

NESTING BIRDS OF THE YELLOW PINE FOREST

AT BRYCE CANYON NATIONAL PARK, UTAH

A STATUS REPORT - 1972

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A study of nesting birds in the yellow pine forest at Bryce Canyon National Park, Utah was continued for the second year between 15 June and 30 August 1972 (see Gerstenberg 1971 for status in 1971). The objectives for the second year of study were; to set up a systematic census, continue banding, make a vegetative sample of the forest, set up semipernament boundries in the study plots, and to set up an additional study plot on Whiteman Bench. Minimal time was available to the investigator and only one objective was met. Also because of unusual weather conditions found in lower areas and a heavy cone crop several species were found in larger numbers than usual. It was felt that with the larger numbers that trapping may yield more information for the time available. Methods of the study were similar to those in 1971.

RESULTS

NESTING

Three additional species were found to be nesting in the area, making the total species nesting 31 (Table 1). These were; the Mourning Dove, Mountain Chickadee, and the Evening Grosebeak. Nests and young were seen

Table 1. Nesting birds in the yellow pine forest of Bryce Canyon National Park, Utah, Summers of 1971 and 1972.

Species	Nest Seen	Young Seen	Nest Type	Status
Goshawk	No	Yes	Cup	Suspected
Sparrow Hawk	No	Yes	Cavity	Suspected
Great Horned Owl	No	No	Cup	Suspected
Mourning Dove	Yes	Yes	Cup	Breeder
Broad-tailed Hummingbird	Yes	Yes	Cup	Breeder
Red-shafted Flicker	Yes	Yes	Cavity	Breeder
Williamson's Sapsucker	Yes	Yes	Cavity	Breeder
Hairy Woodpecker	Yes	Yes	Cavity	Breeder
Western Wood Pewee	No	Yes	Cup	Breeder
Olive-sided Flycatcher	No	No	Cup	Suspected
Violet-green Swallow	Yes	Yes	Cavity	Breeder
Steller's Jay	Yes	Yes	Cup	Breeder
Mountain Chickadee	Yes	Yes	Cavity	Breeder
Pygmy Nuthatch	Yes	Yes	Cavity	Breeder
House Wren	Yes	No	Cavity	Breeder
Robin	Yes	Yes	Cup	Breeder
Western Bluebird	Yes	Yes	Cavity	Breeder
Townsend's Solitaire	No	Yes	Cup	Suspected
Starling	Yes	Yes	Cavity	Breeder
Solitary Vireo	Yes	Yes	Cup	Breeder
Audubon Warbler	No	Yes	Cup	Breeder
Grace's Warbler	No	Yes	Cup	Breeder
Brown-headed Cowbird	Parasitic	Yes	Parasitic	Breeder
Western Tanager	Yes	Yes	Cup	Breeder
Evening Grosbeak	No	Yes	Cup	Breeder
Cassin's Finch	Yes	Yes	Cup	Breeder
House Finch	No	Yes	Cup	Breeder
Pine Siskin	No	Yes	Cup	Breeder
Red Crossbill	No	Yes	Cup	Breeder
Green-tailed Towhee	No	Yes	Cup	Breeder
Grey-headed Junco	Yes	Yes	Cup	Breeder
Chipping Sparrow	Yes	Yes	Cup	Breeder

for the first two species and feeding young were seen: throughout June and July for the latter species. Nests were also located for two suspected breeders, the Steller's Jay and the House Wren. No analysis of nesting sites was made during 1972. Nests, when found, were noted, but no special effort was made to find others except for the Goshawk. Superintendent Heyder reported two adult Goshawks drinking in his backyard daily. A search was made of the area directly south of the permanent resident area without finding a nest. A search was also made for an old Golden Eagle nest on the cliffs near the north-east boundary without success.

TRAPPING

A total of 292 new birds were trapped and banded in 15 trap days during 1972 (Table 2). There were only 5 mortalities which reduced the mortality rate from 5.8 percent in 1971 to 1.5 percent in 1972. Thirty-five birds were retrapped in 1972, two being banded in 1971. The retrap rate increased from 3.8 percent to 12.2 percent. Total birds trapped in 1972 was 332, far exceeding the 52 birds trapped in 1971.

