

EVALUATION OF BEAR MANAGEMENT
IN YELLOWSTONE NATIONAL PARK, 1977

The bear management evaluation for 1976 pointed out that the bear monitoring system and the management response must continue at a high level of effort as an integral part of park operations. This was termed a maintenance program--aimed at preventing problems through continuing efforts to deny sources of human foods to bears, coupled with education and law enforcement.

Tables 1-7 summarize bear management activities for 1977. Comparisons with past years are included. This was a dry year, with potential for a much higher level of bear problems. Sightings of black bears in developments increased, but comparable grizzly bear sightings decreased. The anticipated level of problems, considering the potential, did not materialize. Accordingly, this might be termed a fairly successful year for bear management.

The statistics do not fairly reflect the spectrum of problems which became apparent during this year's program. A preventive program is the most difficult to maintain at a high level of efficiency. We had believed that an efficient monitoring system (Appendix I) was the main key to operational success. Such a system is crucial, as are proper funding and adequate numbers of carefully selected personnel for all the facets necessary to bear management.

Even more crucial however, is employee attitude. Bear management cannot function without an information system, money and personnel, but even with these things it will not function properly with the kinds of attitudes expressed in the management problems of 1977. These attitudes may be divided into three categories: 1. inadequate and careless operational mechanics; 2. a tolerance for a build-up of a moderate level of bear problems; and 3. an insistence on repetitive moves of problem bears.

Operational mechanics could be most easily remedied. With the number of personnel changes which have taken place in the last few years a full scale training program in handling procedures seems indicated. Drug use, proper use of all equipment including traps and firearms, back-up procedures and proper care and holding of bears all need to be covered. Thoroughness of preparation should be stressed. Case Incidents are generally grossly deficient in information relative to need for a control action, summary of incidents which may relate to a particular bear, and details of bear behavior (to the extent these aspects are known).

Tolerance for a moderate level of bear problems does not seem widespread but it has occurred among key personnel. This attitude contributed to the situations at the Gardiner dump and the Grebe Lake landfill. The level of grizzly bear activity at the Gardiner dump (three family groups, estimate a dozen bears total) indicates this was a problem which has been building up for at least two seasons. (This dump was not maintained nor routinely

monitored by park personnel although the site was on park land.) Likewise, bears (two families of grizzlies, two black) had managed to enter the Grebe Lake landfill over a period of three weeks. A number of park employees were aware of the situation and were visiting the area to watch the bears. Yet notification of personnel who would ensure the situation was remedied was delayed.

Repetitive moves of problem black bears contributed to the 245% increase in sightings of black bears in developments. It is sometimes difficult to fairly decide at what point to destroy a problem bear rather than try another translocation. It is much more difficult to decide to destroy a bear, not just because of its known record, but because of what that record indicates about the bear's potential. Once a bear is clearly a development bear it seems to be only a matter of time until property damages and sometimes personal injuries occur. The timing and specific details of trouble cannot be precisely foretold, but the fact that this will happen is predictable. Appendix II contains case histories from both 1976 and 1977 which illustrate this. A bear can change in the interim between one translocation and the next from a seemingly innocuous black bear to a very destructive and dangerous animal. All personnel need to clearly realize this. (It should be noted that black bears were not marked with eartags until the middle of the 1976 season; it is still quite possible that an unmarked bear is a very experienced bear.)

Aside from the destructive and dangerous potential of what is clearly a bear habituated to developments, there is also the very real potential for the escalation of problems as bears learn from each other. Ultimately more bears will have to be destroyed than if the problem bear is removed once it is clearly recognized as an experienced "hooked" bear. Overprotection of individual bears through repetitive translocations is a great disservice to the bear population. The concern for individual bear welfare on the part of both our employees and the public is genuine, but misplaced.

