

# BIRD CONSERVATION

VOLUME 19, NUMBER 2 APRIL 2017

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## COMMUNITY IMPORTANCE OF CT & RI FOREST BIRDS



**The Ovenbird was the bird with the highest importance of any breeding species studied.**

**E**dition of the *Forest Birds of Connecticut and Rhode Island*- the first truly quantitative analysis of the region's forest bird resources- is in its final stages. We expect the volume to be available to the conservation commu-

nity this year.

In this work, we explore for the first time the relative contribution of species to ecological processes within the forest bird community. We do this by computing an

avian importance value for each species in a manner analogous to computing importance values for trees within forest communities.

The importance value is

*(Continued on page 2)*

# FOREST BIRDS

## *-CONTINUED*

***“importance values showed that in summer, abundant and widely distributed species tended to dominate despite their low biomass.”***



**The Black-capped Chickadee was the species with the highest importance of any wintering species studied.**

the sum of three components converted to percents: 1) relative density—the population of a species divided by the sum of all populations, 2) relative dominance—the biomass of all individuals of a species divided by the sum of biomasses for all species, and 3) relative frequency—the sum of species occurrences on transects divided by the total number of survey transects (147).

Computed importance values for species showed that in summer, abundant and widely distributed species tended to dominate in importance despite their low biomass. Of the top ten most important sum-

mer residents, five had declining populations and six were forest interior inhabitants. However, even though species showing no population change were comparatively few, they had the greatest mean importance values, whereas declining species had the lowest. Moreover, no significant difference occurred among importance values for categories of species' habitat use.

In winter, abundant and widespread species again had the highest importance values, with seven of the top 10 having increasing populations and generalist habitat require-

ments. However, neither importance values of population trend categories nor importance values of habitat categories showed a significant pattern.

Importance value data also showed that no particular habitat category is represented disproportionately within the forest bird community in either summer or winter, although declining summer species are disproportionately low in overall community importance.

# THE REMAINS OF A CONNECTICUT GRASSLAND



**The extended grassland ecotone between marsh and adjacent upland has now been largely overwhelmed by marsh vegetation.**

The birds were actually better this time around. In June of 1976, pickings at Great Meadows in Essex, Connecticut were a bit slim, with gulls being among the most abundant species present. Aside from the ubiquitous Common Yellowthroats, Swamp Sparrows, Marsh Wrens and lone Bobwhite, there was not much of interest present.

In contrast, during this June of 2016, gulls were uncommon and Bobwhites had disappeared, but multiple Ospreys were nesting and several Purple Martins flew overhead. Both were all but absent in earlier years. Great

Egrets, confined to the river mouth in the 1970s, were also now conspicuously present, as were Rough-winged Swallows, which had replaced formerly common Bank Swallows. To round things out, a Spotted Sandpiper fed along the banks of the adjacent Connecticut River and a Common Tern explored the river and adjacent tidal creeks.

Forty years have now passed since my first investigation of this extensive lowland bordering the lower Connecticut River. I had initially gone there to study the extended ecotone between the site's weakly brackish marsh and

adjacent upland. I thought the wet, grassy meadow that developed there was about as close as southern New England could come to having an extensive natural grassland, and I wanted to document its nature so that I might determine its persistence over time. Toward that end, I inventoried the entire site and also established a study plot to quantify the presence of key community members.

My plot, chosen to be representative of the site as a whole (although I noted that there was a gradient in species composition from the north to south end), demon-

***“Forty years have now passed since my first investigation of this extensive lowland bordering the lower Connecticut River.”***

# A CONNECTICUT GRASSLAND— *CONTINUED*

***“So what is to be gleaned from such long-term observations?”***

“

strated that the predominant species were switchgrass (*Panicum virgatum*), a short species of bulrush- *Scirpus americanus*, and a sedge- *Eleocharis palustris*. In all, I found 11 herbaceous species occupying the 100 m<sup>2</sup> plot.

In 1983, I re-visited the meadow and observed that the community was much as it had been seven years before. However, during this 2016 survey, I found that the ecotone had changed dramatically, with cattails and reeds invading much of it. Furthermore, *S. americanus* now appeared to be present primarily along the edge of the Connecticut River. This observation left me perplexed enough that I began to doubt my initial identification, but upon examining specimens I had collected both in 1976 and 1983, I found that my initial determination had been correct.

In the place of this species, I found that the sedges *S. fluviatilis*, *S. atrovirens* and the forb *Peltandra virginica* had become widespread. I had recorded these species on my 1976 surveys, but none had occurred in the study plot, indicating that they were less common than now. Switchgrass, although still present, was also not nearly as common

as it had once been. Even into 1983, I was still describing the site as a *Panicum* meadow, but this characterization no longer held. Moreover, the entire meadow itself had shrunk from about 6 ha in 1976 to about two ha at present. All these changes suggested that the site had become wetter over time, with the new dominant species typical of emergent marsh rather than upland ecotone. Human manipulation in the form of expanded mowing further assisted with reducing the meadow's extent and, indeed, in earlier years the area had been cut for hay.

