

MELVIN M. PAYNE
CHAIRMAN
EDWIN W. SNIDER
SECRETARY

National Geographic Society
COMMITTEE FOR RESEARCH AND EXPLORATION
WASHINGTON, D. C. 20036

March 8, 1978

Dr. Frank Craighead
Moose
Whoming 83001

Dear Frank:

Your name has been submitted to us as a referee by an applicant for a research grant from the National Geographic Society. I am enclosing materials pertaining to this grant application.

Our Committee for Research and Exploration will be very grateful if you would appraise this proposal and give us the benefit of your comments on the enclosed evaluation form. A return envelope is provided for your convenience.

Our Committee meets almost every month, so we would appreciate an early reply. I know that your advice will be very helpful to the Committee in deciding whether or not to recommend this grant.

Sincerely,



Edwin W. Snider

EWS:hc
Enclosures

(76)

9✓

Name of Applicant: CLARK, Timothy William
Last First Middle
Department of Biology, Idaho State University, Pocatello, ID 83209
Address and telephone number (including area code)
(208) 236-3765: Box 2705, Jackson, Wy. 83001 (307) 733-6856

Date: February 17, 1978

Return to:

Committee for Research and Exploration
National Geographic Society
17th and M Streets, N.W.
Washington, D. C. 20036

Applications must be typewritten within the margins on one side of page only with heavily inked ribbon. The application must be limited to these seven pages. If additional materials are essential to a full understanding of the project, they may be attached and will be kept in the office of the Committee Secretary where they may be consulted by Committee members.

1. Project title (ten words or less):

STATUS OF GRIZZLY BEARS IN TETON WILDERNESS WYOMING

a. Under what major field of science do you classify this project? Zoology (Ecology-Conservation)

b. Funds requested from National Geographic Society (U.S.A. currency) \$ 4,965.00

c. Expected duration of the project. (Specify dates of field and laboratory study).

1 June--31 December, 1978 (6 months)

d. Location of field work _____

e. Abstract of Proposed Research.

Grizzly bears are currently classed as "threatened" in the 48 conterminous states by the U.S. Fish and Wildlife Service. Because of the bears symbolic and scientific value, as well as its economic worth, intense conflicts about it and its future have arisen. The many diverse values attached to grizzlies might best be served by more intensive management. The success and finesse of such efforts will depend, in part, upon greater knowledge of the species' ecology. Since dump closures in Yellowstone, Dr. F. Craighead has suggested that bear numbers are increasing in outlying wilderness areas (Craighead hypothesis). Little is known of the bear's status or ecology in the proposed study area (Teton Wilderness).

The study proposed is an extension of our work in 1977. We covered 775 mi on horseback and 375 mi on foot in Teton Wilderness searching for sight and sign of bears.

We found 107 types of bear evidence in our 1977 survey. We also attempted a "minimum number" estimate of the population; it was 44. At least one more years data is needed for comparative purposes.

Specific objectives are: (1) gather first-hand information on bear status, (2) solicit data from outfitters, and other and follow up on their reports, and (3) collect scats for diet items.

We will note and photograph all tracks, scats, beds, and other signs encountered, and compile data on the ecological context of each. Plaster casts will be made of tracks. The study will be conducted from 1 June-31 December, 1978.

Name of Applicant: Tim W. Clark

2. Biographical information and qualifications of the applicant:
(In addition, please attach curriculum vitae for committee files)

See attached Curriculum Vitae

a. Present position (institution and rank):

Research Associate-Biology Dept., Idaho State University, Pocatello, Idaho 83209

b. Place and date of birth:

Muskogee, Oklahoma; October 23, 1942

c. Education and degrees with institutions and dates:

B.S. Northeastern State College, Tahlequah, Okla. 1964

M.S. University of Wyoming, Laramie, Wyo. 1968

Ph.D. University of Wisconsin, Madison, Wis. 1973

also attended: Univ. Neb., Utah St. Univ., Okla. St. Univ.

d. Special qualifications of applicant for proposed research (experience, languages, etc.):

10 years of field studies in ecology and animal behavior. Extensive work in northwestern Wyoming including research on grizzly bears, as well as other carnivores, ungulates, rodents, insectivores, and primates. Successful record of close working relationship with project associates and governmental agencies. 50 scientific publications and 15 popular from this work. Experienced horseman, back country camper and packer.

If others are to participate in this project, please give the same biographical information and qualifications for each person in the space below:

John Hoak, Born Pittsburg, PA; June 17, 1951

B.S. Allegheny College, Meadville, PA (Biology), also attended part time Duquesne Univ. and Univ. Pittsburgh. Academic Honors include: Honors English, Duquesne Univ., 1970. Alden Scholar, Allegheny College 1975-76. Teaching Assist. Geol. I. Member of numerous conservation organizations. Extensive back country experience in Rocky Mountains, Sierras, New York, Maine, Idaho, Manitoba. Will enter Master's program in Biology at ISU fall 1978. Field experience in aquatic invertebrates, 1977 grizzly bear survey in Teton Wilderness, and pine marten behavioral ecology in Grand Teton National Park.

I met Mr. Hoak in a field seminar I was teaching throughout the Yellowstone Institute in YNP in the summer of 1977. He immediately impressed me with his maturity, experience, responsibility, and academic knowledge. I invited him to join my research that summer-winter on grizzly bears and pine martens. He performed extremely well. On this basis I have invited him to join the 1978 grizzly bear study and will take him on as a graduate student.

Name of Applicant: Tim W. Clark

3. Books and papers published by the applicant and others who will participate in the proposed research. (A statement such as the following is satisfactory: I have published ____ books and 65 articles (give number), but only the following are on topics directly related to the proposed research.) (Please attach complete bibliography for committee files.)
- 1965 Mammals of Boiling Springs State Park, Woodward Co., Okla. Proc. Okla. Acad. Sci. 46:36-39.
 - 1967 The life-form concept and mule deer habitat. Proc. Okla. Acad. Sci. 48:23-26.
 - 1968 Ecological roles of prairie dogs. Wyo. Range Mgmt. 261:102-107.
 - 1969 Postnatal development and growth of the golden mantled ground squirrel (Spermophilus l. lateralis) J. Mammal. 59:617-628.
 - 1970 Cynomys leucurus: white-tailed prairie dog. Mammalian Species, 7:1-4.
 - 1971 Ecology of the western jumping mouse in Grand Teton National Park, Wyoming. Northwest Sci. 45:229-238.
 - 1972 An ecological survey of the mammals of North Central Wisconsin. Univ. Wisconsin, Stevens Pt., Mus. Nat. Hist., Faunal and Floral Rept. No. 3:1-37.
 - 1973 Local distribution and interspecies interaction in microtines, Grand Teton National Park, Wyoming. Great Basin Nat. 33:205-217.
 - 1974 On the relationship of behavioral evolution and ecology in some ground dwelling sciurids (Cynomys spp.) (Rodentia). Paper presented at First Internat. Theriological Congress, Moscow, USSR June, 1974.
 - 1974 Transplantation and adaptation of Arashiyama A troop of Japanese macaques to a Texas brushland habitat. Paper presented at Fifth congress of Internat. Primatological Soc. Nagoya, Japan Aug. 1974 (with T. Mano).
 - 1975 The black-footed ferret. Oryx 11:275-280.
 - 1975 Black-footed ferrets, prairie dogs, and their use by paleo-Indians and ethnographically known tribes. Plains Anthropol. 20-67:71-74.
 - 1978 Status of the rare black-footed ferret in Wyoming. Nat. Geogr. Soc. Res. Repts. In Press.
 - 1978 The ecology and ethology of the white-tailed prairie dog, Cynomys leucurus. Milwaukee Publ. Mus. Mong. Mongs. Ser. 215 p. In Press.
 - 1978 Preliminary mammal survey of Fossil Butte National Monument, Wyoming. Great Basin Nat. In Press.
 - 1978 Analysis of the journal literature on Wyoming mammals. NW Sci. In Press (with D. Carey).
 - 1978 Agonistic behavior in a transplanted troop of Japanese macaques: (Arashiyama West). Primater. In Press.
 - 1978 Status of grizzly bears in Teton Wilderness, Wyoming, 1977. NW Sci. Submitted (with J. Hoak, J. Weaver, M. Wells).
 - 1978 Ecology of Jackson Hole, Wyoming. Book-Univ. Neb. Press - in preparation - will be publ. in July 1978.
 - 1978 Vertebrates of Yellowstone and Grand Teton National Parks, Wyoming. In preparation (book).

4. Method of publication of scientific results of proposed study:
- Technical information will be disseminated through scientific journals and at meetings. The public will be informed through articles such as Wyoming Wildlife and newspapers.

Name of Applicant: Tim W. Clark

5. Budget

a. Total budget for the project: \$ 54,965.00

If funds have been requested from other sources, attach budgets. Contributions from investigator's home institution should be listed under Item 6.

b. Amount requested from National Geographic in U.S.A. currency: \$ 4,965.00

c. Budget for funds requested from National Geographic Society. Please specify: e.g., equipment, assistants, field work, travel, services, supplies, etc. The Committee requires that budget items be given with precision and in detail. Two columns may be used. Include on pages 6-7 justification for any items that are not clear. (IMPORTANT: No charge for overhead is allowed. If any capital items are purchased with Society funds, the items or their salvage value are to be returned to the Society upon completion of the project.)

