Awards

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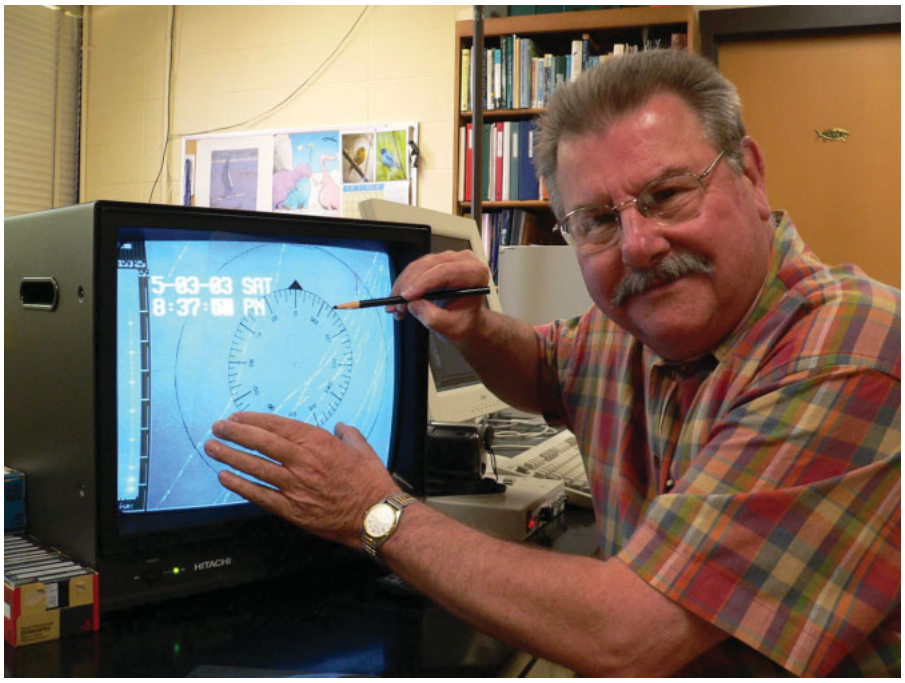
William Brewster Memorial Award, 2006:

Sidney A. Gauthreaux, Jr.



Sidney A. Gauthreaux, Jr., October 2006. (Photograph by Carroll Belser.)

The trans-Gulf migration system has provided both the inspiration and raw material for more than three decades of research by Sidney A. Gauthreaux, Jr. Growing up in southern Louisiana, he witnessed some of the most dramatic fall-outs of trans-Gulf migrants ever seen. These experiences instilled in him a fascination for migration and a passion to understand it, which have persisted throughout a long and productive professional career.

Radar ornithology was in its infancy when Dr. Gauthreaux began his formal studies of bird migration. He began to work with the first generation of weather radars (WSR-57) and soon realized that without some means of obtaining quantitative data from the screen, radar provided little more than dramatic pictures. Others had attempted to devise ways to quantify bird displays on radar, but none was successful. Dr. Gauthreaux's insight was that moon watching could be employed to calibrate the different densities of bird echoes observed on radar. This innovation provided an essential tool that has made radar a potent instrument in the study of migration.

Many other biological and nonbiological targets in the atmosphere produce echoes on radar. From the beginning of his radar work, Gauthreaux emphasized the necessity of combining radar data with simultaneous visual

observations to confirm that it was indeed birds that were being seen on radar and to determine what types of birds were producing the display. He began to experiment with small ceilometer lights to see whether they could provide a means of observing nocturnal migration when moon watching was not an option. He developed all of the methods used (even to this day) to observe night migration with a ceilometer and telescope. Later, when night-vision technology became available, he was the first to obtain a military image intensifier and use it in conjunction with portable ceilometers and mobile marine radars to obtain an enhanced view of night migration.

Throughout his career, Dr. Gauthreaux has continued to pioneer new technologies and bring them into the service of migration research. When the WSR-57 weather radars were replaced by the much more sophisticated WSR-88D Doppler radars, he began to evaluate this new equipment as a tool for investigating bird migration. He developed methods to quantify migration density on the new radar. With this much more sensitive equipment, the problem of detecting insects and other nonavian targets was increased. Using the sophisticated Doppler features of the new radar, he developed protocols to aid in the identification of echoes as well as methods for determining the direction and speed of bird movement.

The development of important techniques for studying migration has been one of the hallmarks of Gauthreaux's career, but his ultimate goal has been to employ those methods to better understand bird migration, especially the massive songbird migration in the region of the Gulf of Mexico. His first work on spring trans-Gulf migration with radar remains a classic. Because trans-Gulf migrants fly both day and night, and because of the distances involved, it required long-range radar to provide a complete picture. He worked out the seasonal and daily timing of arrival of trans-Gulf flights and documented how they were influenced by wind and other weather factors. He directly observed the formation of flocks by scattered migrants caught aloft at dawn far out over the Gulf. He described how trans-Gulf migrants behave once they reach the coast, confirming that most birds continue well inland from the coast before landing. The migration around the Gulf of Mexico is perhaps the best-understood migration system in the world, and that is almost entirely owing to the work of Gauthreaux and his students.

