

ENVIRONMENTAL IMPACT STUDIES, MARBLE CANYON
AND McLEOD MEADOWS CAMPGROUNDS, K.W.P.

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C.W.S

2.3 Fauna

Our study objective was to prepare listings of birds, small mammals and large mammals for each campground area, describe local movements where applicable and then to assess habitat requirements sufficient to generate mitigative measures regarding campground development.

2.3.1 Birds

To gain a comprehensive understanding of the birds in a given area, usually several years of study are the required minimum. A general idea of which birds inhabit an area can be gained in a very short time, but many species will be overlooked. These may include seasonal migrants passing through the area as well as rare visitors and possibly even some of the rarer breeding species. The difficulty arises with a short-term study that if rare species are overlooked, their habitat requirements may be likewise ignored in the study.

In the avifauna study, field work was carried out in June and early July, 1976. The lists of birds recorded in the field were later supplemented with previously existing park records. An attempt was also made to estimate which additional species might conceivably occur in the area, and although many rareties will doubtlessly have been missed for the reasons given, it is hoped that the composite list drawn from field studies, park records, and hypothetical species, will present a reasonable picture of the two campground areas.

Although this study was based primarily on spot observation field techniques, simplified transects or their equivalent were used to give an indication of relative abundance of the common species. The data are

representative only, as many more transects would have been required to obtain conclusive results. The value in the information obtained here is only in providing an idea of which are the most common species; and, roughly how often, or in what number, they may be expected to be encountered during the breeding season.

At McLeod Meadows six evenly spaced circular plots of 30 m radius, and oriented in a line, constituted one transect. Observation time at each plot was five minutes. Transects were located in the campground and in undisturbed forest stands north of the campground.

Instead of using formal transect techniques at Marble Canyon, the camping units were used as stations, each being visited for the same length of observation time (15 minutes). Two observers were used, so that all observations were made within less than a two-hour time span. Hence a rather even coverage was given the Marble Canyon campground area.

2.3.2 Small Mammals

Small mammal populations were evaluated in the McLeod Meadows campground area by snaptrapping. Trapping was not required for Marble Canyon because small mammal populations there have been closely monitored since 1971 through the efforts of the Vermilion Pass fire study team (R. Guy, pers. comm.).

Three traplines were set: two traplines of 20 stations each in the KP2 forest and one line of 13 stations in the KP1 forest area (Itek photographs). This line was shortened to 13 stations because of the limited extent of the floodplain landscape. Traps were spaced at 30.5 m intervals along each line, with three traps per station. All traps at a station

Table 5. Bird transect data, Marble Canyon campground.

Species	Observations											Total	
	A	B	C	D	E	F	G	H	I	J	Thtr. ¹		
Rufous Hummingbird			2			1	1					1	5
Barn Swallow			3										3
Common Raven			1				1						2
Red-breasted Nuthatch					2							1	3
American Robin				1	1		1	1		1			5
Swainson's Thrush	1												1
Ruby-crowned Kinglet	1			1	1								3
Yellow-rumped Warbler			1	1	1					1			4
Townsend's Warbler	1			1	1							1	4
Black-headed Grosbeak ²			1										1
Pine Siskin	13			2	1	1		2		2			21
Chipping Sparrow	2		2	2		1	2			2			11
White-crowned Sparrow	2			2	1		1						6

¹ Interpretive theatre.

² A male Black-headed Grosbeak was recorded singing in conifer forest, atypical habitat, 20 June 1976. It was feeding in spruce about 3 m from the ground, and was observed clearly by both L. and C. Wade. It is believed to be the first park record of this species.

3.2.2 Birds

Although the birds encountered at Marble Canyon adapt to open habitat, they nonetheless require thick scrub and forest thickets for shelter and feeding sites, and would be less likely seen in open areas completely away from trees. If little or no tree and shrub vegetation is left in buffer areas between campsites, suitable habitats will be lacking and birds will be displaced. Actual number of birds displaced is ~~is~~ indeterminate; however, total impact would be of little concern in terms of absolute numbers.

Expansion of the existing campground would have to allow for large areas of forest and thicket habitat to remain standing between campsites. These buffer areas would have to be large and dense enough that dead and unsound trees standing in them would not be a danger factor to campers. Dead trees are valuable to insect-eating birds such as woodpeckers, chickadees, and warblers; and also provide homes for such species as nuthatches and some owls, which may use old woodpecker holes. If thickets and treed areas left between campsites are too small, standing deadwood may be a hazard and have to be removed, which in turn would constitute bird habitat destruction.

If the campground is to be expanded on sloping ground with gradients greater than 5%, it does come to question whether the development can be undertaken with a minimal amount of damage to vegetation. On sloped terrain, it is difficult to envision efficient use of space in terms of camp units per area as so much vegetation must be left untouched to maintain bird habitat.