Living Expense

TWC (PI)	\$1,000.00
JHH (FA)	2,400.00

Travel

2000 mi x .15¢	300.00
horse rented	800.00
@ \$4/day x 200	

Equipment and Supplies

horse food	75.00
food stock for cabins	150.00
plaster	30.00
film 20 rolls	110.00
@ \$5.50/roll	

Contingencies

	100.00
Total	\$4,965.00 ✓

d. Person or institution (with address) to whom payment should be made:

Dr. Tim W. Clark, Biology Department, I.S.U., Pocatello, ID 83209

e. Schedule of payments desired:

total payment - 1 June, 1978

Before the application is considered, the Society must be informed that all necessary permits for field work (collecting or excavating) and laboratory, museum, or library study have been obtained; and that if foreign travel is involved, the participants have valid passports and required visas.

None required, but the project is being undertaken with full support of Wyo. Game and Fish Dept. and U.S. Forest Service.

Name of Applicant: Tim W. Clark

6. Amount and nature of institutional or other contributions toward this work. (If you are receiving no aid on this project from a university or other organization, or other individual, please explain):

Idaho State University will supply calculators, computers, office space, library facilities, microscopes, and technical assistance. Consultation and other professional services are also available. A strong working relationship is maintained with other departments (e.g., statistics, computing, and mathematics) on campus. In addition, colleagues near to the study site are also available for consultation (Univ. Wyoming, Colo. St. Univ., and biologists in Grand Teton National Park).

7. Previous grants (date, source and amount) received for this work, grants now available, or applications to other organizations which are now pending. State whether they are alternative to your request to the Society. If another request for a grant is made after this proposal is sent to the Society, please notify the Society at once.

U.S. Forest Service (Bridger - Teton Nat. For.)
1977 - \$2,500 (Mr. George Gruell, Wildlife Biologist)

8. Previous grants from the National Geographic Society for any project. (List project title, date and amount.)

Black-footed Ferret - 1973-74 (8 mo.) \$3,734 ✓
in Wyoming 1977 (8 mo.) \$4,775 ✓
Pine Martens in
Grand Teton Nat. - 1975 (4 mo.) \$3,199 ✓
Park, Wyoming 1975-76 (12 mo) \$6,619 ✓

9. Names and addresses of at least three individuals competent to pass judgment upon your qualifications and/or your project. (Note: The Society will get in touch with your referees. In addition, the Committee has its own sources of information, and the referees you suggest may or may not be consulted.)

✓ Dr. J. T. Emlen, Professor Zoology, Univ. Wisc., Madison 53706 (may be out of country)
✓ Dr. D. P. Streubel, Assoc. Professor Biology, U.S.U., Pocatello, ID 83209
✓ Dr. F. Craighead, Moose, Wyo. 83001
✓ Mr. G. Roby, Wildlife Biologist, Wyo. Game and Fish Dept., Jackson, Wyo. 83001
✓ Mr. G. Gruell, Wildlife Biologist, U.S. Forest Service, Jackson, Wyo. 83001

10. If the grant requested here is approved, the applicant pledges himself to present a preliminary report on the project to the National Geographic Society on 1 March 1979 (give date) and a final formal report on 1 June 1979 (give date). The final report is to include an abstract suitable for publication in the Society's Research Reports and a one-page summary.

Signature: Tim W. Clark

Typed name: Tim W. Clark

Name of Applicant: Tim W. Clark

Describe the proposed research in some detail on pages six and seven. Relate what you propose to do to previous and current work on the subject by yourself or others. (Cite references to published work.) Include a description of any special techniques that will be used.

Since the alteration in bear management practices in Yellowstone National Park (garbage dump closures), it is believed by Dr. Frank Craighead that grizzly bear numbers are increasing in areas outlying to Yellowstone, such as Teton Wilderness (Craighead Hypothesis). Moreover the closure of grizzly bear hunting in Wyoming may also be affecting bear population characteristics. However, little is actually known of grizzly bear status in the Wilderness. It is necessary to obtain a sound knowledge of their distribution and abundance in the Wilderness not only for evaluating the Craighead hypothesis and possible inclusion of the region in the US Fish and Wildlife Service's critical habitat proposal, but also for providing further insight into the effects of current bear management activities within the Yellowstone Ecosystem.

The study proposed here is an extension of work we did in 1977. This will allow a greater data base to interpret our 1977 results more completely and help test the Craighead hypotheses given above. Specifically, we will gather: (1) first-hand information on bear distribution and abundance, (2) solicit information from outfitters, guides, and other wilderness users on grizzly bears and follow-up on their reports where possible, and (3) collect and analyze scats for diet items.

Teton Wilderness (885 sq mi), the proposed study area, is located in northwestern Wyoming and borders Yellowstone on the south and east. Our 1977 effort consisted on 17 trips (3-15 days long) and covered about 1150 miles of trails and off-trail surveys. We gathered 107 types of grizzly bear evidence, 38% sightings, 19% scats, 40% tracks, and 3% beds/dens. We attempted an estimate of bear numbers, even though our methods have obvious limitations. We tallied 15 single bears and 10 groups for a minimum population estimate of 43 grizzlies. The 20 young and 9 sows give a ratio of 2.2 young per sow-with-young. Density estimates were one bear per 53 km² (20.5 mi²). 18 categories of items were found in scats, and were largely plant materials.

Procedures will be divided into two major phases: (1) intensive and extensive field search of trails and other areas in Teton Wilderness for sight and signs of grizzly bears, and (2) personally contacting all outfitters using Teton Wilderness and compiling any information they may have on bears.

We will note and photograph all tracks, scats, beds, and other signs encountered, and compile information on the ecological context of each. As many of the trails and other areas where signs are likely to be located will be searched as possible, as well as areas where outfitters have indicated the presence of bears.

Tracks will be measured and plaster casts made where possible. In the case of similar track measurements, only one bear will be recorded. This will provide a crude estimate of the minimum number of bears in the area.

National Geographic Society

WASHINGTON, D.C. 20036



Dr. Edwin W. Snider, Secretary
Committee for Research and Exploration
National Geographic Society
17th and M Streets, N. W.
Washington, D. C. 20036

Bears are increasing in natural wilderness areas

Teton Wilderness - little known of the status of grizzly there

Objectives

1. Bear distribution & abundance

Period of study 28 Aug. 10 Nov. 1977

Observational survey - bear signs, tracks etc

24 outfitters questioned

Bridger Teton Natl. For

During 1977 season 107 types of grizzly bear evidence were found

38% sightings (41), 19% scats, 40% tracks, 3% dens

This was 31% of evidence - outfitters provided 59%

p. 17 - min. pop. estimate of 43 grizzlies

density of bears in Teton Wilderness is 1 per 53 km² (20.5 mi²),

Similar to figures reported for Yellowstone Ecosystem by IAGBST-1974

Literature cited - p. 23 2 of Grizzlies

Questionnaire of doubtful value

p. 9 Variation in sightings (reports) 1968-1977 varies from 5 to 90.

A PROGRESS REPORT ON

STATUS OF GRIZZLY BEARS IN BRIDGER-TETON

NATIONAL FOREST, WYOMING

PART I: TETON WILDERNESS

By

WESTERN ENVIRONMENTAL RESEARCH ASSOCIATES

P.o. Box 4794
Pocatello, Idaho 83209

Tim Clark, Ph.D.
Mike Wells, Ph.D.
John Hoak, B.S.
John Weaver, M.S.

December 31, 1977

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STATUS OF GRIZZLY BEARS IN BRIDGER-TETON

NATIONAL FOREST, WYOMING

PART I: TETON WILDERNESS¹

Grizzly bears (*Ursus arctos horribilis*) are currently classed as "threatened" in the 48 conterminous states by the U.S. Fish and Wildlife Service. This magnificent species is often considered a national treasure, not only because it is a unique irreplaceable animal, but because it has symbolic value to many people. Because of its symbolic and scientific value, as well as its economic worth, intense conflicts about the bear and its future have arisen. The many diverse values attached to grizzlies might best be served by more intensive management. The success and fineness of such efforts will depend, in part, upon greater knowledge of the species' ecology (Knowlton, 1972).

Significant controversy centering on how to manage the grizzlies in the Yellowstone ecosystem has raged for nearly a decade (see Schneider 1977 for a review). In the fall of 1976, a large area of northwestern Wyoming, including parts of Bridger-Teton National Forest, was proposed as "critical habitat" for grizzlies by the U.S. Fish and Wildlife Service. To date, however, critical habitat designation has not officially been made. Although Teton Wilderness is part of this potential designation, little is known of the status of grizzlies there.

1. Part II will cover the remaining areas of BTNF; data is still being gathered. Preliminary indications show few reports for 1976 or 1977. The terminal report will merge Part's I and II and expand the discussion and management recommendations.

The vast bulk of grizzly bear research has centered in Yellowstone National Park, just north of the Wilderness (for review and summary of research see: National Academy of Sciences 1974; Craighead et al 1974; Cole 1975; Interagency Grizzly Bear Study Team-IAGBST- 1974; 1975; 1976).

