea scallop and its exceptionally large sise variation.

Contributed Papers: ANALYSIS OF MOLECULAR EVOLUTION

CHAIR: C. Simon

2:00 FELSENSTEIN, J., University of Washington
Inferences from population samples from trees of gene copies: A resampling approach.

2:15 ARCHIE, J., University of Hawaii
A technique for demonstrating phylogenetic randomness in DNA sequence data (with examples).

2:30 CAMPBELL, R. B., University of Northern Iowa
Random evolution and inferred phylogenies: Importance of the number of characters.

2:45 WILCOX, D. L., Eastern College
Rethinking human mitochondrial DNA genealogies as a history of population dynamics.

3:00 SIMON, C., University of Hawaii
Exploiting conserved and variable regions of the mitochondrial genome for phylogenetics.

3:15 NELSON, K., Harvard University Medical School
Nuclear versus mitochondrial ribosomal RNA sequences give contrasting views of trypanosomatid evolution.

3:30 BREAK

3:45 EDWARDS, S. V. and A. C. WILSON, University of California, Berkeley
Information for phylogenetic reconstruction in birds: A comparison of restriction fragment length polymorphisms (RFLPs) and DNA sequences.

4:00 COLE, C., University of Minnesota
Isozyme and mitochondrial DNA restriction fragment length polymorphism (RFLP) variation in *Lespedeza*, a native prairie legume.

4:15 BECKENBACH, K. A., E. RIGA, D. L. BAILLIE, J. M. WEBSTER and T. A. RUTHERFORD, Simon Fraser University
Molecular and cross-breeding analysis of the pinewood nematode species complex: How long have they been isolated?

4:30 QUATTRO, J. M., Rutgers University
Evolutionary genetics of sexual and asexual *Poeciliopsis*: Clonal origins.

Contributed Papers: GENE AND GENOME STRUCTURE

CHAIR: D. A. Tagle

2:00 TAGLE, D. A. and M. GOODMAN, Wayne State University
Evolution of the adult *beta-globin* genes of a prosimian primate (*Galago garnetti*).

2:15 GRANT, B., College of William and Mary
Intron maintenance by Darwinian selection.

2:30 VAWTER, L., University of Michigan
Maintenance of stem structure in the evolution of 18 S ribosomal RNA.

2:45 THOMAS, W. K., University of California, Berkeley
Mitochondrial DNA sequence evolution in *Caenorhabditis elegans*.

3:00 BROWN, J. R., A. T. BECKENBACH and M. J. SMITH, Simon Fraser University
Tandem repeat sequences and length heteroplasmy in sturgeon mitochondrial DNA.

3:15 PUMO, D. E., Hofstra University
Mitochondrial DNA rearrangements in the meadow vole, *Microtus*.

3:30 BREAK

3:45 DENSMORE, L. D., F. L. ROSE, S. J. KAIN and R. T. PURKISS, Texas Tech University
Mitochondrial DNA evolution in the water snake genus *Nerodia*: Its a matter of size!

4:00 BECKENBACH, A. T. and Y. W. WEI, Simon Fraser University
Mitochondrial DNA sequence variation in *Drosophila pseudoobscura* and its relatives.

4:15 BOUSQUET, J., Universite Laval
Phylogeny of type 1, 2 and 3 *nifH* genes.

4:30 VAN DEN BUSSCHE, R. A., Texas Tech University
Divergence of phyllostomid DNA via restriction site analysis.

4:45 CACCONE, A. and J. R. POWELL, Yale University
Rapid rates and extreme heterogeneity in insect DNA evolution.

Contributed Papers: MORPHOLOGY AND DEVELOPMENT

CHAIR: T. McLellan

8:30 MAIORANA, V. C., University of Chicago
A selfish theory of human origins.

8:45 McKNIGHT, K. B., St. Lawrence University
Modeling and measuring gill packing in agaric mushroom sporocarps.

