

CRATERS OF THE MOON NATIONAL MONUMENT 1990 BIRD CENSUS

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MATERIALS AND METHODS

The following items were required to complete the CRMO 1990 bird census: (1) folder containing Bird Censusing Standard Procedures, data forms, Wildlife Database information, and information from the CRMO Baseline Inventory and Monitoring Final Report; (2) CRMO topographic map indicating 2 census locations for each of the 17 habitat types; (3) 9 tapes of calls/songs for species observed at each vegetation type in the 1987 survey; (4) portable cassette player with headphones; (5) binoculars; and (6) Audubon Field Guide to Western Birds.

The observer and Resource Management Specialist spent several days locating census stations in the field to familiarize the observer with the vegetation types, park topography, and bird species at CRMO. A tentative schedule was then developed to determine how many of the 17 habitat types could be censused by June 15. If censusing begins in late April and weather conditions are acceptable (winds less than 8 mph and no precipitation), an observer should be able to census all 17 habitat types in the two month period. However, due to unusually heavy precipitation and a late starting date, only 10 of the 17 vegetation types were

censused in 1990. Since weather conditions at CRMO are unpredictable, an observer should allow approximately 10 rain/wind days when considering a schedule. In addition, the two stations for any particular vegetation type cannot be censused in the same day.

The tapes of bird calls/songs corresponding to the two census points of any particular day were reviewed the evening before entering the field to familiarize the observer with the birds in those vegetation types. Tentative routes were also determined to decrease traveling time. It was necessary to arrive at a station between 5:45 a.m. and 6:15 a.m. to census 2 points within 2 hours after sunrise. The following approximate traveling times were required: (1) 30-40 minutes for stations in the North End of the park; (2) 30 minutes for stations along the loop road, except Silent Cone points which require 45-60 minutes; and (3) 90-120 minutes for stations in the wilderness area. Occasionally, it was necessary to travel over lava rocks in the dark, therefore, knowledge of the trails and a flashlight were essential.

Counts were begun 10 minutes after arriving at a station to allow the birds to readjust to the presence of the observer. The first 10 minutes allowed the observer to prepare the data form and listen to the tape of songs/calls for that particular habitat. The 10 minute preparation period was included in the starting time on the data form. Birds unfamiliar to the observer were identified by rewinding/fast-forwarding the cassette until the bird was recognized. During the 30 minute period at each census station,

a list was compiled of all species detected and their estimated numbers. By moving during the census, a greater variety and number of birds were detected, however only birds within the vegetation type being censused were counted. Birds flying over the area were also counted and "flew over" noted in the comment section of the data form. Occasionally a species not listed for a particular habitat or not included in prior censuses were observed. The bird was listed on the data form and denoted with an "***". Also, any mating behavior was noted in the comment section by entering a mating status code from the Wildlife Database information.

Both stations for each of the 10 vegetation types were censused once before a second round was performed. This prevented significant changes in the data due to migration, weather, etc. Twenty stations were censused twice from 5/9/90 to 6/19/90 for a total of 40 censusing periods. All census information was then entered into the wildlife observation database.

RESULTS

In all, 701 birds of 50 species were detected during the 1990 census. The number of species found in a given habitat ranged from 9 to 24 (Table 1). Species varied considerably in their distribution; being found at from only one habitat type (17 species) to being found at all 10 of the habitat types (rufous-sided towhee)(Table 1). Two new species, burrowing owl and downy woodpecker, were observed during the census. In addition, 16

Table 1. Birds detected during the CRMO 1990 census and the vegetation types in which each was found.

