

NATURAL SYSTEMS AGRICULTURE: A NEW OPPORTUNITY FOR AVIAN CONSERVATION IN AGROECOSYSTEMS

Gregory A. Jones and Kathryn E. Sieving

Dept. of Wildlife Ecology and Conservation
Institute of Food and Agricultural Sciences
University of Florida, Gainesville, Florida, USA

During its first years, the American Ornithologists Union (AOU) actively promoted the study of avian food habits, due to concerns over legislation permitting the destruction of species popularly considered to be agricultural pests. At the request of the AOU, the USDA Section for Economic Ornithology (SEO) was established to study the interrelation of birds and agriculture. Many studies conducted by the SEO found that most birds utilizing agroecosystems were providing a benefit to farmers by destroying pests through insectivory. SEO reports recommended conservation of many such beneficial avian species, encouraging agricultural producers to increase their presence and use of cropped areas by providing suitable habitat within these systems. However, as agriculture has focused upon the goal of increased production, structural attributes most utilized by avian species within agricultural landscapes have been eliminated. Many researchers have documented the detrimental effects of increased chemical use, mechanization, and homogenous farmland structure on avian populations attempting to utilize agroecosystems. Natural Systems Agriculture (NSA) holds that if agroecosystems are modeled after natural ecosystems that the benefits of Agricultural systems that are modeled after natural ecosystems should exhibit many functional attributes and processes that stabilize natural systems including vegetation adapted to the local climate, closed nutrient cycling, effective resource partitioning, soil preservation, and biological methods of crop protection. Therefore, by mimicking the local natural vegetation structure of native biological communities, farmers can emulate a whole package of patterns and processes that have developed over an evolutionary time frame exhibited by these ecological systems. Ornithologists have an opportunity to propose management recommendations favoring avian conservation within agricultural production systems by working within interdisciplinary teams developing modern sustainable or Natural Systems Agriculture. The largely unexplored diversity of avian insect predators that could be included in natural biological regimes offers numerous possibilities for their use in cropping systems. Birds of conservation concern, both resident and migratory, can benefit from cropping systems and farmland habitat structure created to enhance insectivorous bird use of agroecosystems. Through this effort many habitat features and the structural complexity once found within agricultural landscapes supporting avian species in the past will be reintroduced. As agricultural producers recognize the importance of a structurally and biologically diverse farmed environment ornithologists can institute the resurrection of quality avian habitat within agroecosystems.