Ultimately the question of the coexistence of bears and people in Yellowstone must be addressed. This coexistence will be successful if we are unable to detect either behavioral or numerical changes in either black or grizzly bear populations which can be attributed to human influence. In addition to the informational needs indicated in last year's report, it is obvious that proper bear management is basic. Of equal importance is people management, with particular emphasis on back country use. This is a question which is many faceted, and will not be explored further in this season's evaluation.

Future evaluations of bear management and compilation of annual statistics will properly become the function of the Resource Management Office. The monitoring system which has been maintained by the Research Office has been refined to the point where it will also be handled by Resource Management. Next year will mark the beginning of the use of a computer system for storage and retrieval of bear information; this will be developed by the Research Office and run concurrently with the manual system until fully operational. By the end of next season this too will be entirely the function of Resource Management. The Research Office will be available for consultation as requested, and will continue to be involved with research aspects as necessary.

This evaluation would not be complete without the acknowledgement of the contributions made over a period of years by many park employees. The level to which bear management has progressed is because of these people.

Table 1.--Numbers of injuries to humans from grizzly bears by periods and year, Yellowstone National Park, 1930-1977.^a

Years	<u>No. grizzly-caused injuries per year</u>		No. of visitors per injury
	Developed area	Backcountry	
1930's	0.6 (0-3)	0	800,000
1940's	1.2 (0-7)	0	600,000
1950's	0.6 (0-2)	0	2,700,000
1960's	3.6 (1-8)	0.3 (0-2)	500,000
1970	2	1	700,000
1971	0	0	0
1972	1	1	1,000,000
1973	0	0	0
1974	0	0	0
1975	0	2	1,000,000
1976	2	2	600,000
1977	0	1	2,500,000

^a Data 1930-1975 from Cole, 1976.

Table 2.--Records of grizzly bear control actions in developed areas, Yellowstone National Park, 1968-1977.^a

	Control actions ^b									
	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
Old Faithful Canyon	1	0	22	1	0	0	1	0	3	3
Lake Outlet	14	16	9	11	10	3	6	0	0	0
Bridge Bay	16	25	11	20	13	4	5	0	10	3
Grant Village	8	9	0	1	3	3	2	0	1	2
Eleven other units	20	5	15	5	0	0	0	0	0	0
Total control actions	0	2	13	1	0	0	0	0	1	1
Total control actions	59	57	70	39	26	10	14	0	15	9
No. different bears	?	?	50	33	21	7	11	0	9	7
Pct. successful transplants	33		60	80	74	70	77	0	57	77
No. bears destroyed	5 ^c (3)	10 (5)	12 (6)	6 (2)	6 (4)	0	2 (1)	0	1	1 (1)
No. bears to zoos	0	0	8	0	1	0	0	0	0	0

^a Data 1930-1976 from Cole, 1976.

^b Numbers of times a bear was captured for transplanting, shipped to a zoo, or destroyed.

^c Yearly totals with number that were unintentional because bears charged personnel, came out of drug effects during handling, injured themselves in traps, or failed to recover from drugs shown in parentheses.

Table 3.--Numbers of grizzlies removed by park and state control programs and other known kills of marked and unmarked bears in adjacent state areas, 1970-1977. ^a

Year	Removals due to control programs		Killed by vehicles or other man-caused kills	Other known kills ^b			Yearly totals
	Park	Mont.		Wyo.	Mont.	Idaho	
1970	20	0	2	12(1)	7(1)	7(1)	48
1971	6	14	1	12	6(3)	5	44
1972	9	2	1	7	0	4	23
1973	0	1	0	7(1)	2	3	13
1974	2	1	0	10(3)	1	0	14
1975	0	0	0	0	0	0	0
1976	1	0	0	2	1	0	4
1977	1	1	3	3	1	2(1)	11
Totals	39	19	7	53	18	21	157

^a Data 1930-1975 from Cole, 1976.

^b Legal and illegal kills from hunting or to protect livestock or property with those marked inside Yellowstone National Park prior to or since 1970 in parentheses.

