Kenai Peninsula Brown Bear Studies:

Report of the Interagency Brown Bear Study Team, 1987

Printed March, 1988

Kenai Peninsula Brown Bear Studies

Report of the Interagency Brown Bear Study Team, 1987

by

Michael J. Jacobs, Winthrop R. Staples,
Norman L. Weiland, Edward E. Bangs, and Charles C. Schwartz

A report of the Interagency Brown Bear Study Group
Printed March, 1988

Summary

This report summarizes work conducted during the 1987 field season on brown bear (Ursus arctos) from the Kenai Peninsula, Alaska. Four brown bears were radio tracked via aircraft from April through November. Leg snares were used in an attempt to capture brown bear on the Upper Funny River and Goat Creek. Because of low bear density on streams this year, only one young male was captured. The area above Goat Creek was examined for its potential for a bear observation station, but visibility in much of the stream was obscured by dense streamside vegetation. Nine sightings of brown bear by hikers in the Upper Russian Lakes drainage and 25 sightings from other areas on the Kenai Peninsula were recorded.

TABLE OF CONTENTS

PREFACE

This report summarizes supplemental information collected during the 1987 field season by the Kenai Peninsula Interagency Brown Bear Study Team (IBBST). The group was formed in 1984 following joint meetings between the U.S. Forest Service, U.S. Fish & Wildlife Service, and the Alaska Department of Fish and Game.

The group was established to coordinate efforts in collection of scientific information on the Kenai Peninsula brown bear. A major goal of the group was to establish a data base to help land managers in meeting the primary goal of maintaining a viable brown bear population on the Kenai Peninsula. This report contains supplemental information to the data base and is a contribution of the interagency group.

We thank USFWS pilots, particularly Bill Larned, for their efforts in radio-tracking and providing logistic support for field work. B. Larned and Cindy Goff also assisted in ground surveys. Kenai Air Alaska, Inc. provided helicopter support. Pat Fencl typed and helped edit this report. We appreciate the assistance received from ADF&G fishery biologist Dave Nelson and the use of the ADF&G cabin at Upper Russian Lake. We thank Chris Servheen for his assistance and advice. We also thank biologists Vic Barnes, Sterling Miller, John Schoen, and Dick Sellers for help in evaluating the feasibility of estimating bear population density and trend.

Charles C. Schwartz
Chairman, IBBST

LIST OF TABLES

INTRODUCTION

This report summerizes field efforts conducted by the Interagency Brown Bear Study Team (IBBST) on the Kenai Peninsula from June through November 1987. It updates efforts in 1984 (Bevins et al. 1985), 1985 (Risdahl et al. 1986), and 1986 (Schloeder et al. 1987). This report also includes recommendations for work in 1988.

This season's objectives were to:

1. Conclude the feasibility/general studies information begun in 1984 and recommend the direction of future IBBST activities.

2. Radio track brown bears in an effort to identify important areas of brown bear habitat.

3. Continue to monitor human/bear encounters along the Russian River/Resurrection River/Cooper Lake trail system.

4. Evaluate the potential for using various census techniques to monitor brown bear population trends on the Kenai Peninsula.

5. Develop a brown bear management plan for the Kenai Peninsula.

MATERIALS AND METHODS

Ground Surveys

One ground survey was conducted this field season. The alpine area above Goat Creek was evaluated as a potential observation post to observe bear activity in the creek. The write-up for this survey is included in Appendix I.

Bear Observation and Mortality

In 1987 brown bear observations on the Kenai Peninsula made by biologists and the public were recorded on observation cards (Bevins et al. 1985). All brown bear observations were documented. These observations included harvest, defense of life and property, and other mortality data.

Bear snaring and Tagging Efforts

Brown bears were trapped using Aldrich foot snares following techniques used in 1986 (Schloeder et al. 1986). The trip reports are included in Appendix II.

Relocations of Collared Bears

Radio-collared bears were located at approximately weekly intervals from fix-winged aircraft (PA-18 and C-206) during the period April-November.

