

TWENTY-FIVE YEARS OF THE SHADLE FELLOWSHIP

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Over the past 25 years, Albert R. and Alma Shadle Fellowships have been awarded to 26 young mammalogists. Of the 26 Shadle Fellows, 20 are men and six are women. Twenty-five of the 26 Fellows remain active in science and are still members of the American Society of Mammalogists. Shadle Fellows have been selected from 15 academic institutions and 17 professors have served as academic advisors for awardees. Shadle Fellows have already made significant contributions to the American Society of Mammalogists and to their home institutions. Awardees have published an average of 3.2 scientific articles per year per Fellow since they received the fellowship and have received \$12 million in grant funds to support their research programs.

Key words: Albert R. and Alma Shadle Fellowship, academic careers, academic institutions, academic advisors, careers in mammalogy, men in science, women in science

The nomination of Dawn Kaufman at the 76th annual meeting of the American Society of Mammalogists in Grand Forks, North Dakota, marked 25 years that the Shadle Fellowship has been presented. Because no history of this award has been written previously, this seems to be an appropriate landmark to evaluate the impact that the fellowship has had in mammalogy. The Albert R. and Alma Shadle Fellowship was established by a bequest from Alma E. Shadle, which established the Albert R. and Alma Shadle Endowment Fund at The Buffalo Foundation, Buffalo, New York. Recipients of the Shadle Fellowship are nominated by the American Society of Mammalogists and confirmed by The Buffalo Foundation. By terms of the bequest, the fellowship is to be made "to a graduate student in a university in the United States of America, who is engaged in the study of mammalogy." The first fellowship was awarded in 1972 and over the next 25 years >\$88,000 have been awarded to graduate students in mammalogy from this Fund. Besides the publication of a list of early Shadle awardees (Anonymous, 1978), the Shadle Fellows received little recognition from the American Society of Mammalogists until 1980 when the

previous year's Fellow was requested to speak in the opening Plenary Session of the annual meeting, which now includes presentations by the three Student Honoraria winners and the C. Hart Merriam awardee from the previous year.

Dr. Albert R. Shadle became an honorary member of the American Society of Mammalogists in 1956. He was best known for his research on porcupines, but he also worked on the growth and attrition of the incisors of rodents and lagomorphs as well as a wide variety of topics in biology in addition to those on mammals. Most of Dr. Shadle's professional career was conducted in the Department of Experimental Biology, Roswell Park Memorial Institute in Buffalo (Taylor and Schlitter, 1994). We know little about Alma Shadle except "that she was active with Albert in his work as chairman of the membership committee for I note in his report of June 29, 1951, that he says 'with the help of Mrs. Shadle and my secretary, letters have been sent to 485 libraries inviting them to subscribe to the *Journal [of Mammalogy]*' " (D. F. Hoffmeister, in litt.). It should be remembered that this was accomplished at a time when word processing and photocopying were not available.

Over the 25 years that the fellowship has been available, 26 young mammalogists have been named Shadle Fellows (enough funds were available in the 1st year to give two awards). Of these 26 Fellows, 20 are men and six are women (Table 1). Patricia W. Freeman was the first woman to receive the fellowship. She received the award in 1974, which was the 3rd year that it was available; however, one-half of the women to be named Shadle Fellows have received the award in the 1990s. This reflects the increasing membership and activity of women in the American Society of Mammalogists over the past 15 years. Twenty-five of the 26 Fellows remain active in science and are still members of the American Society of Mammalogists. Shadle Fellows have been selected from 15 academic institutions with the most from The University of New Mexico (six Fellows). Other institutions with more than one Fellow are Texas Tech University (five), Louisiana State University (two), and University of Michigan (two). Seventeen professors have served as academic advisors for Shadle Fellows. Robert J. Baker has served as the academic advisor for five Shadle Fellows; other academic advisors for more than one Shadle Fellow include James H. Brown (three), Terry L. Yates (three), and Mark S. Hafner (two). Philip D. Gingerich is the only Shadle Fellow to subsequently serve as the academic advisor for a Shadle Fellow—Kenneth D. Rose in 1978.