The most numerous species trapped were (Table 3); Red Crossbill (120), Pygmy Nuthatch (29), Cassin's Finch (39), and Chipping Sparrow (24). This represents over 70 percent of the total number trapped.

There were several reasons for the increased success in trapping during 1972. First, as was noted, more effort was made to trap. Second, a better netting site was located. In 1971, most birds were trapped moving naturally through the forest, some having territories. Six nets were used to trap the birds. In 1972, a natural watering area was located and two nets were placed in the path of the birds flight. In 1971 it was rare to trap more than one bird in a net at any one time and several net days produced no trapped birds. In 1972 it was rare if less than three birds were not found in a net at one time. Thirdly, the species most often

Table 2. Birds trapped in the Yellow Pine Forest at Bryce Canyon National Park, Utah, Summer 1972.

Species	Jun 14	Jun 18	Jun 19	Jun 20	Jun 26	Jun 28	Jul 5	Jul 11	Jul 14	Jul 16	Jul 21	Jul 27	Aug 4	Aug 14	Aug 17	Total	Ret	Mor
Sparrow Hawk		1														1		
Mourning Dove							4		1					1	1	7	1	
Williamson Sap			1				1									2	1	
Hairy Woodp							2					1				3		
Stellers Jay															2	2		
Mt Chickadee						1						2	5		1	9	3	
White-br Nuthat															2	2		
Pygmy Nuthatch	1	4	7		1		1	1				9	9	6	5	44	14	1
Robin			3	2	2		1		2							10	2	
West Bluebird									1	2		1				4	1	
Solitary Vireo						1										1		
Warbling Vireo															1	1		
Audubon W Erbler							2			2						4		1
Graces Warbler		1														1		
Brown-h Cowbird		1														1		
West Tanager							1		1			2	2			6		
Evening Grosebk							1		1	8	2		5	4	2	23	1	
Cassins Finch			4	4	6	4	12	4					6	2	1	43	3	1
Pine Siskin													2	1	2	5		
Red Crossbill		12	36	27	18	7	19	1				3	3	2		128	6	2
Green-t Towhee										1					1	2		
Grey-hd Junco				1			3						1		1	6	1	
Chipping Sparrow	2			3		2	1	1	2	1		4	4	4	3	27	2	1
Total	3	19	51	37	27	15	48	7	8	14	2	22	37	20	22	332	35	5
Retrap	0	0	1	0	3	3	4	1	1	2	0	3	7	4	5	35		
Mortalities	0	0	3	0	0	0	0	1	0	0	0	0	1	0	0	5		
Banded	3	19	47	37	24	12	44	5	7	12	2	10	29	16	17	292		

Table 3. Birds trapped at Bryce Canyon National Park, Utah, Summer 1972.

Species	Adult	Immature	Mortalities	Retrap	Total 1972	Trapped 1971	Total Banded
Sparrow Hawk	1	0	0	0	1	0	1
Mourning Dove	5	1	0	1	7	0	6
Williamson's Sapsucker	1	0	0	1	2	2	3
Hairy Woodpecker	1	2	0	0	3	2	5
Western Wood Pewee	0	0	0	0	0	2	2
Steller's Jay	1	1	0	0	2	0	2
Mountain Chickadee	4	2	0	3	9	0	6
White-breasted Nuthatch	1	1	0	0	2	1	3
Pygmy Nuthatch	19	10	1	14	44	0	29
Robin	8	0	0	2	10	6	14
Western Bluebird	2	1	0	1	4	5	7
Solitary Vireo	0	1	0	0	1	1	2
Warbling Vireo	0	1	0	0	1	0	1
Audubon Warbler	4	0	0	0	4	1	5
Grace's Warbler	1	0	0	0	1	1	2
Brown-headed Cowbird	1	0	0	0	1	0	1
Western Tanager	2	4	0	0	6	1	7
Evening Grosbeak	10	12	0	1	23	0	22
Cassin's Finch	10	29	1	3	43	4	43
Pine Siskin	2	3	0	0	5	0	5
Lesser Goldfinch	0	0	0	0	0	1	1
Red Crossbill	60	60	2	6	128	0	120
Green-tailed Towhee	1	1	0	0	2	3	5
Grey-headed Junco	4	1	0	1	6	3	8
Chipping Sparrow	18	6	1	2	27	14	38
Total	150	135	5	35	332	47	379

trapped were those that moved in flocks or family groups. Red Crossbills were seen in flocks ranging from 10 to 50 individuals. In fact this species was what attracted me to place the nets near the watering hole.