Russian River/Resurrection River/Cooper Lake Trail Survey

A survey of bear/human encounters on the Russian River/Resurrection River/Cooper Lake Trail system was continued in 1987. Bear observation card questionnaires were placed at each trailhead in the same locations used in previous years (Bevins et al. 1985).

Evaluate Brown Bear Survey Techniques

Alaska Department of Fish and Game and USFWS bear biologists were contacted and pertinent literature reviewed regarding the application of trend or density estimators for monitoring brown bear populations. The results of brown bear studies by the IBBST were used to evaluate the potential for successfully monitoring brown bear populations on the Kenai Peninsula.

RESULTS AND DISCUSSION

Ground Surveys

The area from Goat Lake to the mountain slopes SW of Goat Creek was examined from July 28-30. Six black bears and abundant black bear sign was seen but no brown bear or sign was observed. The main purpose of the trip was to evaluate the potential of using the slopes above Goat Creek to observe brown bear feeding on spawning salmon in Goat Creek. Visibility into Goat Creek itself was generally good but visibility into many areas along the stream was restricted by vegetation. Access from Goat Lake to a point where the creek was visible was very difficult due to thick vegetation near Goat Lake and steep terrain. Helicopter access to the slopes above Goat Creek appeared to be the only viable means of establishing a base camp for observing brown bear.

Brown bear Observations and Mortality

During the 1987 field season, 26 brown bears were sighted in 15 separate observations on the Kenai Peninsula. In addition, tracks and sign of brown bears were observed and reported from 6 locations (Table 1).

Table 1. Brown bear observations on the Kenai Peninsula, Alaska, 1987.

Date 1987	Observer	Location	Status	Comments
3/24	1	T2N R12W	1 Adult	Tracks in snow
4/05	2	T2N R10W S4	1 Adult	Disturbed by plane
5/0	1	T5N R10W S16	1 Adult	Seen several times
5/24	2	T3N R3W S16	Sow/3 3-yr-old	Unaware
6/0	2	T5N R10W S30	Sow/Yearling	Unaware
6/07	1	T10N R3W S29	1 Adult	Unaware
6/18	2	T3N R9W S35	2 Adults	Unaware
6/19	2	T3N R8W S35	2 Adults	Unaware
7/0	1	T3N R5W S3	Many tracks	Eating salmon
7/07	2	T3N R8W	3 Adults	Fishing
7/20	2	T8N R7W S26	1 Sm Adult	Tracks
7/28	2	T3N R8W	2 Adults	Fishing
9/01	1	T7N R9W S14	1 Lg Adult	Seen several times
9/06	2	T9N R3W S23	1 Lg Adult	Unaware
9/10	1	T7N R9W S14	1 Lg Adult	Harvested
9/22	1	T5N R10W S7	Sow/2 Cubs	Aggressive
9/25	2	T4N R7W S5	1 Adult	Tracks
9/29	2	T4N R10W S14	1 Lg Adult	Aggressive
10/28	2	T1S R8W S2	Sow/Cub	Tracks
11/02	2	T4N R6W S10	1 Lg Adult	Tracks
11/18	2	T4N R5W S6	2 Med Adults	Tracks

1 USFWS/ADF&G
2 Other

In 1987, 12 brown bear were harvested by hunters, 8 males and 4 females. In addition one was taken in defense of life and property. One of the sport harvested bears in 1987 was tagged. This male (012) was tagged in 1986 and was shot in May 1987. He was the oldest bear (26 years old) recorded on the Kenai Peninsula.

The radiocollar of Bear 012 had caused extensive rubbing on the neck with tissue damage. Several bear researchers were contacted regarding this problem and possible solutions. Apparently collar rubbing is not an uncommon problem on large males. Solutions to this problem included accepting some level of damage to collared males, not tagging males, or utilizing a break-away or expanding collar of some type which would prevent chronic problems but may cause some premature collar loss. Twelve break-away spacers, designed for bear radiocollars were obtained from Dr. Chris Servheen, USFWS Grizzly Bear Recovery Coordinator, for use on Kenai Peninsula brown bears.

