ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-1
PROJECT NR.: 1.0

WORK LOCATION: Wolverine Creek Cove, Redoubt Bay Critical Habitat Area

PROJECT DURATION: 1 July 2002 – 30 September 2005

PROJECT REPORTING PERIOD: 1 July 2002 – 30 June 2003

PROJECT TITLE: Wolverine Creek Planning

Project Objectives:

1. Reduce 90% or more of bear/human and user conflicts (i.e., incidents of bears getting fish directly from anglers and visitors being directly threatened by bears) by December 30, 2004 by engaging anglers, bear watchers, sport fishing and bear viewing guides, fisheries biologists and wildlife biologists in a cooperative planning process and at co-management of the area.

   Job/Activity a.: Form a co-management team of anglers, bear watchers, sport fishing and bear viewing guides, and fisheries, habitat and wildlife biologists by September 30, 2002.
   Job/Activity b.: Team develops and tests plan to resolve and establish self-management guidelines for commercial guides and private parties from fall 2002 to fall 2004.
   Job/Activity c.: Staff evaluates the plan for effectiveness and minimization of conflicts, and includes recommendations for future management of the site by December 30, 2004.

2. Staff will annually assess the management environment (number and type of conflicts) in the field and provide this information to the planning team during 2002-2004; produce a preliminary assessment in Year 1, and an annual assessment of the effectives of the planning process in Years 2-3.

3. Graduate student and assistants will quantify the impacts of human activities on bear foraging for salmon in Wolverine Creek cove between July 1 and August 15, 2002 and June 5 and August 15, 2003 and produce a report to the planning team by December 2004.

   Job/Activity a.: Collect data on the interactions and relationships among salmon, bear foraging, and visitor activities.
   Job/Activity b.: Present results on the interactions among salmon, bear foraging, and visitor activities to the planning team during fall 2004.
   Job/Activity c.: Incorporate the results of the study into the final evaluation of the planning process by December 30, 2004.

Summary of Project Accomplishments:

NOTE: The following accomplishments refer to one field season of data June – August 25, 2002.

Objective 2: Three staff were deployed to assess the management environment between June 13 and August 8. Nineteen categories of bear/human and user conflicts categories were measured including a) anglers casting toward bears; b) bears seeking hooked fish and angler responses; and c) bears climbing into boats or onto plane floats.

Objective 3: a. A team of 3 researchers recorded both the location and time periods used by boats, bears attempting to fish, bears catching live fish, and bears scavenging dead fish. The first period for collection was twenty-six, 24-hour periods from June 18-August 1, 2002.

b. Preliminary results of the 2002 season research were presented to the Wolverine Creek Management Committee in May 2003.

NOTE: The following accomplishments refer to interim reporting period of July 1, 2002 through June 30, 2003

Objective 1. a. The Wolverine Creek Management Committee was formed in November 2002 and met twice more to discuss management issues.

b. Twelve guidelines were approved and disseminated to all users of the site in May and June. The role of the public and ADF&G was discussed and the group developed a step-down protocol to follow when guidelines are not being observed. Staff developed 6 management objectives and criteria for success in achieving these objectives. These objectives were presented to the Wolverine Creek Management Committee and formed the basis for management data gathering during the 2003 field season.

Project Costs: Federal share $97,468 + state share $32,489 = total cost $129,957

Prepared By: Colleen Matt, Lands & Public Services Coordinator

Date: September 11, 2003

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-1
PROJECT NR.: 1.0

WORK LOCATION: Wolverine Creek Cove, Redoubt Bay Critical Habitat Area

PROJECT DURATION: 1 July 2002 – 30 September 2005

PROJECT REPORTING PERIOD: 1 July 2003–30 June 2004

PROJECT TITLE: Wolverine Creek Planning

Project Objectives:

1. Reduce 90% or more of bear/human and user conflicts (i.e., incidents of bears getting fish directly from anglers and visitors being directly threatened by bears) by December 30, 2004 by engaging anglers, bear watchers, sport fishing and bear viewing guides, fisheries biologists and wildlife biologists in a cooperative planning process and at co-management of the area.
2. Staff will annually assess the management environment (number and type of conflicts) in the field and provide this information to the planning team during 2002-2004; produce a preliminary assessment in Year 1, and an annual assessment of the effectives of the planning process in Years 2-3.
3. Graduate student and assistants will quantify the impacts of human activities on bear foraging for salmon in Wolverine Creek cove between July 1 and August 15, 2002 and June 5 and August 15, 2003 and produce a report to the planning team by December 2004.

Summary of Project Accomplishments:

NOTE: The following accomplishments refer to one field season of data June 4-August 15, 2003.

Objective 2: Three staff were deployed to assess the management environment between June 8 and August 8 for a total of 178 person/days. Bear/human and user conflicts categories were measured including a) anglers casting toward bears; b) bears seeking hooked fish and angler responses; and c) bears climbing into boats or onto plane floats; and d) successful bear fishing attempts and locations.

Objective 3: A team of 3 researchers recorded both the location and time periods used by boats, bears attempting to fish, bears catching live fish, and bears scavenging dead fish. The first period for collection was thirty-one, 24-hour periods from June 11-July 25, 2003.

NOTE: The following accomplishments refer to interim reporting period of July 1, 2003 through June 30, 2004

Objective 1: Two meetings of the Wolverine Creek Management Committee were held. Accomplishments include 1) review & evaluation of the 2003 field season using

objectives & criteria; 2) revision of a criterion & adoption of 2 new guidelines; 3) review of the graduate study and implications for bear displacement by boats; 4) discussion, rejection, and revision of ADF&G proposed guideline to minimize displacement of bears.

Project Costs (includes indirect costs)**:**
Federal share $89,244.31 + state share $29748.11 = total cost $118,992.42

Prepared By: Colleen Matt, Lands & Public Services Coordinator

Date: September 16, 2004

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-1
PROJECT NR.: 1.0

WORK LOCATION: Wolverine Creek Cove, Redoubt Bay Critical Habitat Area

PROJECT DURATION: 1 July 2002– 30 September 2005

PROJECT REPORTING PERIOD: 1 July 2004–30 June 2005

PROJECT TITLE: Wolverine Creek Planning

Project Objectives

1. Reduce 90% or more of bear/human and user conflicts (i.e., incidents of bears getting fish directly from anglers and visitors being directly threatened by bears) by December 30, 2004 by engaging anglers, bear watchers, sport fishing and bear viewing guides, fisheries biologists and wildlife biologists in a cooperative planning process and at co-management of the area.

   Job/Activity a.: Form a co-management team of anglers, bear watchers, sport fishing and bear viewing guides, and fisheries, habitat and wildlife biologists by September 30, 2002.

   Job/Activity b.: Team develops and tests plan to resolve and establish self-management guidelines for commercial guides and private parties from fall 2002 to fall 2004.

   Job/Activity c.: Staff evaluates the plan for effectiveness and minimization of conflicts, and includes recommendations for future management of the site by December 30, 2004.

2. Staff will annually assess the management environment (number and type of conflicts) in the field and provide this information to the planning team during 2002-2004; produce a preliminary assessment in Year 1, and an annual assessment of the effectives of the planning process in Years 2-3.

3. Graduate student and assistants will quantify the impacts of human activities on bear foraging for salmon in Wolverine Creek cove between July 1 and August 15, 2002 and June 5 and August 15, 2003 and produce a report to the planning team by December 2004.

   Job/Activity a.: Collect data on the interactions and relationships among salmon, bear foraging, and visitor activities.

   Job/Activity b.: Present results on the interactions among salmon, bear foraging, and visitor activities to the planning team during fall 2004.

   Job/Activity c.: Incorporate the results of the study into the final evaluation of the planning process by December 30, 2004.

Summary of Project Accomplishments:

Objective 1, activity a-c: Meetings of the Wolverine Creek Management Committee (WCMC) were held on 6 October 2004 and 4 May 2005. Accomplishments include 1) review & evaluation of the management guidelines and the 2004 field season using objectives & criteria; 2) evaluation of the WCMC and ADF&G presence at Wolverine Creek Cove; 3) discussion of user fee scenarios to support ADF&G services; 4) discussion regarding ADF&G guide training.

Objective 2: (Note: Because the data collection period overlaps the reporting period the accomplishments for Objective 2 refer to one field season of data collection from June 8 to August 8, 2004.)

Three staff were deployed to monitor and manage compliance with the Wolverine Creek Management Committee's "Management Guidelines for the Wolverine Creek Area" between June 8 and August 8. Staff also monitored and managed visitor activities around Big River Lake. Bear/human and user conflicts were recorded. A few of the categories that were recorded included: a) anglers casting toward bears; b) bears seeking hooked fish and angler responses; c) bears displaced or harassed by humans; d) bears obtaining fish or food from humans; e) aggressive encounters between humans; and f) successful bear fishing attempts and locations. Visitor arrival/departure information and bi-hourly visitor counts were recorded. These data were used in the program assessment provided to the WCMC discussed in Objective 1 above.

Objective 3

a. Activity a was accomplished in an earlier reporting period.

b: The graduate student 1) finished data analysis quantifying the impacts of human activities on bear foraging for salmon in Wolverine Creek cove, 2) presented results to the WCMC at the spring 2004 meeting, and 3) produced an M.S. thesis. The research, "Quantifying spatiotemporal overlap of Alaskan brown bears and people" was published in Journal of Wildlife Management 69(2):810-817, April 2005.

c. Evaluation of the planning process has been postponed until project completion.

Project Costs (includes indirect costs)**:**

Stewardship Investment items: None

Total costs: Federal share $ 66,839.25 + state share $ 22,279.75= total cost $ 89,119

Prepared By: Joe Meehan, Lands and Refuges Program Coordinator

Date: August 31, 2005

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-1
PROJECT NR.: 1.0

WORK LOCATION: Wolverine Creek Cove, Redoubt Bay Critical Habitat Area

PROJECT DURATION: 1 July 2002 – 30 December 2005

PROJECT REPORTING PERIOD: 1 July 2005 – 30 December 2005

PROJECT TITLE: Wolverine Creek Planning

Project Objectives

1. Reduce 90% or more of bear/human and user conflicts (i.e., incidents of bears getting fish directly from anglers and visitors being directly threatened by bears) by December 30, 2004 by engaging anglers, bear watchers, sport fishing and bear viewing guides, fisheries biologists and wildlife biologists in a cooperative planning process and at co-management of the area.

   Job/Activity a.: Form a co-management team of anglers, bear watchers, sport fishing and bear viewing guides, and fisheries, habitat and wildlife biologists by September 30, 2002.

   Job/Activity b.: Team develops and tests plan to resolve and establish self-management guidelines for commercial guides and private parties from fall 2002 to fall 2005.

   Job/Activity c.: Staff evaluates the plan for effectiveness and minimization of conflicts, and includes recommendations for future management of the site by December 30, 2005.

2. Staff will annually assess the management environment (number and type of conflicts) in the field and provide this information to the planning team during 2002-2004; produce a preliminary assessment in Year 1, and an annual assessment of the effectives of the planning process in Years 2-3.

3. Graduate student and assistants will quantify the impacts of human activities on bear foraging for salmon in Wolverine Creek cove between July 1 and August 15, 2002 and June 5 and August 15, 2003 and produce a report to the planning team by December 2004.

   Job/Activity a.: Collect data on the interactions and relationships among salmon, bear foraging, and visitor activities.

   Job/Activity b.: Present results on the interactions among salmon, bear foraging, and visitor activities to the planning team during fall 2004.

   Job/Activity c.: Incorporate the results of the study into the final evaluation of the planning process by December 30, 2004.

Summary of Project Accomplishments for entire project:

1. a. ADF&G recruited a co-management team (the WCMC) of anglers, bear watchers, sport fishing and bear viewing guides, and fisheries, habitat and wildlife biologists in 2002.

b. The team met 8 times from 2002-2005 and developed a plan to resolve conflicts and establish self-management guidelines for commercial guides and private parties. Staff evaluated the voluntary guidelines during field seasons 2002 – 2005 as to their effectiveness and whether they helped minimize conflicts. Staff also provided feedback and recommendations to the team during end-of-season meetings.

c. The WCMC and ADF&G staff evaluated the progress of the WCMC in meeting the management objectives for the Wolverine Creek area. The result of this evaluation was revision to the WCMC charter, recommendations to improve group effectiveness and inclusiveness, and support for the continuation of the WCMC. The WCMC and ADF&G agreed to continue meeting in 2006.

2. The ADF&G staffed a field camp on Big River Lakes from early June through mid- August during the 2002-2005 field seasons. Staff collected visitor use, human-bear and compliance data, and worked with visitors to ensure the WCMC guidelines were being observed. Staff prepared annual assessments of the effectiveness of the planning process at the end of each field season.

