

BIRD POPULATIONS IN A
COTTONWOOD COMMUNITY,
GRAND TETON NATIONAL PARK

Kenneth L. Diem
Department of Zoology and Physiology
University of Wyoming
Laramie

This study was initiated in 1980 to collect baseline information on the composition, density, distribution and habitat of the avifauna of the Narrowleaf Cottonwood, (Populus angustifolia) and Balsam Poplar, (Populus tacamabacca) community on a portion of the western floodplain of Pilgrim Creek. This cottonwood community has scattered trees of quaking aspen, (Populus tremuloides), engelmann spruce, (Picea engelmannii) and lodgepole pine, (Pinus contorta). In restricted moister areas, several patches of alder, (Alnus incana) occur under the larger trees and a few patches of willow, (Salix sp.) are located in the wetter openings of that woodland.

Methods

The mapping census plot was subdivided into 12 square 1 ha plots, with a 30 in. metal post at each hectare corner. Painted wooden stakes were used to mark the 50 m intervals between each corner stake.

All censuses were begun at 7:30 am and ended between 9:30 and 10 am following procedures set forth by the International Bird Census Committee (Svensson, 1970). Each bird observation on the plot was recorded as to species, number, sex and age and activity of the individuals and location. Movements of the census taker through each plot were such that at no time was the width of the area being censused greater than 33 m. This was accomplished by the census taker using a census pattern which moved through nine square subunits approximately 33 m on a side.

Results

Study plot censuses were conducted on June 6 and on June 28-29. A wet cool spring and early summer appeared to play a role in delaying the arrival of certain species, as well as possibly concentrating migrants more than normal. The numbers and frequency of the 30 species are summarized in Table 1. For comparison purposes the same summary of the 1982 census data is presented in Table 2. The American Robin, Dark-eyed Junco, Warbling Vireo, and White-crowned Sparrow were the most abundant. Also, the American Robin, Warbling Vireo and Dark-eyed Junco were likely to be encountered over 50-70% of the study area.

Table 1. Species, number and frequency of birds on a 12 ha riparian mapping census plot, Pilgrim Creek, Grand Teton National Park, June 6 and 28-29, 1983.

Species	No. of Birds		Frequency (%)		Birds/km ²	
	June 6	June 28-29	June 6	June 28-29	June 6	June 28-29
Common Goldeneye		5				42
American Kestrel	2	1	8	8	17	8
Great Gray Owl	1		8		8	
Unknown Hummingbird	1		8		8	
Common Flicker		2		17		17
Yellow-bellied Sapsucker	4	3	17	17	33	25
Hairy Woodpecker		1		8		8
Downy Woodpecker		1		8		8
Dusky Flycatcher	3	2	17		25	17
Western Wood Pewee	1		8		8	
Tree Swallow	5	1	25	8	42	8
Common Raven	2	3	8	17	17	25
Clark's Nutcracker		1		8		8
Black-capped Chickadee	1		8		8	
Mountain Chickadee	6	2	33	17	50	17
Unknown Chickadee	1	1	8	8	8	8
White-breasted Nuthatch	1		8		8	
House Wren	2	3	17	25	17	25
American Robin	12	8	67	42	100	67
Ruby-crowned Kinglet	4	3	25	25	33	25
Warbling Vireo	6	3	50	25	50	35
Yellow Warbler	1		8		8	
Yellow-rumped Warbler	4	1	17	8	33	8
McGillivray's Warbler	1	1	8	8	8	8
Wilson's Warbler	1	1	8	8	8	8
Brown-headed Cowbird	7	3	17	17	50	25
Black-headed Grosbeak	2		8		17	
Pine Siskin	1		8		8	
Dark-eyed Junco	14	22	58	58	117	183

Unknown Junco	1	8	8	25	8
Chipping Sparrow	3	8	8	67	67
White-crowned Sparrow	8	50	42	17	17
Song Sparrow	2	17	8	50	25
Unknown Species	3	17	42	840	682
Total	102	82	82	840	682

Table 2. Species, number and frequency of birds on a 1.2 ha riparian mapping census plot, Pilgrim Creek, Grand Teton National Park, June 10-15 and July 7-10, 1982.

Species	No. of Birds		Frequency (%)		Birds/km ²	
	June 10-15	July 7-10	June 10-15	July 7-10	June 10-15	July 7-10
Hummingbird (Unknown Species)		1		8		8
Common Flicker	1	5	8	42	8	42
Yellow-bellied Sapsucker	5	9	25	50	42	75
Hairy Woodpecker	4	4	17	33	33	33
Dusky Flycatcher	13	3	58	8	108	8
Western Wood Pewee	1		8		8	
Tree Swallow	6		25		50	
Common Raven	2	4	8	8	17	33
Clark's Nutcracker		2		17		17
Black-capped Chickadee		2		17		17
Mountain Chickadee	5		25		42	
Chickadee (Unknown Species)	1	4	8	25	8	33
Red-breasted Nuthatch	1		8		8	
House Wren	2	1	17	8	17	8
American Robin		6		33		50
Ruby-crowned Kinglet		1		8		8
Warbling Vireo	9	13	42	67	75	108
Yellow Warbler	3		17		25	
Yellow-rumped Warbler	3		8		25	
McGillivray's Warbler	1	3	8	25	8	8
Black-headed Grosbeak		2		8		17
Pine Siskin	2		17		17	
Dark-eyed Junco	19	16	58	75	158	133
White-crowned Sparrow	3	5	8	17	25	42
Song Sparrow	1		8		8	
Unknown Species	1	4	8	25	8	33

Generally the populations of a majority of the 10 most abundant species appeared to be relatively stable. There are some areas of concern highlighted in the 4-year \bar{x} annual population census numbers of these 10 species (Table 3). The American Robin, Warbling Vireo, Dusky Flycatcher and the White-crowned Sparrow appear to have sporadic population fluctuations. The successively low populations of Western Wood Pewees in 1982 & 1983 is a matter of concern since casual observations elsewhere in the general vicinity of Pilgrim Creek suggest that the breeding population of this species may indeed be lower than usual in these two years.

The highlight of the 1983 census was the observation of the Great Gray Owl. A pair was frequently heard calling in the area immediately east of the southeastern boundary of the study area in a mature grove of spruce-fir trees.

Literature Cited

- Svensson, S. (Editor). 1970. Bird census work and environmental monitoring.
Swedish Natural Science Research Council, Redaktionstjansten, Stockholm.
52 p.

Table 3. Maximum census numbers of the 10 most abundant bird species observed on the 12 ha Pilgrim Creek Cottonwood plot, 1980-83.

Species	1980	1981	1982	1983	\bar{x} 1980-83
Dark-eyed Junco	22	15	19	22	20
American Robin	17	10	6	12	11
Warbling Vireo	12	7	12	12	11
Dusky Flycatcher	11	9	13	6	10
Yellow-bellied Sapsucker	7	9	9	9	9
Mountain Chickadee ^a	6	4	6	7	6
White-crowned Sparrow	3	9	5	8	6
Western Wood Pewee	7	8	1	1	4
Black-capped Chickadee ^a	3	5	4	3	4
Common Flicker	3	3	5	2	3

^a Adjusted with "Unknown Chickadee" census data.