We attempted to recapture adult male 004 to check and replace his collar on June 2. This attempt was unsuccessful because the old transmitter apparently failed after a location on May 29 and he was not located again.

Bear Snaring and Tagging Efforts

Upper Funny River, Goat Creek, Mystery Creek, Chickaloon River, and Benjamin Creek were evaluated for brown bear snaring in 1987.

Because of apparently low brown bear numbers and a lack of concentrated activity, snaring was not attempted at Mystery Creek, Chickaloon River (near the pipeline corridor) or Benjamin Creek. Tracks of only one or two bears were seen on Mystery Creek and Chickaloon River and those bears were apparently moving through with no sign of prolonged activity. Salmon were present but not abundant at both streams. USFWS fisheries biologists reported that king salmon were present at Benjamin Creek but brown bear activity appeared very light compared to past years. The area had been visited several times by helicopters in conjunction with fisheries work which may have contributed to the lack of brown bear activity.

Snaring was conducted along the Upper Funny River from July 13-17, and along Goat Creek from July 21-24, and July 30-August 3. One young male brown bear was captured on Goat Creek in 119 trap nights of effort. Overall capture rate for 1987 (0.84 captures per 100 trap nights) was much lower than in 1986 (3.25 captures per 100 trap nights).

The estimated cost of logistic support for snaring in 1987 ($3,073) was slightly higher than in 1986 ($2,500). The cost per bear captured rose to $3,073 per bear in 1987, compared to $629 per captured bear in 1986. Actual costs were lower because refuge aircraft were used for access to Goat Creek. Costs were higher than expected because poor weather conditions increased helicopter costs to Funny River because of one aborted flight. Costs would have also been lower by approximately 50 percent if fixed-wing aircraft had been used rather than a helicopter at Funny River. Now that the Funny River area has been examined on foot, helicopter transportation would not be necessary for future snaring efforts in the Upper Funny River. PA-18 aircraft could provide access to a lake (T 3 N, R 8 W, Sec 36) in this area for snaring activities.

Relocations of Collared Bears

Four brown bears were relocated 56 times in 1987. Two of the bears were captured in 1985 and two were captured in 1986. A summary of those observations follows:

Bear 004 - An adult male captured in 1985, was located 9 times before radio contact was lost in late May. He left his den in late March and traveled extensively between Skilak and Tustumena Lakes.

Bear 007 - An adult female captured in 1985, was located 27 times in 1987. She emerged from her den in late April and stayed near the den until mid-June when she traveled into the Skilak Glacier Flats apparently feeding on spawning red salmon. By July 1, she was in the Russian River drainage. In August, she was along the lower Kenai River where she stayed until late October. She apparently denned at or very near her 1986 den site about November 1. She used approximately 180 square miles (460 km^2) in 1986.

Bear 012 - An adult male captured in 1986, was located 6 times before being harvested. The bear emerged from the den about April 10, and stayed near the den until mid-May when he started traveling west. He was harvested along the Funny River Horsetrail on May 17.

Bear 013 - An adult female captured in 1986, was located 19 times in 1987. She emerged from her den around May 1. She utilized a relatively small area near Resurrection River and Goat Creek throughout the summer. She denned at her 1986 den site in early November. She used approximately 10 square miles (26 km) in 1987.

Aerial tracking data in 1987 indicated similar patterns of use to past years except for the use at Goat Creek in 1987. Two radiocollared brown bear that used Goat Creek in past years did not appear to extensively utilize Goat Creek during the early salmon spawning run in 1987 despite record numbers of fish. This may explain the high numbers of black bears using the creek. ADF&G Fisheries Biologist, Dave Nelson, reported never seeing black bears during fishery surveys of Goat Creek in the past 12 years of working there.

Russian River/Resurrection River/Cooper Lake Trail Survey

In 1987, hikers filled out 121 questionnaire cards. There were 19 black bear observations and 5 brown bear observations. In 1986, 354 questionnaire cards were turned in reporting 37 black bear observations and 10 brown bear sightings. Although not as many observations were reported this year, percentage wise, there were more observations per questionnaire returned (Tables 2 and 3).