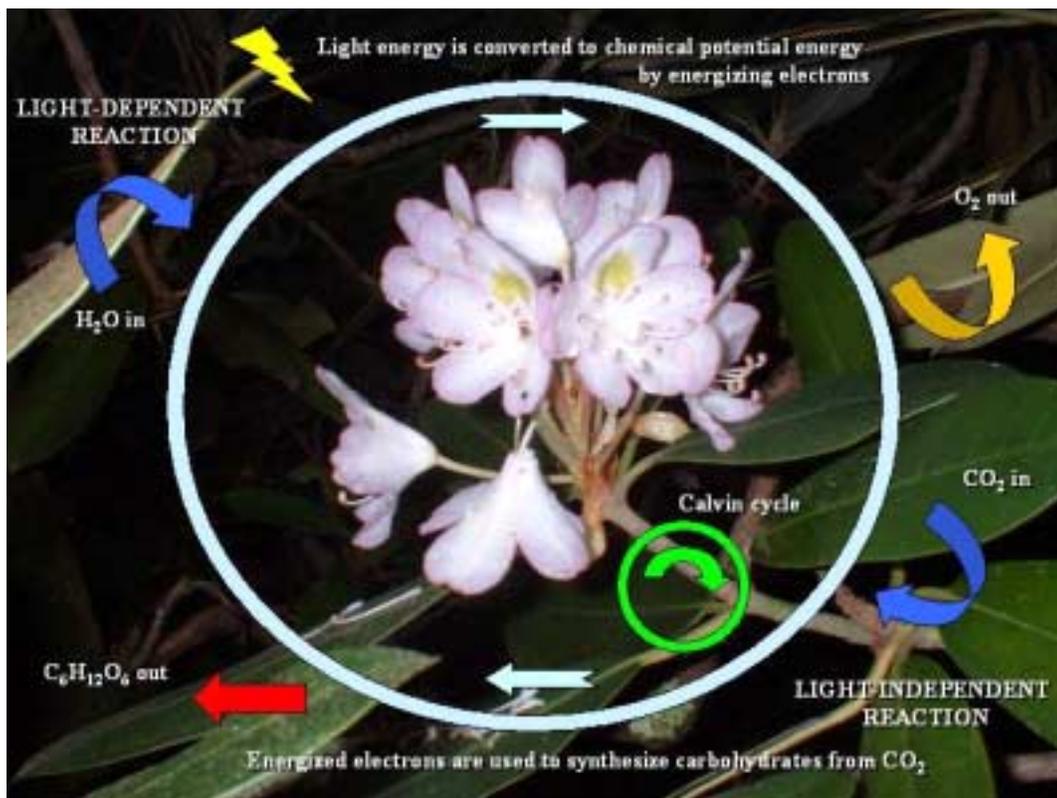
So what is to be gleaned from such long-term observations? Well, first of all, I've concluded that my initial characterization of the meadow as a wet, albeit upland grassland was a bit generous. With the benefit of now having examined all of the major herbaceous wetlands of the lower Connecticut River for decades, I think that it is more reasonable to characterize such meadows as simply vegetation zones within larger marsh ecosystems. Furthermore, it now is clear that such communities are not static entities, but are rather dynamic associations that change over time in response to changing physical

and competitive environments as well as to human manipulation.

Alas, the notion of naturally persistent grasslands in southern New England is for me one that has become progressively harder to believe in. We might still hold out some hope for the reed-canary grass (*Phalaris arundinacea*) ecotones of more completely freshwater marshes further inland, as *Phalaris* appears to be aggressively competitive with other species. However, here again, it seems more reasonable to characterize such habitats as simply marsh vegetation zones rather than upland systems. I suppose dune grass communities of the coast, nominal though they are, hold the only real claim for being naturally persistent southern New England grasslands.

Robert J. Craig

# ARTS AND ACADEMIC VIDEOS



The above graphic, with its native Connecticut Rhododendron flowers, illustrates the metabolic pathways of photosynthesis.

The next video in the Living World lecture series of [Arts and Academic Publishing](#)— the publishing partner of BCR— examines energy flow through ecosystems. The video begins with a consideration of the role of photosynthesis in capturing solar energy and fashioning living tissue with it. It then goes on to consider the physical laws of thermodynamics and how eco-

system processes are constrained by these laws. Energy flow terms are next reviewed, including primary production, biomass and gross vs. net production. The video continues with a consideration of trophic levels— the major compartments into which energy usage can be divided— and the concepts of food chains and food webs.

Other issues touched upon include the relationships between temperature, rainfall and biome distribution as well as comparisons of climatographs for different biomes. All these topics are related to the National [AP Environmental Science](#) curriculum.

*“All these topics are related to the National AP Environmental Science curriculum.”*

The Newsletter of  
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## MEMBERSHIP

It is time to renew membership. Current members have received a renewal notice along with a printed version of the last newsletter.

If you are not yet a member, please consider becoming one. Membership applications and contribution options are available at [www.](http://www.birdconservation-research.org)

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