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The Effect of the Lake Restoration Project on Passerine Bird Diversity

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SUMMARY

One of the primary objectives of the Lake Restoration Project is to restore vegetation in riparian areas to reduce and filter surface run-off. A correlated benefit of these plantings is that the



increase in habitat variability and plant diversity should increase biodiversity in charismatic animal groups such as birds and butterflies. To test this hypothesis, we surveyed passerine birds in three areas around the lake that are in different stages of restoration: mown lawn (i.e. original condition), restored shoreline (i.e. active area of restoration) and a naturally regrown area (i.e. land within the perimeter of the walking trail that has not been regularly mown in 2-3 years and is regenerating naturally). Birds were counted and identified during eighteen observation periods lasting for approximately 30 min each in March and April of 2010; observation time was divided evenly among the three habitat types. We observed 26 species (Table 1); the most common species, American Robin, Blue Jay, and Northern Mockingbird, were

abundant in all areas. Eleven species were only seen in one habitat type, but this could be a function of very small sampling sizes. Neither the number of species (Species Richness) nor species diversity, (Shannon Index) varied significantly among sites (Kruskall-Wallis tests).

Restored habitats provide optimal breeding and foraging sites that attract a greater diversity and density of birds (Kirby et al. 2009), but the density and diversity of birds occupying a particular habitat are influenced by many factors including the richness, diversity, canopy, and understory vegetation of that habitat (Hopkins et al. 1986). The mown lawn was adjacent to a forested area that was probably used for nesting or as a refuge for many of these species. Likewise, all three areas were in close proximity, so it is not surprising that the areas share a similar bird community; especially at this time of year before the wildflower meadows in the restoration zone flower and set seed. Another sampling method, such as the point-count method (Huff et al. 2000), might be more appropriate. Nonetheless, 7 of the 26 species were only seen in regrown or restored areas. So, although there are several mitigating circumstances, and aspects of the design that could be improved, it appears that increasing the habitat diversity around the lake may be

contributing to a more diverse bird fauna. For a complete list of the birds seen on Furman campus, see: [Birdlife of Furman University](#).

Table 1. The number of birds of each species seen in three vegetation habitats around Furman Lake.

SPECIES	MOWN	REGROWN	RESTORED
American Crow	9	3	2
American Goldfinch	0	2	0
American Robin	26	4	9
Blackpoll Warbler	2	0	0
Blue Jay	18	1	5
Brown Thrasher	4	0	4
Carolina Chickadee	6	9	0
Carolina Wren	0	3	1
Chipping Sparrow	0	1	0
Common Grackle	0	0	1
Dark-eyed Junco	0	1	0
Eastern Bluebird	5	3	0
Eastern Kingbird	2	0	0
Eastern Towhee	1	2	1
Eastern Wood-Pewee	1	3	5
European Starling	0	2	0
Field Sparrow	0	0	2
Hairy Woodpecker	4	1	0
House Finch	0	0	2

SPECIES	MOWN	REGROWN	RESTORED
Mourning Dove	11	0	0
Northern Cardinal	7	0	3
Northern Mockingbird	9	2	8
Pine Warbler	0	0	2
Red-bellied Woodpecker	6	1	2
Tree Swallow	2	0	0
White-throated Sparrow	1	0	10
Total Sightings	114	57	38
Species Richness	17	15	15
Diversity: Shannon Index	2.49	2.44	2.48
Species Unique to Habitat	4	4	3

LITERATURE CITED

Hopkins R, Cassel F, Bjudstad A. 1986. Relationships between breeding birds and vegetation in four woodland types of the Little Missouri National Grasslands. Fort Collins, CO, USA: USDA Forest Service Research Paper RM-270. 12 p.

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