Table 2. Black Bear Observations on the Russian River/Resurrection River/ Cooper Lake Trail System, 1987.

DATE	NO OF BEARS	LOCATION	DISTANCE (ft)	FEMALE w/ young	BEAR'S REACTION
6/07	1	T3N R3W S12	100	no	ran aware
6/14	1	T2N R2W S 8	100	no	climbed a tree
6/14	1	T2N R2W S34	100	no	came closer
6/16	1	T2N R2W S 7	100	no	ran away
6/19	1	T2N R3W S 2	100	no	ran away
6/23	1	T3N R3W S32	100	no	ran away
7/14	1	T2N R2W S33	100-300	no	ran away
8/01	4	T3N R4W S12	100	yes	sow remained, cubs climbed tree
8/01	1	T2N R3W S 7	100	no	ran away
8/02	3	T4N R4W S21	100-300	yes	ran away
8/03	1	T4N R4W S 9	100	no	continued feeding
8/04	1	T2N R3W S 2	300	no	ran away
8/06	1	T2N R4W S 9	300	no	indifferent
8/06	1	T4N R4W S 9	100-300	no	ran away
8/06	1	T4N R2W S17	100	no	ran away
8/09	1	T2N R2W S17	100	no	ran away
8/10	3	T2N R2N S17	100	yes	sow remained, cubs climbed tree
8/12	1	T2N R2W S34	100	no	indifferent
8/16	2	T2N R2W S 6	100-300	no	climbed tree

Table 3. Brown Bear Observations on the Russian River/Resurrection River/ Cooper Lake Trail System, 1987.

DATE	NO OF BEARS	LOCATION	DISTANCE (ft)	FEMALE w/ young	BEAR'S REACTION
6/12	3	T3N R4W S 2	100-300	yes	ran away
7/13	3	T2N R2W S 7	100	yes	moved off
7/25	1	T3N R4W S13	300+	no	unaware
8/10	1	T3N R3W S21	100	no	ran away
8/16	1	T4N R4W S21	100-300	no	ran away

Evaluation of Brown Bear Survey Techniques

In May, 1987, at a joint ADF&G and USFWS meeting, managers discussed brown bear information needs. Agency supervisors recommended that in light of budget restrictions, the IBBST investigate the potential of various techniques for monitoring brown bear population trends on the Kenai Peninsula. This recommendation was in line with IBBST step-down planning which indicated that population trend information was a high priority data need. This was especially significant in light of recent questions raised about the interpretation of bear harvest statistics (Harris and Metzgar 1987).

Bear biologists in Alaska were contacted and pertinent literature reviewed on the feasibility of determining brown bear population trends. Three types of surveys were evaluated.

1. Density estimators. A point estimate of bear density may be determined using intensively sampled areas and marked bears (Miller et al. In Press). These types of surveys are expensive, and dependent upon relatively large sample sizes of marked individuals (Reynolds et al. 1987, Miller et al. In Press).

2. Direct population trend estimators. Aerial surveys flown in the alpine or along salmon streams are used to assess changes in bear numbers. They are dependent upon good visibility and large numbers of bears being observed (Erickson and Siniff, 1963). These types of surveys are less expensive than point density estimates.

3. Indirect population trend estimators. Harvest statistics, track counts, trail counters, and other remote sensing techniques (remote photography) are potentially the least expensive census methods to determine trends in the number of bears but are probably the least reliable and timely. These techniques depend upon a relationship between bear sign in specific locations and overall bear abundance.

The use of a marked/unmarked bear index appeared to be the most feasible technique for developing an index to bear abundance along known concentration areas such as the Funny River or Goat Creek. The success of leg snaring bears along salmon streams in 1986 offered hope that many bears could be inexpensively marked and an aerial census of a small area attempted in 1987. However, so few bears were present along the streams that were examined in 1987, that it became evident that such a technique was not feasible, even if all the bears present could have been marked. Small sample sizes would have made confidence intervals too large for the estimate to be meaningful.