9:00 ZERA, A. J., University of Nebraska
Regulation of wing polymorphism in *Gryllus rubens* by ecdysteroids.

9:15 McLELLAN, T., University of California, Stanta Barbara
Developmental sources of variation in leaf shape.

9:30 HARRIS, R., James Madison University
Local variation in the genetic basis of paedomorphosis in a salamander: F2 results.

9:45 OWEN, R. D., Texas Tech University
Absence of fluctuating asymmetry in rodent populations exhibiting genetic disruption.

10:00 BREAK

10:15 GRAHAM, J. H., W. S. MOORE, D. C. FREEMAN, E. D. McARTHUR and C. C. GRAHAM, Wayne State University and U. S. Forest Service
Developmental stability in sagebrush and Northern Flicker hybrid zones.

10:30 ZELDITCH, M. L., Michigan State University
Intensity and constancy of morphological integration in the cotton rat.

10:45 PHILLIPS, C. J., Hofstra University
Evolutionary significance of interspecific variation in enervation of epithelial structures.

11:00 BALDWIN, J. D., J. D. WETHERINGTON and R. C. VRIJENHOEK, Rutgers University
Morphological variation within and among synthetic hemiclones of *Poeciliopsis*.

11:15 MEACHAM, C. A. and T. DUNCAN, University of California, Berkeley
A practical application of image analysis to morphometrics: MORPHOSYS.

11:30 FREEMAN, S., University of Washington
The evolution of the scrotum: A new hypothesis.

Contributed Papers: DNA SEQUENCES AND PHYLOGENY

CHAIR: A. MEYER

8:30 BRUNK, C. F., R. W. KAHN and L. A. SADLER, University of California, Los Angeles
Phylogenetic relations among *Tetrahymena* species determined using the polymerase chain reaction.

8:45 LI, W. and M. GOUY, University of Texas-Houston
The origin of eukaryotes inferred from DNA sequences.

9:00 MEYER, A. and A. C., WILSON, University of California, Berkeley
The evolution of cichlid fishes inferred from mitochondrial DNA sequences obtained via the polymerase chain reaction.

9:15 MOBERG, K. D., S. B. HEDGES and L. R. MAXSON, Pennsylvania State University
Lissamphibian phylogeny: Evidence from ribosomal RNA sequence comparisons.

9:30 CRACRAFT, J., University of Illinois
Speciation analysis in some birds-of-paradise using mitochondrial DNA gene sequences amplified from museum material.

9:45 NEFF, S. E. and L. D. DENSMORE, Texas Tech University
Mitochondrial DNA divergence in wolves from the Northwest Territories.

10:00 BREAK

10:15 GONZALES, I., Hahnemann University
Ribosomal RNA and higher primate phylogeny.

10:30 BOORE, J., University of Michigan
Hominoid phylogeny based on mitochondrial DNA control region sequences.

10:45 VIGILANT, L. and A. C. WILSON, University of California, Berkeley
Human mitochondrial DNA evolution in Africa.

11:00 SMOUSE, P. E., University of Michigan
Mitochondrial DNA variation within species of *Notropis* and its phylogenetic implications.

11:15 MICHAELS, H. J., University of Michigan
Interfamilial phylogenetic relationships from chloroplast DNA: Comparative sequencing of *rbc*L in the Asteridae.

Contributed Papers: DNA EVOLUTION: GENES AND TRANSPOSONS

CHAIR: R. F. DuBose

8:30 STROBECK, C., University of Alberta
Is the fast allele of *ADH* in *Drosophila melanogaster* increasing faster than expected under random drift.

8:45 BASTEN, C. J., North Carolina State University
A branching process model for the evolution of transposable elements.

9:00 WESLEY, C. S., State University of New York at Stony Brook
Genomic evolvability in adaptive evolution: A crucial but cryptic role for transposable elements?

