ENVIRONMENTAL SCIENCES CENTRE (KANANASKIS)

November 12, 1969.

RE: N1427

Mr. Paul A. Larson,
Superintendent,
Crater Lake National Park,
Crater Lake, Oregon 97604.

Dear Mr. Larson:

Thank you for the hospitality and advice provided by you and your staff during my visit this summer. Your research biologist Mr. Brown, did everything possible to make my stay pleasant and productive.

I have prepared a short report summarizing my observations and opinions on the bears of Crater Lake. If you have any questions concerning this or other matters, please contact me.

In the future I will be mailing to you several more general papers which I am preparing on bear management.

Yours sincerely,

Stephen Herrero,
Postdoctoral Fellow,
Environmental Sciences Centre
(Kananaskis).

SH/sd

cc. Mr. Richard Brown

Thanks again for everything.

Steve Herrero

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OBSERVATIONS ON BLACK BEARS (Ursus americanus) AT THE MUNSON DUMP, CRATER LAKE NATIONAL PARK. Which was part of a postdoctoral study of bear behaviour and management in the National Parks of North America.

Stephen Herrero,
Environmental Sciences Centre
University of Calgary,
Calgary, Alberta, Canada.

From July 21-23, 1969 I observed bears at the Munson dump from about 4:00 PM until near dark at 8:30 PM.

I was able to identify twenty-two different animals by noting facial and body scars, colour, behaviour, and stage of molt. The age-sex-colour phase composition was:

Sows and Cubs

a. Brown sow with two cinnamon yearlings.
b. Black sow with three black yearlings.
c. Black sow (small) with one cub of the year.
d. Black sow (old) --- barren.

Boars

a. Largest black, well rounded, numerous facial scars, prominent white chest patch.
b. Large black, slightly smaller than above. Slit right ear.
c. Number three size black, notch at top of left ear.
d. Medium large black with lopsided snout.

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e. Medium black with many facial scars especially above eyes and on forehead. Small white chest patch.

f. Large cinnamon.

g. Medium sized cinnamon, four to five years old, slotted right ear.

Sub-Adults

a. Two brown

b. Three black

These twenty-two animals represent a minimum population estimate for the park. The actual number is probably higher, perhaps by a factor of two or three.

The distribution of colour phase, with 32% brown or cinnamon and 68% black, is related to the moderate, humid climate. In humid coastal areas the black phase is found almost 100% of the time. In very arid inland areas such as the Rocky Mountains the brown to cinnamon phase may predominate. Jonkel (1967) presents a discussion of colour phase distribution in black bears, interpreting the differences in line with Gloger's rule. Many animals seen at the dump were molting and confirmed a previous observation that cinnamon coloured animals may molt to brown, and brown animals to black. I interpret this as showing that sun bleaching occurs over the course of a year, lightening in colour the coats of some, but not all animals.

The dump was an interesting but unnatural place to observe social behaviour. Because of the relatively small size of the dump, and its presentation of a concentrated food source, bears tolerated crowding far beyond limits found in natural areas.

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The dump was dominated by a single boar, which was the largest and physically best formed bear. He fed where and when he wanted and was able to displace other bears simply by his approach, or limited use of display. He occasionally permitted very low ranking bears to feed nearby, however those near to him in rank usually remained at least thirty feet away. In observations which I made at Jasper townsite dump, Jasper National Park, sows with cubs of the year were the dominant animals at the dump. It would be interesting to see if this were true here, say next year when I would expect several sows with cubs. This year the one sow with a cub which I saw only appeared for five minutes.

Displays were frequently used when two animals disputed an area or piece of food. Low gurgling growls, huffing, and snorting were frequent vocal displays. Physical displays included: charges without contact, swatting a front paw on the ground, presentation of broadside, snapping jaws, a slow but straight approach, and lowering the head with the nose almost to the ground.

In the dump where I observed in Canada use of these displays usually led to avoidance of physical contact. At Munson dump physical contact including, nipping, biting, and paw swatting was quite common. More contact in your area was probably due to the extreme crowding that occurred at the Munson dump feeding areas.

Several instances of precopulatory behaviour were observed at the dump. These included mounting for up to two minutes, nipping, and following. Full copulations usually occur earlier in the year in May or June and last about twenty to forty-five minutes.

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Of interest were the two sows which had their yearlings with them for at least part of the time which I observed. Questioning of garbagemen revealed that these sows had probably chased their yearlings away in May, mated, and then early in July again accepted the yearlings.

This sort of behaviour is under strong hormonal control and hormone levels change markedly when a sow comes into and then goes out of heat.

CONCLUSIONS AND RECOMMENDATIONS

Many of the bears of Crater Lake National Park have formed a strong habit of eating human garbage. While the availability of garbage may have resulted in a slight population increase from pre-Park levels I do not believe early estimates that black bear were almost non-existent in the area (see Walters, 1953). Black bear are shy and secretive, normally avoiding detection. Only when drawn by human food or garbage do they become easily seen.

There is little doubt that the campground bear problem in Crater Lake is tied to the availability of garbage at the dump. At the dump bears learn that garbage odors mean food and they encounter these same (or more attractive) odors in campgrounds.

The campground problem will be solved when a future population of bears do not feed on garbage at the dump. Only rarely will a bear then enter a campground. The bear proof garbage cans will discourage this. Property damage will be much less as bears will not be linked to human food sources. Bears will also be much shyer. Those members of the population strongly linked to human food sources will probably have to be removed. This measure would ultimately be for the good of the bear population.

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It is a common belief in the Park Service that people want to see bears, even if this means the bears are in campgrounds or at dumps. A survey conducted by the Christian Science Monitor definitely showed that this was untrue. They found that people would prefer to see bears --- albeit many fewer --- existing without addiction to man's food (1968).

It is nothing new to recommend the abolition of open dumping in the park. Joseph Dixon did this as early as 1944 (Dixon, 1944).

This paper is therefore only a reminder; however it comes at a time when man is showing an increasing and frightening tendency to pollute his environment. If the garbage problem cannot be solved within National Parks, then what hope is there for the rest of the country?

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REFERENCES

Christian Science Monitor. Will Success Spoil the National Parks. Published by the Christian Science Publishing Society, 1968.

Jonkel, Charles J. Black Bear Population Studies. Job completion final report for State of Montana, 1967.

Walters, Roland D. Observations and Census of the Black Bear in Crater Lake National Park. Nature Notes from Crater Lake XIX: 26-28, 1953.

Number 3 cigs black Scar. Not. notch at top of ~~left~~ right ear.
Taken near Munson Dump.

photo S. Herrera
T.I. 1969

~~Agonistic~~ interactions often occurred in the narrow and confined dumping pit.
Antagonistic

photo
S. Herrero
July 1969