Table 4.--Numbers and ratios of female grizzlies and young seen in different family groups in and adjacent (1 mi) to Yellowstone National Park during a 1959-1966 period and subsequent years.^a

Years	Numbers			Numbers			Pct. cubs surviving to yearling age
	Females	Cubs	Ratios	Females	Yearlings	Ratios	
1959-66 avg.	15	33	2.2	15	20	1.3	61
1972	11	22	2.0	9	18	2.0	?
1973	15	27	1.8	16	24	1.5	75
1974	14	22	1.6	16	27	1.7	93
1975	5	7	1.4	5	7	1.4	89
1976 ^b	15	30	2.0	4	8	2.0	-
1977 ^c	5	10	2.0	9	15	1.7	-

^a Data 1930-1975 from Cole, 1976.

^b From Knight (per.comm.,1976), with 16 females and 32 cubs, and 5 females with 9 yearlings reported in the overall study area.

^c Knight (per.comm.,1977) uses 9 females with 17 cubs, ratio 1.9 for study area, no change in female-yearling figures. Based on increased knowledge of bear movements from radio tracking data it was more difficult to be certain of unduplicated female sightings.

Note: This table will be dropped in future years; Interagency Grizzly Bear Study Team annual reports will provide such data as available.

Table 5.--Park records on the numbers of human injuries caused by black bears and the number of bears transplanted and destroyed 1931-69 and from 1970 to 1977.^a

Years	No. injuries to visitors	No. captures and transplants	No. black bears killed ^b
1931-69	45 ave./yr.	--	24 ave./yr.
1970	7	19	7 (1)
1971	9	15	4 (2)
1972	5	34	11 (3)
1973	5	13	3 (0)
1974	7	11	3 (2)
1975	1	5	1 (1)
1976	4	13	4 (1)
1977	2	15	7 (3)

^a Data 1930-1975 from Cole, 1976.

^b Includes bears killed by human actions, mainly cars, which are shown in parentheses for 1970-1977.

Table 6.--Yearly totals of the numbers of grizzly bears observed on a daily basis in developed areas and in the wild within Yellowstone National Park, 1970-1977.^a

	1970	1971	1972	1973	1974	1975	1976	1977
No. in Devel.	178	146	105	54	26	5	65	45 ^c
No. in Wild	614	320	349	348	426	216	331 (453) ^b	528

^a Data 1970-1975 from Cole, 1976.

^b Figure in parentheses was used in 1976 report, included 122 radio locations which were not seen; for yearly comparisons to be valid sightings and radio locations have been separated.

^c Final weekly report shows 86 development sightings; these included 41 sightings as a result of monitoring the Gardiner dump situation.

Table 7.--Yearly totals of the numbers of black bears observed on a daily basis in developed areas and in the wild within Yellowstone National Park, 1975-1977.^a

	1975	1976	1977
No. in Devel.	57	60	147
No. in Wild	347	441	499

^a No comparable data available prior to 1975.

Bear Monitoring System

The enclosed diagram presents the framework on which our bear sighting information is intended to flow. The hub of our communication network is the Communication Center, as it is operative each day for 24 hours during the summer season.

1. During spring orientation, National Park Service and concession personnel are encouraged to fill out Bear Sighting Reports from their own observations, as well as for those described to them by visitors. All such reports are to be telephoned or radioed to the Comm. Center as soon as possible. Any bear incidents (confrontations, damages, injuries, trap and transplant operations, deaths of bears, etc.) are also reported to the Comm. Center immediately. In addition, the Comm. Center logs all radio transmissions concerning bear activities and notifies authorities, if necessary.

Observations and radio locations made by the Interagency Grizzly Bear Study Team during flights are sent directly to the Biologists' Office, who, in turn, fill out bear sighting or radio location forms for each flight report and route them through the Comm. Center in the normal manner.

2. As soon as possible, Comm. Center personnel telephone each subdistrict ranger with notification of bear sightings in his area. As these rangers have the responsibility for visitor safety, this supplies them with the most immediate possible information. The Comm. Center also notifies the Resource Management Spec. or Chief Ranger of any bear incidents as soon as possible.