9:15 SIMONSEN, L., University of Massachusetts
The fitness of bacteria and their plasmids: The effects of habitat structure.

9:30 CAVENER, D. R., Vanderbilt University
Evolution of gene expression and development in *Drosophila*.

9:45 DuBOSE, R. F., Washington University
Putting genes in pieces to the test: Molecular evolution of *alkaline phosphatase* in *Escherichia coli*.

10:00 BREAK

10:15 MONGOLD, J. A., University of Massachusetts
DNA repair and the evolution of transformation in *Haemophilus influenzae*.

10:30 EANES, W. F., State University of New York at Stony Brook
Pattern of molecular variation associated with a region of low recombination in *Drosophila melanogaster*.

10:45 WICHMAN, H. and T. REEDER, University of Idaho
Isolation of rapidly evolving sequences in *Peromyscus*.

11:00 HAMILTON, M. J., Texas Tech University
Karyotypic localization of satellite sequences in *Peromyscus*.

11:15 BAKER, R. J., M. J. HAMILTON and H. WICHMAN, Texas Tech University and University of Idaho
Karyotypic localization of the MYS transposable elements in *Peromyscus*.

11:30 RILEY, M., Harvard University
Distinguishing the forces controlling genetic variation at the *Xdh* locus in *Drosophila pseudoobscura*.

11:45 McDONALD, J. F., University of Georgia
Induction of retroviral elements in *Drosophila* species hybrids.

12:00 CSINK, A., University of Georgia
Intrapopulational variation of the retrotransposon *copia* in natural populations of *Drosophila melanogaster*.

Contributed Papers: POPULATION STRUCTURE

CHAIR: J. M. Novak

8:30 HAVEL, J. E. and P. D. N. HEBERT, University of Windsor
Genotypic diversity of asexual Ostracoda from a low arctic site.

8:45 HEYWOOD, J. S., Southwest Missouri State University
Quantitative tests of Wright's isolation by distance theory.

9:00 NOVAK, J. M., Savannah River Ecology Laboratory
Genes, demes and dispersal schemes: It's not where you go, but who you "know".

9:15 WILLIS, K. B., Savannah River Ecology Laboratory
Sex, dispersal, and genetic differentiation: Picking up the pieces of a paradigm.

9:30 SVENDSEN, G. E. and M. M. WHITE, Ohio University
Spatial autocorrelation among and within temporal populations.

9:45 BOWEN, B. W., A. B. MEYLAN and J. C. AVISE, University of Georgia
Population structure and evolutionary history of the green turtle, *Chelonia mydas*.

10:00 BREAK

10:15 PLANTE, Y., Saskatchewan Research Council
The major histocompatibility complex (MHC) in the vole *Microtus pennsylvanicus*: An informative marker for population geneticists.

10:30 MORGANTE, M. and G. G. VENDRAMIN, Universita di Udine and Institute Miglioramento Genetico Pianie Forestali, C.N.R.
Population structure and mating system in an endemic species, *Pinus leucodermis* Ant.

10:45 TURK, P. and M.A. ROMANO, Western Illinois University
The genetic effects of trap and transfer on reestablished populations of wild turkey in Illinois.

11:00 TONSOR, S. J., J. FISHER and S. KALISZ, Kellogg Biological Station
The role of the seed bank in determining the spatial genetic structure of a population of *Plantago lanceolata*.

Contributed Papers: GEOGRAPHICAL VARIATION: PHENOTYPIC

CHAIR: S. A. Foster

8:30 SCHWARTZ, J. M., University of Tennessee
A heritable basis for population differences in antipredator behavior in the garter snake *Thamnophis sirtalis*.

8:45 LOFSVOLD, D., University of Texas-Austin
Genetic and evolutionary allometry in *Permyscus*.

9:00 LYNCH, A. and A. J. BAKER, University of Toronto
Memes, genes and geography: Patterns of differentiation among chaffinch populations.