3. a. The graduate student conducted a study quantifying the impacts of human activities on bear foraging for salmon in Wolverine Creek cove,

b. The results were presented to the WCMC at the spring 2004 meeting, and the graduate student produced an M.S. thesis. The research, "Quantifying spatiotemporal overlap of Alaskan brown bears and people" was published in Journal of Wildlife Management 69(2):810-817, April 2005.

c. Results of the work were incorporated into the annual evaluation of the planning process.

Summary of Project Accomplishments during <u>last segment period only</u>:

NOTE: The following accomplishments refer to one field season of data June 8-July 30, 2005.

Objective 2: ADF&G field crew monitored visitation and collected data on visitation, bear-human conflicts and noncompliance with the guidelines from 8 June to 30 July. In addition, staff documented the impacts of visitor activity on shoreline habitats in the area.

NOTE: The following accomplishments refer to reporting period of July 1, 2005 through 30 December 2005

Objective 1: One meeting of the Wolverine Creek Management Committee was held in October 2005. Accomplishments include: 1) ADF&G and the WCMC shared insight from the 2005 season; 2) the WCMC modified the guideline covering food storage; and 3) discussed possible revisions to their charter.

Objective 3: a-b: Activities were accomplished in an earlier reporting period.

c: See 1c. As the WCMC has agreed to continue meeting, evaluation of the process and its effectiveness in meeting management goals will be an ongoing activity. Formation of the WCMC has resulted in greater cooperation among guides and visitors at Wolverine Creek, and voluntary observance of the group's guidelines has reduced the likelihood of dangerous bear/human encounters there.

Project Costs (report period):

Total costs: Federal share $42,616.33 + state share $14,205.44 = total cost $ 56,821.77

Prepared By: John Hechtel and Cindi Jacobsen

Date: 24 April 2006

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** RT-1
PROJECT NR.: 1.0

WORK LOCATION: McNeil River State Game Sanctuary and Refuge

PROJECT DURATION: 1 July 2002 – 30 September 2004

PROJECT REPORTING PERIOD: 1 July 2002–30 June 2003

PROJECT TITLE: Brown Bear Viewing and Conservation Planning

Project Objectives:

1. Administer the McNeil River State Game Sanctuary and Refuge to protect the exceptional brown bear concentration (up to 60 bears at one time), while providing safe and sustainable wildlife viewing experiences for over two hundred and fifty visitors per year.

   Job/Activity a: Provide safety and viewing guidance and field camp support for up to 280 bear viewers, photographers and scientists per year.

   Job/Activity b: Staff will supervise three staff in the operation of the field facility and viewing program at McNeil River State Game Sanctuary.

   Job/Activity c: Respond to inquiries from hundreds of scientists, filmmakers and educators per year interested in photographing and studying bears at McNeil River State Game Sanctuary and support development of publications and films to support conservation of brown bears.

2. Review and revise the McNeil River State Game Sanctuary and Refuge Operational Plan and develop strategies for assessing factors that may be adversely affecting the McNeil River falls brown bear population.

   Job/Activity a: From June 7 to August 25, field staff will systematically perform hourly and daily counts of bears by sex, age, reproductive status, individual identification and number of fish caught by bears support monitoring of the population at MRSGS. Data collection in Year 2 may change as a result of Job/Activity b.

   Job/Activity b: Staff will evaluate and, if needed, improve methods for analyzing data used to monitor the bear population and factors impacting bears by June 1, 2003.

   Job/Activity c: Staff will update the McNeil River State Game Sanctuary and Refuge Operational Plan to reflect conservation needs. In Year 1, the methods for data collection will be reviewed and revised and research needs defined. In Year 2, revised

data collection methods will be implemented and the results evaluated. A final revised plan will be produced by June 1, 2004.

Summary of Project Accomplishments:

NOTE: The following accomplishments refer to one field season of data June 1-August 25, 2002.

Objective 1. a.& b. Joe Meehan (Lands Coordinator) supervised 3 field staff that safely guided and accommodated 175 bear viewers, photographers. No resource damage occurred.

Facilities and services for viewers were maintained, most notable being the stabilization of the cook shack foundation. A community-based volunteer work party assisted with pre-season maintenance.

Objective 2. a. Staff initiated a daily census of bears in order to improve assessment of bear population changes. The information will be used in reviewing the operation plan.

NOTE: The following accomplishments refer to interim reporting period of July 1, 2002 through June 30, 2003

Objective 1.c. Staff responded to 17 inquiries from scientists, filmmakers and educators interested in photographing and studying bears. Sixteen scientific/educational permits were issued for the 2003 viewing season.

The McNeil River State Game Sanctuary website content was improved and 863 applications were taken online for the 2003 viewing season.

Objective 2. b. & c. The Division biometrician position was vacant and we were unable to improve the method for comparing index counts for the sanctuary by June 30, 2003. Consequently, the index count for the July-August 2002 period of 36.0 bears will be compared to a 2003 count using the same method. Improvement of the counting method has been deferred till winter of 2003/2004 when a biometrician will be available. The index counts will be used in reviewing the operation plan.

Project Costs: Federal share $35,513 + state share $11,838 = total cost $47,351 (SWG portion)

Federal share $35,201 + state share $11,734 = total cost $46,935 (WCRP portion)

Prepared By: Colleen Matt, Lands and Public Services Coordinator, Region II

Date: September 8, 2003

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** RT-1
PROJECT NR.: 1.0

WORK LOCATION: McNeil River State Game Sanctuary and Refuge

PROJECT DURATION: 1 July 2002 – 30 September 2004

PROJECT REPORTING PERIOD: 1 July 2003–30 September 2004

PROJECT TITLE: Brown Bear Viewing and Conservation Planning

Project Objectives:

1. Administer the McNeil River State Game Sanctuary and Refuge to protect the exceptional brown bear concentration (up to 60 bears at one time), while providing safe and sustainable wildlife viewing experiences for over two hundred and fifty visitors per year.

2. Review and revise the McNeil River State Game Sanctuary and Refuge Operational Plan and develop strategies for assessing factors that may be adversely affecting the McNeil River falls brown bear population.

Summary of Project Accomplishments:

NOTE: The following accomplishments refer to three field seasons of data June 1-August 25 from 2002-2004.
Objective 1. Joe Meehan (Lands Coordinator) supervised 3 field staff that safely guided and accommodated 175 bear viewers, photographers. No resource damage occurred. Facilities and services for viewers were maintained, most notable being the stabilization of the cook shack foundation. A community-based volunteer work party assisted with pre-season maintenance and the construction of a bear-viewing platform in camp.
Objective 2. Staff performed daily censuses of bears in order to improve assessment of bear population changes. The information was used in reviewing the operation plan.

NOTE: The following accomplishments refer to reporting period of July 1, 2002 through September 30, 2004
Objective 1. Staff responded to 20 inquiries from scientists, filmmakers and educators interested in photographing and studying bears. Sixteen scientific/educational permits were issued in 2003 and 15 in the 2004 viewing seasons. The McNeil River State Game Sanctuary website content was improved and 645 (2004) and 863 (2003) applications were taken online for the 2003 viewing season.
Objective 2. The Division biometrician reviewed and affirmed the method for assessing changes to the McNeil River falls bear population.

The index counts for all three seasons from 2002-2004 were below the "bear threshold criterion" in the operational plan. The index count was 36.0 in 2002, 37.7 in 2003, and 25.8 in 2004. The primary reason for the decline in bears at McNeil River is likely related to the decline in chum salmon returning to the river; while nearby rivers which have experienced high salmon returns, draw bears away from McNeil River.

The Operational Plan was revised and will be submitted to USFWS after September 30, 2004.

Project Costs (includes indirect costs)**:**
Federal share $71,447.44 + state share $23,815.82 = total cost $95,263.26

Prepared By: Colleen Matt, Lands and Public Services Coordinator, Region II

Date: September 16, 2004

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-15
PROJECT NR.: 1

WORK LOCATION: McNeil River State Game Sanctuary and Refuge

PROJECT DURATION: 1 September 2004 – 30 June 2005

PROJECT REPORTING PERIOD: 1 September 2004 – 30 June 2005

PROJECT TITLE: Conservation Research Planning for McNeil River Bears

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Project Objectives::

Objective 1: Perform a rapid evaluation of causative factors that may be adversely affecting the McNeil River brown bear population and develop a list of recommendations for future research.

Job/Activity a: Collect chum salmon escapement data for McNeil River and drainages in the McNeil River Commercial Fishing Subdistrict.

Job/Activity b: Collect brown bear hunting data for the Katmai Preserve and state land open to hunting surrounding the sanctuary and refuge.

Job/Activity c: Present findings from Job/Activities a and b in a report with discussion and recommendations for conservation and/or research.

Objective 2:
In October 2004, form a standing committee to evaluate research proposals in McNeil River Sanctuary and Refuge and develop a research protocol that will be used for evaluating research proposals and for conducting research.

Job/Activity a: A standing committee made up of sanctuary & refuge managers and researchers will meet and discuss conditions and criteria for evaluating research proposals.

Job/Activity b: Staff will write and append research protocol to the Operational plan

Summary of Project Accomplishments:

Objective 1: All salmon escapement data (not limited to chum salmon) were consolidated for McNeil River and all drainages within an approximately 50-mile radius of McNeil River. These data were correlated with brown bears surveys at McNeil River to help understand the relationship between fish abundance and bear activity. The McNeil River bear survey objectives and protocol were reviewed for possible amendment and bear harvest data from areas outside the sanctuary were consolidated. Although these data were presented and discussed in the annual McNeil River program report, due to a staff shortage they were not

presented in a stand-alone report addressing conservation and/or research recommendations.

Objective 2: A draft McNeil River research protocol was produced and was revised after a staff review. A research committee was identified but due to a staff shortage, the committee did not meet to finalize the protocol and develop evaluation criteria. The 1995 McNeil Operational Plan, which existed in hard copy only, was converted to electronic format for updating and appending with the research protocol. Prior to the appending of the Operations Plan, it was decided to include the provisions of a research policy into the McNeil River lands use management plan, which is codified as regulation in the Alaska Administrative Code. The land use management plan will go through a thorough public review, may include the formation of a stakeholders group, and is scheduled to be amended starting in late 2005 or early 2006.

Project Cost (includes indirect cost)

Stewardship Investment items: None

Total costs: Federal share $26,145 + state share $8,715 = total cost $ 34,860

Prepared By: Joe Meehan, Lands and Refuges Program Coordinator

Date: August 31, 2005

FEDERAL AID
INTERIM PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-7
PROJECT NR.: 1.0

WORK LOCATION: Kenai Peninsula

PROJECT DURATION: 1 July 2002– December 31, 2005

PROJECT REPORTING PERIOD: 1 July 2002–30 June 2003

PROJECT TITLE: Conservation of Kenai brown bear populations: brown bear response to human intrusions at salmon streams

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Project Objectives:

1. Quantify the relationship between salmon availability and fishing success (# of fish per unit time fishing), daily fishing time, total daily salmon consumption, fishing bout length, bear density, sex/age class use, bear-bear interactions, and selective salmon consumption.

2. Compare behavior, sex/age class composition, and nutritional condition of bears on salmon runs for two years. The first year will be a control with either no recreational activity, or at least a very limited amount. The second year we will continue to collect bear data, but we will also introduce a significant recreational component into the area as a treatment variable. Differences in bear behavior(s) between years will be determined.

3. Determine if bears displaced from a run by recreation can compensate for lost nutrient resources by spatially or temporally altering resource use or switching to alternative foods.

4. Determine the role of selective foraging on salmon by bears in meeting their nutritional requirements.

5. Develop a qualitative and/or quantitative model of the interaction between recreational activities, bear nutritional condition, and resource availability to provide critical information for revision of the Kenai brown bear Conservation Strategy plan, especially in the areas of temporal use patterns of brown bears on salmon streams and bear use of salmon streams in the presence of humans. Data collected from this study will also provide information to development and modification of bear viewing guidelines.

Summary of Project Accomplishments (numbers correspond to project objectives):

1. Data from 3 of the 5 2002 Glacier bears exhibited a peak fishing effort at 800 - 1000 minutes /day fishing. One bear had a crepuscular pattern to her fishing effort, while another foraged from 0500 to 2300 hrs. We are still analyzing data for bears 3-5. Salmon peaked at 3600 fish in the stream reach under study. We are still determining bout lengths and estimating total salmon intake.
2. In 2002 Nikolai creek study area had 610 salmon in stream section, with zero black bear and 3 brown bear observations (1 adult male, unk mix of subadults and female with coy). We were unable to collar animals on Nikolai and thus will not have nutritional condition. In 2002 we collared 5 females at Glacier creek (2 with 2 coy each, 1 with 2 yearlings, 1 with 2 2-year olds, 1 alone). Body mass increased an estimated mean of 60% from spring to fall (mean spring mass of 144.8 kg; mean fall mass of 229kg). In 2003 four bears were collared at Glacier and 10 bears were collared at Douglas. Glacier bears were 3 alone and 1 with 2 yearlings. Douglas bears captured included 7 females (5 with yearlings, 1 with coy, 1 with 2 year olds) and 3 males. Mean mass for Douglas spring females was 197.7 $\pm$ 22kg; males were 365 $\pm$ 74 kg. We will not have seasonal behavior comparisons until end of fall field season, 2003.