The potential for using any of the three techniques evaluated as a viable precise management tool for Kenai Peninsula brown bear appeared very low. The basic component of all three types of surveys was a large sample of bears or sign. Brown bear were very difficult to locate and appeared to be at very low densities throughout the areas studied to date. Aerial surveys and ground observations of brown bear sign along 30 salmon spawning areas from 1984-86 indicated that between 0-13 bears (including cubs) were using an area at one time. Most areas were believed to have less than 6 bears (including cubs) present at one time. Aerial tracking of tagged individuals indicated the same

bear was using up to eight different salmon spawning areas (some up to 54 km apart) during the same year. Thick vegetation along most Peninsula salmon streams precludes readily observing bears. During aerial surveys in 1984 and 1985 an average of only 1.0 and 1.7 brown bear, respectively, were observed per hour in known concentration areas. Although attempts were not made to specifically see radio-collared bears, they were observed on only 16% of 254 aerial locations. Low numbers of brown bear, technical problems, streamside vegetation, the large area in which spawning salmon are available, and large numbers of black bear inhibit the development of reliable track, remote sensing, or other indirect trend estimators.

From the work done on Kenai brown bear to date, it appears from the apparent very low bear density, poor visibility, and lack of viable survey alternatives, that brown bear density or indications of population trend are unlikely to be obtained within any reasonable costs in the near future.

CONCLUSIONS AND RECOMMENDATIONS

Most of the objectives of the initial four year brown bear feasibility study have been accomplished. Historic records and accounts of brown bear distribution on the Kenai Peninsula were collected. Ground surveys of most salmon spawning areas have been conducted. Aerial surveys were flown in both alpine areas and along salmon spawning streams. Fifteen brown bear were captured by either helicopter darting or leg snaring. Nine radiocollared brown bear were monitored and habitat use, movement patterns, mortality and den use were determined. Public use and bear encounters/sightings were documented along the Russian River/Resurrection River/Cooper Lake Trail System. Brown bear sightings and human-caused mortality were recorded throughout the Kenai Peninsula. This information was compiled annually in this and three previous Kenai Peninsula Interagency Brown Bear Study Team Reports.

The final task of the Brown Bear Study Team is to complete a comprehensive brown bear management plan for the Kenai Peninsula. This document will summarize the available information on brown bear, current land management strategies, and human uses throughout the Kenai Peninsula. The Management Manual will recommend a long-term strategy for managing a viable brown bear population on the Kenai Peninsula. The manual is currently being developed and should be completed in 1988. Following compilation of this manual, the IBBST will re-evaluate the first step-down plan and identify future direction of brown bear studies on the Kenai Peninsula.

LITERATURE CITED

Bevins, J.S., C.C. Schwartz, E.E. Bangs, and K.J. Nelson 1985. Kenai Peninsula Brown Bear Studies: Report of the Interagency Brown Bear Study Team. 1984. Unpubl: Progress Report 103 pp.

Erickson, A.W. and D.B. Siniff, 1963. A statistical evaluation of factors influencing aerial survey results on brown bears. N. Am. Wildl. Nat. Res. Conf. 28:391-409.

Harris, R.B. and C.H. Metzgar, 1987. Estimating harvest rates of bears from sex ratios changes. J. Wildl. Manage. 51(4):802-810.

Miller, S.D., E.F. Becker, and W.B. Ballard. In Press. Density estimates using modified capture-recapture techniques for black and brown bear populations in Alaska. Int. Conf. Bear Res. and Manage. 7(1987):000-000.

Risdahl, G.L., C.A. Schloeder, E.E. Bangs, and C.C. Schwartz, 1986. Kenai Peninsula Brown Bear Studies: Report of the Interagency Brown Bear Study Team 1985, Unpubl. Progress Report 92 pp.

Schloeder, C.A., M.J. Jacobs, N.L. Weiland, E.E. Bangs, C.C. Schwartz, 1986. Kenai Peninsula Brown Bear Studies: Report of the Interagency Brown Bear Study Team 1986, Unpubl. Progress Report 52pp.