3. To complete the processing of information, Biologist's Office personnel then collect the reports from the Comm. Center, pin each observation on a bear monitoring map (black, unknown, or grizzly), file all reports, and send duplicate copies to District Rangers to inform them of observation patterns within their districts. Duplicate copies of all grizzly sightings are sent to the Interagency Grizzly Bear Study Team for their use.

Report information is further processed by grouping family observations and observations in major ecological areas. This gives us some means of searching for immediate patterns of distribution, as well as providing year to year comparisons. Maps are photographed at the end of each season to provide a record of distribution by year.

In addition, Biologists' Office personnel prepare and circulate a weekly report designed to show progressive levels of bear observations and activities

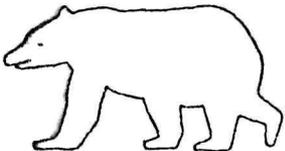
on a district-wide basis. This report is sent to administrative personnel in Yellowstone, the Rocky Mountain Regional Office, and the Washington Office.

Thus, the system is designed to:

1. Receive bear observation and incident information from as many sources as possible.
2. Collect information centrally.
3. Relay information promptly to the proper personnel for action, if necessary.
4. Establish permanent records in the form of observation records and maps.

I. Sighted by _____ Address _____
 II. Sighting date _____ Time _____
 III. Sighting location _____
 (check one) Within development^{1/} _____ Along road _____ In the wild _____

IV. Description of bear(s):

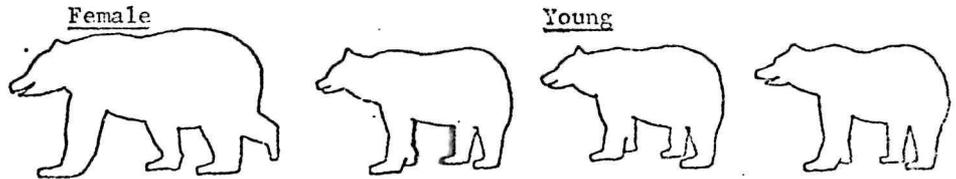
A. Species: As reported As verified by^{2/} _____
 Grizzly  
 Black
 Unknown

B. Number of bears seen by size and coat color:
 (also describe any identifying ear tags or markers)

Predominant coat color: _____ Weight in pounds^{3/} _____

	10-50	50-100	100-200	200-400	Over 400
1 - black					
2 - reddish-brown					
3 - gray					
4 - dark brown (chocolate)					
5 - light brown (tan)					
6 - blonde (white-yellow)					
7 -					

C. Diagram coat color pattern of female/young groups only, using colors 1 to 7 above.



D. Activities of bear(s): Preying on _____ Scavenging on _____
 Digging _____ Grazing _____ Other _____
 See Case Incident Record No. _____^{4/}

V. Report filled out by _____
 at (location) _____ on (date/time) _____
 Notified Com. Center (date/time) _____
 Rec'd. in Com. Center by _____ (date/time) _____
 Notified (date/time):
 Subdist. Ofc. _____ Biologists Ofc. _____
 Dist. Ofc. _____ Griz. Bear Team _____

1/ Overnight or day-use facilities for people, accessible by vehicle.
 2/ Corrected where description by observer is not adequate to identify bear species, or indicates a different species from that reported.
 3/ Cubs-of-year are usually less than 1/4 of female size, or 10-50 lbs; Yearlings, 1/4-1/2 of female size, or 50-100 lbs. 2-year-olds, 1/2-3/4 of female size, or 100-200 lbs. Small adult bears are 100-200 lbs; medium adults, 200-400 lbs; large adults, 400+ lbs.
 4/ Refer to Case Incident Record No. if bear is involved in control action or other incidents.

