

CRATERS OF THE MOON NATIONAL MONUMENT 1991 BIRD CENSUS

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MATERIALS AND METHODS

Materials used during the 1991 CRMO bird census include: binoculars; tapes of the songs/calls for the species found at the 17 vegetation types; portable cassette player and headphones; Peterson tape/book series entitled "Birding by Ear"; several different field guides for bird identification; copies of data forms; Bird Censusing Standard Procedures; CRMO topographic map showing the location of 2 census points for the 17 vegetation types.

In order to successfully complete the census several weeks of preparation were required. First of all the tapes of the songs/calls were studied thoroughly. Next all of the census points were located in the field and a tentative schedule of the expected number census points that could be sampled was developed. Then several dry runs were performed for practice.

During the 1991 census it was possible to census 14 of the 17 vegetation types between April 29 and June 15. Censusing was done only on mornings with no precipitation and wind less than 8 mph. Censusing was done between one-half hour before sunrise and 2 hours after. Usually 2 points were censused in a morning, but occasionally it was possible to census 3 points.

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A total of 879 birds of 49 species were identified during the census. The average number of species detected at each station was 10.04, and the average number of species detected for each vegetation type was 14.50. Vegetation types ranged from a high of 22 species in vegetation type 24 to a low of 9 species in vegetation types 5, 13 and 11. The highest number of individual birds at a vegetation type was 102 at type 4, and the lowest was 29 at type 13. Also 27 species were found in vegetation types in which they were not listed previously. A total of 15 species were found in only one vegetation type, while one species (brown-headed cowbird) was found in 12 of the 14 vegetation types. Three new species (Cooper's hawk, great blue heron, and mallard) were detected.

Species diversity (analyzed using the Shannon-Weaver estimate) ranged from a high of 2.900 in vegetation type 24 to a low of 1.732 in vegetation type 11. Overall the average was 2.394 for the 14 vegetation types. Compared with the diversities calculated for the 10 vegetation types censused in 1990, four had higher diversities in 1991 while 6 had lower diversities. The average for those 10 vegetation types in 1990 was 2.503 and in 1991 was 2.507.

Table 1: Species richness and diversity for the 14 vegetation types censused in the 1991 CRM0 bird census.

Vegetation Type	Priority	Species Richness	Diversity(H')
26	1	18	2.759
25	2	16	2.678
23	3	16	2.552
22	4	16	2.497
21	5	17	2.602
24	6	22	2.900
5	7	9	1.926
4	8	21	2.430
16	9	14	2.293
6	10	14	2.437
13	11	9	1.954
8	12	14	2.402
17	13	13	2.354
11	14	9	1.732

Table 2: Number of species detected in each vegetation type during the CRM0 1991 bird census.

Vegetation Type	Priority	number of station 1	species detected station 2	total
26	1	11	15	18
25	2	13	6	16
23	3	11	14	16
22	4	10	13	16
21	5	12	14	17
24	6	17	14	22
5	7	8	5	9
4	8	8	13	16
16	9	11	11	14
6	10	12	10	14
13	11	3	8	9
8	12	8	9	14
17	13	6	9	13
11	14	6	4	9

Table 3: Birds detected during the 1991 CRM0 bird census and the vegetation types in which they were found.

Family Species	Vegetation Types														
	4	5	6	8	11	13	16	17	21	22	23	24	25	26	
Anatidae															
Mallard**														26*	
Accipitridae															
Northern harrier	4		6	8*										26	
Cooper's hawk**												24			
Red-tailed hawk	4*										23				
Falconidae															
American kestrel	4*		6		11			17				24		26	
Phasianidae															
Blue grouse												24		26	
Sage grouse				8*		13									
Ardeidae															
Great blue heron**									21*						
Columbidae															
Mourning dove			6	8	11		16		21	22	23		25		
Picidae															
Red-naped sapsucker									21			24*			
Northern flicker	4		6		11*				21	22		24	25	26	
Tyrannidae															
Dusky flycatcher								16*	17*		23	24	25	26*	
Say's phoebe						13*									
Hirunidinidae															
Violet-green swallow						13*	16*		21*						
Corvidae															
Clark's nutcracker							16		21	22	23	24	25*		
American crow	4*								21					26	
Common raven	4	5*	6	8*											
Paridae															
Mountain chickadee									21	22	23	24	25		
Sittidae															
Red-breasted nuthatch							16*	17*	21	22	23	24	25		
Certhiidae															
Brown creeper												24			
Troglodytidae															
Rock wren		5	6	8*	11	13	16*		21	22					
House wren														26	
Muscicapidae															
American robin	4*		6	8*		13*		17*	21	22*		24	25	26	
Hermit thrush												24			
Swainson's thrush											23				
Mountain bluebird	4	5					16*	17	21	22					
Townsend's solitaire						13*									
Ruby-crowned kinglet	4*							17*	21	22*	23	24	25*	26	

Table 3(con't): Birds detected during the 1991 CRMO bird census and the vegetation types in which they were found.

Family	Vegetation Types														
Species	4	5	6	8	11	13	16	17	21	22	23	24	25	26	
Mimidae															
Sage thrasher	4	5	6	8			16	17							
Laniidae															
Loggerhead shrike				8	11										
Vireonidae															
Warbling vireo														26	
Emberizidae															
Orange-crowned warbler													25	26	
Yellow warbler														26	
Yellow-rumped warbler											23	24			
MacGillivray's warbler														26	
Western tanager									21		23	24	25		
Lazuli bunting													25		
Green-tailed towhee	4	5	6	8			16*	17		22	23	24			
Rufous-sided towhee	4	5	6	8			16			22	23	24	25	26	
Vesper sparrow	4	5	6	8	11	13		17					25		
Dark-eyed junco										22	23*	24			
Chipping sparrow										22	23	24			
Brewer's sparrow	4	5	6	8		13	16	17	21	22					
Fox sparrow														26	
Western meadowlark				8	11		16								
Brewer's blackbird	4	5	6		11	13	16	17	21			24	25	26*	
Brown-headed cowbird	4*		6	8*	11*		16*	17	21	22	23	24	25*	26	
Fringillidae															
Cassin's finch								17*		22	23		25		
Pine siskin												24			

* - species not listed in that habitat type in prior census

** - new species

Table 4: Comparison of species richness and diversity for the 10 vegetation types censused in both the 1990 and 1991 CRMO bird census.

Vegetation Type	1990 Species Richness	1990 Diversity	1991 Species Richness	1991 Diversity
26	17	2.654	18	2.759
25	20	2.726	16	2.678
23	18	2.735	16	2.552
22	19	2.725	16	2.497
21	16	2.452	17	2.602
24	24	2.998	22	2.900
5	11	2.283	9	1.926
4	13	2.283	21	2.430
16	12	2.315	14	2.293
6	9	1.863	14	2.437
	15.9	2.503	16.3	2.507