

## BOOK REVIEWS—RESEÑAS DE LIBROS—RESENHAS DE LIVROS

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**Stopover Ecology of Nearctic-neotropical Landbird Migrants: Habitat Relations and Conservation Implications.**—Frank R. Moore, (ed.). 2000. Studies in Avian Biology No. 20, Cooper Ornithological Society. iv + 133pp., numerous text-figures, numerous tables, no index. ISBN 1-891276-12-3 (paper). Available from Cooper Ornithological Society, c/o Western Foundation of Vertebrate Zoology, 439 Calle San Pablo, Camarillo, CA 93010, USA. Price \$18.00 (soft cover).

A stopover is a pause during a migratory flight. The quality and availability of such places might already be a critical factor in population regulation of our migratory birds. This volume consists of nine chapters and a preface that discuss what quality and availability means for stopover sites. It is an excellent introduction to the subject of *en route* habitat and its use by migratory birds.

The first chapter, by Theodore R. Simons, Scott M. Pearson and Frank R. Moore, introduces spatial models to describe the effects of habitat quality on migrant survival over a wide range of geographic scales. They used a window analysis technique and an individual-based model. The window analysis plots the opportunities for successful stopover for northbound migrants landing at a point along the Gulf coast. When a bird arrives, its weight and weather conditions determine how much farther the bird can fly in its search for food. Where higher quality habitat predominates, its window of opportunity for sur-

vival is greater because it is more likely that it can reach habitat where it will do well. Such habitat quality can be estimated over large areas of the Gulf coast, both now and in the future, to study such individual successes and their effects on populations. With more knowledge of habitat requirements and average arrival condition of migrants, one can predict effects upon survival. These predictive models are important because, and this is a theme echoed throughout this monograph, human degradation of the land is growing.

Daniel R. Petit takes on the daunting task of reviewing *en route* habitat use. His analysis shows that most species are habitat selective *en route* just as they are during other seasons. Taller and more structurally diverse vegetation are generally more useful to most migrant species. He discusses whether species show consistent use of habitat at different locations along migration routes, the consistency of habitat use patterns between spring and autumn migratory periods, and the similarity of *en route* habitats to those used during other seasons. Petit considers the ecological variables that bring about habitat selection and their importance for each species. This chapter does well in encompassing the complexities of *en route* migratory bird biology that make it so exciting and challenging.

Frank R. Moore and David A. Aborn take a closer look at how migrants make habitat decisions during stopover. They discuss the possible contributions of vegetation structure, social factors, predation risk, direct

resource sampling and neophobia. Time is of the essence to migrating birds and habitat sampling for resources takes too much time to be practicable. Using prior experience about habitats from recent experience and innate preferences reduce such time demands. The “threshold for acceptance of habitat” varies with the time program and the fat stores of the migrant. Related to this, Moore and Aborn describe their radio-telemetry work with Summer Tanagers (*Piranga rubra*). One important finding was a trade off that may be general to migrants. Fat tanagers hid from predators in pine forest whereas lean birds, in search of food, were more prone to predation as they foraged in more open scrub habitats. Mention of intra-specific interactions, such as dominance, was all too brief in this nicely crafted review. Their chapter was an effective call for more information.

Mark S. Woodrey’s chapter deals with age-dependent factors that affect migratory success. Greatest among these is social dominance and experience, which must often contribute to higher mortality in young birds. I thought that an additional factor might be parasite infection status, which is more crucial for birds undergoing their first immune system challenge. I liked the author’s insistence that we must consider individual selection to understand migration success and the conservation of migrant populations and species.

Ecological plasticity in migrants and the importance of fruit to successful migration is the focus of a detailed chapter by Jeffrey Parrish. This is one of the longer chapters in the volume, which is well worth the price for this chapter alone. Parrish highlights his own thesis work on Red-eyed Vireos (*Vireo olivaceus*) and *Catharus* thrushes foraging on fruit during autumn migration on Block Island, Rhode Island. The theory of plasticity and how and why migrants should be plastic is discussed. Mention is made that migrants are basically tropical birds where frugivory is common and

where the switch to insectivory is really due to the exceptional conditions of the temperate zone. Parrish emphasizes that some migrants are frugivorous only during migration and so this plasticity is chiefly adapted to *en route* sources of selection. Although the chapter focuses somewhat on controversy over physiological energy gain via frugivory it has sufficient breadth of coverage to be of general interest.