3. In 2002 we had one bear that abandoned the stream for hillside vegetation in early September, while 2 others continued to shuttle between berries and salmon into late September. In 2003 we began collecting fresh fecal samples on Glacier creek to determine the timing of berry use by black and brown bears. Mitochondrial DNA analysis will determine species, and if viable, nuclear DNA will be used to identify individual.

4. No work was accomplished on this objective during the fall of 2002, as direct observations of feeding were rare. So far in 2003 we have several hundred hours of feeding observations and thus anticipate a more refined response to this objective next year.

5. Model development will proceed after the next field season, as so far no human related disturbances have occurred. We have identified both crepuscular and daytime feeding patterns in these bears, as well as a strong sensitivity to the presence on salmon streams with cover. Further work on this objective will be possible after the next phase of the project (i.e., introduction of pseudo-bear viewers).

Project Costs: Federal share $96,719.70 + state share $32,239.90 = total cost $128,959.60

Prepared By: Sean Farley, Principal Investigator, Wildlife Biologist III

Date: September 2, 2003

FEDERAL AID
INTERIM PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-7
PROJECT NR.: 1

WORK LOCATION: Kenai Peninsula

PROJECT DURATION: 1 July 2002 – 1 January 2006

PROJECT REPORTING PERIOD: 1 July 2003–30 June 2004

PROJECT TITLE: Conservation of Kenai brown bear populations: brown bear response to human intrusions at salmon streams

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Project Objectives:

1. Quantify the relationship between salmon availability and fishing success (# of fish per unit time fishing), daily fishing time, total daily salmon consumption, fishing bout length, bear density, sex/age class use, bear-bear interactions, and selective salmon consumption

2. Compare behavior, sex/age class composition, and nutritional condition of bears on salmon runs for two years. The first year will be a control with either no recreational activity, or at least a very limited amount. The second year we will continue to collect bear data, but we will also introduce a significant recreational component into the area as a treatment variable. Differences in bear behavior(s) between years will be determined.

3. Determine if bears displaced from a run by recreation can compensate for lost nutrient resources by spatially or temporally altering resource use or switching to alternative foods

4. Determine the role of selective foraging on salmon by bears in meeting their nutritional requirements.

5. Develop a qualitative and/or quantitative model of the interaction between recreational activities, bear nutritional condition, and resource availability to provide critical information for revision of the Kenai brown bear Conservation Strategy plan, especially in the areas of temporal use patterns of brown bears on salmon streams and bear use of salmon streams in the presence of humans. Data collected from this study will also provide information to development and modification of bear viewing guidelines.

Summary of Project Accomplishments (numbers correspond to project objectives)**:**

1. We were able to examine relationships between sex/age class use of salt marshes. Number of cubs, number of moms with young, and number of subadults were all negatively correlated with the number of adult males present on salt marshes. There was a significant difference in sex/age class use of east Douglas River salt marsh & west Douglas River salt marsh with significantly more adult males being present at Douglas east.

   Bite rates differed significantly between sex and age classes with smaller bears, such as subadults and yearlings having higher bite rates than larger bears such as adult males and lone, adult females. Females with young had similar bite rates to lone females. Lower bite rates in larger bears is likely the result of larger bite sizes. Bite size is negatively related to bite rate for captive bears feeding on grass and incisor width is positively related to bite size. For both captive bears and Douglas River bears, bite rates decline with biomass which presumably reflects the larger bite sizes they are obtaining at higher biomasses.

   On salt marshes bears foraged primarily between noon and 2400 hours. Use of salt marshes was lowest during darkness from 100-400 hours. Seasonal use ended around July 14th. Biomass increased to peak around July 18th and then declined to lowest levels by early August.

   Predictions of bite sizes along with 24 hour observation data and locations of collared bears will allow estimates of total nutrient intake from salt marsh vegetation once nutrient analysis results are available. Relationships between nutrient availability and seasonal use can now be better examined from the 2004 data because we had a significantly longer time to collect data on bear use of the marshes. In 2003, we had only 4 bi-weekly data points to examine salt marsh nutrient content and use.

   These results will enable us to determine how fish density influences behavior of bears on salmon streams.

2. Rates of weight gain between spring and fall captures for Glacier Creek and Douglas River adult females were similar at 0.68±0.16 kg/day for Glacier bears and 0.69±0.12 kg/d for Douglas bears. 1 male from Douglas gained 2.09 kg/d. For spring captures, Glacier females averaged 35.3% fat and 145.7 kg and Douglas females averaged 24.2% fat and 192kg (not all current body fat estimates are based on BIA only). A male caught at Glacier had 38.3% body fat and weighed 321.7 kg vs. 25.3% body fat and 359.7 kg avg of Douglas males. Douglas captures occurred nearly 30 days after Glacier bears, thus differences presumably reflect an increase in lean body mass put on by Douglas bears foraging in salt marshes. Thus, total body weight is higher and % body fat is lower. In the fall, Glacier females averaged 45.64% fat and 236.1 kg and Douglas females averaged 40% fat and 253.5 kg. For a single male caught in the fall at Douglas, body fat was 50.2% and weight was 502.5 kg. Douglas bears were captured 3 weeks earlier than Glacier bears. Given that the salmon run was ongoing at Douglas in late September and bears at Glacier were in the hills foraging on berries, I'd presume Douglas females went into the den heavier than Glacier bears.

   Glacier Creek bears lost 0.35±0.12 kg/d while denning between fall 2002 & spring 2003 capture periods.

Using Blanchard (1987) relationship between average female body weights and litter size, Douglas River females are predicted to have slightly higher litter sizes at 2.49 compared to 2.36 for Glacier Creek bears. However, differences in average seasonal weights was not significant, thus, litter sizes were also not significantly different

These data will show the effect, if any, of human disturbance on the key variable of bear fishing success, as indexed by bear body mass.

3. A comparison of bear fishing activity during researcher stream walks and the same time periods the preceding and following day showed that 3 bears never used the stream during any of these time periods. 1 bear had only 3 points on the stream during the times when the researcher was not present and none when the researcher was present. The 5th Glacier Creek bear used the stream both regardless of researcher presence. The difference in the number of bear locations on Glacier creek during researcher presence and absence was slight (Friedman's repeated measures: S=3.0, DF=1, P=0.083).

   Though data analysis is not complete, it appears that 4 out of 5 bears fished primarily at night (when the researcher was not present). Of these 4 bears, 2 did not fish at night in 2002, 1 fished only at night in 2002, and the 4th was not collared in 2002.

   Our data show that on some types of salmon streams bears will adjust foraging effort (time and location) when researchers are present. How that is reflected in changes in bear body mass is still under review.

4. At Douglas River, bears exhibited a typical, type II functional and numerical response to salmon availability. This relationship occurred both when using salmon per volume of water, salmon per surface area of water, and salmon count over the same area for each date. The number of bears fishing a particular stretch of stream was not influenced by their ability to capture fish. Some bears were very efficient predators, and others much less so. Maximum number of bears observed fishing simultaneously was 18, but they were spread over a stretch of river at least 1 mile long.

   When fish numbers are high, bears may selectively consume only portions of fish (eggs, skin, brains, etc.). Our information on salmon density and bear fishing effort will help determine if salmon density or bear body mass determines selective feeding.

5. Model development is still preliminary, and will require data yet to be collected during this coming winter's laboratory analyses.

Project Costs (includes indirect costs)**:**
Federal share $110,808.69 + state share $36,936.23 = total cost $ 147,744.92

Prepared By: Sean Farley, Principal Investigator

Date: September 1, 2004

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-7
PROJECT NR.: 1

WORK LOCATION: Kenai Peninsula

PROJECT DURATION: 1 July 2002 – 1 January 2006

PROJECT REPORTING PERIOD: 1 July 2004 – 30 June 2005

PROJECT TITLE: Conservation of brown bear populations: brown bear response to human intrusions at salmon streams

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Project Objectives:

1. Quantify the relationship between salmon availability and fishing success (# of fish per unit time fishing), daily fishing time, total daily salmon consumption, fishing bout length, bear density, sex/age class use, bear-bear interactions, and selective salmon consumption
2. Compare behavior, sex/age class composition, and nutritional condition of bears on salmon runs for two years. The first year will be a control with either no recreational activity, or at least a very limited amount. The second year we will continue to collect bear data, but we will also introduce a significant recreational component into the area as a treatment variable. Differences in bear behavior(s) between years will be determined.
3. Determine if bears displaced from a run by recreation can compensate for lost nutrient resources by spatially or temporally altering resource use or switching to alternative foods
4. Determine the role of selective foraging on salmon by bears in meeting their nutritional requirements.
5. Develop a qualitative and/or quantitative model of the interaction between recreational activities, bear nutritional condition, and resource availability to provide critical information for revision of the Kenai brown bear Conservation Strategy plan, especially in the areas of temporal use patterns of brown bears on salmon streams and bear use of salmon streams in the presence of humans. Data collected from this study will also provide information to development and modification of bear viewing guidelines.

Summary of Project Accomplishments (numbers correspond to project objectives)**:**

1. Data analyis has yielded the following results.
   Time spent fishing was 10% lower during the treatment year than the control.

   Capture rates were significantly higher for adults than sub adults. Since the majority of bears fishing were adults (86%), sub adults were excluded from capture rate comparisons between years. Capture rates were best predicted by the maximum salmon count per day and this

relationship did not differ between the control and treatment year. The mean and maximum of daily salmon counts did not differ between the control and treatment year.

The proportion of salmon consumed was lower for females with young than lone females during the treatment year but not the control year when accounting for the number of days with available salmon. Lone females consumed a larger proportion of salmon during the treatment year than the control whereas there was no difference for females with cubs. The proportion of salmon consumed when combining results for both reproductive classes declined as the number of days with available salmon increased.

There was no significant difference in the amount of time bears spent in aggressive encounters between the control and treatment year. Vigilance towards other bears did not differ between sex/age classes and was higher during the treatment year than the control year at both the salt marsh and salmon strea. Bear-bear aggression and vigilance did not differ between day-time and night-time observations on the salt marsh.

Bears of all sex/age classes spent more time chasing salmon during the treatment year than during the control year. Running and walking did not differ between years, but all classes of females (females with young, lone adult females, and sub adult females) spent more time resting during the treatment year than the control. Vigilance towards people was higher for adult females and females with young during the treatment year than during the control. The percentage of bears exhibiting vigilance behavior in scans decreased exponentially with increasing distance from the viewer group at both the salt marsh and the salmon run. Though vigilance was more frequent on the salt marsh at closer distances, the relationship across all distances was not significantly different.

Age and reproductive class effected capture rates, salmon consumption, and time spent chasing salmon, whereas the intensity of bear-bear interactions did not vary between bear classes. These results imply that an effect from the treatment was observed.

In fall 2004, 9 bears were recaptured to remove radio-collars. There were no capture mortalities.

2. Movement of viewer groups to and from bear feeding sites resulted in declines in bear numbers at all sites relative to bear numbers the hour prior to viewer group movements. The daily mean number of bears counted during scans of the big and east marshes did not differ between the control and treatment years nor did counts on the west marshes differ between control and treatment years. Data were compared between time periods of similar salt marsh phenology as the number of bears using the marsh was directly related to the crude protein content of salt marsh vegetation. Though sample size was low during the control year (N=4), the relationship between bear use and crude protein did not differ from the treatment year. The number of bears using the marsh during day-time periods of human activity (800-1600 hours) during the treatment year was significantly lower than the same time period during the control year while use between 1600-800 hours was significantly higher during the treatment year than the control.

At Douglas River, relative growth rates (weight change/initial body weight) between June and September were significantly higher for lone females (61 ± 10%) than females with young. Because all females during the control year had young and because sample size of adult males was low (N=2 in both years), comparisons between control and treatment years excluded lone females and adult males. There was no significant difference in relative growth rates for females with young between control and treatment years. Proportion of body fat in the fall was significantly higher for lone females than for females with young.

There was no significant difference in fall body weights or body fat of bears at Glacier/Seepage Creeks between years with 24-hour treatments or daytime only treatments. Three of the 5 bears had young in 2002, while no females had young in 2003 or 2004.

Differences in growth rates were observed based upon reproductive condition, but not between treatment years. It may be that bears were able to still obtain needed nutrition.