As far as increased noise and human activity is concerned, no real problem is evident, as most of the birds in the area are not particularly

shy, and some, such as chickadees, Pine Siskins, and juncos, are even rather tame. Hence the increased traffic of a larger campground would likely be as much a nuisance factor to campers as to birds.

3.2.3 Small Mammals

Information available on small mammal populations in the Marble Canyon area indicate that the species present are common to extensive in most areas of the Park. Engelmann spruce-Subalpine fir habitat is widespread and those stands at Marble Canyon present no unique or significant habitat features with respect to use by small mammals.

Thus, campground expansion would have no measurable effect on park-wide species diversity and numbers. Net impact of disturbance will be restricted to site specific increase in white-footed mouse numbers at the expense of red-backed vole since the former prefer more open habitat.

Special mitigative measures are not warranted; however, care should be taken where possible to minimize disturbance in buffer areas by leaving all logs, stumps and shrub cover. If clearing of dominant forest cover is kept to a minimum, the resident marten will not be adversely affected; at any rate the total habitat affected would not encompass more than one marten home range.

3.2.4 Large Mammals

Disrupted habitat in total will be insufficient to significantly disturb large mammal populations. Forest overstory clearing will release shrubs from shade suppression, possibly further enhancing availability of browse species for moose. An increase in the visitor population directly increases the danger of bear-human encounters; although, recent efforts

Table 10. Summary of bird observations along two transects at McLeod Meadows campground and vicinity.

Species		Mean observations per unit						Total
		Station No. 1	2	3	4	5	6	
Spruce Grouse	A					0		0
	B					0.5		0.5
Common Flicker	A			0				0
	B			0.5				0.5
Hammond's Flycatcher	A ¹	0.5	0.5	0.5	0	0.5	0	2
	B ²	0	0	0	0.5	0.5	1	2
Barn Swallow	A	0.5				1		1.5
	B	0				0		0
Gray Jay	A	0						0
	B	1.5						1.5
Common Raven	A			0				0
	B			0.5				0.5
Boreal Chickadee	A	0	0	0.5	0.5			1
	B	0.5	0.5	1.5	0			2.5
Red-breasted Nuthatch	A	0	0.5	0	0	0	0.5	1
	B	0.5	0	1	1	0.5	1	4
American Robin	A	2	0.5	0	1.5	2.5	1	7.5
	B	1	0.5	1.5	1	0.5	0.5	4
Varied Thrush	A						0.5	0.5
	B						0	0
Swainson's Thrush	A	0		0	0		0.5	0.5
	B	0.5		1	0.5		0	2
Golden-crowned Kinglet	A				0.5			0.5
	B				0			0
Ruby-crowned Kinglet	A	1.5	0	0.5	0	0.5	0.5	3
	B	0.5	1	0.5	1	1	1.5	5.5
Solitary Vireo	A	0.5						0.5
	B	0						0
Orange-crowned Warbler	A			0.5	0.5	0.5		1.5
	B			0	0	0		0
Yellow-rumped Warbler	A	0		1	0.5	0.5	0.5	2.5
	B	0.5		1.5	1	1	1	5
Townsend's Warbler	A	0	0.5	0.5	0	0.5	0.5	2
	B	0.5	1	1	1	1	1	5.5
Pine Siskin	A	2.5	1	0		2	0	5.5
	B	1	0	0.5		2	1	4.5
Dark-eyed Junco	A	2	0.5	0.5	1.5	0	0.5	5
	B	0	0.5	0.5	0	0.5	0	1.5
Chipping Sparrow	A			0	1		0	1
	B			1	1		0.5	2.5

¹-A - Results for transect located in the campground.

²-B - Results for transect located in undisturbed forest.

limited to developed sites and all buffer areas were left intact. This is particularly important since the barrier nature of the deadfall and shrub thickets restricts most visitor movements to cleared roadways and paths. Trampling impact is therefore limited, campsite areas do not expand in size and bird and small mammal habitat in buffer areas remains essentially unaffected.

4.2.2 Birds

At the outset of considering possible impact to avifauna, it should be noted that expansion of McLeod Meadows Campground would doubtlessly affect bird life in the area. This impact would be to increase numbers of certain species, especially those which do well in more open areas, and to decrease numbers of others. Many species prefer forest edges and clearings over dense woods; therefore, the overall effect might well be to generally increase the total bird population. There was no indication that the existing campground has adversely upset the bird population.