The purpose of our study was to obtain some of the needed information. Specific objectives were to: 1) gather first-hand information on bear distribution and abundance, 2) solicit information from outfitters, guides, and other wilderness users on grizzly bears (1976-1977) and follow-up on their reports where possible, and 3) collect and analyze scats for diet items.

STUDY AREA

Teton Wilderness (234,791 ha; 563,500 ac) is part of Bridger-Teton National Forest and lies in northwestern Wyoming (Fig. 1). It is bounded on the north by Yellowstone National Park; to the east lies the Washakie Wilderness; Grand Teton National Park and Bridger-Teton National Forest form the western boundary; Bridger-Teton National Forest forms the southern limit. Various physical and biological aspects of the region have been described by Love and Reed (1968), Reed (1952), Cole (1969), Keefer (1972), Craighead et al (1972), and Gruell (1973).

METHODS

Our study involved several lines of investigation. First, we examined the published literature, files and records of the U.S. Forest Service and Wyoming Game and Fish Department

in Jackson, Wyoming and the annual reports of the Interagency Grizzly Bear Study Team (IAGBST) for information from 1968 to date (10 yrs). Second, we traveled by foot and horseback through much of the Wilderness, both on and off trails, searching for bears and their signs. Third, we contacted all outfitters guides, and as many other Wilderness users as we encountered and solicited information on grizzly bears. We attempted to follow up on all recent reports of bears and their sign. And fourth, we collected bear scats for later identification of their contents. Through all phases of the project we worked closely with the U.S. Forest Service and Wyoming Game and Fish Department.

Field Survey

Our field surveys spanned 74 days (28 August-10 November, 1977). Generally our data collection followed methods outlined by the IAGBST (1976). We searched trails, stream bottoms and other areas most likely to yield bear signs. Using binoculars we searched the higher terrain, especially in mornings and evenings, for sight of bears. We noted all tracks, scats, and beds encountered. Bear habitat investigations focused upon biological, physical, and cultural features of the environment. Tracks were measured following criteria listed by Edwards and Green (1959) and, where possible plaster casts were made.

Outfitter Surveys

Twenty-four outfitters who operate hunting camps in the Wilderness were contacted and queried for any bear information

for 1976 and 1977. Prior to 10 September, 1977 (the opening of hunting season) letters of introduction were sent by the Forest Supervisor (Appendix I) to all outfitters (list in Appendix II). In addition, a personal visit was made to nearly all of these. On this occasion we explained the purposes and scope of our investigation and solicited assistance. Subsequent field surveys maintained communication by visiting camps as frequently as possible. During our field investigations, high priority was placed on rapid verification of all current reports. These were evaluated for consistency by: 1) follow-up investigations, 2) comparing them with reports from nearby areas, and 3) verifying species by knowledge of black vs grizzly bear track characteristics (e.g., Greer and Craig no date). From such comparisons, especially between reports of known reliability and through previous acquaintance with outfitters and guides, the accuracy of the reports were judged subjectively.

Scat Surveys

All bear scats encountered were collected. Where insufficient data precluded positive species identification of scats, only those over 5 cm (2 inches) diameter were considered as produced by grizzly bears (Mealey 1975).

RESULTS

Summary of Survey Effort

From initiation of the study on 26 August, 1977, until snow depths precluded Wilderness travel (10 November)(76 days) we

spent 121 man-days on the project. Seventeen trips were made into the Wilderness (3 to 15 days long); approximately 1240 km (775 mi) were covered on horseback and 600 km (375 mi) on foot. All parts of the Wilderness were covered both via trail systems in addition to off-trail surveys (Fig. 2). Over 3200 km (2000 mi) were logged outside the Wilderness in pre-field survey contacts of outfitters and later in travel to and from trail heads. After the field work phase some follow-up contacting outfitters for new or additional information was made.

Number and Distribution of Grizzly Bear Reports

Three hundred and five reports were received from 1968 to 1977 from Bridger-Teton National Forest (Table 1). Over half (61 percent) came from 1975-1977. The largest number of reports (90) came from 1977 when the largest data collection effort was made.

Four sources of evidence were used to determine grizzly occurrence: sightings, scats, tracks, and beds/dens (Table 2). During the 1977 season 107 types of grizzly bear evidence were found: 38 percent (41) sightings, 19 percent (20) were scats, 40 percent (43) were tracks, and 3 percent (3) were beds/dens. Our efforts yielded 31 percent of the evidence, while outfitters provided 57 percent.

Most reports, in all years, came from Teton Wilderness as opposed to the remainder of Bridger-Teton National Forest. Over the 10 years, 78 percent (238) of all reports came from

Figure 2. Map of Teton Wilderness showing travel routes (28 August-9 November, 1977) in search of grizzly bear sight and sign. Many routes were covered more than once.

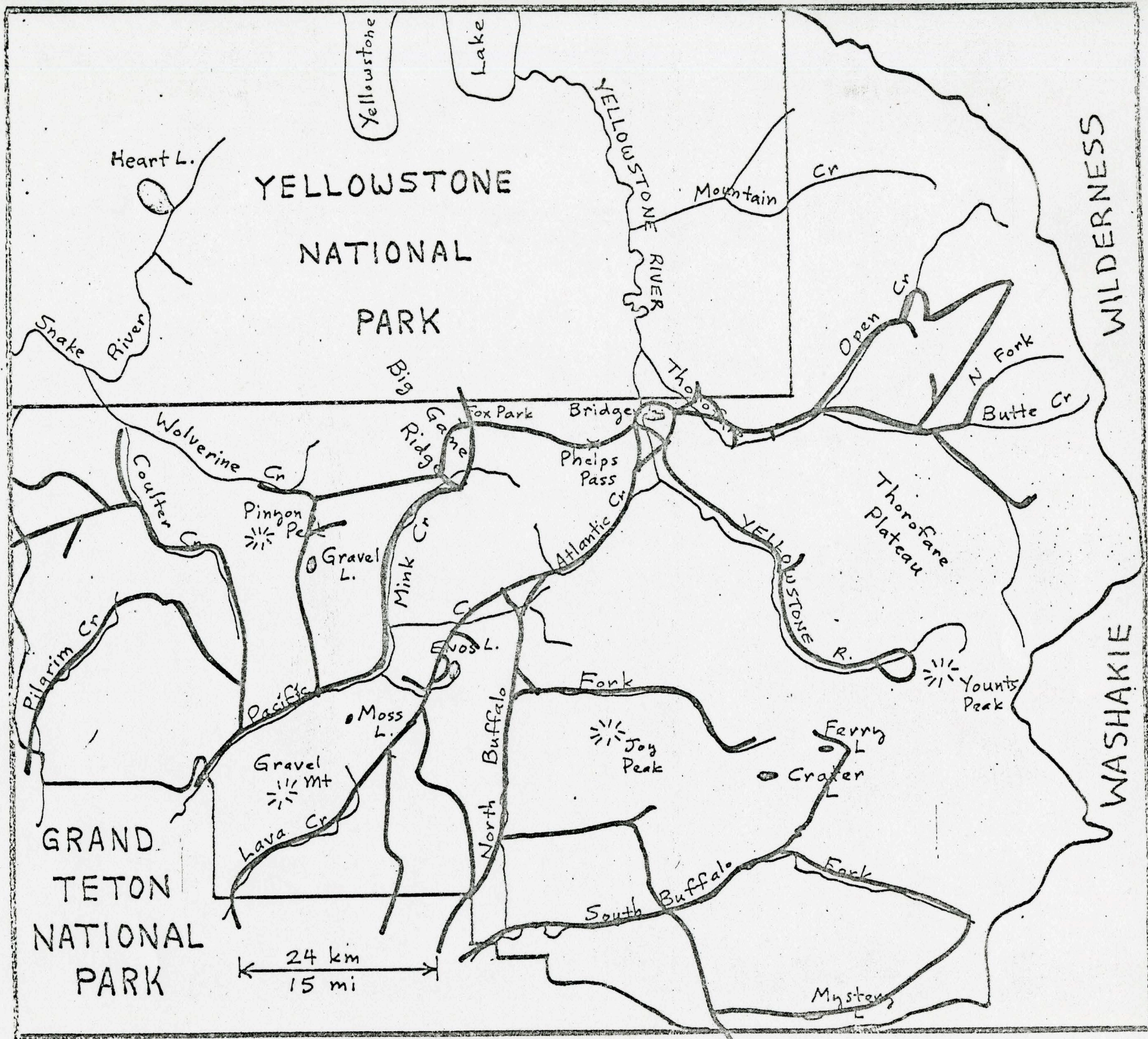


Table 1. Number and distribution of grizzly bear reports for Bridger-Teton National Forest, Wyoming, 1968-1977.

Year	Number of Reports	Teton Wilderness	W & S of Teton Wilderness and N Gros Ventre R	S Gros Ventre River
1968	5	3	0	2
1969	16	16	0	0
1970	6	5	1	0
1971	36	20	16	0
1972	5	5	0	0
1973	14	13	1	0
1974	37	31	4	2
1975	70	32	36	2
1976	26	24	2	0
1977	90	89	1	0
Totals	305	238	61	6
%	(100%)	(78%)	(21%)	(2%)

Table 2. Year and types of grizzly bear information from Teton Wilderness, Wyoming for 1976 and 1977.