3. More bears used the salmon stream during the control than the treatment year. The average number of bears in daily scans was significantly related to capture rates during the control year, but not the treatment year. Instead, the number of bears using the stream during the treatment year was negatively related to berry availability. There was no effect of berry availability on bear numbers during the control year. Berry availability was nearly 3 times higher in the treatment year than the control year.

   Adult males and adult females spent 15% more time foraging on salt marsh during the control year than the treatment year while no difference occurred for females with cubs or sub adults. Males spent significantly more time foraging than females with young and sub adults. Bite rates were inversely related to plant biomass and fit relationships exhibited by captive bears feeding on grasses in previous studies. There was no difference in bite rates between years when accounting for seasonal variation in plant biomass or sex and age class differences. There was also no difference in bite rates between paired observations during daylight and darkness.

   Berry densitites varied greatly between treatment and control years, and thus impacted bear use. It will be difficult to sort out the effects.

4. Average daily use of all marshes across all collared bears did not differ between control and treatment years. Total marsh use did not differ between females with young, lone females or adult males. Thus, males and females were combined for comparisons of total use between years.

   There was no difference in the proportion of time bears spent immediately adjacent to or in Douglas River salmon streams between the control and treatment year. Crude protein and dry weight of salmon was similar between years. Energy content averaged 5.8 ± 0.5 kcal/g DM.

   Results of daytime treatments at Glacier and Seepage Creek were similar to those at Douglas River salmon streams with no effect on total stream use in comparison to control periods.

However, the amount of time in which bears were in or immediately adjacent to salmon streams was significantly lower during the 24-hour treatment than during the daytime-only treatment.

It appears that bear use of the salt marshes was not heavily impacted by the treatment, but that bear use of salmon streams was effected.

5. Model development is still underway.

Project Costs (includes indirect costs)**:**

Stewardship Investment items: None

Total costs: Federal share $52,500 + state share $17,500 = total cost $70,000

Prepared By: Sean Farley, Principal Investigator

Date: September 7, 2005

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
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Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-7
PROJECT NR.: 1

WORK LOCATION: Kenai Peninsula

PROJECT DURATION: 1 July 2002 – 1 January 2006

PROJECT REPORTING PERIOD: 1 July 2005 – 1 January 2006

PROJECT TITLE: Conservation of brown bear populations: brown bear response to human intrusions at salmon streams

---

Project Objectives:

1. Quantify the relationship between salmon availability and fishing success (# of fish per unit time fishing), daily fishing time, total daily salmon consumption, fishing bout length, bear density, sex/age class use, bear-bear interactions, and selective salmon consumption
2. Compare behavior, sex/age class composition, and nutritional condition of bears on salmon runs for two years. The first year will be a control with either no recreational activity, or at least a very limited amount. The second year we will continue to collect bear data, but we will also introduce a significant recreational component into the area as a treatment variable. Differences in bear behavior(s) between years will be determined.
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4. Determine the role of selective foraging on salmon by bears in meeting their nutritional requirements.
5. Develop a qualitative and/or quantitative model of the interaction between recreational activities, bear nutritional condition, and resource availability to provide critical information for revision of the Kenai brown bear Conservation Strategy plan, especially in the areas of temporal use patterns of brown bears on salmon streams and bear use of salmon streams in the presence of humans. Data collected from this study will also provide information for development and modification of bear viewing guidelines.

Summary of Project Accomplishments <u>for entire project</u>:

1. Adult males were more strongly affected by salmon abundance and availability than were lone females or females with young. Adult males require areas with higher salmon abundance than do lone females or females with young.

2. Though male use of viewing areas was tempered by availability of alternative salmon streams and hunting pressure, it appeared that male presence was a significant factor in determining the presence of females with young. Both sexual dimorphism and availability of alternative food resources dictated habitat use by females with young.

3. Bears exhibited behavioral changes related to human presence. The nutritional effect was muted however, as the bears would modify their foraging time and behavior to meet their nutritional needs. Only adult males foraging on salt marshes exhibited a decline in food intake related to the presence of bear viewers. While salmon intake did not change between years, there was a decline in time-spent fishing when people were present.

4. Sexual segregation, high nutritional demand of large adult males, and resource abundance have a very strong effect on forage site selection. Low salmon availability in target streams and in alternative, nearby streams is an important factor in determining habitat use, but that effect can be muted with significant berry production. Bears were able to balance their nutritional needs by foraging on salt marshes, berries, and whole fish.

5. Significant factors affecting use of salmon streams by each bear sex/age class were identified. Variables included salmon capture rate, percent of bear population harvested, annual number of bear viewers, availability of alternative salmon resources, and proportion of males observed at viewing sites. When a bear viewing site had fish capture rates of 4 or fewer fish per hour, the proportion of males present was usually less than 10%, except in those cases were fish were concentrated by falls. Though the bear population exhibited significant behavioral differences between the presence and absence of humans, bears modified their behavior(s) in such a way as to mediate the effect on total food intake. Adult males at a salt marsh viewing area were the only sex/age class that exhibited reduced food intake, which resulted from a 15% decline in foraging time when viewers were present. The tightly controlled experimental bear-viewing introduced in this study allowed bears to evaluate predation risk associated with human activity and optimally respond to minimize costs due to changes in foraging activities. It appears the nutritional demands of large adult males is balanced with responses to human activity, and that it drives the dynamic temporal and spatial distributions of most individuals in the population. Use of habitats by females with dependent young was significantly related to the prevalence of adult males at the site.

Summary of Project Accomplishments during <u>last segment period only</u>:

Projects 1-5 have been written for publication and one Ph.D. dissertation completed. Two manuscripts have been accepted for publication.

Rode, K. D., S. D. Farley, and C. T. Robbins. (accepted). Behavioral responses of brown bears mediate nutritional effects of experimentally introduced tourism. J. Biological Conservation.

Rode, K. D., S. D. Farley, and C. T. Robbins. (accepted). Sexual dimorphism, reproductive strategy, and human activities determine resource use by brown bears. Ecology.

5. A complete appendix is attached describing the management implications of this research. The five main points are summarized here.

1. Sites used for bear viewing should have consistent, predictable times during which no human activity occurs. This will enable the bears to have alternative times for foraging.

2. When people are traveling on foot into/through bear viewing areas, group size and distance traveled should be kept to a consistent minimal level. The intent of this would be to reduce the number of bears that would move out of a feeding area in response to human presence.

3. Groups of bear viewers should travel consistent paths and locations during the bear viewing season. This enables the bears to identify and fish around the visitation times, if they so desire.

4. Bear vigilance to people partly depends upon the food being eaten. Bears feeding on salt marshes tend to see and become alert to people at greater distances than when the bears are feeding on salmon. Bears will adapt their behavior to human activity at distances of 100-300 m.

5. The absolute availability and abundance of salmon is critical to bear use of a location. Inter-year variation in adjacent drainages, as well as bear hunting practices, will strongly influence bear behavior at salmon streams.

Project Costs (report period):

Total costs: Federal share $30,750 + state share $10,250 = total cost $ 41,000

Prepared By: Sean Farley

Date: April 20, 2006

Appendix

Brown bears and people in Alaska: Results of a 4 year study and management implications

Karyn Rode, Washington State University
Sean Farley, Alaska Department of Fish and Game
Charlie Robbins, Washington State University

Introduction

In 2002-2004, Alaska Department of Fish and Game and Washington State University collaborated in a study to examine relationships between human activity and brown bear resource use throughout south-central and south-eastern Alaska. This study sought to determine whether bears alter their behavior when humans are present at food resources and whether behavioral changes have consequences for bear nutrition. The study involved: 1. An experimental introduction of human activity to two bear populations that currently receive minimal human visitation, one on the Kenai Peninsula and one on the Alaska Peninsula, north of Katmai National Park and 2. Examination of factors determining bear use of viewing areas throughout south-central and south-eastern Alaska. For part 1, GPS collars, focal and scan observations, and monitoring of resource availability was used to determine whether the introduction of human activity resulted in changes in bear behavior or nutrition, including total food intake and body weight. Human activity was introduced via small groups (3-6 people) visiting specific locations at specific times of the day throughout the season, in some cases simulating bear-viewing and in others simulating angling. What follows is a summary of results from both parts of the study and guidelines for managing human activity that minimize effects on bear nutrition and maximize human safety. Note that the results of this study have also been published via 3 journal articles (Rode et al. *a*, *b*, and *c*, in review).

Guidelines for managing human activity in brown bear habitats

Below are guidelines derived from the results of this study that may be useful in minimizing potential effects of human activity on bear well-being. Note that this study was conducted in bear habitats where human activity was previously infrequent. However, some collared bears, particularly males, traveled to McNeil River and were therefore, presumably well habituated to human presence. Note that even collared bears that showed no overt response (excessive vigilance or movement away from humans) altered their timing and specific location of resource use. Though in most cases the effects on nutrition, including total food intake and bear condition, were minimal, efforts to minimize effects on bear access to resources and time devoted to foraging will assure that bears meet nutritional needs even during years of low resource availability. Additionally, these guidelines are likely to assist in assuring a sustainable, high quality and safe experience for tourists and recreationists.

1. Allow alternative, predictable times free from bear-viewing and other human activity for bears to access food resources.

When human activity was concentrated during day-time hours, bears at all 3 study areas increased night-time use of the food resource by 13-100%. In addition, bears learned human patterns of activity and altered their timing of resource use to minimize interaction with people. Changes in the timing of bear resource use in response to human activity have similarly been documented in a number of other studies (Olson et al. 1997, 1998, MacHutchon et al. 1999). The availability of alternative times free of human activity in this study was important in assuring that bears had sufficient time each day to access the resource and meet their nutritional needs. In our experimental study several collared bears never used food resources, salt marsh or salmon streams, when viewers were present, even with viewer group sizes of only 6 individuals.

To assure that bears that completely avoid human activity maintain access to the resource, managers may want to allow sufficient hours free of human activity for a large male to capture the required amount of salmon. The amount of time an individual bear needs to spend fishing to meet nutritional needs will vary with bear body weight and nutritional status and salmon density and susceptibility to capture. For example, the amount of time bears spend fishing at Douglas increased with bear body weight and decreasing capture rate (Fig. 1). However, the total amount of time that all bears in a population will need to capture the requisite number of fish will also depend on the number of bears using the resource as social dominance will determine who can fish at any one time. As the time required for a single bear to capture enough salmon increases, the number of bears able to access the stream per 24 hour period will decline.

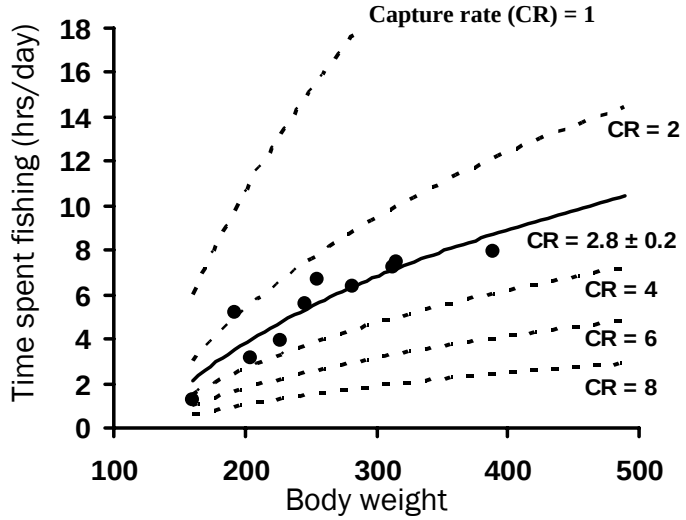

Fig. 1: Relationship between the body weight and time spent fishing observed for collared bears at Douglas River (solid line) and estimates of the time required to capture the same number of salmon when capture rate varies.

2. Minimize temporary displacement of bears from food resources by minimizing group movement into and out of bear feeding areas.

The number of bears at feeding areas temporarily declined as viewer groups arrived and departed, but the number of bears at feeding areas while viewers were stationary was similar to time periods when there was no group present (i.e., pre and post-treatment) (Humphrey 2003, Rode et al. 2006) (Fig. 2). Thus, when possible, ingress and egress of viewer groups should be controlled and regulated to minimize disturbance for the benefit of both the viewers and the bears. Though some existing viewing areas with platforms, such as Brooks Camp and Fish Creek will be unable to control movement of people into and out of viewing areas, this guideline could be used by private bear-viewing operators and at some established viewing areas, such as Anan Creek, to minimize disturbance of foraging bears.