YELLOWSTONE NATIONAL PARK
RESOURCES MANAGEMENT OFFICE

WEEKLY CUMULATIVE BEAR REPORT AS OF _____

District	Backcountry Injuries			Other Injuries			Damage Cases			Backcountry Observations			Development Observations		
	Black	Grizzly	Unk	Black	Grizzly	Unk	Black	Grizzly	Unk	Black	Grizzly	Unk	Black	Grizzly	Unk
North															
South															
West															
Total															

District	Confrontations		Trap and Transplant		Management Kills		Accidental Drug O.D.:s		Vehicle Kills		Sent to Zoos		Natural Death	
	Black	Grizzly	Black	Grizzly	Black	Grizzly	Black	Grizzly	Black	Grizzly	Black	Grizzly	Black	Grizzly
North														
South														
West														
Total														

Citations for bear feeding _____ Improper Food Storage _____

Remarks: _____

- cc: Superintendent
 Asst. Supts. - OPR and SS
 Supv. Res. Biologist
 Res. Mgmt. Spec.
 Chief Ranger
 District Ranger: N, S, W
 Chief Naturalist
 District Naturalist: N, S, W
 Chief Scientist, RMRO
 Chief Scientist, WASO
 Mammoth Sub-District

○ Indicates change of figure from previous week.

Appendix II

Known Histories of Five Problem Black Bears

Black Bear, #7732

Date:	Trapped:	Translocated To:	Comments:
7/25/77	Lake	Divide Lake	Case Incident contains no details of bear activity for which trap set; there are no other apparently relevant Case Incidents prior to T & T.
7/31/77	Indian Cr.	Lamar	Case Incident (CI) 77-1501 contains details of cooler damage; bear entered an open van in the daytime (9 AM).
8/7/77	Canyon	Lewis River	Case Incident notes scavenging garbage; bear in area for three previous nights.
8/17/77	Lake	DESTROYED	

Elapsed time between moves plus daytime activity indicate a confirmed development bear after two moves.

Black Bear, #7733

Date:	Trapped:	Translocated To:	Comments:
8/1/77	Lake	Lewis River	Case Incident does not link bear to specific activity nor reason for trap set.
8/17/77	Lake	Divide Lake	Case Incident does not link bear to specific activity nor reason for trap set.
8/31/77	Lake	Shoshone Cr.	Case Incident notes this bear dismantling door to garbage room 8/30.

Black Bear, #7733, Continued.

Date:	Trapped:	Translocated To:	Comments:
9/12/77	Lake	Lewis River	Case Incident notes raid on smoker 9/8.
9/17/77			Positive identification in Bridge Bay Campground,
9/19/77			In Bridge Bay Campground--noted as resembling grizzly.
9/20/77			Inside Lake Fire Cache--noted as resembling grizzly, "Not easily spooked".
9/22/77	Lake	DESTROYED	Case Incident links bear to one major personal injury 9/21, notes seen frequently in area past three nights, referenced to as "our bear" by employees. Being fed.

Record indicates confirmed development bear by mid-August with strong ties to immediate Lake area.

