BIRD SPECIES ASSOCIATED WITH GREEN ASH WOODLANDS IN THE SLIM BUTTES, SOUTH DAKOTA

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Introduction

In western South Dakota, native deciduous woodlands are uncommon, constituting less than 1% of the total land area (Boldt et al. 1978). The Green Ash/Common Chokecherry (*Fraxinus pennsylvanica/Prunus virginiana*) habitat type is the major deciduous habitat type in northwestern South Dakota (Hansen and Hoffman 1985). This type occurs in depressions, draws, and along streams where favorable moisture conditions prevail. In many areas, Green Ash woodlands are in serious decline (Boldt et al. 1978). Stands in late stages of decline (referred to as open-canopy stands) are characterized by sparse overstory trees, shrubs that are nonexistent or in scattered remnants, and rare or absent regeneration of shrubs and trees. Healthy, productive Green Ash woodlands (known as closed-canopy stands) are characterized by moderately dense tree stands, a dense shrub layer with various shrub species present, and varying age classes of trees and shrubs.

Research in North Dakota indicates that Green Ash woodlands provide critical habitat for many bird species (Faanes 1984, Gaines and Kohn 1982, Hopkins 1983). However, little is known about how stand condition of Green Ash woodlands influences their use by birds. This paper, the result of a 2-year study, presents a complete bird list for both open and closed-canopy Green Ash woodlands in northwestern South Dakota.

Study Area and Methods

Eight study sites were established in Green Ash woodlands in the Slim Buttes area of Harding Co., South Dakota (Fig. 1). Four study sites were in open-canopy and 4 in closed-canopy woodlands. Closed-canopy stands were multilayered communities dominated by Green Ash in the overstory, with a diverse sapling and tall shrub layer, including Common Chokecherry, Saskatoon Serviceberry (*Amelanchier alnifolia*), and a short shrub layer dominated by Common Snowberry (*Symphoricarpos occidentalis*). Open-canopy stands had similar plant species to closed stands. However, tree densities and numbers and varieties of saplings and shrubs were lower on these sites than on closed-canopy areas, resulting in an absence of vertical layering (Hodorff 1985).

Bird populations at each site were sampled along 800 m band transects by methods outlined by Emlen (1971, 1977). The surveyor walked the transect and recorded the number and species of birds seen and/or heard 30 m on either side of the transect. The surveys were conducted for 4 consecutive mornings once a month from May through October 1983 and 1984. The surveys were conducted on days with favorable weather conditions, and were started within 30 minutes before sunrise. The sequence in which the sites were surveyed was altered daily.

Results and Discussion

The dense tree overstory, diverse sapling and tall shrub layer, and variety of short shrubs in closed-canopy stands contributed to a multilayered structure that provided habitat for a greater density and variety of birds than open-canopy stands that lacked vertical layering. Of the 7021 birds recorded in the 8 woodlands over 2 years, twice as many (4701) were observed in closed-canopy stands than in open stands (2320) (Hodorff 1985). A total of 82 bird species were observed during the study (Table 1). Evidence of breeding activity (nests and/or fledglings) was recorded for 22 species. These data show that Green Ash woodlands provide habitat for a variety of breeding and nonbreeding birds and that stand condition influences both the density and variety of bird populations using the woodlands (Hodorff 1985). Further research is needed to identify methods for conserving this valuable habitat type and rejuvenating decadent stands.

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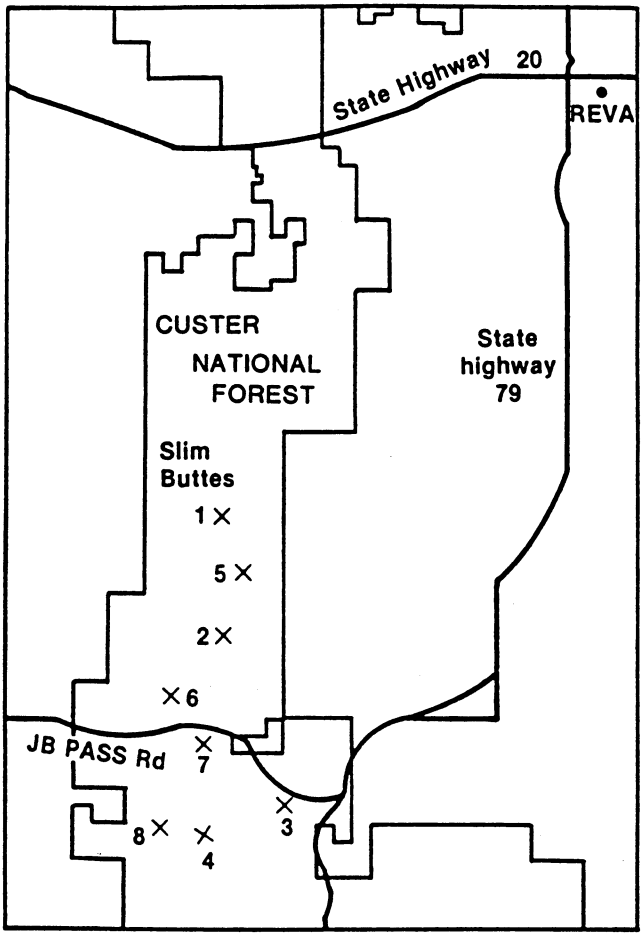

Figure 1. Map of the Slim Buttes study area showing location of the 8 study sites.