Shadle Fellows have not only remained members of the American Society of Mammalogists, they have actively served the Society as well. One already has served on the Board of Directors, one has been an Associate Editor for the *Journal of Mammalogy*, two have been Associate Editors for *Mammalian Species*, one has been the Managing Editor for *Mammalian Species* and *Special Publications*, and one has served as the Archivist for the American Society of Mammalogists. Shadle Fellows have served 57 terms on committees of the Society and three have chaired committees. They also

have served other professional societies in such capacities as Editor for the *Journal of Paleontology*, Associate Editor of *The Great Basin Naturalist*, member of Editor Board for *Ecology* and *Ecological Monographs*, member of IUCN—The World Conservation Union—Species Specialist Group, Councilor for the Society of Systematic Biology and Paleontological Society, President of the Rhode Island Natural History Survey, and three have served on the Board of Governors of The Southwestern Association of Naturalists. Although many of the Fellows are still in the early to mid-portions of their careers, they already are being honored by their institutions and national organizations. At least seven have been recognized as distinguished teachers by their universities and one has been named his college's research scientist of the year. Two Shadle Fellows have been awarded Guggenheim Fellowships, one a NATO Postdoctoral Fellowship, and another a Smithsonian Postdoctoral Fellowship. The research of one Fellow has been honored with the Charles C. Shepard Science Award and James H. Nakano Citation Award. One Fellow has been named an Alumnae Member of Phi Beta Kappa at her undergraduate institution, and another has received the Schuchart Award from the Paleontological Society.

The Albert R. and Alma Fellowship is awarded on the basis of the strength of the research proposals made by graduate students. It is interesting to examine the group of Shadle Fellows to see if this early success has continued on into their professional careers. Shadle Fellows have published a total of 975 scientific papers including journal articles, reviews, published reports, book chapters, and books, but excluding the numerous abstracts that they have published. This is an average of 3.2 articles per year per Fellow since they received the award. Among the major books that have been written and edited by this group can be included *The Black-tailed Prairie Dog: Social Life of a Burrowing Mammal* by John

TABLE 1.—*Albert R. and Alma Shadle Fellows nominated by the American Society of Mammalogists and awarded by The Buffalo Foundation, 1972–1996.*

Year	Fellow	Institution	Academic advisor	Current position/institution
1972	James Joule William J. Bleier	University of Houston Texas Tech University	Guy N. Cameron Robert J. Baker	No longer in science Chair, Department of Zoology, North Dakota State University
1973	Philip D. Gingerich	Yale University	Elwyn L. Simons	Professor, Department of Geological Sciences, and Director and Curator, Museum of Paleontology, University of Michigan
1974	Patricia W. Freeman	University of New Mexico	James S. Findley	Chair, Division of Zoology, University of Nebraska State Museum, University of Nebraska-Lincoln
1975	Thomas J. O'Shea	Northern Arizona University	Terry A. Vaughan	Leader, Southwestern Ecosystems Section, Midcontinent Ecological Science Center, Biological Resources Division, United States Geological Survey
1976	John L. Hoogland	University of Michigan	Richard D. Alexander	Associate Professor, Appalachian Environmental Laboratory, University of Maryland-Frostburg
1977	Ira F. Greenbaum	Texas Tech University	Robert J. Baker	Professor of Biology and Genetics, Department of Biology, Texas A&M University
1978	Kenneth D. Rose	University of Michigan	Philip D. Gingerich	Professor, Department of Cell Biology and Anatomy, The Johns Hopkins School of Medicine
1979	Peter V. August	Boston University	Thomas H. Kunz	Chair, Department of Natural Resources Science, University of Rhode Island
1980	Michael A. Bowers	University of Arizona	James H. Brown	Associate Professor and Research Coordinator, Department of Environmental Biology/Blandy Experimental Farm, University of Virginia
1981	Gary G. Kwiecinski	Cornell University	William A. Wimsatt	Associate Professor, Department of Biology, University of Scranton
1982	W. Christopher Wozencraft	University of Kansas	Robert S. Hoffmann	Assistant Professor, Division of Natural Sciences, Lewis-Clark State College
1983	Duke S. Rogers	University of California, Berkeley	James S. Patton	Associate Professor and Associate Curator, Department of Zoology, and Bean Life Science Museum, Brigham Young University
1984	Craig S. Hood	Texas Tech University	Robert J. Baker	Associate Professor, Department of Biological Sciences, Loyola University-New Orleans
1985	Robert M. Sullivan	University of New Mexico	Terry L. Yates	Senior Biologist, Physical Science Laboratory, Environmental Science and Research (Endangered Species Section), New Mexico State University

