

Dr. Richard Nelson Seaman

EDUCATION

Colorado State University, Fort Collins, CO
PhD in Zoology, 1975

Colorado State University, Fort Collins, CO
BS in Zoology, 1968

EMPLOYMENT

Oral Roberts University, Tulsa, OK, 1977 – Present
Associate Professor of Biology

- Principles of Biology Lecture/Lab
- Introductory Biology I and II Lecture/Lab
- Genetics Lecture/Lab
- General and Comparative Physiology Lecture/Lab
- Vertebrate Biology Lecture/Lab
- Biology Seminar
- Reading in Biology
- Natural History of the Southwest Lecture/Lab
- Human Anatomy I and II Lecture/Lab
- Senior Paper

Colorado State University, Ft. Collins, CO, January 1973 – March 1973
Faculty Lecturer

- Cell Biology
- Mammalogy
- Genetics
- General Biology

TEACHING EXPERIENCE

Colorado State University, Graduate Teaching Assistant, Sept 1972-Jan 1973, Mar 1973-Mar 1975

Colorado State University, Dept. of Zoology, Faculty Lecturer, Jan-March 1973

- Taught courses in mammalogy, cell biology, genetics, and general biology

Colorado State University Science Meetings, Comparative Serology and Immunology Workshop, Nov 1974

Colorado State University, Animal Science Department, Immunotechniques Workshop,
July 1975

RESEARCH EXPERIENCE

University of Missouri, Sinclair Comparative Medicine Research Farm, Columbia,
MO, Postdoctoral Research Associate, Dr. AY Sun, *1975-1977*

Thorne Co., Colorado School of Mines, Golden, CO, Population Dynamics Specialist,
1973 – 1974

Ecological Consultants Inc., Ft. Collins, CO, Vertebrate Consultant for Environmental
Impact Analyses in Colorado and Wyoming, *1971 – 1972*

Colorado State University, Ft. Collins, CO, Graduate Research Assistant, Dr. DJ Nash,
Zoology Department, *1969 – 1973*

Colorado State University, Ft. Collins, CO, Research Technician, Dr. DJ Nash, Zoology
Department, *1967 – 1969*

RESEARCH ACTIVITIES

- None currently
- Research Associate at the H. Allen Chapman Research Institute of Medical Genetics,
Children's Medical Center, Tulsa, OK
- Tulsa Zoo Consultant – Mammalian Division

SERVICE ACTIVITIES

- NSD Scholarship Committee
- Glenn Mead Chronobiological Studies in Neurochemistry and Aging Committee
- Arts and Science Scholarship Committee
- Animal Experimentation and Welfare Committee
- Arts and Science Curriculum Committee
- Comprehensive Advisement Center
- Boy Scouts of American-Indian Nations Council
- Dillion International Adoption Service Board
- Oklahoma Cage Bird Society
- Oklahoma Orchid Society Board
- Elsing Museum Board
- Petra Field Camps Board

DISSERTATION

“A re-evaluation of nearctic sciurid phylogeny based upon biochemical, immunological, and numerical taxonomic analysis.” Ph.D. Thesis, Colorado State University, Ft. Collins, CO

RESEARCH INTERESTS

Graduate research responsibilities included electrophoretic, embryological, biochemical, and behavioral analyses of inbred mouse strains subjected to various teratogenic and mutagenic agents at different stages of fetal and postnatal development.

Graduate thesis research involved a multi-disciplinary approach to the study of the cladistics relationship existing between natural populations of ground squirrels. This led to the development of extensive serological and immunological profiles on thirteen species. Another approach extensively employed was the use of numerical taxonomic analytical procedures utilizing all known comparable biological data. From these serological, immunological, and phonetic analyses, a plausible sciurid, phylogenetic model was developed.