Year	Types of Evidence				Total
	Sighting	Scat	Tracks	Bed-Den	
1976	12(71%)	0(-%)	4(24%)	1(5%)	17
1977	41(38%)	20(19%)	43(40%)	3(3%)	107
Total	53(43%)	20(16%)	47(38%)	4(3%)	124

Teton Wilderness, 20 percent (61) came from Bridger-Teton National Forest north of the Gros Ventre River excluding Teton Wilderness, and the remaining 2 percent (6) came from areas south of Gros Ventre River.

Grizzly bear reports from 1968-1975 (Fig. 3)(Appendix III) (95) and from 1976 (26) and 1977 (90)(Fig. 4)(Appendix IV) were plotted on maps. The 1968-1977 reports are scattered throughout the Wilderness. These reports clearly demonstrate that during the last 10 years grizzly bears have utilized the entire Wilderness.

Population Composition and Density

There is great interest in the question "How many grizzly bears are in Teton Wilderness?" Despite obvious limitations in the data, we attempted an estimate. We were very conservative in determining a "minimum number" estimate. Characteristics such as size, approximate age (young vs adult, group size and composition, and coloration were carefully scrutinized in differentiating bears. We tried to match data on tracks size, visual descriptions, and temporal and spatial patterns. When track sizes or other descriptive features were similar in a given area or time frame, only one bear was tallied. In many cases we merged all sightings in large areas of the Wilderness into a single bear.

A break down of the 1976 data into individual bears and groups (usually sow/young) is given in Table 4; similar data

Figure 3. Distribution of grizzly bear reports in Teton Wilderness (1968-1975); Wyoming. Open circles are individual bears and solid circles are groups.

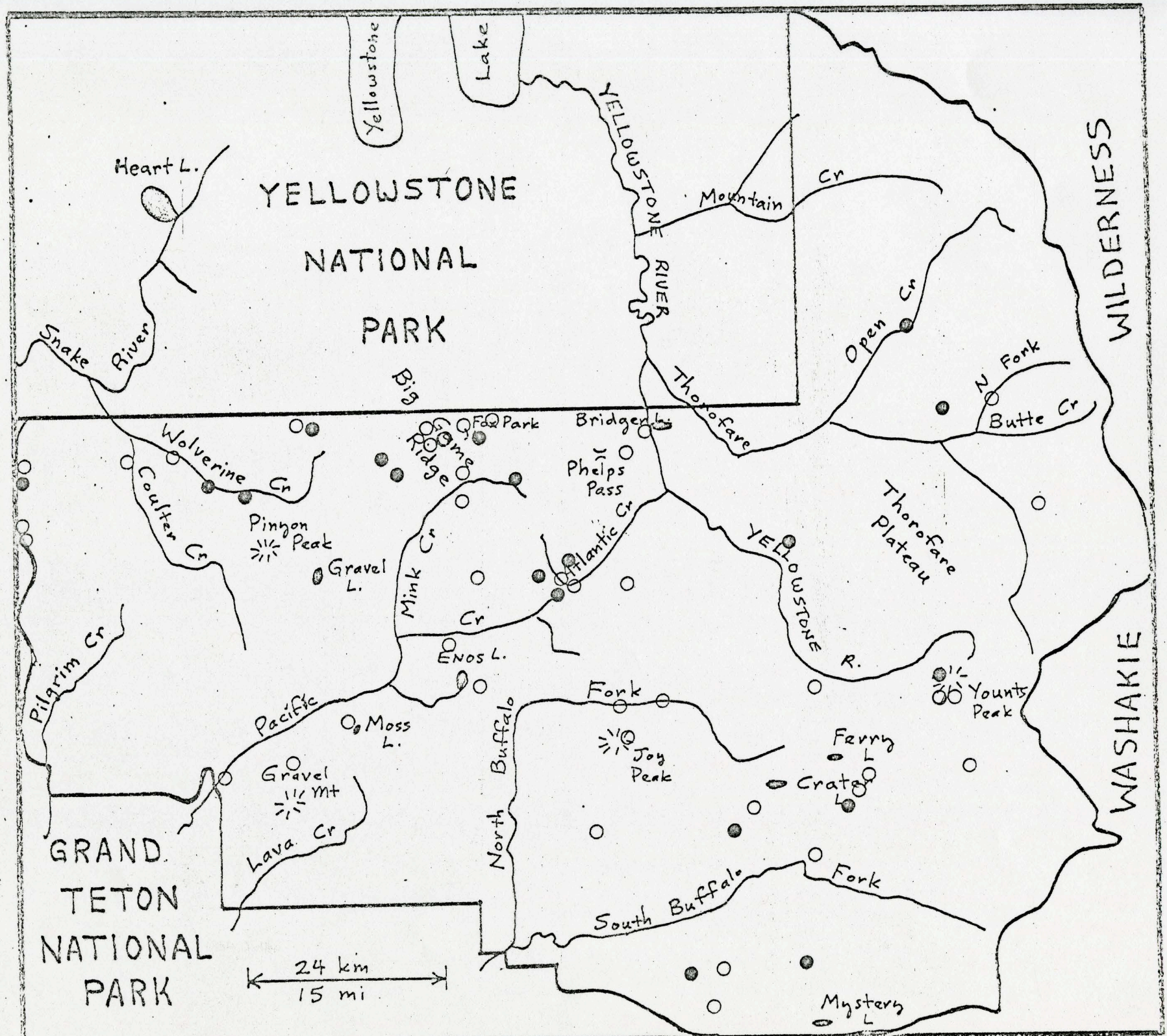


Figure 4. Distribution of grizzly bear reports in Teton Wilderness (1976-1977), Wyoming. The 1977 reports are circles, open for individual bears and solid for groups. The 1976 reports are squares, open for individuals and solid for groups.

Table 4. Estimated number of identifiable grizzly bears and corresponding report numbers (from Appendix IV) for Teton Wilderness, Wyoming, 1976.

Grizzly Bears	Original Report Numbers	General Geographic Area
<u>Single Bears</u>		
1	2, 17	Enos Lake/Box Creek
2	3, 12, 13	Fox Park
3	7, 8, 11, 16, 20	Northwest Teton W.
<u>Groups</u>		
1 sow: 2 2-yr cubs	1, 4, 5	Two Ocean Pass
2 sow: 2 1-yr cubs	6, 19	Two Ocean Pass
3 2 subadults	9	Gravel Peak
4 sow: 2 1-yr cubs	10	Upper Thorofare R.
5 sow: 2-cubs, age?	14, 15	N Buffalo Fork and Soda Fork
6 sow: 3 cubs, age?	18	Phelps Pass
TOTAL BEARS	21	

for 1977 are in Table 5. The 1976 data allows identification of three single bears and six groups. At least five different sows were seen, each with young. The sows had 11 young or 2.2 young per sow-with-young. This gives a minimum population estimate of 21 grizzly bears for 1976 with singles accounting for 14 percent.

In 1977 15 single bears and 10 groups were tallied (Table 5). A minimum population estimate of 43 grizzlies was obtained (not counting radio-collared bear #14). Single bears comprised 35 percent of the 1977 enumeration. The 20 young and 9 sows give a ratio of 2.2 young per sow-with-young. Reports were sufficiently detailed in some cases to attempt an age classification of the young (Fig. 5)--three 2-yr old young were seen, two 1-yr old animals, and 12 cubs-of-the-year.

Assuming our population estimate is correct, then the density of bears in Teton Wilderness is one per 53 km² (20.5 mi²). This figure is similar to that reported for the Yellowstone Ecosystem by the IAGBST (1974).

Scat Analysis

Contents of 18 scats collected in Teton Wilderness in the fall of 1977 are shown in Table 6. Items were identified by personnel of the Montana Fish and Game Laboratory at Montana State University. Eighteen categories of items were found. Contents were largely plant materials, but 4 contained animal matter. Two scats were made up entirely of garbage (from Two Ocean Pass and Hawk's Rest).

Table 5. Estimated number of identifiable grizzly bears and corresponding report numbers (from Appendix V) for Teton Wilderness, Wyoming, 1977.