9:15 LIVELY, C. M., Rutgers University
Adaptation by a digenetic trematode to local populations of its snail host.

9:30 BROWN, J. M., Kellogg Biological Station
Geographic variation in host use in a phoretic mite: Behavioral and morphological patterns.

9:45 FOSTER, S. A., State University of New York at Stony Brook
Evolutionary diversification of reproductive behavior among allopatric populations of threespine stickleback.

10:00 BREAK

10:15 GROETERS, F. R., Australian National University
Variation for developmental rates and diapause in chromosomal races of the grasshopper, *Caledia captiva*.

10:30 KEELER, K. H., University of Nebraska-Lincoln
Distribution of intraspecific polyploidy in big bluestem (*Andropogon gerardii*).

10:45 MAYER, S., University of California at Berkeley
A biogeographic interpretation of morphological variation in the Hawaiian shrub *Wikstroemia*.

11:00 STOUTENBURGH, R. J., State University of New York at Stony Brook
Preliminary analysis of postglacial divergence of freshwater populations of threespine stickleback, (*Gasterosteus aculeatus*).

11:15 WEINBERG, J. R. and V. STARCZAK, Woods Hole Oceanographic Institute
Divergence of marine isopods on the two sides of the Isthmus of Panama.

11:30 FONG, D., The American University
Variation in eye structure between cave-dwelling populations of *Gammarus minus*.

Contributed Papers: ECOLOGICAL GENETICS

CHAIR: P. M. Gaffney

8:30 SHAW, R. G., University of California, Riverside
Effects on juvenile traits in a winter annual, *Nemophila Menziesii* (Hydrophyllaceae): Maximum likelihood analysis of a diallele design.

8:45 PECON, J., Rutgers University
The demographic genetics of hard clam populations living in adjacent dissimilar habitats.

9:00 GAFFNEY, P., University of Delaware
Heterozygote deficiencies, growth and heterozygosity in the coot clam, *Mulinia lateralis*.

9:15 SCOTT, T., State University of New York at Stony Brook
Evidence for the locus-specific effects of heterozygosity upon fitness from a second population of *Mulinia lateralis*.

9:30 LISKAUSKAS, A. P. and M. M. FERGUSON, University of Guelph
Heterozygosity and fitness in a natural population of brook charr.

9:45 CHAN, J. W. Y., University of Pennsylvania
Intraspecific variation in the anaerobic induction of alcohol dehydrogenase and its relationship to flood tolerance in *Trifolium repens*.

10:00 BREAK

10:15 ETGES, W.J., University of Arkansas
The evolutionary significance of adult ethanol metabolism in cactophilic *Drosophila*.

10:30 VAN DELDEN, W., University of Groningen
The association between allozyme and inversion polymorphisms in *Drosophila melanogaster*.

10:45 LAWLER, S., Washington University
Clinal variation and selective potential of the bobbed syndrome in *Drosophila hydei*.

11:00 RODERICK, G. K. and R. F. DENNO, University of Maryland
Host-plant related changes in genetic correlations in a chrysomelid beetle.

11:15 HENRICH, S., Zoologisches Institut, Basel
The expression of genetic and environmental variances of nestling growth.

11:30 WERREN, J. H., University of Rochester
Evolutionary genetics of a very selfish chromosome.

Contributed Papers: PLANT MATING SYSTEMS AND INBREEDING

CHAIR: M. Kirkpatrick

8:30 KIRKPATRICK, M., University of Texas
Genetic segregation and the maintenance of sexual reproduction.

8:45 UYENOYAMA, M. K., Duke University
Genetic incompatibility systems.

9:00 HOLSINGER, K. E., University of Connecticut
The evolutionary stability of mixed mating systems.

9:15 SCHUSTER, W., University of Colorado
Analysis of paternity in a population of limber pine.

9:30 McKONE, M. and J. ANDERSON, Carleton College
Cleistogamy in *Lespedeza capitata*, a perennial prairie legume.