Black Bear, #7734

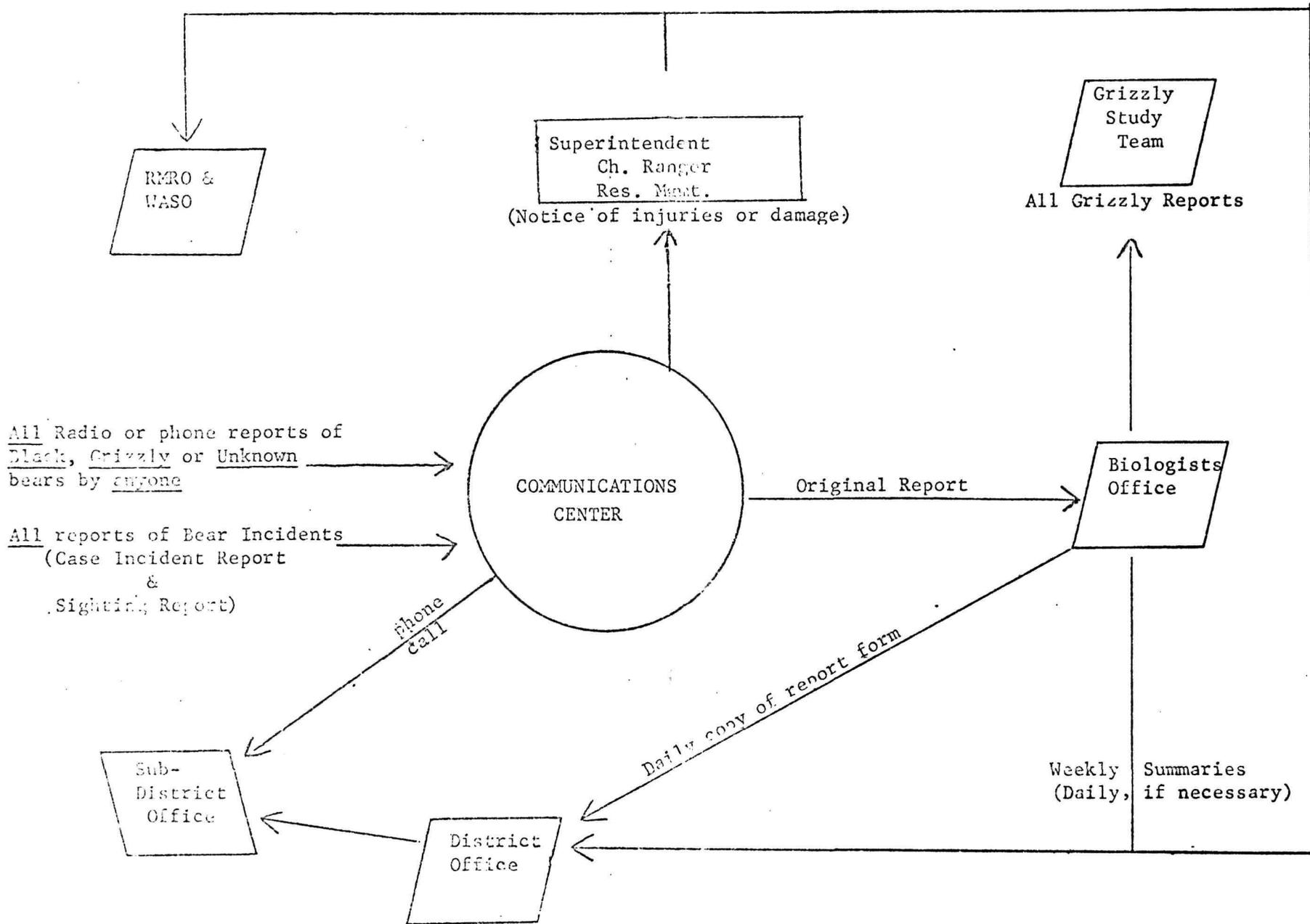
Date:	Trapped:	Translocated To:	Comments:
8/13/77			CI 77-1789 notes early AM in Fishing Bridge RV Park a medium size black bear seen three times--not easy to scare off.
8/14/77	Fishing Bridge	Divide Lake	CI 77-1816 links this bear to property damage in FBRV Park on 8/13; bear description suggests same bear as CI 77-1789.
8/17/77	Tower	Warm Creek	CI 77-1941 indicates bear in campground during daytime, doing damage. CI 77-2070 quotes verbal comments relative to boldness and agressiveness and consideration to destroy at this stage.