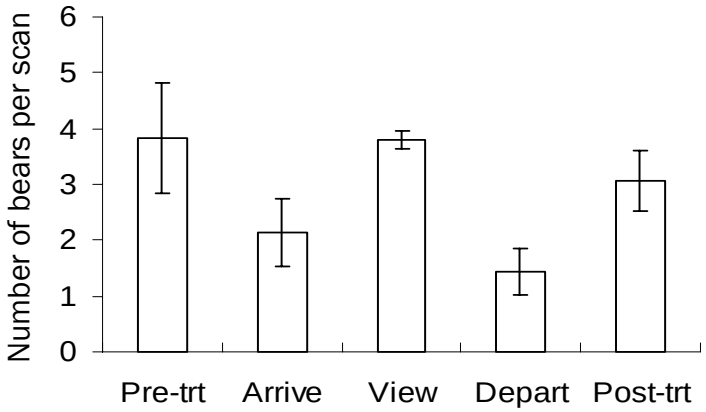

Figure 2: Comparison of the number of bears observed during an hour prior to the arrival (pre-trt), arrival (arrive), stationary viewing (view), departure (depart), and an hour after the departure of a viewer group at a salt marsh at Douglas River.

3. Bring viewers into area in discrete groups at designated locations and use the same viewing locations throughout the viewing season.

Bears in this study learned where human activity would occur and decreased resource use within 600 m surrounding viewing areas, even when humans were absent. For example, on a salt marsh at Douglas River, resource use within 600 m of viewing areas declined by 53% when viewers were present in comparison to a year when no viewing occurred. Even during time periods when viewers were absent, marsh use declined by 31% within the 600 m surrounding viewing areas in comparison to a year when no viewing occurred. Concentrating human activity at specific locations will minimize the total reduction in resource use and allow bears to have access to resources at specific locations where they can predictably be assured of avoiding interactions with people.

4. Bears respond to human activity at distances of 100-300 m both by increasing time spent vigilant to people and by displacing from food resources.

Bears in this study spent 8-20% of their time being vigilant to a viewing group of 6 individuals at distances of 100 m (Fig. 4), a result similar to Braaten and Gilbert (1987). Time spent being vigilant to humans in this study as well as several other studies was associated with reductions in time devoted to foraging behavior (Braaten and Gilbert 1987, Olson et al. 1990,

Chi 1999). As a result, particularly large bears that must spend significant amounts of time foraging can be sufficiently distracted from foraging behavior to have nutritional implications. This effect appears to be particularly important at salt marshes where large males with their high energy requirements can be affected by small reductions in time devoted to foraging. The distance at which bears become vigilant and/or are displaced may vary depending on habituation. Additionally, time spent on vigilance behavior appears to differ between habitat types. At salt marshes, bears appeared to be more easily distracted from foraging behavior than at salmon streams. Although changes in behavior do not always impact bear well-being, an effort should be made to prevent unnecessary distraction of bears from feeding activity, since these distractions have been found in some cases to reduce the total amount of food consumed by collared bears.

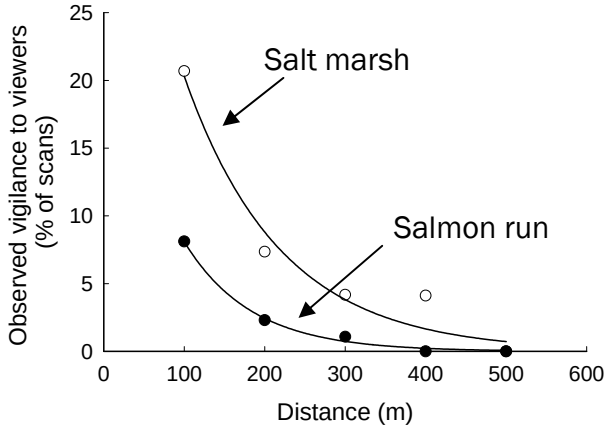

Figure 3: Comparison of the relationship between the percentage of bears in scans exhibiting vigilance behavior and distance from viewer groups at a salt marsh and a salmon run.

5. Recognize that year to year variation in salmon availability in surrounding drainages (up to 20 km away) and hunting of brown bears can affect the number and sex/age class of bears using viewing areas.

Both the number of bears observed at viewing areas and the proportion of adult males declined when the availability of salmon at streams outside the viewing areas increased (Figs. 4 & 5). Thus, the number and sex and age distribution of bears using a specific viewing area is determined by landscape level processes and is not solely the result of site-specific processes occurring at each viewing area. For example, viewing areas surrounded by other streams with moderate or high salmon densities, such as in parts of southeast Alaska, tend to be visited by fewer bears and fewer adult males, whereas areas with low stream density, such as Brooks and McNeil, have higher numbers of bears and more adult males.

Across 10 viewing areas throughout south-central and south-eastern Alaska, male use was inversely related to harvest pressure. Sites having few alternative salmon runs within 20 kilometers of the viewing area and low hunting pressure had the highest proportion of male use (Fig. 5). Additionally, sites in which salmon were captured at rates less than 5 salmon per hour were never used by more than 10% adult males (Fig. 5). Females with dependent young were most common at viewing areas where male use was low (Fig. 6) (Nevin and Gilbert 2005, Rode et al. in review*c*). This is presumably due to 2 factors: 1) females with cubs avoiding areas used

by adult males and 2) the much smaller requirement of adult females relative to large adult males that allows them to efficiently utilize less productive sites than large adult males.

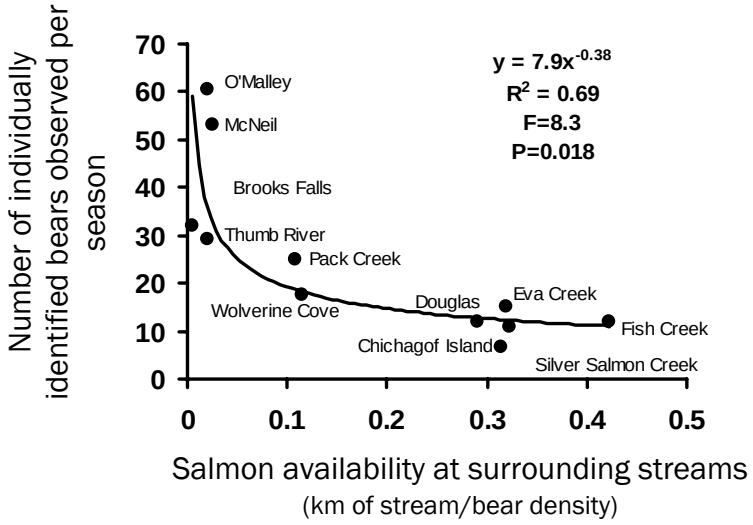

Figure 4: Relationship between the number of bears observed at viewing areas and the availability of alternative salmon streams within 20 kilometers.

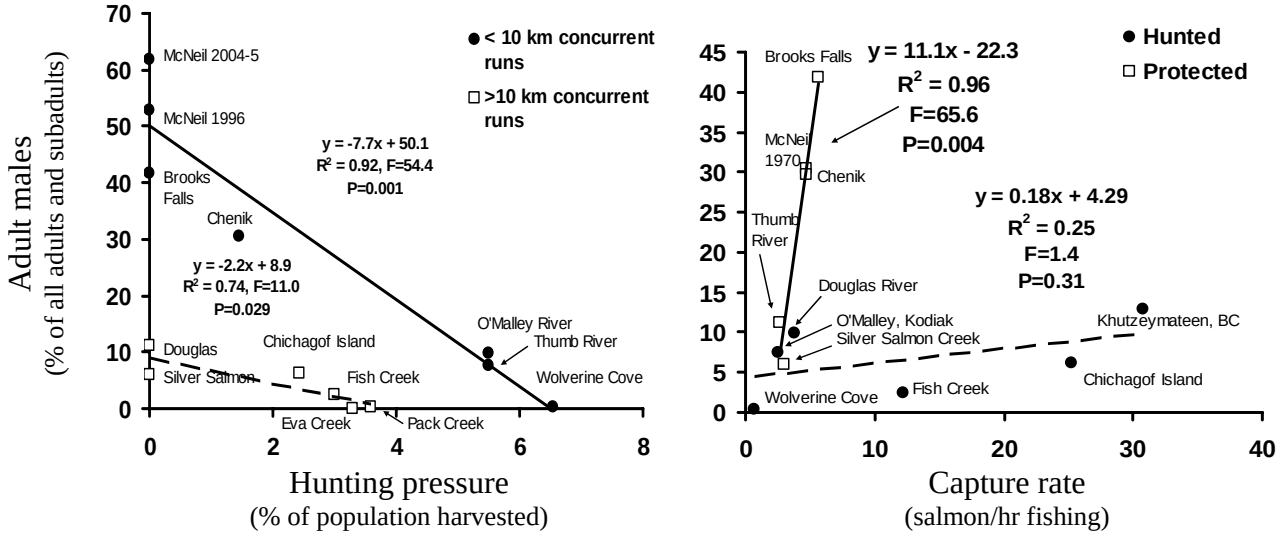

Figure 5: Relationship between the percent of adult males visiting viewing areas, hunting pressure, and capture rate of salmon.

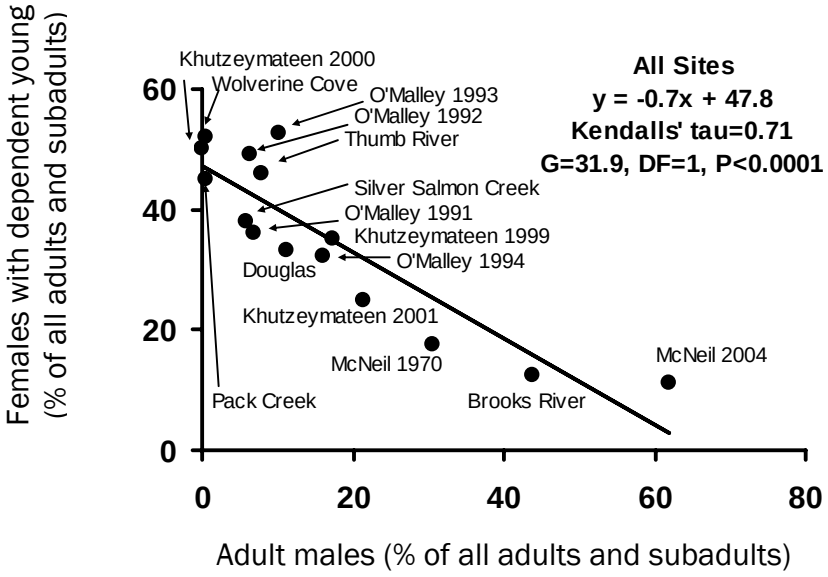

Figure 6: Relationship between the presence of females with dependent young at viewing areas versus the percent of adult males occupying the site.

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Rode, K.D., S. D. Farley, and C.T. Robbins. In review*c*. Sexual dimorphism and human activities determine resource use by brown bears.

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STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1- 8
PROJECT NR.: 4.0

WORK LOCATION: Juneau – Baranof Island

PROJECT DURATION: 1 July 2002 – 30 June 2003

PROJECT REPORTING PERIOD: 1 July 2002 – 30 June 2003

PROJECT TITLE: Eva Creek brown bear monitoring and evaluation

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Project Objectives:

1. To quantify information on bear and human numbers at Eva Creek and elsewhere in the Lake Eva drainage during summer 2002.
2. To identify specific areas used by bears and areas used by humans at Eva Creek and elsewhere in the Lake Eva drainage during summer 2002.
3. To update information on the timing and magnitude of salmon runs at Eva Creek and correlate it with bear and human use.
4. To document instances where bears are displaced or excluded from fishing and foraging by human activities.
5. To determine how existing infrastructure (e.g. trails, viewing locations, campsites) affect people/bear interactions.

   Jobs/Activities for Objectives 1 to 5: Collect field data during summer 2002.
6. To survey a sample of visitors to Lake Eva to determine purpose of their visit and their level of knowledge about bears and proper behavior around bears.

   Job/Activity: Conduct a mail out survey of a sample of visitors to Lake Eva during fall-winter 2002-2003.
7. To use data from fieldwork to recommend options and help develop ADF&G and US Forest Service management plans for the Lake Eva area as one of the Human/bear High Use Zones named by the Unit 4 brown bear stakeholder management team.

   Job/Activity: Evaluate data, develop recommendations and write report during fall-winter 2002-2003.

Summary of Project Accomplishments (Numbers correspond to project objectives.):

During a 3½ month field season in summer 2002 staff collected data addressing project objectives at Eva Creek on Baranof Island in Southeast Alaska. A brief summary of results of that effort with respect to specific objectives follows. More detailed information can be found in the attached report "Human and Brown Bear Use of Eva Creek: a site assessment."

1. Field staff conducted daily observations from a tree stand adjacent to Eva Creek for a minimum of 5 hours a day during the report period from July 1 – Sept. 9. Approximately 450 observation hours were logged during this period.

   Field staff observed 656 human visitors to the Eva Creek drainage. The total number of guided visitors observed was approximately 1/3 of the number reported by tour operators. Based on that comparison, staff estimated 1,964 visitors to the Eva Creek watershed during the 96 days of summer in 2002. Estimated number of visitors per day was 20, however, no visitors were observed during 33% of the days. Hikers made up about 68% of the total and anglers made up 32%.