9:45 THOMSON, J. D., L. P. RIGNEY and M. B. CRUZAN, State University of New York at Stony Brook
Preferential outcrossing in *Erythronium grandiflorum*.

10:00 BREAK

10:15 LEVIN, D. A., University of Texas
The effects of short and long term inbreeding on the number of embryonic lethal equivalents in *Phlox*.

10:30 RITLAND, K., University of Toronto
Estimation of inbreeding depression using changes of the inbreeding coefficient.

10:45 MARSHALL, D. L., University of New Mexico
Non-random mating along branches of wild radish.

11:00 NASON, J., University of California, Riverside
Effects of donor and recipient relatedness on pollen tube growth in *Raphanus sativus*.

11:15 CARR, D.E., University of Maryland
The effect of pollen donor source on fruit and seed characteristics in a dioecious tree, *Ilexopaca*.

11:30 JOHNSTON, M. O., University of Chicago
Stabilizing selection on flower size in two congeners with precise pollen placement.

11:45 WEISS, M. R., University of California at Berkeley
Localized floral color changes in 50 plant families: Convergent cues for pollinators.

Contributed Papers: SPECIATION AND ISOLATING MECHANISMS

CHAIR: J. Howard

8:30 EHRMAN, L., State University of New York , Purchase
The *Drosophila paulistorum* endosymbiont in an alternative species.

8:45 MEFFERT, L. M., University of Houston
Pre-mating isolation and divergent courtship behavior in serially bottle necked lines of the housefly.

9:00 MARTINEZ-WELLS, M., University of Connecticut
Behavioral isolation and genetic divergence among populations of green lacewings of the genus *Chrysoperla*.

9:15 FEDER, J. L., Princeton University
A field test of differential host plant usage between sibling species in the *Rhagoletis pomonella* group, and its implications for sympatric models of speciation.

9:30 HAGEN, R., Michigan State University
Differentiation at sex-link loci in tiger swallowtail butterflies: Cause or consequence of reproductive isolation?

9:45 KESSING, B. D. and S. R. PALUMBI, University of Hawaii
Synchronous speciation in strongylocentrotid sea urchins: Evidence from mitochondrial DNA sequences.

10:00 BREAK

10:15 NACHMAN, M., University of Michigan
Chromosomal polymorphisms in the South American marsh rat (*Holochilus*): Implications for speciation.

10:30 HOWARD, J., R. RAESLY, and R. P. MORGAN, Frostburg State University, Pennsylvania State University and Appalachian Environmental Laboratory
Genic evolution in Atlantic slope populations of *Etheostoma blennioides* (Pisces: Percidae).

ASN SYMPOSIUM: THE POPULATION BIOLOGY AND EVOLUTION OF DISEASE IN ANIMALS AND PLANTS

ORGANIZER: Bruce R. Levin

2:20 KELLEY, S. E., Oxford University
The significance of viruses in wild plant populations.

3:05 SMITH, G., University of Pennsylvania
The population biology of raccoon rabies.

3:50 BREAK

4:10 ANTIA, R., University of Massachusetts, Amherst
The population biology of the humoral immune response.

4:55 EBBERT, M. A., Ohio State University
Experimental analysis of variation in host-parasite interactions in insects.

SSE SYMPOSIUM: EVOLUTION AT THE MOLECULAR LEVEL

ORGANIZER: Robert K. Selander

2:20 O'BRIEN, S. J., Frederick Cancer Institute
Reconstruction of phylogeny and adaptive radiation from molecular genetics: lessons from cats.

3:05 KREITMAN, M., Princeton University
Determining evolutionary forces from patterns of nucleotide variation.

3:50 BREAK

4:10 CRAWFORD, I. P., University of Iowa
Comparative studies of the structure and function of *trp* gene products.

4:55 HARTL, D. L., Washington University
Directed mutagenesis in bacteria.