APPENDIX I

Goat Lake Ground Survey

Area: Goat Lake/Goat Creek Dates : July 28-30, 1987
Personnel: Staples/Goff

The route traveled begins at the north end of Goat Lake and follows the 2000 to 3500 foot elevation line on the high ground west of Goat Creek to a location due east of the summit of hill 4508. With nine power binoculars and 16 to 40 power spotting scope it was possible to observe habitat unobstructed by heavy vegetation in the Goat Creek Valley from Goat Lake to the southern end of Upper Russian Lake.

We flew into Goat Lake on July 28, in the USFWS piper cub with pilot Bill Larned. Bill sighted a sow and yearling brown bear chasing salmon in the Funny River when transporting me to Goat Lake. We also observed two black bear subadults laying on a small patch of snow at approximately 1500 feet of elevation on the high ground due west of the southern end of Upper Russian Lake.

Goat Lake is situated in the bottom of a crater like terrain feature bordered with tall alder shrub. The large trunks of these alders angle down slope and ascent "against the grain" in this vegetation is extremely difficult. Movement with my frame backpack was especially difficult while Cindy Goff was less impeded by her internal frame backpack.

The ridge leading upslope to the west of the landing beach suggested a more gradual ascent with less obstructive vegetation, however our movement west to the base of hill 4889 from the 1800 to the 2300 foot contour interval consumed over three hours. Although movement up this ridge is probably the best route to the alpine habitat west of Goat Lake it is punctuated by many heavily vegetated 10 to 20 foot nearly vertical land forms that stair-step their way upslope and travel was very difficult.

We sighted a black bear sow with one small cub at the alder/tall grass and wildflower line (2300 foot elevation) as we proceeded directly upslope at 5:00 P.M. on 28 July. The alpine slope gradient west of Goat Creek is close to 60 degrees and lush grass and wildflowers make it quite slippery in many locations. We also sighted a large mountain goat at approximately 3500 feet of elevation during our ascent. By 8:30 P.M. we determined that we would not be able to reach a flat camping spot by night fall and retreated downslope to the grassy bench west of the north end of Goat Lake. Numerous black bear scats containing vegetation were observed in this region of lush grass and wildflower vegetation present between 2000 and 2300 feet of elevation.

On the morning of the 29th I ascended the slope west of Goat Creek in a northwesterly direction toward the saddle and small lake, located one and one half miles northwest of Goat Lake. At 2:00 P.M. I observed one large black bear on the southern slopes of hill 4508 at approximately 3000 feet of elevation. This bear was very active despite rather high temperatures (70 degrees fahrenheit) and the bright sunshine. Many marmots and marmot dens were present between 2000 and 3500 feet on the eastern slopes of hills 4889 and 4508.

I reached a point due east of the summit of hill 4508 (T 3 N, R 4 W, Sec. 35) at 3000 feet of elevation by 4:00 P.M. and set up the spotting scope to observe the Goat Creek/Upper Russian River junction during the early evening hours. Visibility was excellent in open areas and I could see individual salmon and sea gulls clearly in the lake over a mile and a half away. At 5:30 P.M. I observed a cow moose over a mile due east of my position in the open area south of the long un-named lake located one mile south of Upper Russian Lake. At 5:48 P.M. I observed a black bear sow with two young cubs directly below my location moving in a southerly direction along the 1500 foot contour line. Salmon were not observed in Goat Creek south of a point located approximately one mile south of the confluence of Goat Creek and Upper Russian Lake. Two immature bald eagles were observed killing and eating fish in a shallow section of Goat Creek during this period. I did not see any bear along the banks of Goat Creek or along the southern shore of Upper Russian Lake during four hours of nearly continuous observation. Observations along Goat Creek during snaring operations indicated that most salmon were consumed by bear, back from the lake shore and creek banks in tall grass and wooded areas.