Red Crossbills were trapped in large enough numbers to include an additional analysis (Table 4). The ratio of adults to birds of the year (immature) was nearly 1 to 1. More adult females were trapped than adult males. Eleven percent of the birds were unknown sex and immature. These birds were still in their juvenal plumage, without color. If this amount is added to the 14 percent of immature females, the sex ratio of immature is more equal. This is probably a more normal sex ratio for immature.

Nearly 80 percent of the crossbills were trapped before 1 July. The summer of 1972 was an exceptional year for numbers of crossbills. In previous years this species was seen in small flocks of 5 to 10, but in 1972 flocks of 50 were common. In early July large numbers were seen moving out of the area. At this time flocks of crossbills were seen moving north over Pine Lake, about 20 airline miles north of the park. Most of the Ponderosa Pine cones were on the ground and had opened. It is felt that the birds moved to the north when the cone crop was beginning to deplete. In August more normal flocks of 5 to 10 individuals were seen.

An indication of the birds readiness to move out of the area is the amount of fat that has been stored. Subcutaneous fat content was noted on trapped birds and has been shown to be an indicator of the amount of fat stored by the birds. The average fat class on Red Crossbills between 14 and 20 June 1972 was 3.3 (Fig. 1, fat class determined on a five point scale) and the average increased to 3.7 between 26 to 28 June.

Table 4. Red Crossbills trapped at Bryce Canyon National Park, Utah, Summer 1972.

Dates	Adults		Immatures			Total	Per Cent	Retrap
	Male	Female	Male	Female	Unknown			
June 18-20	17	17	21	8	9	72	57	1
June 26-28	6	6	7	5	2	26	21	4
July 5-11	3	10	4	3	0	20	16	1
July 27- Aug 4	0	2	0	1	3	6	5	0
Aug 14	1	0	0	1	0	2	1	0
Total	27	35	32	18	14	126	100	6
Percent	21	28	25	14	11	100		5

Fig. 1. Average fat classes of birds trapped at Bryce Canyon National Park Utah, Summer 1972.

The average fat class for birds other than crossbills varied between 2.5 and 2.8 throughout the summer.

Weight averages for 1971 and 1972 are presented in Table 5 and will be analyzed and discussed at a later date. Birds retrapped during the summer of 1972 are listed in Table 6. It is interesting to note that the birds retrapped were mainly of two species, both which occur in family groups or flocks. The other two retraps were of birds originally banded in 1971.

GENERAL BIRD NOTES

It is interesting to compare the difference in general bird observations between the seasons of 1971 and 1972. Weather of the 1971 season was more normal because of a wetter spring and early summer, although both could be considered below the 20 year average. Dry climate prevailed in 1972 throughout the late winter and spring. Several species were found nesting before this investigator arrived. Others which normally nested either in more desert areas or further north were found in the yellow pine forest in larger numbers. The Mourning Dove was found in flocks of up to 75 individuals were in more normal years this species is only found in singles or pairs. The Pine Grosbeak was found in small flocks of up to 35 individuals. This species has not been recorded during the summer since 1937 (C. C. Presnall, letter dated 28 June 1937). It has already been noted that large numbers of crossbills were found.

Vagrant migrants were also noted. A Virginia's Warbler was seen 5 August behind the old residences area and a Warbling Vireo was trapped 17 August 1972 in the same local. Both species had never been recorded in this area.

Table 5. Weights of birds trapped at Bryce Canyon National Park, Utah, Summers of 1971 and 1972.