   During the report period, thirty-nine separate observations of 10 individual bears occurred. In more than 450 observation hours, bears were only observed 4% of the time. The number of bears and frequency of observations were below expectations. Bears were observed for a total of 695 minutes. Bears observed were primarily subadult bears: 7 individual subadults, 3 sow & cub pairs, and 2 bears of unidentified age. Bears primarily scavenged for fish carcasses instead of catching live fish as expected.

2. Most guided human activity was along the trail on the southside of the creek. Hikers displayed the most predictable use patterns, because they remained almost entirely on the trail and moved at a steady pace. Anglers were the only visitors to walk in the creek and onshore on the north side of the creek. Fishing, boating, and air transport combined with varying noise levels introduced inconsistent and unpredictable human presence.

   Habitat and field use surveys carried out by SEAWEAD indicated that most bear activity occurred on the opposited side of the stream from the trail used by humans.

3. During the summer of 2002 the sockeye salmon ran from June 25 – July 17 in Eva Creek. The chum salmon run extended from July 6 – August 25. Pink salmon were present in the creek from July 29 – September 9, the last day of the field season. Coho were expected to run from mid- to late-September but were not observed. Based on historical ADF&G data, pink salmon abundance in 2002 was average for the stream. Although the observed sockeye run of 302 fish seemed low, a lack of historical data makes it difficult to determine the relation of the run to other years. Neither the total number of bears nor the number of minutes bears were observed were significantly correlated with mean or median sockeye, pink, or chum in the stream per day. Anglers' use of Eva Creek occurred throughout the summer but was most intense in June and early July prior to the period when salmon fishing was productive offshore.

4. It was difficult to document specific instances where bears were displaced or excluded from fishing and foraging by human activities. Bears were never observed while people were

fishing, and interactions with hikers were limited in their frequency and duration. Only five instances of bears and visitors interacting were observed. Of those, two resulted in bears abandoning activities as a direct result of human activity. Observations also suggest the following:

- Bear and human use tended not to occur simultaneously, even in sites judged to be attractive to bears.
- Bears were observed more often when visitors were absent. During summer observations, bears were observed for a total of 695 minutes, and 93% of those observations occurred in the absence of visitors.
- During the summer, bears were observed more frequently in the morning, and were present most often between 7 and 8 a.m. Bear observations declined at 10 a.m. Conversely, visitors reported being present at Lake Eva trail most frequently from 11 a.m. to noon. Little visitor activity was reported prior to 9 a.m.

5. The established and constructed trail is the only current existing infrastructure in the study area. As stated under item 2, most guided human activity was along the trail on the southside of the creek while bear use most bear activity occurred on the opposite side of the stream from the trail. Clearly the location of the trail influenced human activity and may have a bearing on bear activity during periods of fishing and foraging as the trail currently follows the stream bank closely for most of its length. Bear sign surveys and observations indicated that bears tend to avoid areas near the trail in spring and summer months.

6. Because of cost considerations, an online survey was chosen rather than a mail out survey to query visitors on expectations and knowledge. All visitors to the study area were invited to participate in the voluntary online survey. Signs that explained the purpose of the study and the survey were attached to survey registration boxes at the trailhead and near the lower falls. Pencils and brief optional survey registration cards were stored in the registration boxes. Researchers collected completed survey cards daily. By September 9, 2002, ninety-seven completed survey registration cards were collected and the sixty-nine valid email addresses from those cards comprised the sampling pool for an online survey. Visitors were contacted via email on October 2, 2002 and given instructions about how to complete the survey on the internet. By December 31, 2002, thirty-five visitors had completed the online survey, for a final response rate of 51%.

   Most people were not visiting to view bears specifically. On the 97 returned visitor survey registration cards, 83% of visitors reported hiking, and less than half reported fishing (34%) or wildlife viewing (34%) as an planned activity for the visit. Of 35 respondents to the online survey, twenty-nine (82.9%) rated hiking as a purpose for visiting Eva Creek. 65.5% (19) of those rated hiking their highest priority. An additional seven (24.1%) hikers ranked hiking as a high priority. Eighteen of the 35 respondents (51.4%) ranked wildlife viewing as a purpose for visiting Eva Creek. Only 16.7% of those (n = 3) ranked it as their highest priority for visiting the site. An additional 6 people (33.3%) rated wildlife viewing highly. Seventeen of the 35 respondents (48.6%) ranked fishing as a purpose for visiting Eva Creek. Thirteen (76.5%) of the seventeen rated fishing their highest priority.

Most visitors wanted to see brown bears, and expected to see them at Eva Creek. However, only half of responding visitors reported seeing a brown bear at Eva Creek. Because researchers only saw bears 5% of the time, the respondents' percentage may be higher than the actual number of visitors to actually see a bear at Eva Creek. Two explanations are likely: either visitors who saw bears were more likely to complete the survey, or visitors who completed the survey confused Lake Eva with another area they visited in Southeast Alaska.

Most of the visitors who saw a bear failed to report on their group's response to the bear. Twelve of the 18 survey respondents did not answer the question. The remaining 6 respondents were equally balanced in response, with half moving away from, and half moving around the observed bear. Visitors were willing to report their noise response to bears, and thirteen (72.2%) of those who saw a bear said they remained silent. The remaining 5 respondents said they made noise. Reported noise response may have been due to the presence of a guide. Eight of ten (80%) guided visitors said they remained silent, while only five of eight (62.5%) non-guided visitors reported a quiet response when encountering a bear.

7. From fall 2002 through late spring staff analyzed data and produced a 100-page report (including appendices) based on the results of field work and the visitor survey. The report's management recommendations include options for overall management of Eva Creek as a recreation area, as well as a recommendation for rebuilding and relocating the existing trail to a route that would better separate the bulk of human visitors from areas of the stream used by bears. Among the findings was that Lake Eva / Eva Creek estuary meets the Unit 4 Brown Bear Management Team's definition of a 'Tier I Human / Bear High Use Zone', and the guidelines and stipulations the team recommended for such zones should be part of agency management in the area. The recommendations can be found in the attached report.

Project Costs: Federal share $21,890.32 + state share $7,296.78 = total cost $ 29,187

Prepared By: Tom Paul, Principal Investigator, Federal Aid Coordinator

Date: August 25, 2003

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-8
PROJECT NR.: 5.0

WORK LOCATION: Chilkoot River, Haines

PROJECT DURATION: 1 July 2002 – 30 June 2004

PROJECT REPORTING PERIOD: 1 July 2002 – 30 June 2003

PROJECT TITLE: Monitoring and assessment of strategies for conservation of brown bears

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Project Objectives:

Objective 1: Reduce the risk of bear/human conflicts (i.e., incidents of bears getting fish directly from anglers, visitors being directly threatened by bears, and bears displaced from foraging or fishing activity).

Job/Activity a: Provide an on-site presence and encourage area users to follow guidelines developed by the Chilkoot River Corridor Working Group (CRCWG).

Objective 2: Quantify information about fish use by bears, primarily brown bears, but black bears as well.

Job/Activity a: Conduct observations of bear fishing activities during field season.

Objective 3: Document instances where bears are displaced or excluded from fishing and foraging by human activities.

Job/Activity a: Monitor human and bear activities on these areas including land use impacts and water-based activities during field season

Objective 4: Assess the success of previously developed management guidelines and make recommendations for inclusion in a more comprehensive Chilkoot River Corridor Working Group plan.

Job/Activity a: Produce a report summarizing observations and activities during field season, and making recommendations for inclusion in CRCWG's management plan for the area.

Summary of Project Accomplishments:

1. In late August, a river monitor was hired to inform area users about the CRCWG guidelines, and to collect some basic user information for planning purposes. To disperse information to CRC users optimally, printed guidelines were given to visitors, news releases and public service announcements were spread by radio and newspaper, the monitor was the guest on a local call-in show. Finally, because so many of the visitors come from Whitehorse or rent their RVs there,

rental agents and sports shop owners were also contacted with information to give to their clients. The monitor's overview is attached as Appendix 1.

2. Because of the all-consuming nature of the public contact component of the monitor's duties this first year, he found it virtually impossible to collect any data on fish use by bears, especially information about catch rates. Secondarily, the visibility in some of the more popular bear fishing sites was poor. However, he noted the high degree of utilization of fish scraps left from anglers cleaning their catch and not disposing of scraps properly.

3. Without being omnipresent, the monitor could not specifically collect data on bear displacement by humans. However, he was able to opportunistically collect some use data from visitors as he gave them information about guidelines for use. Appendix 2 is an overview of people's activities and Appendix 3 shows some bear use information. Appendix 4 demonstrates some of the concerns.

4. A draft report summarizing the CRCWG's activities is attached as Appendix 5, which incorporates some of the recommendations made by the monitor and others.

Project Costs: Federal share $12,289 + state share $4,097 = total cost $16,386

Prepared By: Polly Hessing, Principal Investigator

Date: 29 October 2003

Bear viewers may form a line, preventing access to or from the river by bears.

Staying on the roadway to view bears is less intrusive than approaching them directly.

At least one tour operator moors his boats overnight at the lake. Boats should be

Traffic on the road can be an obstacle to humans and wildlife. Anglers may be hesitant to leave their fishing sites to secure their catch, leading to bears taking fish from anglers and to unsightly garbage left behind.

Most of the access to the river is on undeveloped trails, leading to stream bank erosion and undercutting of the roadbed itself.

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STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1- 8
PROJECT NR.: 5

WORK LOCATION: Haines – Chilkoot River

PROJECT DURATION: 1 July 2003 – 30 June 2004

PROJECT REPORTING PERIOD: 1 July 2003 – 30 June 2004

PROJECT TITLE: Monitoring and assessment of strategies for conservation of brown bears at Chilkoot River

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Project Objectives:

1. Using CRCWG guidelines and other accepted techniques, standardize area user behaviors and practices to reduce interactions between humans and bears

Job/Activity a: Work with Sport Fisheries and Commercial Fisheries Divisions to augment guidelines developed by the Chilkoot River Corridor Working Group (CRCWG) to 1) reflect divisional missions and 2) to incorporate suggestions from the 2002 river monitor.

Job/Activity b: Distribute Chilkoot guideline information to vehicle rental agencies in Whitehorse, Yukon Territory; deliver presentations about guidelines to the public at meetings in Haines, Skagway and Whitehorse.

Job/Activity c: Hire river monitor to provide an on-site presence and encourage area users to follow guidelines

Job/Activity d: Establish one fixed and one moveable 'bear corridor' based on data collected by monitor and by graduate student to allow bears access to the river across the road.

2. Collect data about area users for local government and for further development of a CRCWG plan for the area.

Job/Activity a: Briefly interview Chilkoot users about their activities in the area and reactions to the monitor and guidelines.

Job/Activity b: Produce a report summarizing area use patterns from interview information and river monitor's observations; make recommendations for consideration by City of Haines and other interested agencies.

3. Document instances where bears appear to be displaced from fishing and foraging by human activities.

Job/Activity a: Opportunistically document instances when human activities cause bears to change their fishing or foraging behavior.

Job/Activity b: Evaluate guidelines for their effect on reducing displacement of bears and feedback results into CRCWG planning process.

Summary of Project Accomplishments:

1. a-d. We prepared handouts modeled on other ADFG public information about bears; these reiterate Chilkoot Guidelines and ADFG Points of Agreement as well as other information about bears and angling that is dispersed on a state-wide level. Information was distributed to visitors to the Chilkoot, as well as to several recreational vehicle rental agencies and sporting goods stores in Haines and Whitehorse. A river monitor was hired through a Reimbursable Services Agreement with Department of Natural Resources/Division of Parks and Recreation in August to collect information from people and inform them about reducing conflicts between people and bears, which included using a moveable corridor to allow bears better access to and from the river. In early summer, 2004 presentations were given to staff of local interested businesses and to the public about bears in general, and specifically about desired human behaviors along the Chilkoot Corridor.

2. a. To the extent possible, visitors were interviewed about their activities and informed about Chilkoot guidelines. The monitor found it difficult to dispense information, run inerference between people and bears, and collect useable data simultaneously. A matrix summarizing many of the contacts made is attached.

   b. The Chilkoot River Corridor Working Group is in the process of making recommendations to the Haines Assembly; thus, we have not separately prepared suggestions for them at this time.

3. a-b. The monitor found it difficult to consistently document the many instances where bears were displaced by humans and/or their activities. A young bear, likely one regularly seen at Chilkoot, was shot as a Defense of Life and Property kill at a subdivision several miles from the river. In general, discouraging human use of the east bank of the river, encouraging fishermen to clean and secure their fish when caught, and crowd control are the areas needing most improvement on the Chilkoot River at this time.