TABLE 1.—Continued.

Year	Fellow	Institution	Academic advisor	Current position/institution
1986	Cynthia E. Rebar	Kansas State University	O. J. Reichman	Assistant Professor, Department of Biology and Health Services, Edinboro University of Pennsylvania
1987	Kimberlyn Nelson	Harvard University	Rodney L. Honeycutt	Instructor, Department of Biology, and Senior Research Associate, Institute of Molecular Evolutionary Genetics, Penn State University
1988	Ronald A. Van Den Bussche	Texas Tech University	Robert J. Baker	Assistant Professor, Department of Zoology, Oklahoma State University
1989	Brett R. Riddle	University of New Mexico	Terry L. Yates	Associate Professor, Department of Biological Sciences, University of Nevada Las Vegas
1990	Robert D. Bradley	Texas Tech University	Robert J. Baker	Assistant Professor, Department of Biological Sciences, and Curator of Mammals, Museum of Texas Tech University
1991	Craig L. Frank	University of California, Irvine	Albert F. Bennett	Assistant Professor, Department of Biological Sciences, and Louis Calder Center, Fordham University
1992	Jennifer K. Frey	University of New Mexico	Terry L. Yates	Research Assistant Professor, Department of Biology, and Curatorial Associate, Museum of Southwestern Biology, University of New Mexico
1993	James W. Demastes	Louisiana State University	Mark S. Hafner	Research Associate, Museum of Natural Science, Louisiana State University
1994	Douglas A. Kelt	University of New Mexico	James H. Brown	Assistant Professor, Department of Wildlife, Fish, and Conservation Biology, University of California, Davis
1995	Theresa A. Spradling	Louisiana State University	Mark S. Hafner	Graduate Student, Museum of Natural Science, Louisiana State University
1996	Dawn M. Kaufman	University of New Mexico	James H. Brown	Graduate Student, Department of Biology, University of New Mexico

Hoogland, *Early Cenozoic Paleontology and Stratigraphy of the Bighorn Basin, Wyoming* edited and coauthored by Philip Gingerich, *Population Biology of the Florida Manatee* coedited and coauthored by Thomas O'Shea, *Los Mamíferos del Parque Nacional Amboro y la Región de Santa Cruz de la Sierra, Bolivia* coauthored by Brett Riddle, *Dawn of the Age of Mammals in the Northern Part of the Rocky Mountains* coedited and coauthored by Kenneth Rose, and *Mammalian Population Genetics* coedited by James Joule. Shadle Fellows already have received >\$12,013,000 in research grants. The largest percentage of this research funding came from The National Science Foundation (\$5,226,700) and the second largest amount from The National Institutes of Health (\$2,487,000). The remaining funds came from a wide variety of public funding agencies and private foundations. Shadle Fellows have directed or are directing programs for 80 students receiving the M.S. and 44 receiving the Ph.D.

Table 2 lists the current academic disciplines of Shadle Fellows as they described them. Although some of the respondents listed more than one academic discipline, only three of the 25 listed mammalogy as their academic discipline. Examination of the list shows, however, that most still work on some aspect of mammalian biology. However, some have shifted the primary focus of their research to other organisms such as William Bleier working on black-birds, Kimberlyn Nelson working on genetic structure of deep-sea communities and molecular genetics of pathogenic bacteria, and Robert Sullivan, who also works on mollusks.