Table 1. Birds observed in closed and open-canopy Green Ash woodlands in the Slim Buttes, Harding Co., South Dakota, May through October 1983 and 1984. (1) = nest found; (2) = fledglings observed.

Common Name	closed	open		closed	open
Mallard (1)	6	4	Gray Catbird	2	0
Northern Harrier	12	6	Brown Thrasher	6	15
Sharp-shinned Hawk (1)	7	1	Cedar Waxwing	41	1
Cooper's Hawk	1	0	Loggerhead Shrike (2)	1	12
Northern Goshawk	1	0	Solitary Vireo	2	1
Swainson's Hawk	2	0	Red-eyed Vireo	5	0
Red-tailed Hawk	1	1	Orange-crowned Warbler	35	7
American Kestrel (2)	3	5	Yellow Warbler (1)	20	4
Merlin	0	1	Yellow-rumped Warbler	52	11
Prairie Falcon	1	0	Blackpoll Warbler	1	0
Gray Partridge	0	2	Black-and-white Warbler	0	1
Sharp-tailed Grouse (2)	42	129	American Redstart	3	0
Wild Turkey	1	0	Ovenbird	8	3
Killdeer	0	4	MacGillivray's Warbler	1	1
Upland Sandpiper	0	1	Common Yellowthroat	17	4
Mourning Dove (1)	50	14	Wilson's Warbler	40	4
Black-billed Cuckoo (1)	11	11	Yellow-breasted Chat	4	1
Great Horned Owl	21	2	Black-headed Grosbeak	2	1
Long-eared Owl (1)	44	0	Lazuli Bunting (1)	54	11
Common Nighthawk (1)	6	3	Indigo Bunting (2)	26	6
Red-headed Woodpecker	1	0	Rufous-sided Towhee (1)	844	363
Downy Woodpecker	2	0	American Tree Sparrow	10	12
Hairy Woodpecker	12	1	Chipping Sparrow	131	114
Northern Flicker	27	22	Clay-colored Sparrow	40	22
Western Wood-Pewee	1	0	Field Sparrow (2)	687	316
Empidonax sp.	220	32	Vesper Sparrow	9	15
Eastern Phoebe	2	0	Lark Sparrow (2)	127	69
Eastern Kingbird	1	4	Song Sparrow	4	1
Blue Jay	6	3	Lincoln's Sparrow	126	78
Black-billed Magpie (1)	38	40	White-throated Sparrow	9	6
American Crow	0	4	White-crowned Sparrow	25	14
Black-capped Chickadee (1)	625	122	Dark-eyed Junco	113	23
Red-breasted Nuthatch	28	17	Western Meadowlark (2)	11	127
Brown Creeper	2	1	Brewer's Blackbird	2	9
Rock Wren (2)	9	8	Common Grackle	2	11
House Wren (1)	69	13	Brown-headed Cowbird	31	42
Eastern Bluebird	5	9	Northern Oriole	2	1
Mountain Bluebird (1)	48	210	Pine Siskin	1	8
Townsend's Solitaire	1	0	American Goldfinch (2)	187	61
Swainson's Thrush	34	1	Evening Grosbeak	1	0
American Robin (2)	399	164			

Literature Cited

Boldt, C. E., D. W. Uresk, and K. W. Severson. 1978. Riparian woodlands in jeopardy on the northern High Plains. p. 184-189. In R. R. Johnson and J. F. McCormic, Tech. Coor. Strategies for protection and management of floodplain wetlands and other ecosystems. Proc. Symp. December 11-13, 1978. Calloway Gardens, GA. Gen. Tech. Rep. WO-12, U.S. For. Serv., Washington DC. 410 p.

Emlen, J. T. 1971. Population densities of birds derived from transect counts. Auk 88:323-342.

Emlen, J. T. 1977. Estimating breeding season bird densities from transect counts. Auk 94:455-468.

Faanes, C. A. 1984. Wooded islands in a sea of prairie. Am. Birds 38:3-6.

Gaines, R. C., and S. C. Kohn. 1982. Raptor use of hardwood draws in central North Dakota. Prairie Naturalist 14:55-58.

Hansen, P. L., and G. R. Hoffman. 1985. An ecological study of the vegetation of the Grand River/Cedar River, Sioux, and Ashland districts of the Custer National Forest: A habitat type classification. Final report to the USDA Forest Service, Cooperative Agreement No. RM-80-131-CA. Univ. South Dakota, Vermillion.

Hodorff, R. A. 1985. Wildlife response to stand structure of green ash woodlands. M.S. thesis, 60 p. South Dakota State Univ., Brookings.

Hopkins, R. B. 1983. Woodland bird ecology-southwestern North Dakota. Ph.D. dissertation, 104 p. North Dakota State Univ., Fargo.