Project Costs (includes indirect costs)**:**
Federal share $ 17,828.67 + state share $ 5,942.89 = total cost $ 23,771.56

Prepared By: Polly Hessing, Wildlife Biologist II

Date: August 31, 2004

Date	Time	# in Party	Reason for Contact	Activity at Contact	# of Vx in Area	Additional
9/7	7:30	1	Informed of morning bear activity from 5:30-7.	Information to angler concerning the need for entrails to be in swift water not near bank.	4	Not sure how big of an area is to be considered so this is just Angler Hole.
	8:30	3	Curious about bears in the area.	Had seen2 bears (Sow3 and SD) and didn't want to compete with bears for fish and wondered if the lake would minimize impact.	4	
	9:00	14	Anglers in 5 groups in Zone 1 W.	Informed about recent bear activity on the west bank and encouraged proper fish storage.	8	Most fish on stringers. Walked the banks answering questions til 11am.
	11:00	2	Brian and Grandpa who used firecrackers to defend their hole from bears in 2002.	When informed that two subadults have been out in the day Brian says, " Don't worry I've got my bear protection", as he points to his 12 gauge. Receptive to fish cleaning and moving catch to vehicle if bear approached.	2	
	11:15	1	Katie	Talked about monitoring issues and approaches.	3	
	11:30	2	Bob and Kathy leaving on way to town	Campground clear and all campers had received bear talk.	3	
	17:00					Many of my scans the first week or so were tallied on Nick's clipboard/datasheet.
9/8	20:43		Spotlighting bears 2x	Drove over towards vehicle and activity ceased.	2	RC Beck
9/11	5:30	0		2 bears in Zone 1 and 3 bears in Zone 4.	0	Sow with 4 cubs in estuary, departed at 5:44 as 1st vehicle coming in.
	5:45	4	2 displaced 2 bears.	Let people know about bears' increased wariness in the morning hours and recommended if they wanted to see bears longer, to park their vehicle and remain stationary.	2	
	5:45	4	Talked to people about bear safety/awareness.		2	til 6:30
	6:30	2	People approaching bear within 25 m	Recommended viewing from the roadside and they had many questions about bears after that.	2	Had been traveling in Alaska for weeks and these first bears they'd seen. Very appreciative.
	7:10	15		Created an excellent viewing space where most people were quiet, excited, and possesed numerous questions. Rewarded for their etiquette by being some of the only people to view Sow with 3 yearlings (McNeil).	2	Zone 2. McNeil and Dos came out on east side, very late. Boo up to PT1/2 and then down. Rainy morning and had all people grouped viewing below the fridge where anglers normally fish, though none today.
	7:30	14	Bear awareness	Lots of questions about bear biology and general ecology relating to salmon.	8	Sow3, Sow2 one on west side and other on east side.

* These notes represent only a small portion of the interactions undertaken as bear monitor. During the busiest times it was too difficult to record detailed information and respond to situations, hence the absence of numerous contacts and surveys.

9/11	8:30	2	Bear inquiries	People from MI curious about Sow3's tapeworm.	6	Not the first people to express how impressed they were with State Park's presence on the river. Had visited 3 years before and much improved.
	9:30	4	Needed help releasing snagged fish.	Removed pixie, took their photo and informed of bear activity, etc. Very happy with the trip to Haines.	3	
9/12	16:00	35	Bear viewing from bridge	Crowd control	15	Small dark subadult bear fishing in Zone1.
	17:00	30	Bear viewers, bridge became a parking lot.	Many people moved into vehicles while it was raining and waiting for bear to reenter.	16	
9/13	6:00				9	Entrance to Lake
	16:00				18	10 vx from anglers and 8 vx of bear viewers.
9/16	5:30	4	Germans on radios	This entire week several German tourists up before sunrise to view bears from their diesel trucks. Several bears displaced by their early activity. Direct flight into Whitehorse 2x/week.	2	This morning convinced to shut down vehicle and watch the sow with 3 cubs <50meters away. After 20 minutes one couple got bored, drove to estuary and radioed back that more bears there, so second truck sped off sending sow3 acrss the river.
9/19	6:00				3	Entrance to Lake
	7:00	1	Food Bag tied up only 6'	Re-hung food bag and left note with bear regs, Hitchhiker sleeping in tent.		Site 23
	8:00				7	Entrance to Lake
	17:45				16	Entrance to Lake
	19:00				26	Entrance to Lake
9/20	6:00				0	Entrance to Lake
	7:00				1	Entrance to Lake
	9:00			Spoke to campers, anglers, & would-be viewers	7	Entrance to Lake, slow moving
9/21	6:30	11			4	8-1BMJ, 3-6 Zone3
	7:15					Boo near N Bend Spruce eating sockeye til 7:35. OUT: 75m S of N Bend Spruce, 1 min after angler drove by.
	7:30		BBQ along river. Intersted in Bear Viewing	Gave information about good-safe viewing locations and informed of bear activity and awareness.		Guy from Nova Scotia
	9:00	12			6	Entrance to Lake, 5-6, 4-1
	13:45	8		Photographers enthusiastic about viewing in daylight.	2	til 14:00 Small Dark in Belted Channel
9/21	16:50	40		Viewing from bridge of bear 15 meters below. Gave space and bear vigilance slightly decreased but still exited after 15 min.	10	SD

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9/21	20:17	2	Spotlighting on bridge	Drove over to bridge and the pick-up rapidly departed.	1	
9/22	5:50	1	Illegal Overnight	223 LKU - Overnight Vehicle.	1	
	18:00				17	Entrance to Lake
9/23	18:00				11	Entrance to Lake
9/24	18:00				3	Entrance to Lake
9/24	19:00				5	Entrance to Lake
9/25	17:45				9	Entrance to Weir
9/27	7:00	8	Anglers and Viewers		5	
9/29	16:30				5	Entrance to Lake
	18:00				12	Entrance to Lake
9/30	6:45	2	Excessive noise and no muffler.	Looking to find the best place to watch bears.	1	2 Bear viewers Ron and Bill
	7:30	5	Bear viewers	Talked about morning bear activity	5	
	18:00				18	Entrance to Lake
10/1	6:00	3	Bearviewing/fishing etiquette		2	
	8:00	6			3	
	10:00	7			9	
	19:45	4	Interested in bear viewing	Set up scope and had people stay near their vehicles when cubs started up bank.	3	BMJ IN: CWC OUT: PAE dark; Bear activity this night on road above weir and in Zone 3 near Angler Access.
10/2	7:00	8	2 illegal overnight Rvs, had not been there at 20:00	1 Vehicle departed when I drove in and I awoke the others and asked them to move to campground .	10	RECORD TEMPS in SE AK; 7-6, 1-1.
	6:20					Sow2 at Leash Rock OUT: Log at 6:45 when first 2 vehicles entered.
	6:56					Boo ran across west road at Rock1 with fish in her mouth as a car was paralleling her on road.
	7:05					Yearlings at N Bend Spruce
	7:30			Guy at Site 21 unhappy with the 1 week lakeside rule.		He had just unloaded firewood and only his boat there a few nights.
	17:30	25			13	11 Angler Vx, 2 Viewer
	18:30		Sub-female diverted thru campground after blocked near boat ramp.	Contacted most campers and found person in site2 to p/u unattended coolers and beer in next site.		Boo passed through fortunately without incident, though boats and lake sites visited at nights.
	18:45	27			19	25-6, 12-1; 10 viewers Vx, 9 Angler.
10/3	6:00	2	Illegal camping at teardrop	Awoke and asked to find a site in the campground.	1	BSV35 YT White van with Yellow stripe.
	7:00	8	Fishing guidelines		4	Fishing in Fog
	17:30				16	Entrance to Lake

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10/3	18:45	15	Viewing within 15meters	Setup scope for viewers, discussed bear ecology and discourage approaching nearer.	15	Lake
	19:10	16		Subadult female ate 5 filleted carcasses and then swam back to east with fillet.		Fed at cleaning table then to ramp until 20:00 after headed toward campground when adult female moved in.
10/4	6:45	0			0	Boo and Dos opposite McGuires at 6:45.
10/4	6:55					Pits @ Leash Rock
	7:04	2		First angler vehicle stopped to view adult female after they saw it exiting at Belted Hole. Felt bad that they spooked sow.	1	Pits departed upon vehicle arrival. The next morning the people parked at bridge and walked in.
	7:15	9			5	7-6, 2-7, All from campground.
	17:00	32		State Forestry Official(Angling) from McGrath angry that there was no enforcement. He watched guys on the Kat side snagging and exceeding limit. Rec contacting FW Trooper and later told he did.	18	Entrance to Lake, all angling
10/5	6:45	4		Several early viewers with the first 4 people staying near scope to view sow with 3 cubs within 50 meters. Very excited after not seeing many bears on their travels through Alaska including Denali.	2	BMJ Zone2 west 06:45, swam to east, Out: N Pool 7:30; Boo in Z4 til 7:15
	9:00	18			11	Lake; Z3 17/10
	9:15	52		Most everyone angling. Talked to many about slow fishing and bear activity on east bank until 7:30	40	Entrance to Lake
	17:15				9	Entrance to Lake
10/6	5:00		Hale's dogs barking	Chuck forgot to turn on his electric fence.		Bear ate the apples off of his trees.
	7:30	10			6	Entrance to Lake; Zone3: 6w/4e-6
	7:35	2		Bear viewers standing at weir watching upstream.	2	
	9:30	12			9	Lake, 6-6, 6-1
	17:00	8		Bear viewers near vehicles along zone1.	3	til 17:30 SD Belted Meadow
	17:40	10		Viewers start moving and some drive to bridge to watch bear.	5	SD reentered and passed over east bridge as people scampered back to their vehicles.
	18:30	15			5	7-6, 8-1
10/6	19:00	2	Tossed beer can out window at Lake.	Approached vehicle parked behind CCC. Found Larry Sweet and Andrea drinking, they responded belligerently. Brought him around to understanding CCC was being vandalized, trespassed, littered throughout the summer, as I picked up over 1000 beer bottles.	1	Sweet was aware of the parties and assured me they had taken care of those highschoolers. Said he had permission from Ray Dennis to be at CCC.
	19:17					Sow3 E Lk Pt

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	20:05					Sow2 came out at Picnic Area and crossed to cleaning table where Sow3 still rummaging. Lots of huffing and Sow2 finally went around and Sow3 deferred. Quiet night as ferry took many of the seasons viewers to Prince Rupert
10/7	6:45					Sow2 Z3e IN: Creek 3 OUT: E Lk Pt at 7:30
	7:00	16	Anglers	Anglers start checking in most mornings to see if late/safe enough to cross to east side.	8	Lake. River level 134, 109 year before. 16-6
	7:15	1	Stolen gas tank	Yukon prison guard in Site 8 wants plate from guy in site9.		Campground walks everymorning ensuring coolers secure and learning of previous night's bear movement in campground.
	7:45	27			11	Z3 5w/5e-6, Ramp: 16-6
	17:00					Told BMJ on lake 1 km up NE side.
	17:15	21	Anglers curious of bear activity	Nightly routine of Picking up monofilament and beer bottles and tossing filleted carcasses out into deep water before bea arrival near 18:00.	11	Z3: 11-6, 10-1
	18:00	19		Set up scope to congregate people and provide greater safety by staying in a group. On this night it was a good thing as bears cross on both sides.	12	Lake Teardrop: 12-1(viewers), 7-6 (Anglers)
	18:15		Zodiak out at Ramp	Site 13 offered to encourage Site 12 to come get their boat and coolers before bear:30		Dock taken out today.
	18:45					BMJ came in E Lk Pt
	19:00		With monitor presence, quietly viewed and appreciated seeing bears after long day fishing and drinking whiskey.	Viewers within 15 meters of Sow and 3 cubs below bank.		BMJ crossed to West side to investigate west bank 50 m S of W Lk Pt. 19:20 nearing table.
	19:25					BMJ scraps with another adult and cubs run up bank within 10 meters of people. Reentered at Picnic area just after Site 13 starts coming from campground to pickup Zodiak. Now very dark.
10/7	19:30	8	Sow and cubs near Zodiak	Stopped vehicle before going down ramp as Sow stressed trying to find cubs, huffing, running, as they begin to reunite, just as Pick-up towing trailer drives in to get boat.	1	Campers appreciative for the next three days about being warned before heading down to get boat during a potentially dangerous encounter.
	20:00	2	Camper P/U parked at bridge.	Informed anglers that lot closed to overnight camping. They obliged indicating that just going to finish dinnerr and head into the campground	1	SE Bridge parkinglot. Yukon ACG19

* These notes represent only a small portion of the interactions undertaken as bear monitor. During the busiest times it was too difficult to record detailed information and respond to situations, hence the absence of numerous contacts and surveys.