4.2.3 Small Mammals

Localized changes in relative abundance of small mammal species will occur as a result of campground development. This will likely include an increase in white-footed mouse relative to red-backed vole which would experience loss of habitat through clearing of moss-carpeted logs and stumps and removal of shrub cover. Such changes are considered insignificant if viewed in relation to the small mammal populations of the park. Provision for undisturbed buffer areas between campsites should maintain viable small mammal populations.

Appendix 3

Bird Communities

Following are the species lists that were compiled to represent as complete a picture of the birdlife in the two campground areas as possible. As previous discussion indicates, it should be assumed beyond doubt that these lists are far from complete.

Birds of Marble Canyon Campground Area

Left column: Unmarked species were recorded during the avifauna study. Species marked with asterisks (*) were added following library research of park records.

Right column: Unrecorded species expected to occur in the area.

Goshawk*
Sharp-shinned Hawk

Golden Eagle*

Kestrel

Black Swift*
Vaux's Swift*
Rufous Hummingbird
Calliope Hummingbird*

Black-backed 3-toed Woodpecker*
Northern 3-toed Woodpecker*

Barn Swallow
Gray Jay*

Common Raven
Clark's Nutcracker
Mountain Chickadee
Boreal Chickadee*
Red-breasted Nuthatch

American Dipper*
Winter Wren*
American Robin
Varied Thrush
Hermit Thrush
Swainson's Thrush

Red-tailed Hawk

Merlin

Spruce Grouse

Common Flicker
Pileated Woodpecker
Hairy Woodpecker
Downy Woodpecker

Empidonax sp. Flycatcher
Western Wood Pewee
Olive-sided Flycatcher
Violet-green Swallow
Tree Swallow

Steller's Jay
Common Crow

Brown Creeper

Golden-crowned Kinglet
 Ruby-crowned Kinglet

Yellow-rumped Warbler
 Townsend's Warbler
 Wilson's Warbler*

Black-headed Grosbeak
 Evening Grosbeak*
 Pine Grosbeak*

Pine Siskin

Dark-eyed Junco
 Chipping Sparrow
 White-crowned Sparrow

Mountain Bluebird
 Townsend's Solitaire

Bohemian Waxwing
 Cedar Waxwing
 Solitary Vireo
 Warbling Vireo
 Orange-crowned Warbler

Western Tanager

Purple Finch
 Cassin's Finch

Red Crossbill
 White-winged Crossbill

Listed:	Recorded during study:	20 species
	Park records:	<u>13</u>
	Subtotal:	<u>33</u>
	Hypothetical:	<u>27</u>
	Total possible:	60 species

Birds of McLeod Meadows Campground Area

Left column: Unmarked species were recorded during the avifauna study. Species marked with asterisks (*) were added following library research of park records.

Right column: Unrecorded species expected to occur in the area.

Golden Eagle*	Goshawk
Kestrel	Sharp-shinned Hawk
Spruce Grouse	Cooper's Hawk
Ruffed Grouse	Red-tailed Hawk
Common Snipe*	Swainson's Hawk
Spotted Sandpiper	Merlin
Mourning Dove	
Great Horned Owl*	
	Pygmy Owl
Hawk Owl*	Great Gray Owl
Belted Kingfisher	Short-eared Owl
Common Flicker	
Pileated Woodpecker	
Hairy Woodpecker	
Downy Woodpecker	
Downy Woodpecker	
Northern 3-toed Woodpecker	
Yellow-bellied Sapsucker	
	Eastern Kingbird
Empidonax sp. Flycatcher	Western Kingbird
Western Wood Pewee*	
Olive-sided Flycatcher*	
	Tree Swallow
Barn Swallow	Rough-winged Swallow
Gray Jay	
Steller's Jay*	
Black-billed Magpie*	
Common Raven	
Black-capped Chickadee*	
Mountain Chickadee	

Boreal Chickadee
 Red-breasted Nuthatch
 American Robin
 Varied Thrush
 Swainson's Thrush
 Mountain Bluebird*
 Townsend's Solitaire*
 Golden-crowned Kinglet
 Ruby-crowned Kinglet
 Water Pipit*
 Cedar Waxwing*
 Common Starling*
 Solitary Vireo
 Warbling Vireo*
 Yellow-rumped Warbler
 Townsend's Warbler
 Wilson's Warbler
 Red-winged Blackbird*
 Brewer's Blackbird
 Brown-headed Cowbird*
 Purple Finch*
 Cassin's Finch
 Pine Siskin
 Red Crossbill*

Dark-eyed Junco
 Chipping Sparrow

Lincoln's Sparrow
 Orange-crowned Warbler

White-winged Crossbill

White-crowned Sparrow

Listed:	Recorded during study:	35 species
	Park records:	<u>19</u>
	Subtotal:	54 species
	Hypothetical:	<u>15</u>
	Total possible:	69 species