I departed the observation site at 8:00 P.M. and encountered what I believe were the black bear and two cubs seen earlier, approximately one mile to the south, the bears grazed past me at a distance of approximately 80 meters and appeared to be eating green blue berries. By 10:00 P.M. I was still a mile north northwest of the tentsite and decided to descend from my 3000 foot elevation in order to be off the steep slopes by dark. Vegetation was extremely slick and I slipped and then skidded downslope 10 to 15 feet on a number of occasions. Traveling down-hill through approximately 300 meters of alders in this location was not extremely difficult for individual alder trunks were angled down slope and were relatively far apart.

When I reached the bottom of the slope located at about 2000 feet elevation I found a narrow north-south running bench covered with tall grass and alders bisected by a faint trail. I followed this trail south for approximately an hour before arriving at our tentsite at 11:30 P.M. I observed numerous black bear scats along this trail. Further exploration to the north of where I intersected this trail may reveal an easier route from Goat Lake to Upper Russian Lake than side-hilling along the slopes west of Goat Creek. Cindy apparently sighted the same black bear sow and cub observed the first day of this trip on 29 July in the vicinity of the tentsite.

On 30 July I decided to take a more direct southerly route back to the landing site and we consequently encountered two shear cliffs that had to be negotiated during our descent. Travel downslope through the alders although treacherous due to the extremely steep slopes south of our ascent route was relatively easy due to the downward angle of individual alder trunks. We arrived 200 meters west of the landing site two hours after beginning our descent.

Travel in this area requires a backpack that is "clean" and will not snag alders. Side-hilling necessary during north-south movement along the 60 degree slopes in this area requires strong mountain climbing type boots with vibram soles. The north-south trail north of Goat Lake may extend far to the north and provide an easier route between Goat Lake and Upper Russian Lake. An alternate route to an observation location above Goat Creek at 1500 feet of

elevation could be reached by landing on Upper Russian Lake and moving west from the banks of Goat Creek. An apparent gap in the thick belt of alders along the northeastern slopes of hill 4508 exists due west of a point along Goat Creek located one half mile upstream from the confluence of Goat Creek and Upper Russian Lake and should make ascent to this observation location less difficult. No brown bear sign was observed on the high ground west of Goat Creek during the period 28 to 30 July 1987.

APPENDIX II

BROWN BEAR SNARING EFFORTS FOR 1987

Snaring was conducted this year along the Funny River and Goat Creek. Overall capture rate for this year was .84 captures per 100 trap nights. This is much lower than our 1986 capture rate which was 3.25 captures per 100 trap nights.

Data tables accompany each trip report. Results list what was caught in the tripped snares. Empty snares had sometimes momentarily held a black bear or young brown bear and thus are listed in the results. Also indicated is the time the snare was tripped (i.e., afternoon or night).

AREA: Funny River DATE: 7/13-7/17/87
PERSONNEL: Jacobs/Staples/Bangs

The first morning flight into Funny River was aborted because of fog at the landing site.

We were later flown by helicopter from Kenai to the snaring site along the Funny River (T 3 N, R 8 W, Sec. 35). Base camp was set up at an unnamed lake approximately one mile from the River. During the flight into the area a single brown bear was observed walking along the River near the planned snaring site. The afternoon of 7/13 was spent setting up camp and then setting 7 snares on the river. Twelve king salmon were observed in the river and about 5 bear-killed fish along the banks. Bear tracks present were from 2 individual brown bear.

The following day we walked upstream from the set snares and found very little bear activity. No snares were tripped the first night and only one was tripped on the second night. After two days, we did not see any new brown bear activity. Bear tracks along the River were the same tracks seen on the first day. On 7/15, five more snares were tripped over the next two nights. Two of these had definitely been set off by black bears.