Grizzly Bears	Original Report Numbers	General Geographic Area
<u>Single Bears</u>		
1	7, 9, 11, 32, 36, 40, 45, 71	Hawk's Rest Bridger Lake
2	41, 42, 43, 44, 53, 66, 74, 79, 77, 88	Hawk's Rest Bridger Lake
3	1, 12, 35, 47, 60, 63, 64, 72, 78, 84	Fox Park-Big Game Ridge-Gravel Cr
4	8, 13, 14, 15, 19, 21, 33, 83	S Buffalo-Soda Fk
5	6	Fishhawk Pass
6	4, 5, 16, 39, 49, 57, 58, 79	Enos Lake
7	22, 69	Pilgrim/Coulter Cr
8	3, 46	Brown's Meadow- Rodent/Wolverine Cr
9	30, 37	" "
10	38, 62, 67, 68, 69	" "
11	80, 85	" "
12	23, 29, 76, 82, 26	Upper Yellowstone R
13	26	" " "
14	26	" " "
<u>Groups</u>		
1 sow: 3 2-yr olds	24, 55, 65	Fox Park
2 sow: 1 1st-yr cub	10, 70	Atlantic Cr

3	sow: 1 large cub	18	Jay Cr
4	sow: 2 1st-yr cubs	27	Mountain Cr
5	sow: 2 cubs	2, 17, 34	Gravel Cr
6	sow: 2 1st-yr cubs	48, 54, 73	Thorofare
7	sow: 2 1st-yr cubs	52	Phelps Pass
8	sow: 2 1st-yr cubs	28, 56, 59	North Fk
9	sow: 3 1st-yr cubs	81	Wolverine Cr
10	sow: 2 yearling cubs	29, 31, 86	Phelps Pass- Hawk's Rest

TOTAL BEARS 43

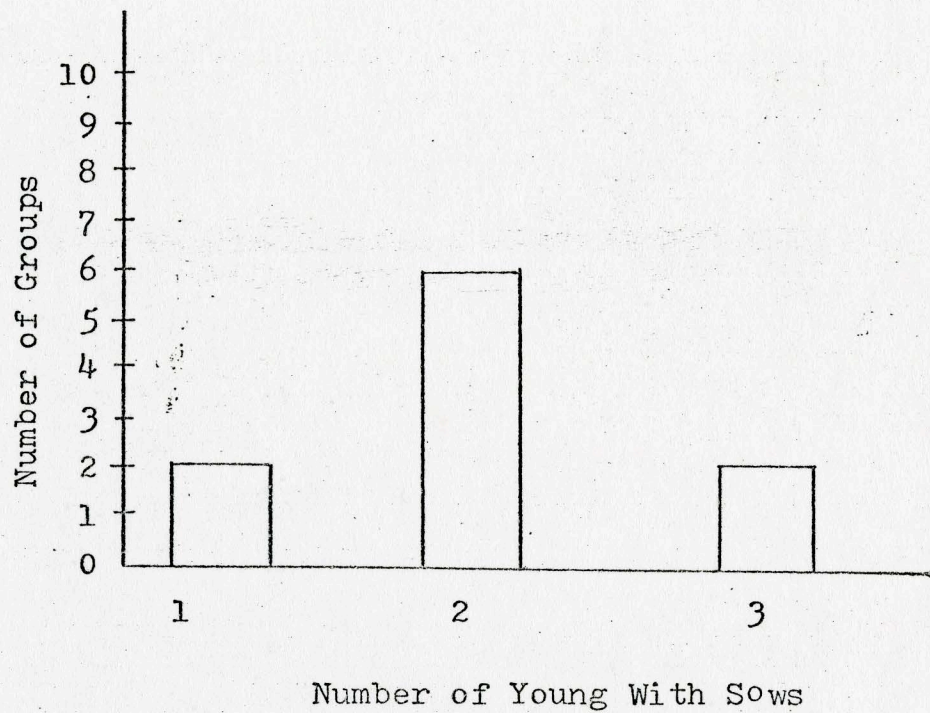


Figure 5. Histogram showing the relationship of the number of young with sows with the number of groups. Data from Bridger-Teton National Forest 197

Table 6. Contents of bear scats (grizzly and black) collected in Teton Wilderness, Wyoming, 1977. Numbers are percent of total contents.

Item	Scat Sample																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<u>Carex</u> spp.	50	—	—	—	—	5	40	—	1	—	—	—	40	—	—	—	100	—
<u>Polygonum</u> spp.	—	—	—	—	—	—	—	—	—	—	—	—	30	—	28	—	—	—
Grass	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—
Grass/Sedge	—	—	—	—	—	—	—	90	—	—	—	—	—	—	—	—	—	—
Poaceae	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
<u>Avena sativa</u>	—	—	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
<u>Perideridia gairdneri</u>	—	—	—	—	100	—	40	—	—	—	—	—	—	—	—	100	—	95
<u>Ribes</u> (<u>montigenum</u>)	—	—	—	—	—	95	—	—	—	—	100	—	—	—	—	—	—	—
Trifolium	—	—	—	—	—	—	15	—	—	—	—	—	20	—	—	—	—	—
<u>Lamium dissectum</u>	—	—	—	—	—	—	—	—	99	—	—	—	—	—	—	—	—	—
<u>Vaccinium</u> spp.	—	—	—	—	—	—	—	—	—	100	—	—	5	—	70	—	—	—
<u>Arctostaphyls(?)</u>	—	—	—	—	—	—	—	—	—	—	—	—	5	—	—	—	—	—
<u>Vaccinium scopularum</u>	—	—	—	—	—	—	—	—	—	—	—	—	—	100	—	—	—	—
Garbage	—	100	—	100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bees	—	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—
Ants	—	—	—	—	—	—	—	10	—	—	—	—	—	—	—	—	—	—
Elk	—	—	—	—	—	—	—	—	—	—	—	100	—	—	—	—	—	—
Carrion	—	—	—	—	—	—	—	—	—	—	—	—	T	—	—	—	—	—

DISCUSSION AND MANGEMENT RECOMMENDATIONS

Since results are not final it would be premature to discuss them or draw management implications. These aspects will be discussed and presented in the terminal report.

ACKNOWLEDGEMENTS

A great many people contributed to the success of this study. Among them are George Gruell, Garvice Roby, Tom Toman, E. Luton, all the outfitters and their guides, and personnel of the Montana Fish and Game Laboratory.

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APPENDIX I

LETTER OF INTRODUCTION TO OUTFITTERS ON BRIDGER-TETON NATIONAL
FOREST, WYOMING, FROM FOREST SUPERVISOR WITH ACCOMPANYING
GRIZZLY BEAR REPORT FORMS

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Bridger-Teton National Forest, Box 1888, Jackson, Wyoming 83001

2610
August 26, 1977



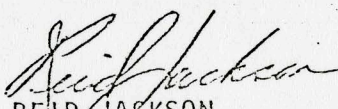
TO WHOM IT MAY CONCERN:

Tim Clark, Mike Wells, John Hoak and John Weaver, qualified wildlife biologists and residents of Jackson, Wyoming are conducting a survey of grizzly bear populations and distribution on the Bridger-Teton National Forest. This survey, which is to run from August 24, 1977 through June 1, 1978, is supported by the Forest Service and in cooperation with the Wyoming Game and Fish Department and the Interagency Grizzly Bear Study Team.

The purpose of this survey is to gain a more valid estimate of grizzly bear numbers and distribution, particularly in the Teton Wilderness. The success of this survey will largely depend on you, the Forest user. When contacted, please give these people your full cooperation by providing any grizzly bear reports you might have.

The results of this survey will complement existing data and assist in improving management of grizzly bear habitat.

Sincerely,


REID JACKSON
Forest Supervisor

Appendix

No. _____

BEAR OBSERVATION FORM

(See reverse for instructions)

Species _____ Date _____

Name _____ Address _____

Time _____ Method _____

Observation Type _____

Age of Sign _____

Number of Bears (Family Group Data is very important) _____

Description(s) (size, color, unique traits for each bear in as much detail as possible)

Activity _____

Location _____

Vegetation _____

Topography _____

Please attempt to measure the length (including claws) and width of each track found. Note whether it is front or hind foot. Hopefully measurements can be taken of both.

Any bear scats that are found should be collected, air dried, and stored in a plastic or paper bag along with a label as to where and when it was collected.

PLEASE RETURN TO: G. Bear Study, P. O. Box 2705, Jackson, Wy 83001 733-6256

Append

INSTRUCTIONS FOR COMPLETING BEAR OBSERVATION FORM

Please fill out as completely as possible. Do not hesitate to indicate that you are not sure of any particular category (? will show doubt).

Species: Indicate black bear or grizzly bear.

Date: Date observation was made.

Name: Your name

Address: Your mailing address

Time: Time of day observation was made.

Method: Method by which observation was made for example, air, horse, vehicle, foot.

Age of Sign: If not a sighting, tell how old you believe the bear sign to be. If you can, indicate within a time period (24 hrs, 1 week, 1 month, etc.)

Observation Type: Indicate if it was an actual sighting, a track, digging, or other indication of a bears presence.

Number of Bears: It is extremely important to get data on family groups. List number, sex and age of bears for example, 1 sow, 2 cubs, 1 adult male, 2 yearlings etc.

Descriptions: Describe coat color, size, any unique features that you can. Include details only if they are clear in your mind; do not guess.

Activity: Description of what the bear was doing when observed for example, feeding, moving, alert, etc.

Location: Describe as accurately as possible the place where the observation was made for example, section, township, range, drainage, or other landmark.

Vegetation: Describe the vegetation type where the observation was made, for example grassland, timber, etc. Mention common plant species if possible.

Topography: Describe topographic features where observation was made, for example ridge, slope, swale, etc.

