

Migratory Songbird Research and Conservation Project--

Annual Report, 1990-1991

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Many forest songbirds that overwinter in the tropics--the warblers, vireos, tanagers, thrushes, flycatchers, and others collectively referred to as neotropical migratory birds (NTMB)--are declining or at risk due to tropical deforestation and fragmentation of forested breeding grounds. Concerns over these declines have resulted in a new emphasis by international, federal, and state natural resource agencies, university academicians, and private conservation and bird research organizations to develop research, management, monitoring, and educational strategies to stabilize populations of these migratory birds.

Despite the use of several large scale and long-term avian monitoring programs, it remains difficult to determine the role that productivity (birth rate) or survivorship (death rate) plays in the reported declines of the migratory birds. David DeSante (1990) has initiated a long-term, nationwide breeding bird banding effort, the MAPS program, where productivity may be determined by the number of recently-fledged young banded and survivorship can be evaluated by the number of adults recaptured at the site in subsequent years. Banding stations have been established at 6 major eco-regions of North America with emphasis placed on mature

habitats on public lands unlikely to change in character in the foreseeable future. A goal of 30 banding stations per region has been suggested as an adequate sample size. Because of its outstanding characteristics as a "bench-mark" monitoring site in an old-growth ecosystem under public ownership, a MAPS bird banding station was established on an 8.1 ha (20 acres) research plot at the 6,000 ha (15,000 acres) Congaree Swamp National Monument during 1991. This monument is the largest tract of old-growth bottomland hardwood in North America. The research plot was originally established in 1980 to conduct long-term bird censuses; 4 breeding bird censuses and 1 winter bird census have been done.

Materials and Methods

Banding station methodology conformed to MAPS recommendations. Twelve 4-panel, 12 meter mist nets of 30 or 36 mm mesh were erected on the research plot at a density of about 1 net per acre. Six nets were installed at heights of ground level to 2 m, 4 nets were 4-6 m feet high; and 2 were 8-10 m high. Nets were opened for 6 hour periods from 07:00 -13:00 hours for 3 days per month. The sampling period extended from May through August. All netted birds were banded with U. S. Fish and Wildlife Service aluminum bands, weighed, measured, aged and sexed according to Pyle et. al. (1987) and the Bird Banding Laboratory Manual, Vol II (1977).

Results and Discussion

A total of 112 individual birds of 22 species were banded between 25 April and 30 August, 1991 at Congaree Swamp National Monument (Table 1); 3 of these were migrants (Veery, Swainson's Thrush, and Northern Waterthrush). Seventeen birds were

recaptured.

The most common banded bird was the Carolina Wren (15 individuals) followed by White-eyed Vireo (12) and Acadian Flycatcher (12). The total net hours was 809 with 13.8 captures per 100 net hours; 10 birds were young of the year (HY) and the remainder were adults. The 6 low nets (50% of the total nets) captured a greater percentage of birds (61.6%) while the medium-height nets, 33% of the total, captured 32.1% of the birds, and the 2 high nets (17%) captured only 6.2% of the birds. Thus our total captures were biased towards those birds using understory habitats, and the canopy-dwelling species (Red-eyed Vireo, Northern Parula) may be under-represented or absent (Yellow-throated Vireo, Yellow-throated Warbler) from our sample.

Eight breeding species present on the plot were not captured: Yellow-billed Cuckoo, Great Crested Flycatcher, White-breasted Nuthatch, Downy Woodpecker, Carolina Chickadee, Blue-gray Gnatcatcher, Yellow-throated Vireo, and Yellow-throated Warbler.

