

## Timber and Forest Birds

**Brian Roy Lockhart**



Many years ago, I had an epiphany that I would like to share. Several students and I were installing research plots in the forests on Pittman Island, Issaquena County, Mississippi, an island adjacent to the Mississippi River, near the borders of Arkansas, Mississippi, and Louisiana. While eating lunch, we watched a bird, more specifically a prothonotary warbler (*Protonotaria citrea*), fly into the crown of a 6-inch diameter understory sugarberry (*Celtis laevigata*). As we watched this bird for the next 10 minutes fly from twig to twig foraging for insects, my thought was if one bird puts this much effort into foraging for invertebrates in one small tree, how many invertebrates are consumed on a daily basis by all forest dwelling birds? This question led me to wonder how much leaf area per acre is saved due to birds consuming leaf-eating invertebrates. Then, how many board feet per acre per year are produced by this “saved” leaf area? Further, what would the forest be like if all bird populations were reduced? Would we even have a forest without birds?

These questions interested me to the point of conducting a literature review. What I found was both amazing and disappointing. Much research has been conducted regarding the biology and habitat requirements of forest birds, though there is still much to learn. Many studies have focused on neotropical migratory birds. This group of birds migrate in the spring from Central and South America to North America to nest and raise young. On arrival, many species of neotropical migrants consume large numbers of invertebrates to replenish proteins and body fat lost during the long migration flight. Further, they continue to forage for invertebrates throughout the growing season to build up energy reserves before departing for Central and South America in the late summer and early fall. Unfortunately, many of these species are experiencing population declines due to habitat alterations and associated threats (e.g., increased nest predation and nest parasitism) throughout their ranges.

Conversely, I found little information regarding the role birds play as “gardeners or caretakers” of trees. Some research has been conducted on the role of birds and plant growth, with the general conclusion that plants do better when birds are able to remove plant-consuming invertebrates. However, much of this work involved agriculture and vegetable crops. Some literature documents relationships between birds and trees that benefit trees. Few publications report bird–invertebrate consumption effects on forest ecosystem production, but none on quantity of timber production.

Oftentimes in discussions of birds and forests, we think of individual trees and forests as habitat and birds as the users of this habitat. To that extent, management guidelines have been developed regarding bird biology and habitat requirements. A recent publication by the Lower Mississippi Valley Joint Venture provides specific habitat recommendations for wildlife, including migratory birds, in the Lower Mississippi Alluvial Valley. But how much do trees benefit? This question goes back to Ecosystem Ecology 101 regarding symbiotic relationships, food webs, and nutrient cycling. What about feedback mechanisms that benefit the habitat, in this case the trees?

I finish with three points from this perspective. One, teaching the value of birds to trees (specifically timber), besides the well-known value of trees to birds, will reach audiences that are not familiar with the value of forest birds (or consider birds a nuisance). In this respect, a greater appreciation will be gained, to the benefit of both birds and trees. Second, greater education about the beneficiary role of forest birds and trees to each other could lead to more conservation efforts, especially for those bird species declining in population. It is better to be proactive in forest management and work with bird species before they become Federally listed as threatened or endangered species, and regulations become a mandatory component of forest management plans. Third, educating young people about the role birds play in forest ecosystems, especially their benefit to wood and nonwood products, could inspire more people to pursue a career in one of the natural resource professions.

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## CORRECTION

### Correction

The photos on the cover of the December 2008 issues were mistakenly credited to

Jianwei Zhang, author of “Reforestation after the Fountain Fire in Northern California: An Untold Success Story.” The photos

should have been credited to Ted Silberstein. The *Journal of Forestry* apologizes for this error.