The Shadle Fellows were asked what barriers had been encountered in pursuing their careers; Table 3 gives their responses. Eight said that they had not encountered any barriers. The other responses probably can be considered to be typical of the barriers encountered in academia today. Overall, the major barriers seem to be grouped around

TABLE 2.—Current academic disciplines of Shadle Fellows, 1972–1996.

Number of responses	Disciplines
4	Biogeography of mammals
4	Evolutionary biology of mammals
4	Systematics of mammals
3	Mammalogy
2	Behavioral ecology of mammals
2	Conservation biology
2	Paleontology
2	Population and community ecology
1	Anatomy
1	Cytogenetics
1	Ecology
1	Biology of endangered species
1	Evolutionary genetics
1	Functional morphology of mammals
1	Integrative ecology of mammals
1	Mammalian landscape ecology
1	Mammalian molecular systematics
1	Molecular evolution
1	Molecular population genetics
1	Paleomammalogy
1	Reproduction and endocrinology
1	Vertebrate biology

reduced funding, the problems of dual careers and families, and reduced numbers of positions in academia. The barriers listed by the women Shadle Fellows included dealing with dual careers, managing the responsibilities of a professional career and a family, and sexual harassment.

We asked the Fellows what impact the Albert R. and Alma Shadle Fellowship had on their careers. Many gave the obvious answer that the funds provided were extremely important at a critical time in their careers when they were experiencing the expenses associated with completing their Ph.D. and moving to their first professional position. More interestingly, however, almost all Fellows remarked on the boost to their self confidence receiving the Shadle Fellowship gave them. This feeling may have been best expressed by Peter August when he wrote, "The Shadle Award is the single-most precious academic 'pat on the back' that I have received in my professional life. It gave me confidence and mo-

TABLE 3.—*Career barriers encountered by Shadle Fellows, 1972–1996.*

Number of responses	Barriers
8	None
4	Stiff competition for jobs and funding
3	Too little time for many interests
2	Conducting nationally competitive research at predominately undergraduate institutions
1	Affirmative action
1	Bureaucratic policy
1	Difficulty in getting qualified research-support staff in a medical school
1	Dual career biologists obtaining two tenure-track positions
1	Financial hardship
1	Funding difficulty
1	Increasingly limited support for field expeditions
1	Leaving tenured position to relocate with husband and having to start over
1	Living up to expectations of others
1	Juggling professional and personal life with children
1	Juggling professional and personal life with long field seasons
1	Politics overriding scientific review of research
1	Sexual discrimination
1	Stigma of being labeled as purely a "mammalogist"

tivation to move forward in my career; especially at a time in a student's development when self image and self assurance are not at a life-time high. I am very proud of being a Shadle Fellow and feel indebted to the Society and The Buffalo Foundation for giving it to me."

We believe that our survey of Shadle Fellows has shown that they have had ex-

remely successful careers and all but one are still pursuing careers in science. The American Society of Mammalogists and The Buffalo Foundation should feel that they have an excellent process in place for nominating and awarding the Albert R. and Alma Shadle Fellowships. Predicting successful careers while the awardees are still graduate students takes time and insight from everyone involved in the selection process. It also was interesting to see such a uniform reaction from the Fellows as to how receiving the Fellowship increased their self confidence and increased their dedication to the American Society of Mammalogists. Certainly, the commitment made by Albert and Alma Shadle to the science of mammalogy has made a major impact. We can hope that they would approve of the success that the program has had to date and would look forward with us to the success that the Fellowship should continue to stimulate into the future.

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LITERATURE CITED

- ANONYMOUS. 1978. Comments and news—awards. *Journal of Mammalogy*, 59:651.
- TAYLOR, J. M., AND D. A. SCHLITTER. 1994. Award-ees. Pp. 71–109, in *Seventy-five years of mammalogy* (E. C. Birney and J. R. Choate, eds.). Special Publication, American Society of Mammalogists, 11:1–433.