Species	Cat*	Adults			Immatures		Unknown	Total
		Male	Female	Unknown	Males	Female	Unknown	
Williamson's Sapsucker	r	47-48	45					45-48
	n	2	1					3
	a	47.5	45					46.3
Hairy Woodpecker	r	64	57		56-61	56		56-64
	n	1	1		2	1		5
	a	64	57		58.5	56		58.8
Western Wood Pewee	r			14-15				14-15
	n			2				2
	a			14.5				14.5
Mountain Chickadee	r			10-12			11-12	10-12
	n			7			3	10
	a			10.8			11.3	11.0
White-br. Nuthatch	r	16		18			18	16-18
	n	1		1			1	3
	a	16		18			18	17.3
Pygmy Nuthatch	r			9-12			9-12	10
	n			23			15	1
	a			10.3			10.5	10
Robin	r	69-87	76-86	69-87			45	45-87
	n	8	5	13			1	14
	a	76.1	80.8	77.9			45	75.6
Western Bluebird	r	26-30	25-27	25-30			24	24-30
	n	2	3	5			2	7
	a	28.0	26.2	26.9			24	26.1
Audubon Warbler	r	12-13	12	12-13				
	n	4	1	5				
	a	12.5	12	12.0				

Table 5. Continued.

Species	Cat*	Adults			Immatures			Unknown	Total
		Male	Female	Unknown	Male	Female	Unknown		
Western Tanager	r	30	47-48	30-35	30		32-34		30-35
	n	1	3	4	1		3		7
	a	30	32.8	32.1	30		33.3		32.6
Red Crossbill	r	34-47	32-49		31-44	32-43	32-44		31-49
	n	26	31		34	16	64		95
	a	40.76	39.61		33.24	36.62	34.71		36.31
Evening Grosebeak	r	49-68	54	49-68			42-68		42-68
	n	9	1	10			11		21
	a	54.11	54	54.10			50.54		52.24
Cassin's Finch	r	26-29	26-29	26-29	25-29	27	22-30		22-30
	n	7	4	11	4	1	31		42
	a	23.57	25.25	25.09	27.25	27	25.96		25.73
Chipping Sparrow	r	11-14	13	11-14			11-15		11-15
	n	7	2	10			5		15
	a	12.71	13	13.00			13.3		13.1

* - r = range
n = number
a = average

Table 6. Birds retrapped at Bryce Canyon National Park, Utah in 1972

Species/ Number	Age	Original Trap Date	Retrap Date	Elapse Days
<u>Pygmy Nuthatch</u>				
125-40273	I	18 Jun '72	26 Jun '72 27 Jul '72	8 39 (31)
125-40279	I	18 Jun '72	27 Jul '72 17 Aug '72	39 60 (21)
1260-68201	I	5 Jul '72	4 Aug '72 14 Aug '72 17 Aug '72	30 40 (10) 43 (3)
1260-68209	I	27 Jul '72	4 Aug '72 14 Aug '72	8 18 (10)
1260-68211	A	27 Jul '72	4 Aug '72	8
1260-68212	I	27 Jul '72	4 Aug '72	8
1260-68213	A	27 Jul '72	4 Aug '72	8
1260-68229	I	4 Aug '72	14 Aug '72	10
1260-68233	I	4 Aug '72	14 Aug '72	10
1260-68240	A	14 Aug '72	17 Aug '72	3
<u>Robin</u>				
762-57021	A	29 Jun '71	19 Jun '72	355
<u>Red Crossbill</u>				
112-130943	I	18 Jun '72	19 Jun '72	1
112-130959	I	19 Jun '72	26 Jun '72	7
112-130972	A	19 Jun '72	28 Jun '72	9
112-184716	I	26 Jun '72	5 Jul '72	9
112-184718	I	26 Jun '72	28 Jun '72	2
112-184720	I	26 Jun '72	28 Jun '72	2
<u>Grey-headed Junco</u>				
125-40255	A	6 Jul '71	5 Jul '72	365

A lack of certain species was also noted in 1972. Pine Siskins were not seen until August and Western Bluebirds appear to be in fewer numbers. Rufous Hummingbirds arrived about two weeks late and were not as numerous as in 1970 and 1971.

RECOMMENDATIONS

It is recommended that more time be given to the investigator during the day to complete some of the more desirable objectives. The most desirable would be to make a systematic census of the birds in the study plots. This census should be taken between the hours of 700 and 1100. A vegetative sample of the area should be made to make the results more valid. This, correlated with the approximate tree age and condition of trees used for nesting sites appears to be the most valuable objective for management purposes.