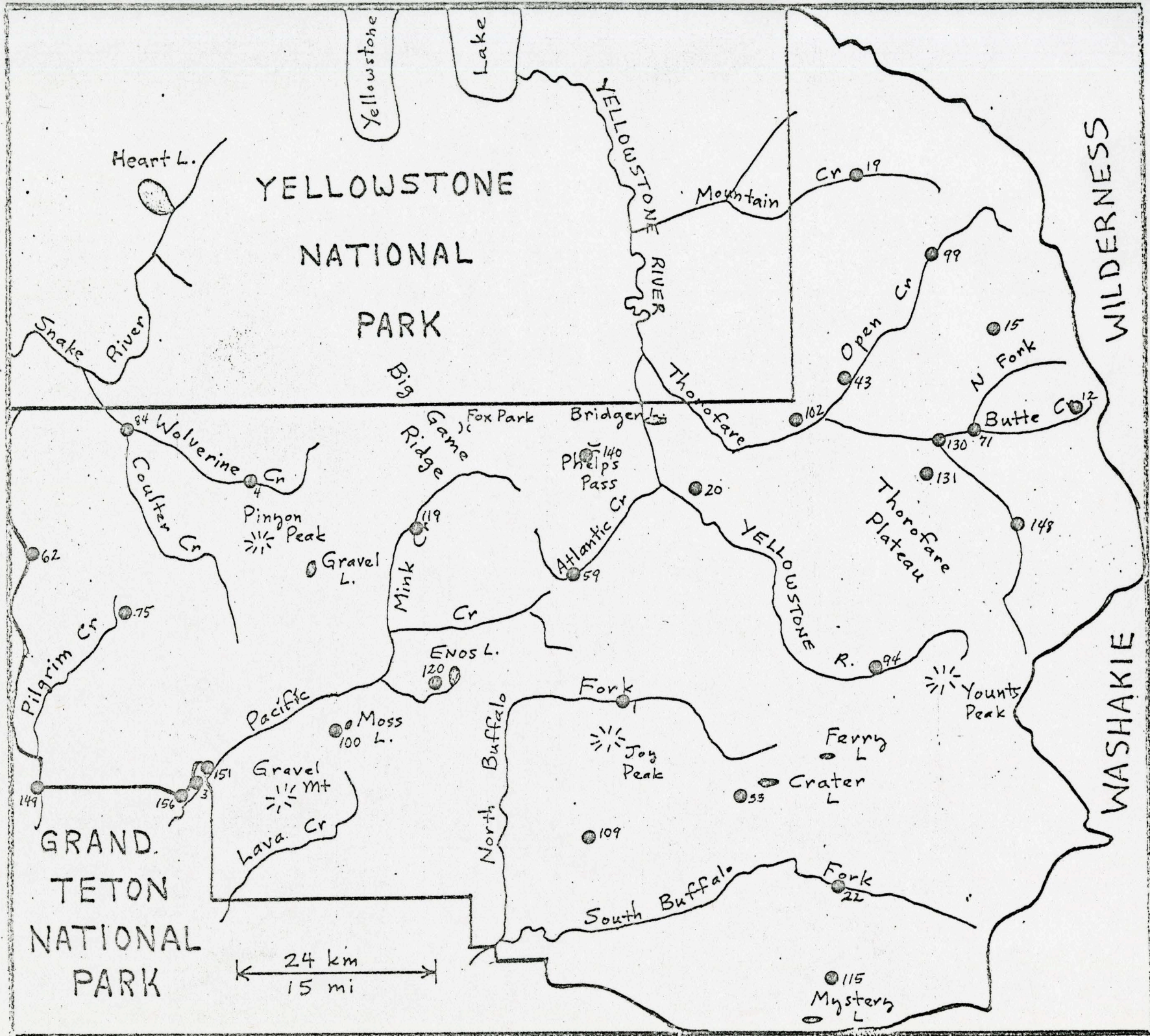
If coats or track measurements are taken please send them to:

G. Bear Study
Box 2705
Jackson, WY. 83001
733-6856

APPENDIX II

LIST OF OUTFITTERS IN TETON WILDERNESS CONTACTED DURING OUR
STUDY AND A MAP SHOWING THEIR HUNTING CAMP LOCATIONS

Camp Number	Outfitter
1	Danny Luton
3,4	T.T. Adams
109	Albert Jiggs Black
61,62	Roy "Pinkie" Bonner
78	Vern Bressler
70	George Clover
75,149	James E. Davis
22,115	Joe Detimore
12,102	Gary Fales
148	Glenn Fales
15,20,32	L.D. Frome
19	Richard Marta
33, 94	Dr. William Hurst
84	Walt Korn
156,100	Bud Nelson
43	Donald Schmaltz
99	Stanley Siggins
69	Skinner Brothers
71	H.E. Tommy Thompson
130,131	Joseph Tilden
120	Donald Turner
119,140,151	John Turner
50,51	Don Hessling
59	Rod Doty



APPENDIX III

CHRONOLOGICAL LISTING OF GRIZZLY BEAR REPORTS FROM 1968-1975
FOR BRIDGER-TETON NATIONAL FOREST, WYOMING. THESE REPORTS
WERE OBTAINED FROM U.S. FOREST SERVICE FILES (GEORGE GRUELL)
AND THE INTERAGENCY GRIZZLY BEAR STUDY TEAM ANNUAL REPORTS
(1974, 1975, 1976)

Date	Number and Composition	Location	Observation Type	Source	Comments
6-20-68	1	Huckleberry Hot Springs	Sighting	M.I.Trion	Small to medium size
6-21-68	1	Cottonwood Creek	Sighting	M. Coonrod	Large size
6-25-68	1	Mosquito Creek	Sighting	R. Williams	Probably same as above
8-21-68	2	Flagg Ranch Dump	Sighting	Mrs. G. Boyd	Mature Bears
9-24-68	1	Polecat Creek	Sighting	L. Frome	Large size
9-26-68	3: sow and 2 cubs	Younts peak	Sighting	R. Doty	
9-68	1	Polecat Creek	Kill	WGF	Subadult
6-69		Brown's Meadow	Sighting	H. Turner	
7-69		North Buffalo Fork	Tracks	D. Larsen (WGF)	
8-69	1	Younts Peak	Sighting	W. Korn	Small size
8-69	1	Polecat Creek	Sighting	W. Korn	Large size
8-4-69		Meadow Creek	Sighting	R. Stare (USFS)	
8-25-69		Trail Creek	Sighting	J. Abercrombie	
8-69		Younts Peak	Sighting	W. Korn	

Date	Number and Composition	Location	Observation Type	Source	Comments
8-69		10 miles south of Yount's Peak	Sighting	W. Korn	
9-17-69		Two Ocean Pass	Sighting	R. Doty	
9-69		Two Ocaen Pass	Sighting	R. Doty	
9-69		Soda Fork	Sighting	F. Sherman	
9-69		Huckleberry Ridge	Sighting	R. Bonner	
9-69		Huckleberry Ridge	Sighting	R. Bonner	
9-69		Woodard Canyon	Property Damage	C. Bailey	
9-69 10-69		Fox Park	Sighting	H. Turner	
10-69		Brown's Meadow	Sighting	R. Bonner	
10-69		Lava Creek/ Pacific Creek	Sighting	B. Nelson	
9-70	1	Glade Creek	Kill	W. Korn	Medium size
6-70	1	Rosie's Ridge	Sighting	D. Caldwell	Large size
9-70	1	Coulter Creek	Kill	W. Korn	Two-year-old female, large, black

Date	Number and Composition	Location	Observation Type	Source	Comments
Fall, 70 ~	6	Two Ocean Pass	Sighting	R. Doty	Huntable bears
Fall, 70	3	Wolverine Creek	Sighting	G. Clover	Large size
9-70	1	Wolverine Creek	Sighting	W. Korn	Large and black
9-70		Harebell Creek	Tracks	W. Korn	
5-71	2: sow and cub	Toppings Lake	Sighting	Unknown	
5-71		Polecat Creek	Kill	W. Korn	
5-71	1	Grassy Lake	Sighting	W. Korn	Large size
6-71	2: sow and cub	Blackrock Dump	Sighting	Unknown	
6-71		Blackrock Dump	Tracks	B. Jackson	
1971	5	Wolverine Creek, Mink Creek, Fox Park	Sighting and Tracks	H. Turner	
10-71	1	Fox Creek	Sighting	J. Turner	Large size
10-71		Lower Pendergraft Meadow	Tracks	A. Black	
8-72	3: sow and 2 cubs	Head of Trail Creek	Sighting	J. Abercrombie	

Date	Number and Composition	Location	Observation Type	Source	Comments
9-8-72	1	Turner Camp	Kill	H. Turner	Old boar
6-73	1	Head of Weasel Creek	Tracks	H. Turner	Extremely large track
9-73	4: sow and 3 cubs	Between Pass and Butte Creeks	Sighting	J. Tilden	Sow very large
9-15-73	2: sow and cub	Head of Mink Creek	Sighting	T. Breen	
10-73	1	Fox Park	Sighting	H. Turner	Very large size
5-74	3: sow and 2 cubs	Leidy Mtn.	Sighting	L. Price, Jr.	
5-1-74	1	Woody Creek	Tracks	J. Abercrombie	
5-15-74	1	Jackson Lake	Tracks	J. Abercrombie	Three-year-old
7-4-74	1	Jay Creek	Sighting	R. Dean	Large size
8-1-74	1	Lake Creek	Sighting	A. Black	300-350 lbs.
8-74	2	Soda Fork	Sighting	J. Detimore	2-3 years old
8-74	1	Soda Fork	Tracks	J. Detimore	Medium size
9-74	1	Upper Snake	Sighting	D. Turner	Extremely large
9-74	2: sow and cub	Fox Park	Sighting	H. Turner	
9-74	1	Upper Snake	Sighting	R. Davis	Large and dark
9-74	3: sow and 2 cubs	Big Game Ridge	Sighting	T. Breen	
9-74	1	Lake Creek	Sighting	J. Detimore	Old boar