The changes wrought by Hurricane Hugo in 1989 have impacted breeding bird populations at the Congaree Monument since the last census was conducted in 1984. We found a canopy loss of 16% on the census plot as a result of the hurricane; this, in combination with the loss of tops and large limbs, opened up holes in the forest canopy and created thick patches of understory vegetation (especially cane). Although the netting results and previous census counts are not directly comparable, we banded 5 species that were not censused on the plot prior to Hugo. These species were Indigo Bunting, Kentucky Warbler, Louisiana Waterthrush, Swainson's

Warbler, and Eastern Wood-Pewee. These species favor thickets or dense ground cover (or fairly open canopy in the case of the pewee) which were not present or uncommon prior to the hurricane. Other understory or shrub-loving bird species are also now more prevalent on the plot since the hurricane: Carolina Wren, White-eyed Vireo, and Hooded Warbler (Table 2). Before and after Hugo comparisons of canopy-dwelling and midstory birds, such as Red-eyed Vireos, Northern Parulas and Yellow-throated Warblers, are less meaningful because banding captures were probably under-represented for these species. The effects of Hugo on birds at Congaree is not completely known at this time, but all breeding species present on the plot before the hurricane were either captured, heard, or seen during 1991. Thus, it appeared that Hurricane Hugo increased avian diversity at Congaree Swamp by the creation of a new shrub layer.

Acknowledgements

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Other Migratory Songbird Activities

The project leader attended 3 meetings during the year devoted to NTMB concerns: a national planning and strategy meeting in Atlanta; a follow-up interagency meeting of state and federal biologists in Washington, and a Southeastern Management Committee of federal, state and non-governmental biologists in Atlanta. These meetings provided the groundwork for cooperative efforts at the international, national, and local levels for NTMB research,

monitoring, management, and education. At the southeastern management meeting, efforts were directed towards a priority list of habitats and species needing the most attention.

A 30-page proposal for NTMB conservation in South Carolina with a matching funding request was submitted to the National Fish and Wildlife Foundation. Since much of the matching funding was not allowed under Foundation guidelines, 4 modified proposals were resubmitted in September; these proposals included effects of Hurricane Hugo on NTMB, effects of clearcutting and wildlife openings on NTMB, species-area effects, and support for the South Carolina Breeding Bird Atlas Project.

One news release, 2 newsletter articles, and 4 slide presentations were done to educate the public about the plight of NTMB birds.

Literature Cited

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DeSante, D. F. 1990. The Monitoring avian productivity and survivorship (MAPS) project. Institute for Bird Populations, Inverness, Ca. 8 pp.

Pyle, P., S. N. G. Howell, R. P. Yunick, and D. F. DeSante. 1987. Identification guide to North American passerines. Slate Creek Press, Bolinas, Ca.

Table 1. Banded birds at Congaree Swamp National Monument, South Carolina, April - August, 1991

Species	Number
Carolina Wren	15
Acadian Flycatcher	12
White-eyed Vireo	12
Northern Parula	9
Northern Cardinal	9
Prothonotary Warbler	9
Hooded Warbler	8
Tufted Titmouse	7
Red-eyed Vireo	5
Kentucky Warbler	4
Common Grackle	3
Wood Thrush	3
Veery ¹	3
Red-bellied Woodpecker	2
Summer Tanager	2
Swainson's Warbler	2
Louisiana Waterthrush	2
Northern Waterthrush ¹	1
Hairy Woodpecker	1
Swainson's Thrush ¹	1
East. Wood-Pewee	1
Indigo Bunting	1

Total Species	22	Total Individuals	112
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¹ migrant

Table 2. Comparisons of numbers for shrub-dwelling birds before and after Hurricane Hugo, (1989) Congaree Swamp National Monument, South Carolina.

Species	Individuals Breeding Bird Census ¹	Banding (1991) (adults)
Carolina Wren	6.8	11.0
White-eyed Vireo	3.4	11.0
Hooded Warbler ²	<1	5.0

¹ Breeding Bird Census numbers are 4-year averages (1980, 1981, 1982, 1984) and have been converted from pairs to individuals.

² Hooded Warblers were only recorded as visitors or partial occupants of the census plot prior to Hurricane Hugo.