Other graduate research interests have included the following:

- Comparative hematological studies of Cuterebra infested Peromyscus
- Biochemical and genetic analysis of Orange-tan mutation in a natural population of Peromyscus maniculatus
- Epigenic polymorphism in Peromyscus, Geomys, Thomomys, and Eutamias
- Physiological effects of altitude and genetic isolation upon populations of Ochotona princeps (Pika)
- Biological survey of mammalian fauna in Rocky Mountain National Park, Colorado

Postdoctoral Research Associate interests have been concerned with the following major areas:

- Neurochemical changes resulting from acute and chronic alcohol ingestion. Specific interests have been concerned with synaptosomal catecholamine and Ca²⁺- uptake and membrane-dependent enzyme systems such as Na⁺ - K⁺ - ATPase, Ca²⁺-ATPase, and acetylcholinesterase
- Alteration of membrane structure as the result of anti-oxidant deficient diets (i.e., vitamin E, selenium, and Butylated Hydroxytoluene deficiencies)
- Neurochemical changes manifested during epileptic seizures in Mongolian Gerbils (i.e., regional quantitative changes in ion concentration and neurotransmitters)
- Genetic basis for spontaneous seizure in gerbils
- Biochemical, immunological, and histochemical analyses of gerontological changes in neuronal cells and brain regions
- Fetal alcohol syndrome – biochemical, neurological, and behavioral aspects

SOCIETY MEMBERSHIPS

Sigma Xi, American Society of Neurochemistry, American Association for the Advancement of Science, American Society of Mammalogy, Genetics Society of America, Society of Systematic Zoology, Society for Neuroscience, New Mexico Academy of Sciences, Colorado-Wyoming Academy of Sciences, Southwestern Association of Naturalists

NON-ACADEMIC INTERESTS

American History, Indian arts and history, drawing, sculpture and wood working, active and committed Christian, Boy Scouts of America

PUBLICATIONS

1. Seaman, R.N., & Nash, D.J. (1974). Occurrence of a new Orange-tan mutation in *Peromyscus maniculatus nifinus* from Delta County, Colorado. Amer. Midland Naturalist, 92(1), 202-203.
2. Seaman, R.N. (1975). A re-evaluation of Nearctic sciurid phylogeny based upon biochemical, immunological and numerical taxonomic analyses. *Dissertation Abstracts International*, 36(8), 1976.
3. Sun, A.Y., Seaman, R.N., & Middleton, C.C. (1977). Effects of acute and chronic alcohol administration on brain membrane transport systems. In: Proceedings of the Symposium on Alcohol Intoxication and Withdrawal III, M. M. Gross (Ed.), Plenum Press, New York.
4. Seaman, R.N., & Nash, D.J. (1977). Incidence of Botfly (*Cuterebra*) infection in *Peromyscus*. Great Basin Naturalist (In press).
5. Nash, D. J., & Seaman, R.N. (1977). *Sciurus aberti*. Mammalian Species (In press).
6. Seaman R.N., Nichols, J.B., & Nash, D.J. (1976). Serological description and dichotomous key of some Nearctic squirrels. Amer. Midland Naturalist (Manuscript submitted).
7. Sun, A.Y., & Seaman, R.N. (1977). The effect of aging on synaptosomal Ca²⁺ transport. Exp. Aging Res. (Manuscript submitted).
8. Burke, J.P., Tumbleson, M.E., Seaman, R.N., & Sun, A.Y. (1977). Alcohol- membrane interaction: Calcium uptake in mitochondria. Res. Comm. Chem. Path. & Pharm. (Manuscript submitted).
9. Brunson, J., Seaman, R.N., & Nash, D. J. (1977). Protein variation in Colorado pika.

Great Basin Naturalist (In press).

10. Sun, A.Y., Seaman, R.N., Tumbleson, M. E., & Burke, J. P. (1977). The In-vitro effect of ethanol on synaptosomal Ca²⁺-uptake. J. Neurochem. (Manuscript submitted).
11. Seaman, R.N., & Sun, A.Y. (1977). Acute and chronic ethanol administration: Synaptosomal Ca²⁺-transport. J. Neurochem. (Manuscript submitted).
12. Seaman, R.N., and Nash, D.J. (1977). An electrophoretic description of five species of squirrel. Comp. Biochem. and Physiol. (Manuscript submitted).