It appeared that the brown bears did not travel in the area where the snares were set after our arrival. We flew out by helicopter on 7/17 to refuge headquarters. Refuge pilot Bob Richey later indicated the lake where the base camp was located would be accessible by a Supercub float plane. Snaring data are tabulated below:

DATE	# OF SNARES SET	# OF SNARES TRIPPED Afternoon/Night	RESULTS
7/13/87	7	0 / 0	none
7/14/87	7	0 / 1	empty
7/15/87	12	0 / 2	both empty (1 black bear)
7/16/87	12	0 / 2	both empty (1 black bear)
4 nights	38	0 / 5	no bears captured

AREA: Goat Creek
PERSONNEL: Jacobs/Staples/Bangs

DATE: 7/21-7/14/87

The first snaring effort at Goat Creek this year was decided upon because of the large amounts of fish in the creek and along the lake shore. One radio-collared bear was located near the creek 3 days prior to our arrival to the area. We stayed at the ADF&G cabin on Upper Russian Lake again this year. Bangs flew by float plane from refuge headquarters to the cabin and Staples and Jacobs were picked up at Cooper Lake and flown in with the same plane.

Access to Goat Creek from the cabin was by motorized boat and 10 snares were set on the afternoon we arrived. Red salmon were in Goat Creek and Upper Russian Lake in fairly high numbers and there was sign of bear activity. There was no definite brown bear activity. However, Goat Creek has very few places along the Creek to see good tracks. On the return trip to the cabin, two black bears and one small brown bear were observed fishing along the lake shore.

The following day two more snares were set. Four more black bears were observed walking or feeding along the lake shore. Black bears seemed to be everywhere. Black bear tracks were observed in a couple of places along Goat Creek and two more black bears were observed on the third day fishing on the creek. The black bears seemed to show up most often along the lake and creek in the late afternoon. This appeared to be when they began feeding.

On the fourth day of snaring, a young male brown bear (approx. 3.5 yrs.) was caught. We believe this bear was the small brown bear seen the first afternoon. Pilot Bill Larned assisted in working the bear. The bear was not collared because of his age, but was ear-tagged and tattooed. The bear had a healed broken upper jaw from some previous injury which resulted in the jaw being out of alignment.

On 7/24, all the snares were tripped by the crew and were left in the field bolted to the trees. It was decided to leave them in the field for a week and return to retrap the area. Snare data are listed below:

DATE	# OF SNARES SET	# OF SNARES TRIPPED Afternoon/Night	RESULTS
7/21/87	10	0 / 0	none
7/22/87	12	5 / 2	all empty (4 black bears 3 in afternoon, 1 at night)
7/23/87	12	1 / 2	brown bear (night) 2 empty (1 black bear, night)
3 nights	34	6 / 4	1 brown bear captured

AREA: Goat Creek DATE: 7/30-8/3/87
PERSONNEL: Jacobs/Staples

The second trapping effort at Goat Creek was again based at the ADF&G cabin on Upper Russian Lake. Wyn Staples arrived at the cabin from Goat Lake by float plane and Mike Jacobs was flown in from Cooper Lake with the same plane.

Eleven snares were set the first afternoon. Salmon were more abundant in Goat Creek than they were just one week earlier. Eggs were observed floating in the Creek and the redds were more frequent. There were many new bear-killed fish along the banks of the creek but no positive brown bear tracks were seen.

Black bears still seemed to be responsible for the bulk of the fishing activity. Nine snares were tripped throughout the next four days. Four of the tripped snares momentarily held black bears and one held a young brown bear. The brown bear was held long enough in the snare to dig up a circle of vegetation around the anchor point. There were also dug-up areas at the bases of trees beyond the reach of the cable, which indicated the presence of another bear, probably a female. The snare stops were apparently very effective at preventing the capture of black bears and cub brown bear.

On the morning of 8/3, we picked up all the snares on Goat Creek. Two subadult brown bears (2.5 year-old cubs) were observed playing and ripping bark from a dead cottonwood tree. The bears were only 100 yards from the creek and area where the snares were set.

Snaring data are listed below:

DATE	# OF SNARES SET	# OF SNARES TRIPPED Afternoon/Night	RESULTS
7/30/87	11	0 / 2	both empty
7/31/87	12	2 / 0	both empty (1 black bear)
8/01/87	12	3 / 1	all empty (2 black bears, 1 in afternoon, 1 at night, 1 brown bear, afternoon)
8/02/87	12	0 / 1	empty
4 nights	47	5 / 4	no bears captured