Family Species	Vegetation Types									
	26	25	23	22	21	24	5	4	16	6
Accipitridae										
Northern harrier		25*					5			
Red-tailed hawk			23					4*		
Golden eagle	26*					24*				
Phasianidae										
Blue grouse	26	25				24				
Sage grouse	26									
Columbidae										
Mourning dove		25	23	22	21	24	5	4	16	6
Strigidae										
Burrowing owl**								4*		
Trochilidae										
Rufous hummingbird			23			24				
Picidae										
Lewis' woodpecker	26								16	
Red-naped sapsucker					21					
Northern flicker	26	25	23	22	21	24		4	16	
Downy woodpecker**	26*									
Tyrannidae										
Olive-sided flycatcher			23							
Dusky flycatcher		25	23			24				
Hammond's flycatcher				22						
Hiruninidae										
Violet-green swallow					21				16*	
Barn swallow										6
Corvidae										
Clark's nutcracker		25*	23	22	21	24			16	6
American crow	26	25*		22*	21*	24*				
Common raven				22*	21	24				6
Paridae										
Mountain chickadee				22						
Sittidae										
Red-breasted nuthatch		25	23	22		24				
Troglodytidae										
Rock wren				22	21		5	4		
House wren	26									
Muscicapidae										
American robin	26	25	23			24			16	
Hermit thrush						24				
Swainson's thrush				22						
Mountain bluebird		25	23		21		5	4	16*	
Ruby-crowned kinglet						24				

Table 1 (cont.). Birds detected during the CRMO 1990 census and the vegetation types in which each was found.

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

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

** - species not listed in prior census (new species)

Table 2. Number of species detected in each vegetation type during the CRMO 1990 bird census.

Vegetation Type	number of species detected		total
	station 1	station 2	
26	11	15	17
25	12	13	20
23	14	15	18
22	13	14	19
21	11	10	16
24	18	17	24
5	9	9	11
4	8	10	13
16	9	8	12
6	9	6	9

Table 3. Species richness and diversity for 10 vegetation types in the CRMO 1990 bird census.

Vegetation Type	Species Richness	Diversity (H')
26	17	2.654
25	20	2.726
23	18	2.735
22	19	2.725
21	16	2.452
24	24	2.998
5	11	2.283
4	13	2.283
16	12	2.315
6	9	1.863

species were observed in habitats under which they were not listed in the previous census (Table 1). The number of species detected during the two censuses at each station ranged from 6 to 18 (Table 2). The average number of ^{birds}~~species~~ detected at each station was 17.5.

The species richness and diversity varied somewhat between the 10 sampled vegetation types. The Douglas Fir/Mountain Snowberry habitat (priority 6) had the greatest species richness and diversity, whereas the Mountain Big Sagebrush/Needle Grass habitat (priority 10) had the lowest species richness and diversity (Table 3).

RECOMMENDATIONS

I feel the Resource Management Specialist should take several things into consideration when selecting a bird censuser. First, bird censusing at CRMO requires awakening between the hours of 3:30 a.m. and 5:00 a.m. Therefore, it is essential the observer be a morning person. Sometimes it was very difficult to function at that time of the day. Secondly, many of the points are located on high mountains or far in the wilderness area, so the observer may be required to do strenuous climbing or several miles of hiking. The observer need not be an aspiring triathlon contestant, however, good physical shape would definitely reduce injury and make the task much more pleasant. Finally, to complete all 17 or a majority of the vegetation types, it is necessary to begin in late April. This requires an observer who is willing to begin

early in the season and who is fairly comfortable with the birds at CRMO. A novice birder could complete the task, however, this would require at least a week of listening to tapes and observing birds in the field. Also, it can be very lonely in April and May at CRMO.

The observer should bring a sturdy, well-worn pair of boots since he/she will spend a great deal of time in them. I would recommend a lighter boot with a thick sole. Also, it can be very cold at 4:00 a.m. I often wore longjohns, gloves, and a heavy coat. However, it does warm fairly quickly so too much clothing will be very uncomfortable. I would recommend a material that is warm yet very light.

I found the tapes very helpful in the field and would recommend the observer take them along. Also, a field guide is a must. I preferred the Audubon edition over Peterson's guide.