Theory is emphasized in the chapters discussed so far but the next three chapters focus on land use changes and their consequences for migrants. These case studies gain perspective and value from the general biological overviews of the previous chapters. It’s time for hands on views of what migrants face with respect to the human rampage of the western hemisphere and there is no disappointment. Wylie C. Barrow, Jr., Chao-Chieh Chen, Robert B. Hamilton, Keith Ouchley and Terry J. Spengler describe migrant use of shrubby relict beach ridges along the southwest Louisiana and southeast Texas coasts called The Chenier Plain. At least 63 species use these wooded habitats before, or after, they cross the Gulf of Mexico. During spring, they are most valuable for migrants that have encountered adverse conditions during their crossing and must rest at the first opportunity. Most migrants push on farther inland. But the history and current land use and bird use of this habitat is an interesting story of change brought by humans and their domestic animals and exotic plant introductions.

Deborah Finch and Wang Yong are the only authors to specifically discuss migrants in western North America. They document the demise of species dependent on riparian forests. River corridors in arid western areas are particularly important to migrants. Finch and Yong present data on habitat use and body mass gain for selected species.

Sarah Mabey and Bryan Watts describe

the problems, political and economic, in protecting habitat on private land, especially in eastern North America where little land is in government hands. Northhampton County, Virginia, on the lower Delmarva Peninsula, has a Special Area Management Plan funded under the Coastal Zone Management Act, which identifies protection of migratory bird habitat as an essential element for a sustainable local economy. It included sponsoring a two-year research project on the local geographic and ecological distribution of fall migrants. I was one of many volunteers who spent a full two days counting birds in prescribed places that Sarah Mabey and her colleagues had mapped for us. This exercise was so much fun that I think finding predetermined census sites and counting migratory birds on them would make a superb ecotourist program. The authors use this study and their experience in the region to outline the difficulties, the opportunities, and the politics for communities to save habitat from degradation and to preserve their natural values. They point out that it took \$11 million in tax money to protect a 395 acre park through public acquisition, about 1% of the area of Northhampton County. Conservation land acquisition is also fraught with complications even if the interest is strong and money can be raised to purchase land. Someone must take responsibility for the maintenance and management costs, which include liability insurance, security patrols, access improvements and property taxes. But protecting migratory bird habitat on private land is the way we must go. This chapter contains valuable information for individuals and communities who want to pursue this goal. Information from local authorities, who are generally pro-developer, often discourages individuals and groups hoping to save habitat from exploitation. The case history of Northhampton County is a great story. Following the research that showed what areas

*should* be protected, the county was faced with the question of what *could* be protected. This ‘should/could’ process is what all conservationists must confront. Mabey and Watts conclude with an important lesson. Most local communities cannot be expected to voluntarily consider habitat for migrants in their landuse planning. But, if we contribute knowledge and concerns to overcome this lack of information we may find a great deal of interest. The contents of this chapter will encourage conservation efforts and should be made widely available.

Richard Hutto concludes the volume with an overview of the importance of *en route* periods to conservation of migratory landbirds. He discusses the difficulties of assessing the importance of habitats to long term population trends and the paradox of proximate cues that attract migrants to a place where they don’t do well in an ultimate sense. Chinese tallow thickets might be an example. His most innovative suggestion was to emphasize research that has “story-telling” power. That is, support should shift to solid biological research on what might produce interesting results. I think he means interesting in a “gee whiz” sort of way, readily understandable to the lay public and possible material for *Science News*. He’s right—such stories will help engender support for migratory bird conservation.

This monograph’s orientation is decidedly the North American region. Migrants within the Neotropics are not covered. The chapters seem to assume that migrants are either *en route* or on their wintering or breeding grounds. This is a false dichotomy, because some species are always *en route* during the nonbreeding period, following dry and wet season changes within the Neotropics (e.g., Eastern Kingbird, *Tyrannus tyrannus*; Swainson’s Thrush, *Catbarus ustulatus*). One of Hutto’s examples of research with story-telling power, and also mentioned by Petit, Will-

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iam Quay's finding that female Tennessee Warblers are carrying sperm while on northward migration, but still thousands of kilometers from breeding sites, highlights the lack of information on *en route* social behavior in this volume. Mixed species flocking, whose story could be subtitled 'the importance of chickadees to migrants' is not discussed even though this behavior carries on throughout the nonbreeding period for many species.

Chickadees are replaced by greenlets (*Hylophilus* spp.) in the tropics. These are not criticisms of this volume, which is an important beginning to the fascinating topic of migrating migrant landbirds, but are suggestions for additional topics. This volume should be in the library of all interested in the biology of migration and in the conservation of animals that move great distances across the human-dominated planet.—Eugene S. Morton.