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Elliott Coues Award, 2000: Thomas Martin

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The Auk 118(1):268–269, 2001

William Brewster Memorial Award, 2000:

Cynthia Carey



Cynthia Carey is recognized world-wide as one of the most productive and innovative environmental physiologists of her generation. From one end of the Western Hemisphere to the other, she has explored the physiological and biochemical mechanisms that permit developing birds, as well as other vertebrates, to survive and thrive in extreme environments, particularly high altitudes and latitudes. Her seminal work on avian embryos has taught us how eggshell porosity affects gas exchange and how the water budget of the developing embryo is adapted to different altitudes. She has studied embryos and eggs in species as diverse as kiwis, coots, and sparrows living at altitudes from sea level to the high Andes, adding enormously to our knowledge of how embryos react physiologically to different elevations. She was one of the first to recognize the fact that avian adaptations to high altitude require not only maternal investments, through properties of the egg, but also true physiological adaptations in the developing embryological systems. Her studies of individual variation in eggshell gas conductance and its effect on embryo performance in Red-winged Blackbirds (*Agelaius phoeniceus*) are original and path-breaking because they helped power the shift in environmental physiology away from interspecies allometry towards studies of individual physiological performance and Darwinian fitness.

Carey's research has revealed the causes of important functional differences among young birds at all levels from the gross structure of eggshells to the detailed biochemistry of the developing embryo. In addition, she described and studied the mechanisms that permit different bird species to survive in extremely cold environments and at high altitudes. Her studies have strengthened our grasp of the physiological and behavioral features that determine avian distributions and life histories. Particularly striking is the breadth of Carey's expertise, as demonstrated by the variety of techniques she has employed: biochemical studies of enzyme kinetics, structural studies of avian muscle, and organismal studies of energetics that integrate foraging, appetite, and energy storage.

A significant part of Carey's research is done with international scientific collaborators. Like birds, Carey knows no borders. She has organized numerous symposia at International Ornithological Congresses and meetings of the American Ornithologists' Union as well as for the former American Society of Zoologists and the Society for Experimental Biology. She excels at bringing people together to explore the essential role of physiology in any comprehensive effort to explain the evolution and distributions of birds. She has edited an important symposium volume on birds, *Life in the Cold: Ecological, Physiological, and Molecular Mechanisms.* She also edited *Avian Energetics and Nutritional Ecology,* which summarizes the field of avian energetics and is serving to provide the nascent generation of physiological ecologists with a structured research agenda for the next two decades.

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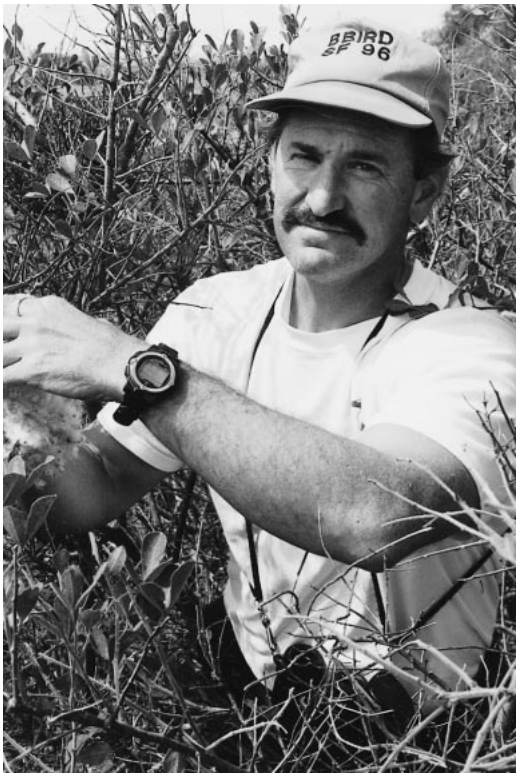
For her innovative and truly integrative research on the adaptations of birds to elevation and cold and for her synthetic and constructive role in guiding the future of avian physiological ecology, the American Ornithologists' Union takes great pride in awarding the William Brewster Memorial Award for 2000 to Dr. Cynthia Carey.

Award criteria.—The William Brewster Memorial Award consists of a medal and an honorarium provided through the endowed William Brewster Memorial Fund of the American Ornithologists' Union. It is given annually to the author or coauthors (not previously so honored) of the most meritorious body of work on birds of the Western Hemisphere published during the 10 calendar years preceding a given AOU meeting.

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Elliott Coues Award, 2000:

Thomas E. Martin



For the past 20 years, Thomas E. Martin has explored the causes and consequences of nest predation in birds. Nest predation is the principal determinant of nesting success in many birds, and Martin's work pioneered its careful study in relation to avian ecology as a whole. No researcher before him has delved so deeply into the relation between nest predation and avian life histories. His work on the adaptiveness of nest location and of the importance of other species nesting in the same types of sites has changed how we think about communities of nesting birds. Never before had ornithologists considered the possibility that birds may shift their nest sites in the competition to avoid nest predation.

He has taken a reliably skeptical approach to the work of others, questioning received wisdom in such areas as the relative predation rates of ground-nesting and shrub-nesting birds. He questioned the notion that hole-nesting birds laid larger clutches because of reduced nest predation rates and suggested instead that the larger clutches of cavity-nesters are a response to the limited availability of nesting cavities.

He has taken a synthetic approach to the relation between nest predation, parental care, behavior and clutch size, and he and his students have tackled a broad array of questions on the parental care of birds. This work has culminated most recently with an impressive comparison of nest-predation rates, parental care, and clutch sizes of North and South American birds, bringing data from his long-term detailed studies in Arizona and new field work in Argentina to bear on the ideas of Alexander Skutch to explain large-scale patterns in clutch sizes.

Martin has not been content to pursue his own field research. He has pioneered the creation of a network of cooperating biologists throughout the United States, called BBIRD, that monitors nest-predation rates together with standardized descriptions of nest placement and surrounding vegetation, for thousands of nests in forest-nesting birds. Thus, this network studies, on a continental scale, the relations among habitat, nest placement, and nest predation.

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The BBIRD data set also lays an empirical foundation that will serve as a valuable resource for more intelligent conservation of birds throughout the United States. Martin's awareness of the applied value of his work is mirrored in the dedicated work he accomplished editing the volume from the 1992 meeting of Partners in Flight. His acute editing advanced the integration of conservation science and ornithology in North America.

For questioning dogma in all studies of avian life histories, for revitalizing the study of avian nesting habits, for the creation and dissemination of a web-based information-gathering network on the life histories and reproductive success of forest passerines, and for dedicated work toward the conservation of North American birds, the American Ornithologists' Union is proud to honor the contributions of Dr. Thomas E. Martin with the Elliott Coues Award for 2000.

Award criteria.—The Elliott Coues Award is given for meritorious contributions having an important influence on the study of birds in the Western Hemisphere, but which have not been recognized through a Brewster Award. Contributions to ornithology not eligible for recognition with a Brewster Award by virtue of geographic limitations may be honored through a Coues Award, as may works including important innovative ideas that through brevity of publication outside the primary ornithological literature may not have been selected based on Brewster Award criteria. However, the Coues Award is not necessarily limited to such works. The award consists of a medal (authorized by the AOU Council at their 2000 meeting) and an honorarium provided though the endowed Ralph W. Schreiber Fund of the American Ornithologists' Union.

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