

**ADRIAN H. FARMER**

Wild Ecological Solutions

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**Training:**

University of South Carolina, Columbia (Mechanical Engineering) B.S. 1968

North Carolina State University, Raleigh (Zoology) M.S. 1970

Thesis: Brood movements of juvenile Wood Ducks as measured by radio-tracking.

Colorado State University, Fort Collins (Zoology) Ph.D. 1997

Dissertation: Effects of the landscape on migration strategies and fitness of the Pectoral Sandpiper.

**Experience:**

1) 1972-1974. Wildlife Biologist, USFWS, Raleigh, N.C. Conducted environmental impact assessments of Section 10/404 permit applications, Federal Water Resource projects.

2) 1974-1976. Wildlife Biologist, USFWS, Atlanta, GA. Regional coordinator for habitat impact assessments and development of environmental assessment methodologies.

3) 1976-1991. *Terrestrial Section Leader, HEP Group, USFWS, Fort Collins CO.* Principal author of the Habitat Evaluation Procedures (HEP) published by the U.S. Fish and Wildlife Service. Organized and conducted more than 50 workshops for modeling wildlife habitat relationships for specific environmental assessments and management applications, and served as a consultant to the USFWS, USACOE, USBR, NRCS, State and local resource agencies. A member of U.S. scientific panel on management of riparian habitat in India to conduct environmental assessments and develop management solutions to habitat management problems in the Ganges floodplain. Invited by the Ecological Conservation Society-Japan and the Japanese Ministry of the Environment to teach habitat and environmental assessment workshops to Japanese scientists in Tokyo during June of 2001 through 2005. At the request of the government of the Republic of South Africa, collaborated with the CSRIO and Cape Nature Conservation on several habitat assessment research projects in South Africa.

4) 1991-2008. *Wildlife Research Biologist, USFWS, Fort Collins, CO.* Conducted shorebird research at migration stopover sites in the midcontinent of North America and on the Arctic breeding grounds with a focus on the effects of climate change on migration energetics and reproductive fitness. Collaborated with three Argentine universities and supervised three graduate students to evaluate the use of stable isotopes to link wintering populations of Nearctic shorebirds in South America with their breeding areas in North America. Worked with the Central American University of Managua to coordinate student research on shorebirds along the Nicaraguan Caribbean coast. Collaborated with scientists from Europe on developing approaches for the use of dynamic programming in the study of bird migration (Conference on Optimal Migration, Lund University, Lund, Sweden, November 1997, and

Conference on Dynamic Programming Models for Bird Migration, NIOZ, Texel, The Netherlands, February, 1997).

5) 2008-Present. Principal Scientist, Wild Ecological Solutions, Fort Collins, CO. Teaches on demand, week-long courses in environmental assessment to graduate students and professional biologists, including courses taught in the Spanish language. Serves as a graduate advisor for graduate students in Mexico and central Argentina conducting research on migratory shorebirds that breed in North America and winter in Mexico and Argentina. Served on two Independent Science Advisory Panels charged with guiding the science on two large river restoration efforts (the Missouri and Platte Rivers).

### **Selected Publications:**

1. Farmer, A.H., R. T. Holmes, and F. A. Pitelka (2020). Pectoral Sandpiper (*Calidris melanotos*), Version 1.0. In *Birds of the World* (S. M. Billerman, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. <https://doi.org/10.2173/bow.pecsan.01>
2. Farmer, A. H., B. S. Cade, and J. Torres-Dowdall. 2008. Fundamental limits to the accuracy of deuterium isotopes for identifying the spatial origin of migratory animals. *Oecologia* 158:183-192.
3. Farmer, A.H. 2008. "Anchoring" and research priorities: Factors that depress bird population estimates? *The Auk* 125(4): 980-983.
4. Farmer, A. H. and F. Durbian. 2006. Estimating shorebird numbers at migration stopover sites. *Condor* 108: 792-807.
5. Farmer, A.H., B.S. Cade, J.W. Terrell, J.H. Henriksen and J.T. Runge. 2005. Evaluation of models and data for assessing Whooping Crane habitat in the central Platte River, Nebraska: U.S. Geological Survey, Fort Collins Science Center Scientific Investigations Report 2005-5123. 64 p.
6. Farmer, A. H., R. Rye, G. Landis, C. Bern. C. Kester, and I. Ridley. 2002. Tracing the pathways of Neotropical migratory birds using stable isotopes: a pilot study. *Isotopes in Environmental Health Studies* 39:1-9.
7. Farmer, A. H., B. S. Cade, and D. F. Stauffer. 2002. Evaluation of a habitat suitability model for the Indiana Bat (*Myotis sodalis*). Pages 173-180 in *The Indiana Bat: Biology and management of an endangered species*. Bat Conservation International, Austin, TX. 253 pp.
8. Farmer, A. H., and J. A. Wiens. 1999. Models and reality: A test of time-energy trade-offs in Pectoral Sandpiper (*Calidris melanotos*) migration. *Ecology* 80:2566-2580.
9. Farmer, A. H., and A. H. Parent. 1997. Effects of the landscape on shorebird movements at spring migration stopovers. *Condor* 99:698-707.
10. Farmer, A. H. 1988. Designing cost-effective habitat management plans using optimization methods. REC-ERC-88-5, Bureau of Reclamation, U.S. Department of the Interior, Denver, Colorado.
11. Farmer, A. H., M. J. Armbruster, J. W. Terrell, and R. L. Schroeder. 1982. Habitat models for land-use planning: assumptions and strategies for development. *Transactions of the North American Wildlife and Natural Resources Conference* 47:47-56.
12. Schamberger, M., A. H. Farmer, and J. W. Terrell. 1982. Habitat suitability index models: Introduction. FWS/OBS-82/10. U.S. Fish and Wildlife Service, Washington, D.C.

12. Farmer, A. H. 1978. The habitat evaluation procedures. Pages 407- 419 in Classification, Inventory, and Analysis of Fish and Wildlife Habitat: Proceedings of a National Symposium. FWS/OBS-78/76. U.S. Fish and Wildlife Service, Washington.

### **Collaborators and Other Affiliations**

Collaborated and published scientific research with Brian Cade (USGS, Ft. Collins, CO), Christo Fabricius (Grahamstown University, Republic of South Africa), Martín Lezama (Central American Univ., Managua, Nicaragua), Frank Rivera (U.S. Fish and Wildlife Service, International Affairs), Gustavo Siegenthaler (Museo de Historia Natural, Santa Rosa, La Pampa, Argentina), Enrique Bucher (Universidad Nacional de Córdoba, Argentina), Allan Baker (Royal Ontario Museum, Toronto), Dean Stauffer (Virginia Polytechnic Institute), John Wiens (Point Reyes Bird Observatory).