ABSTRACTS/PRESENTATIONS

1. Seaman, R.N., Nichols, J.B., & Nash, D.J. (1975). Utilization of a serological key for sciurid classification. J. Colo. Wyo. Acad. Sci., 7, 42 (Abstr.).
2. Nichols, J.B., Seaman, R.N., & Nash, D.J. (1975). Biochemical variation in Colorado prairie dogs. 88th Annual Res. Conf., Colorado State University: Today's Research-Tomorrows Colorado, p. 55 (Abstr.).
3. Seaman, R.N., Nichols, J.B., & Nash, D.J. (1975). Serological differentiation of Colorado ground squirrels. 88th Annual Res. Conf Colorado State University: Today's Research-Tomorrows Colorado, p. 54 (Abstr.).
4. Seaman, R.N., Nichols, J.B., & Nash, D.J. (1975). Immunoserological relationships of ground squirrels (*Spermophilus*) and prairie dogs (*Cynomys*). New Mexico Acad. Sci. Bull., 15(2), p. 48, Apr. 1975 (Abstr.).
5. Brunson, J.T., Seaman, R.N., & Nash, D.J. (1975). Blood protein variation in Colorado pika (*Ochotona princeps*). New Mexico Acad. Sci. Bull., 15(2), p. 48-49, Apr. 1975 (Abstr.).
6. Nichols, J.B., Seaman, R.N., & Nash, D J. (1975). The serum proteins in *Cynomys*: An electrophoretic analysis. New Mexico Acad. Sci. Bull., 15(2), p. 49, Apr. 1975 (Abstr.).
7. Sun, A.Y., & Seaman, R.N. (1976). Alcohol and barbiturate effects on Na-K ATPase of synaptic plasma membranes. Trans. Amer. Soc. Neurochem., 1(1), 232 (Abstr.).
8. Seaman, R.N., & Nash, D.J. (1976). The cladistic relationship of Nearctic squirrels. Colo. Wyo. Acad. Sci., 8, 67 (Abstr.).
9. Sun, A.Y., & Seaman, R.N. (1976). The effect of aging on synaptosomal calcium transport. Presented at the 29th Annual Science Meeting of the Gerontological Society, New York (Abstr.).

10. Seaman, R.N., & Sun, A.Y. (1976). Effect of acute and chronic ethanol administration on synaptosomal calcium transport. Presented at the 6th Annual Meeting of the Society for Neurosciences, Vol. II, Toronto, Canada (Abstr.).
11. Samorajski, T., Sun, G.Y., Sun, A.Y., & Seaman, R.N. (1976). Hydergine and aging of the brain. Presented at the Conf. on Hydergine, Sandoz Pharmaceutical Co., Switzerland (Abstr.).
12. Seaman, R.N., & Sun, A.Y. Effect of different modes of chronic ethanol administration on AChE. Presented at the Trans. Amer. Soc. Neurochemistry, Denver, Colorado, March 1977, (Abstr.).
13. Sun, A.Y., Seaman, R.N., & Sun, G.Y. (1977). Effect of different modes of prolonged ethanol administration on membrane-bound biochemical activities in the brain. Milton M. Gross Memorial Symposium on Alcoholism, University of Illinois Medical School, Chicago (Abstr.).
14. Sun, A.Y., Seaman, R.N., Kong, P., & Hutcheson, D.P. Dietary vitamin E and selenium on brain membrane functions. Fed. Amer. Societies for Experimental Biology, April 1977, Chicago (Abstr.).
15. Sun, A.Y., Shrader, S., & Seaman, R.N. Alcohol-membrane interaction in the brain: Effect of acute ethanol administration. 8th Annual Meeting of the National Council on Alcoholism, May 1977, San Diego, California (Abstr.).
16. Seaman, R.N., & Nash, D.J. (1977). The generic status of *Ammospermophilus* (Sciuridae) re-analyzed. J. Colo. Wyo. Acad. Sc., 9 (Abstr.).
17. Seaman, R.N., Nash, D. J., & Nichols, J.B. (1977). An immunological study of prairie dog and ground squirrel phylogenetics. J. Colo. Wyo. Acad. Sci., 9, (Abstr.).