Date	Number and Composition	Location	Observation Type	Source	Comments
9-10-74		Head of Hidden Creek	Diggings	A. Black	
9-16-74	3: sow and 2 cubs	Trail Creek	Tracks	J. Detimore	
10-74	3: sow and 2 cubs	Wolverine Creek	Sighting	H. Turner	
10-74	1	Fox Park	Sighting	H. Turner	Extremely large and light
10-74	2	Hidden Basin	Tracks	J. Tilden	Large size
10-7-74	3: sow and 2 cubs	Open Creek	Tracks	D. Schmalz	Young sow
Fall, 74	1	Bear Cabin Creek	Sighting	R. Martin	800 lbs.
4-75	1	Glade Creek	Sighting	J. Abercrombie	Mature
4-75	1	Bull Mtn.	Sighting	J. Abercrombie	Large size
5-75	1	Cliff Creek, YNP	Tracks	J. Abercrombie	Small adult
5-75	2	Castle Creek	Tracks	J. Abercrombie	Medium size
5-75	1	Mink Creek	Tracks	J. Abercrombie	Mature
5-75	1	Leidy Mtn.	Sighting	L. Price, Jr.	Four-year-old
6-75	1	Marsten Fork	Tracks	J. Abercrombie	Medium size
6-75	1	Turpin Meadow	Sighting	E. Luton	Large boar
6-75	1	Turpin Meadow	Sighting	E. Luton	Medium and Brown

Date	Number and Composition	Location	Observation Type	Source	Comments
6-75	2	Rosie's Ridge	Sighting	E. Luton	Medium silvertips
6-75	2: sow and cub	Turpin Meadow	Tracks	E. Luton	
6-75	2: sow and cub	Near Togwotee Lodge	Tracks	L. Price, Jr.	
6-1-75	3: sow and 2 cubs	Basin Creek, YNP	Sighting	J. Abercrombie	
6-12-75	1	Bailey MTN.	Sighting	R. Bonner	Large silvertip
7-75	1	Soda Creek	Sighting	W. Martin	Mature
7-75		Bridger Lake	Digging	H. Turner	
7-75	1	North Fork Buffalo River	Sighting	P. Stevens	Young
8-75	1	Soda Creek	Tracks	R. Martin	Adult
8-18-75	1	Pacific Creek	Tracks	J. Braman	Medium size
9-75	1	Spread Creek	Tracks	R. Shaw	Adult
9-75	1	Cub Creek	Tracks	P. Stamper	Large tracks
9-75	2	Two Ocean Pass	Sighting	R. Doty	
9-7-75	1	Butte Creek	Sighting	T. Thompson	Mature
9-25-75	1	Moss Lake	Tracks	L. Price, Jr.	Large size
10-75	1	Big Game Ridge	Tracks	H. Turner	Extremely large tracks

Date	Number and Composition	Location	Observation Type	Source	Comments
10-75	1	Trail Creek	Tracks	J. Abercrombie	Extra large
10-75	1	Enos Peak	Tracks	J. Abercrombie	Extra large
10-75	1	North Fork Buffalo River	Sighting	J. Abercrombie	Large and near black
10-75	1	Joy Peak	Sighting	J. Abercrombie	Three-year-old
10-1-75	1	Falcon Creek	Tracks	D. Turner	Medium size

APPENDIX IV

CHRONOLOGICAL LISTING OF GRIZZLY BEAR REPORTS FROM 1976 FOR
BRIDGER-TETON NATIONAL FOREST, WYOMING. THESE REPORTS WERE
OBTAINED FROM OUR RESEARCH AND U.S. FOREST SERVICE FILES.

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
1	August	2: sow and cub	South Two-Ocean Creek	Sighting	Rod Doty	
2	10 or 12 August	1	North Enos Lake	Tracks	Guide for V. Bressler	8"-12" Tracks
3	Summer	1	Fox Park	Sighting	Hal Turner	Large Boar
4	Summer	3: sow and 2 large cubs	Head of Jay Creek	Sighting	Bill Jackson	Cubs guessed to be 1.5-2.5 years old
5	10-15 September	3: sow and 2 two-year-old cubs	Camp Creek	Sighting	Rod Doty	
6	19 or 20 September	3: sow and 2 yearling cubs	Snowslide Creek	Sighting	Rod Doty	
7	September	1	Howell Creek	Sighting	Richard Marta	
8	October	1	Thorofare Plateau	Sighting	Gary Fales	
9	Fall	2: three-year-olds	Gravel Peak	Sighting	Tom Breen	
10	Fall	3: sow and 2 yearlings	Yellow Mtn; Valley Fork	Sighting	Jim Davis (Guide for G. Fales)	Sow guessed to be 300 lbs.
11	Fall	1	Dell Creek	Tracks	Jim Davis	Larger than 300 lbs.

APPENDIX V

CHRONOLOGICAL LISTING OF GRIZZLY BEAR REPORTS FROM 1977 FOR TETON WILDERNESS, WYOMING. THESE REPORTS WERE OBTAINED FROM OUR RESEARCH AND THE WYOMING GAME AND FISH DEPARTMENT (WGF - GARVICE ROBY AND TOM TOMAN).

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
1	April	1	Mink Creek	Tracks	Bud Nelson (WGF)	Large tracks
2	April	2: sow and yearling cub	Nelson Lower Pacific Creek Camp	Sighting	Bud Nelson (WGF)	
3	April	1	Rodent Creek	Tracks	Bud Nelson (WGF)	
4	April	1	Bear Bait at Lava Mtn.	Tracks	Dale Atkinson (WGF)	Medium tracks
5	May	2	Nelson Lower Pacific Creek Camp	Tracks	Bud Nelson (WGF)	Separate bears
6	4-7 July	1 or 2	Fishhawk Pass	Tracks, Digging	Jim Davis	
7	5 July	1	Bridger Lake	Tracks	John Turner	
8	8 July	1	Head of Soda Fork	Sighting	Paul Crittenden (WGF)	Medium size, cinnamon pelage
9	9 July	1	$\frac{1}{2}$ Mile Above Frome H.R. Camp	Tracks	Dale Atkinson (WGF)	Very large tracks
10	12-18 July	2: sow and yearling cub	Atlantic Creek, $\frac{1}{2}$ mile East T.O. Pass	Sighting	Guide for V. Bressler	
11	20 July	1	Head of North Fork Jay Creek	Sighting	Bill Jackson	Large Female

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
12	Mid-July	1	Fox Park	Tracks	H. Turner	Boar tracks
13	July	1	Pendergraft Meadow	Tracks	W. Barmore	Species unknown
14	July	1	E. Luton Dump Area	Sighting	E. Luton (WGF)	Large Bear
15	July	2	E. Luton Dump Area	Tracks	E. Luton (WGF)	2 different sets medium tracks
16	6 August	1	Lave Creek Trail on Mt. Randolph	Track	Ted Delaney	7" track
17	Mid-August	2: cubs	Between Emerald Lake and Gravel Creek	Sighting	H. Turner	
18	23 August	2: sow and two-year-old cub	Jay Creek	Tracks	J. Turner	
19	28 July	1	S. Fork Trail: 2-3 miles West Pendergraft Meadow	Tracks	G. Thorsen	Large Adult
20	Late August	2	Upper Pendergraft Meadow	Sighting	Joe Detimore (WGF)	Large adults; separate animals
21	Late August	1	3/4 mile above Ferry Lake	Sighting	Frome, Benson (WGF)	Medium size, dark color
22	Summer	1	Coulter Creek	Sighting	Jim Davis	

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
23	4 Sept.	1	Thunder Mountain	Day/Bed/Den	J. Hoak	Confirmed grizzly use of area
24	6 Sept.	4: sow and 3 two-year-old cubs	Upper Snake River	Sighting	J. Weaver	
25	7 Sept.	3	Upper Yellowstone River	Sighting	Frome Guide	Duplicates report # 26
26	7 Sept.	3	Upper Yellowstone River	Sighting	Hunter (WGF)	Adults: 1 silvertip, others black with tan on legs
27	Early Sept.	2: cubs	Mountain Creek	Sighting	Larry Roop (WGF)	Orphans of Shoshone Nat. For, sow, about 75 lbs. each.
28	10 Sept.	3: sow and 2 first year cubs	North Fork	Sighting	Dan Luton (WGF)	Sow with dark body, light back (silvertip); cubs much lighter
29	11 Sept.	3: sow and 2 yearling cubs	Frome H.R. Camp	Sighting	? (WGF)	
30	12 Sept.	1	East end Brown's Meadow	Tracks, Sighting	Pinkie Bonner and Hunter	Medium size, grizzled
31	14 Sept.	3: sow and 2 yearling cubs	Crater Lake	Sighting	? (WGF)	
32	Mid-Sept.	1	Castle Creek Meadow	Sighting	Frome Guide	