Bear Monitoring System
Yellowstone National Park

- I. Bear Sighting Report taken by Visitor Center or Ranger Station.
 - report all bear sightings (black, grizzly, and unknown)
 - report all bear incidents (confrontations, damages, injuries, trap and transplants, deaths of bears, etc.) with a Bear Sighting Report and a Case Incident Report
- II. Visitor Center or Ranger Station calls Bear Sighting Report into Comm Center--as soon as possible.
 - patrol people are to radio in all bear sightings to the Comm Center which will make out a Bear Sighting Report
 - Comm Center will monitor and log-in all radio transmissions concerning bear activities--follow-up Sighting Reports will be obtained.
- III. Comm Center notifies Sub-district by phone--as soon as possible.
- IV. Comm Center notifies Res. Mgmt. Spec. or Chief Ranger of any bear incidents--as soon as possible.
- V. Comm Center notifies Biologists' Office with original Bear Sighting Report.
 - duplicate copies of Sighting Report will not be kept in Comm Center
- VI. Biologists' Office routes copy of Sighting Report to District Office to eventually end up at Sub-district.
- VII. Biologists' Office routes copy of grizzly Sighting Reports to Interagency Grizzly Bear Study Team.
- VIII. Biologists' Office pins monitoring maps and files report.
- IX. Biologists' Office compiles Weekly Summary (Daily, if necessary) to go to: Supt., Asst. Supt. OPR, Asst. Supt. SS, Supv. Res. Biologist, Res. Mgmt. Spec., Chief Ranger, District Rangers, Chief Naturalist, District Naturalists, Chief Scientist-RMR, Chief Scientist-WASO.

Any suggestions about changes in this system should be taken up with the Biologists' Office for possible implementation into the system.

FLOW SHEET-- Bear Monitoring System



Black Bear, #7734, Continued.

Date:	Trapped:	Translocated To:	Comments:
8/20/77			Seen in Fishing Bridge area.
8/22/77	Fishing Bridge	Lewis River Divide	Case Incident does not link bear to specific damages or previous record except T & T.
8/23/77			Raiding back country campsite.
8/25-27/77			Nine assorted incidents at Shoshone Lake of raiding and/or aggressive behavior. CI 77-2070 contains reference to an interim decision "to do nothing except watch and wait unless there are further incidents or some other reason to believe the bear constitutes a danger". This assessment was made after the bear had treed one camper 3 times and committed 6 of the above mentioned 9 incidents.
8/27/77	Lewis River	DESTROYED	CI 77-2070 with a very complete synopsis of bear's record; bear shot.

Lag time on moves and return to development is so short as to suggest prior experience predating policy of marking black bears. Behavior in Tower campground and earlier in Fishing Bridge also suggest considerable prior experience in previous years.

Black Bear, #7735

Date:	Trapped:	Translocated To:	Comments:
8/18/77			CI 77-1939 reports aggressive black bear at Fishing Bridge chased man with dog. (Office note: could not have been #7734 because of time element.)

Black Bear, #7735, Continued.

Date:	Trapped:	Translocated:	Comments:
8/19/77			Dog killed at Fishing Bridge and personal injury (child bitten by bear); both in daylight. (Office note: marginal likelihood #7734 because of time element.) Attempts to drug an unmarked bear this date noted in subsequent Case Incident.
8/20/77	Fishing Bridge	Soda Butte	Unmarked bear drugged and placed in trap. Marked #7735.
8/31/77	Fishing Bridge	DESTROYED	Another dog killed in daylight; bear shot.

Circumstantially, the time elements involved strongly suggest that this particular bear (#7735) is linked to all incidents listed although #7734 was in the area by 8/20. The Case Incidents do not reflect the opinions expressed prior to the first transplant by some personnel involved that this was indeed the bear responsible for the killing of the dog and injury to the child. No inexperienced bear enters a campground in daylight and behaves in this manner. There are no reports or Case Incidents to suggest a buildup of activity and learning on the part of an inexperienced bear in this area prior to 8/18.

Black Bear, #7267

Date:	Trapped:	Translocated To:	Comments:
9/17/76	Madison	Divide Lake	Case Incident traces known presence of bear in campground; does not link bear to damages nor comment on behavior.
9/22/76			Returned to Madison Campground.
9/24/76	Madison	Pebble Cr.	Case Incident does not link bear to damages nor comment on behavior.
10/5/76			Returned to Madison Campground and did 7 property damages in one night.
10/7/76	Madison	DESTROYED	