His experience with migration on a scale as large as the Gulf migration system caused Gauthreaux to think about the evolution of migration patterns on a continental scale and how they may have been shaped by long-term climatic patterns, especially temporal and spatial patterns of wind flow aloft. These ideas have been shown to have predictive power in other parts of the world.

In the 1980s, when concern began to develop about declines in populations of Neotropical migrants, Gauthreaux realized that his long-term radar studies in the Gulf region could provide insight into this issue. By examining radar films over a period of 30 years, he was able to show that the volume of migration across the Gulf in spring appeared to have declined markedly. This provided an important independent set of data showing the same trend revealed by on-the-ground census data. Later, he began to build an archive of migration data from the new WSR-88D radar stations across the United States so that ongoing monitoring of migration on a large scale will be possible. This record will be invaluable to students of bird populations for decades to come. From his earliest observations of migration with the WSR-57 radar, it was apparent that at the times of take-off and landing by birds, radar revealed a great deal of detail about precisely where birds were concentrating. As interest in conservation of migratory birds at stopover sites increased, Gauthreaux recognized that surveillance radar could easily identify the hot spots where large concentrations of stopover migrants occurred. Many of the most important stopover habitats in the Gulf Coast region were not the coastal woodlands where fall-outs of migrants are most conspicuous. Rather, they were farther inland in the more extensive river-bottom hardwood forests, something that would have been difficult to demonstrate without Gauthreaux's radar surveillance and the insight to interpret it. These data have been used to drive decisions concerning land conservation, and the techniques are being applied nationwide with considerable fanfare.

Dr. Gauthreaux has published more than 100 papers that are characterized by their rigor, careful, methodical presentation, and attention to detail. His reviews and synthetic papers on broad-scale migration patterns and their

evolution, differential migration of age and sex classes, and the role of behavioral dominance continue to stimulate thought and research in the field. He is regarded throughout the world as one of the leading students of bird migration. His work has been funded continuously at a high level for more than three decades.

During the past decade, Dr. Gauthreaux has published more than 30 papers that have moved the field of migration study in new directions. It is a remarkable accomplishment when a scientist devotes most of a long career to the study of one subject area and continues to provide new insights. That Gauthreaux has done so in such a conspicuous way is testimony to the quality of his intellect, the depth of his love for the subject, and his dedication to academic science. For his outstanding leadership and innovative contributions to the study of bird migration, the American Ornithologists' Union is pleased to present Sidney A. Gauthreaux, Jr., the William Brewster Memorial Award for 2006.

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 co-auathors (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, 2006:

Sievert A. Rohwer

Sievert Rohwer is one of the most productive, insightful, and influential researchers in ornithology. His work has been a model blend of field, museum, and laboratory studies integrated in a theoretical context. Dr. Rohwer's research contributions fall into four major areas. Perhaps the most widely recognized of these, particularly beyond ornithology, is the role he has played in the analysis of variation in avian plumages, including status signaling, delayed plumage maturation, and color variation in raptors. His work on the behavioral correlates of variation in amount of black on the head and breast of Harris's Sparrow (*Zonotrichia querula*) launched the research area usually referred to as "status signaling." His paper on the social significance of avian winter plumage variability (Rohwer 1975), and subsequent experimental studies, catalyzed an avalanche of critical research on the significance of individual variation in plumage as well as parallel work in other animals. Together with Eivin Røskaft, Rohwer undertook the logistically challenging task of dyeing male Yellow-headed Blackbirds (*Xanthocephalus xanthocephalus*) black. The surprising consequence, that blackened males often acquired better territories after their experimental treatment, spawned his "arbitrary identity badge" hypothesis, which provides a mechanism by which novel color patches may serve aggressive competition and account for the rapid color divergence in allopatry.

Dr. Rohwer's interest in bird plumage is also reflected in his longtime interest in molt and its integration into the annual cycle (starting with his M.S. thesis at the University of Kansas). He has maintained one of the few active, question-driven research programs on avian molt. He is the unquestioned leader in the field of ecology and evolution of molt cycles, and any paper in the field cites many of his papers, or those of his students. This interest in plumage cycles inspired his often-cited papers on delayed plumage maturation. Much of Rohwer's recent field work has targeted the documentation of what is likely a novel strategy in passerine birds, namely postbreeding migration to a resource-rich area for molting before continuing on to the wintering range.

In the late 1980s, the adoption of unrelated young by replacement mates in birds seemed especially puzzling in the face of major papers appearing on sexually selected infanticide in mammals. Rohwer solved this puzzle by showing that tolerance, and even care, of unrelated