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
33	16 Sept.	1	$\frac{1}{2}$ mile West Terrace Meadows on South Fork Trail	Tracks	J. Hoak	Forefoot $6\frac{1}{2}$ " X $5\frac{1}{2}$ "; hindfoot $9\frac{1}{2}$ " X 6"
34	17 Sept.	2, sow and first year cub	Gravel Lake	Tracks	Ted Adams	
35	18 Sept.	1	Trail near Gravel Peak	Track	(WGF) Ted Adams	one track; large
36	20 Sept.	1	$\frac{1}{2}$ mile east Bridger Lake on Thorofare Trail	Track	R. and S. Wood	Forefoot, $6\frac{1}{2}$ -7" wide
37	20 Sept.	1	1 mile south Brown's Meadow	Track	Pinkie Bonner	Medium size
38	20 Sept.	1	Brown's Meadow	Track	Pinkin ' Bonner	Big tracks
39	20 Sept.	1	West Shoulder Mt. Randolph	Tracks	J. Hoak	Forefoot 5" X 5"
40	21-23 Sept.	1	Frome H.R. Camp	Sighting	Mont Harmon	
41	22 Sept.	1	Fales Thorofare Camp	Sighting Tracks	Fale's Guide Paul	Medium size bear
42	23 Sept.	1	$\frac{1}{4}$ mile north Bridger Lake	Sighting	Frome Guide	Very light colored yearling or two-year-old
43	24 Sept.	1	S.W. Shore Bridger Lake	Track, Scat	J. Hoak	Forefoot 5" X 5"

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
44	24 Sept.	1	West Bank Yellowstone River, 1 mile south Bridger Lake	Track	J. Hoak	Foreprint in sand, approx. 5" X 5" (3-4 days)
45	24 Sept.	1	Atlantic Creek	Tracks	Pete Stamper (WGF)	Very large Bear
46	26 Sept.	1	1 mile north Brown's Meadows	Track	Pinkie Bonner	Small bear
47	28 or 29 Sept.	1	Big Game Ridge and Head of Snake River	Tracks	H. Turner	Boar Tracks
48	28 Sept.-9 October	3: adult and 2 cubs	Open Creek	Tracks	Stan Siggins	Tracks came over Overlook Mtn. from Howell Fork
49	30 Sept.	1	Bull Mtn.	Track	Rod Doty (WFG) D. Turner	Very large track
50	30 Sept.	1	Nelson Moss Lake Camp	Track	? (WGF)	Medium track
51	30 Sept.	1	Moss Lake	Sighting	G. Roby (WGF)	On Nelson's horses; adult
52	20 Sept.	3: sow and 2 first year cubs	Phelps Pass	Sighting	Buzz Mason (Turners)	Sow collared 9/16, later killed by resident (9/26)

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
53	Late Sept. Early Oct.	1	Near Mouth of Fall Creek	Sighting	Don Schmaltz	Bear came from upstream
54	Late Sept. Early Oct.	2: sow and cub	Woody Creek	?	Glenn Fales	Bears moved up Thorofare River
55	Late Sept.	4: sow and 3 large cubs	Boundary Trail	Sighting	Bob Stephens	Duplicates Report 24
56	Late Sept, Early Oct.	3: sow and 2 cubs	Joy Peak	Sighting	Dan Luton	Silvertip sow
57	Sept.	1	Texas Lake	Sighting	D. Turner	Boar
58	Sept.	1	Upper Box Creek Trail	Sighting	Resident Hunter	450 lbs.
59	1 October	3: sow and 2 yearling cubs	1 mile west Crater Lake	Sighting	Heart Six	
60	16 October	1	Head of Fox Creek (Snake River)	Sighting	Turners	Large, Blond boar
61	3 October	1	Nowlin Creek	Track	J. Weaver	Foreprint 6" X 5 3/4"
62	Early Oct.	1	1 mile south Harebell Cabin	Sighting	Johnson, Korn Guide	
63	5 October	1	Turner Mink Creek Camp	Tracks	H. Turner	

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
64	1st week October	1	Between Gravel Creek and Big Game Ridge	Tracks	Warren Stilson, Adams Guide	Large
65	1st week October	4: sow and 3 two-year-old cubs	Hidden Lake	Sighting	Ted Adams	
66	9 October	1	Thorofare River near Pass Creek	Tracks	Frome Guide	
67	11 October	1	Huckleberry Ridge, 1 mile south YNP	Track	Noel, Pinkie Bonner Guide	Large
68	12 October	1	5-6 mile south Harebell Cabin	Track	G. Clover's Wife	Large
69	13 October	1	Upper Pilgrim Creek Trail	Track	J. Hoak	r.f. 6" X 6½", l.f. 5½" X 9"
70	12-16 Oct.	2: sow and cub	Two Ocean Pass	Sighting	Russ Doty	
71	17 October	1	Thorofare River, west of Fales Camp	Track	Guy Menefee, Resident Hunter	9" track
72	18 or 19 October	1	Gravel Creek Trail	Tracks	Ted Adams	
73	20 or 21 October	3: sow and 2 first year cubs	Hawk's Rest Corral	Sighting	Lockie, Frome Guide	

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
74	24 October	?	Senecio Drainage	Den, Tracks	Lockie, Frome Guide	Species unknown
75	25 October	1	Bull Mtn.	Track	Mike, D. Turner Guide	
76	26 October	1	East of Woodard Canyon on Yellowstone Trail	Track	J. Hoak	forefoot $6\frac{1}{2}$ " x $7\frac{1}{4}$ "
77	26 or 27 October	1	Gary Fales Camp	Track	Paul, Fales Guide	
78	28 October	1	$\frac{1}{2}$ mile North Gravel Lake on Gravel Creek Trail	Track	J. Weaver	Forefoot medium
79	6 November	1	Hawk's Rest Patrol Cabin	Tracks	J. Hoak	Forefoot $5\frac{1}{2}$ " X $5\frac{1}{4}$ "
80	Early Oct.	1	Wolverine Creek	Sighting	Bob Johnson, Korn Guide	
81	17 October	4: sow and 4 yearling cubs	Wolverine Creek	?	Walt Korn	
82	14 Sept.	1	Head of Thunder Creek	Sighting	Resident Sheep Hunter (WGF)	Medium size
83	18 Sept.	1	Clear Creek Meadows	Sighting	Jack McDaniels (WGF)	Dark brown, medium size

Report Number	Date	Number and Composition	Location	Observation Type	Source	Comments
84	29 Sept.	1	Head of Snake River	Sighting	John Muma	Large, Blond bear
85	12 November	1	2 mile South Clover Camp	Sighting	G. Clover R. Miniof (WGF)	Medium size
86	13 Nov.	3: sow and 2 yearling cubs	Phelps Pass	Sighting	Tom Breen, Turner Guide (WGF)	
87	25 October	1	$\frac{1}{2}$ mile south Pinyon Peak	Aerial Sighting	IGBST (WGF)	Male
88	29 August	5: sow with 1 yearling and 3 others	Thorofare Trail, Open Creek-N.F. Butte	Tracks	Steve Menley	1 mature adult, 2 subadults
89	8 October	1	Moss Lake	Sighting	Bud Nelson	Large bear

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12 May 1978

Dr. Frank C. Craighead, Jr.
P.O. Box 156
Moose, Wyoming 83102

Dear Dr. Craighead:

We are considering for publication a manuscript by Tim Clark (who is associated with Idaho State University and lives in Jackson, Wyoming) entitled "The Ecology of Jackson Hole, Wyoming (including Grand Teton National Park)." The manuscript has 220 pages of text and references, 38 drawings, and 7 photographs; the preface and table of contents are enclosed. Will you please evaluate the manuscript for us and advise us about its publication? We would like to know mainly whether it seems factually correct, whether you would recommend it for publication, and whether there is an audience for it among people who visit (or live in) Jackson Hole. The writing style needs quite a bit of additional polishing, but I think it is clear, and it is neatly typed.

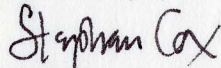
We will pay you an honorarium of \$75 for your assistance, and we would like to have a report within a month of the time you receive the manuscript.

Wright's GRIZZLY BEAR is selling well and is being reviewed widely. Your Foreword has helped to get attention for the book, and evidently people have felt a need for a good book on grizzlies; your own book is sure to do well.

On the advice of Charles McCurdy and others, we are also reissuing Sally Carrighar's TETON MARSH as a Bison paperback.

May I hear from you soon? A return envelope is enclosed for your convenience.

Sincerely yours,



Stephen F. Cox
Executive Editor

PREFACE

Jackson Hole's scenic mountains and abundant wildlife are unparalleled. However, some guests to the valley are more equipped than others to understand and appreciate what they see and feel of its marvels, its rich biota and the interplay of dynamic physical forces. For some visitors, an hour is long enough as they view the blurred panorama from their speeding cars. For others, a lifetime is too short to fully understand the evolutionary drama unfolding all around them, recorded in the rocks and rivers, and plants and animals.

This book brings together for the first time an overview of the ecology of Jackson Hole. It is written for those people who tend to spend more than an hour or two here. It is largely a review of some of the published studies on Jackson Hole's ecology with this information couched in terms of current ecological theory and perspective. I hope this approach will provide a greater understanding of Jackson Hole and, simultaneously, of the field of ecology. This treatment is meant to meet the needs of beginners as well as advanced students of natural history and ecology new to this area. A list of primary sources is given for each chapter at the end of the book. The six sections of the book are not equally treated because unequal amounts are known about the different subjects. Appendices contain lists and relative abundances of the vertebrates of the region: fish, amphibians, reptiles, birds, and mammals.

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