10/8	6:00	2	Overnighters at bridge	Awoke same guys and told them I was disappointed that they deceived me. Said they got too inebriated to operate their vehicle and would check into the campground and pay for the night.		Yukon ACG19 never did pay fees or camp in park though day users for next several days.
	6:45					BMJ Creek2
	8:30	31			16	Lake and Zone3
	17:30	28			11	28-6.
	18:30	16			20	More viewers but not counted in this scan, Sow2 at Creek 2
	20:30	2		Informed anglers that road closed to overnight camping.	1	AMT 93 parked to camp overnight
10/9	6:00		Site 18 left out cooler and grill.	Left bear regs and a note asking them to store.		
	6:30	3			2	
	7:45	31	Picked up monofilament, beer cans, trash, and talked about entrails in swift water.	Duties in the campground have been useful in creating a dialogue with people, making them more willing to comply along the river. Reinforcement of the message in various settings.	10	Zone3 and ramp: 31-6.
10/10	17:30	28			11	Entrance to Lake
	18:30	30	Viewers and anglers	BMJ IN: Creek2 walked up east bank to E Lk Pt, swam to west with 9 viewers above in 3 vx.	11	25 viewers and 5 anglers. Scavenged for fillets until large bear (poss Dos/bear from previous night). Not as concerned with people on roadway as the incoming bear.
	20:30	2	Illegal camping below weir.	Informed of Overnight camping and he did leave after he put out his fire.		
10/12	6:45	14	Bear viewers and anglers	Asked photographer to come back up to the road after he approached bear to 15 meters. Set up scope and allowed everyone to watch eating fish.	6	BMJ out until 8:00 swam west to east when 4 vehicles parked to view.
	7:15	21		Informed of recent bear activity in campground.	11	Zone3:13-6, 6-7, 2-8, fairly wide distribution
	8:15	36			12	Mostly Z3 Anglers and people moving in Vx.
10/12	17:30	3			7	Entrance to Lake
10/13	7:45	29	Anglers and viewers	Recapped evening bear activities and poor salmon return. 3am- Site 17 left out dog bed, bear took it and bumped trailer of a CO in YT, regretted attracting bear. 7-8am bear came thru Site 21 then down near cones, walked up west side, OUT: E Lk Pt.	16	Zone 3: 21-6, 4-1, Lake: 4 Vx and 4-6. 7:15-7:30 BMJ IN: Creek2 and dwn to deadfall.
	9:00	14			17	5-6, 6-7, 3-1

* These notes represent only a small portion of the interactions undertaken as bear monitor. During the busiest times it was too difficult to record detailed information and respond to situations, hence the absence of numerous contacts and surveys.

10/13	17:00	25	Anglers and others	Site 4 moving to Salmon Run after boat seats chewed 2x after catching fish and scent left in boat. 2 New campers in Site2 left after a black bear looking griz was attracted to their site. They left as well.	14	20-6, 5-1
	18:30			Boo came up west bank from CCC. Sow3 in at Creek2 up to E Lk Pt.		Boo got carcass from deep water after I threw dollies further out. BMJ launched on Boo when she reemerged from eating her coho prize. Boo defended in deep water. Cubs scurried up spruce. Boo hung out, then to ramp and up middle of road.
10/14	6:30	2	Anglers	Commiserated on poor coho return.	1	Zone3
	7:30	8	Anglers		6	Zone3
	8:00				7	Entrance to Lake
	18:31	6	Anglers and viewers	Anglers cleaning fish at table when subfemale comes around the corner on her nightly rounds. I quickly tossed carcasses out as far as I could before she got there.	4	Lake Ramp
	18:45	8	Flash photos	Guy kept taking digital flash photos of Boo which didn't turn out and were making her unsettled. Recommended that he avoid taking any more if he wanted to be able to still watch bear. He had wondered why she seemed so uneasy.	6	
	19:05	5	Viewers	Quiet viewers watching through scope got to see Dos come IN: E Lk Pt.	7	Entrance to Lake
10/15	7:00	9	Anglers and Viewers	People still eager to catch a morning glimpse of bears.	4	6-6, 3-1
10/15	8:30	24	Anglers and others	Talked about the importance of the monitor program's continuation and received a lot of positive feedback from various Yukon anglers about the information that they received and the less intrusive/laid-back approach taken in 2003.	12	18-6, 6-1.
	17:10	12			6	

* These notes represent only a small portion of the interactions undertaken as bear monitor. During the busiest times it was too difficult to record detailed information and respond to situations, hence the absence of numerous contacts and surveys.

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1- 8
PROJECT NR.: 5

WORK LOCATION: Haines – Chilkoot River

PROJECT DURATION: 1 July 2004 – 30 June 2005

PROJECT REPORTING PERIOD: 1 July 2004 – 30 June 2005

PROJECT TITLE: Monitoring and assessment of strategies for conservation of brown bears at Chilkoot River

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Project Objectives

1. Using CRCWG guidelines and other accepted techniques, standardize area user behaviors and practices to reduce interactions between humans and bears

Job/Activity a: Work with Sport Fisheries and Commercial Fisheries Divisions to augment guidelines developed by the Chilkoot River Corridor Working Group (CRCWG) to 1) reflect divisional missions and 2) to incorporate suggestions from the 2003 river monitor.

Job/Activity b: Distribute Chilkoot guideline information to vehicle rental agencies in Whitehorse, Yukon Territory; deliver presentations about guidelines to the public at meetings in Haines, Skagway and Whitehorse.

Job/Activity c: Hire river monitor to provide an on-site presence and encourage area users to follow guidelines

Job/Activity d: Establish one fixed and one moveable 'bear corridor' based on data collected by monitor and by graduate student to allow bears access to the river across the road.

Job/Activity e. Install 'Bear Essentials' signs at Chilkoot and Chilkat Rivers

2. Collect data about area users for local government and for further development of a CRCWG plan for the area.

Job/Activity a: Briefly interview Chilkoot users about their activities in the area and reactions to the monitor and guidelines.

Job/Activity b: Produce a report summarizing area use patterns from interview information and river monitor's observations; make recommendations for consideration by City of Haines and other interested agencies.

3. Document instances where bears appear to be displaced from fishing and foraging by human activities.

Job/Activity a: Opportunistically document instances when human activities cause bears to change their fishing or foraging behavior.

Job/Activity b: Evaluate guidelines for their effect on reducing displacement of bears and feedback results into CRCWG planning process.

Summary of Project Accomplishments:

1. a-e. We prepared handouts modeled on other ADFG public information about bears; these reiterate Chilkoot Guidelines and ADFG Points of Agreement as well as other information about bears and angling that is dispersed on a state-wide level. Information was distributed to visitors to the Chilkoot, as well as to several recreational vehicle rental agencies and sporting goods stores in Haines and Whitehorse. A river monitor was hired through a Reimbursable Services Agreement with Department of Natural Resources/Division of Parks and Recreation in August to collect information from people and inform them about reducing conflicts between people and bears, which included using a moveable corridor to allow bears better access to and from the river. In spring 2005, presentations were given to staff of local interested businesses and to the public about bears in general, and specifically about desired human behaviors along the Chilkoot Corridor. "Bear Essentials" signs were not installed as planned. The CRCWG wanted signs customized for that location and, although progress was made on customizing the message, signs were not fabricated during the report period.

2. a. To the extent possible, visitors were interviewed about their activities and informed about Chilkoot guidelines. The monitor made it possible to reach many of the visitors, especially fisherman and campers as they recreated on site. This led to a greater compliance with recommended behavior and ultimately led to fewer problems with bears on the river.

   b. The Chilkoot River Corridor Working Group gave a report and recommendations to the Haines city assembly in March 2005. One recommendation was that the city help fund the monitor position, and as of fall 2005, the city has provided $5,000.00 toward that effort.

3. a-b. The monitor found it difficult to consistently document the many instances where bears were displaced by humans and/or their activities. Cause and effect were hard to determine with so much activity going on in such a small place. In general, discouraging human use of the east bank of the river, encouraging fishermen to clean and secure their fish when caught, and crowd control are the areas needing most improvement on the Chilkoot River at this time.

Project Costs

Stewardship Investment items: None
Total costs: Federal share $15,966 + state share $5,322 = total cost $ 21,288

Prepared By: Neil Barten

Date: August 10, 2005

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1- 8

PROJECT NR.: 3.0

WORK LOCATION: Juneau- Admiralty Island

PROJECT DURATION: 1 July 2002 – 30 June 2004

PROJECT REPORTING PERIOD: July 1, 2002 to June 30, 2003

PROJECT TITLE: Stan Price State Wildlife Sanctuary Conservation Planning

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Project Objectives:

1. Conserve the population of Pack Creek bears and insure that they are not displaced by human activity. Review operations and develop strategies for assessing factors that may be adversely affecting the Pack Creek brown bear population.

    Job/Activity a: From June through early September ADF&G staff will be on site at Pack Creek to explain guidelines to visitors, to receive public input, and to monitor human and bear interactions to ensure that human behavior does not interfere with brown bear use of the area.

    Job/Activity b: Review information collected during in-season monitoring and observations and determine whether management adjustments are needed. Make recommendations on whether a formal management plan for the PCCMA is advisable.

2. Gather behavioral and genetic information about brown bears from observation and hair sampling stations.

    Job/Activity: Staff will collect hair samples at pre-selected sites at Swan Cove, Pack Creek and Windfall Harbor for future genetic testing. Staff will collect data on the number of bears present and their activities using established protocol.

3. Monitor human and bear use of Windfall Harbor.

    Job/Activity: Staff will tally the number of visitors to Windfall Harbor and observe what affect their presence has on the brown bears who use the creeks in that part of the Closed Area.

Summary of Project Accomplishments (numbers correspond with project objectives):

1. a. From June 1st through September 10, three ADFG staff were on site at Pack Creek to explain guidelines to visitors, to receive public input, and to monitor human and bear interactions. Staff contacted 1,215 visitors during this time. Fourteen percent of the visitors arrived by boat, 24% by kayak and 61% by floatplane.

During the 2002 season, 26 encounters with bears were recorded, 22 of which involved visitors. An encounter is defined as people meeting bears as they travel around Pack Creek. Most of these encounters occurred on the trail to the viewing tower. This is a slight increase from last year and these numbers will continue to be monitored. If there is a significant rise next season we may want to collect more detailed information about what is occurring during these encounters.

b. The Forest Service and ADFG decided to gather more data in Windfall Harbor, Swan Cove and Pack Creek during May & June of 2003 for the Seymour Canal Zoologic Area Plan. Bob Christianson of SEAWEAD, mapped bear trails in Windfall, Swan, and Pack Creek to determine their location and relative use. This information will be useful for future planning to keep humans and bears separate.

2. We gathered hair samples from 6 hair-collection sites- two each located in Windfall Harbor, Pack Creek, and Swan Cove. Twenty-nine samples were collected and sent to a lab for genetic analysis. Twenty-two of the 29 samples produced solid genetic data allowing them to be assigned to 14 genetically-defined individual brown bears. Ten individual males and 4 individual females were identified in the sample population. Hair was collected from sites in all three drainages.

We met our two basic objectives for hair sampling - We determined that our technique for catching hair was more than adequate and the majority of samples provided useable information. We were also able to determine from the hair analysis that individual Pack Creek bears utilized the adjacent drainages of Swan Cove and Windfall Harbor. We will continue further analysis of the data as the study progresses and objectives are refined.

Former Forest Service Pack Creek staff person, Nancy Ratner observed bears at Pack Creek for several days during June and July. She kept written records and videotaped physical and behavioral attributes of 19 bears. This information will be used to help staff become familiar with individual bears and how they react to human presence.

3. During the 2002 field season, field staff kept track of the visitation in Windfall Harbor by recording observations on Forest Service data sheets. Visitors arrived at Windfall by chartered boat, private boat, or floatplane. There was an increase in visitor use in Windfall from the previous season. Funding was not available to hire extra staff to monitor Windfall Harbor during the 2002, but in future seasons we will try to incorporate a more formal Windfall monitoring plan into the duties of existing staff.

Staff collected the hair of four different male bears from two hair-collection sites in Windfall Harbor during the 2002 season. One of those bears also used the Pack Creek drainage.

Submitted by: Anne Post, Principal Investigator

Project Cost: Federal share $29,000 + state share $9,600 = total cost $38,600

Date: 3 September 2003

FEDERAL AID
INTERIM PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1-8
PROJECT NR.: 3

WORK LOCATION: Juneau/Admiralty Island

PROJECT DURATION: 1 July 2003 – 30 June 2004

PROJECT REPORTING PERIOD: 1 July 2003 – 30 June 2004

PROJECT TITLE: Stan Price Wildlife Sanctuary Conservation Planning

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Project Objectives:

1. Conserve Pack Creek bear populations and review operations and develop strategies for assessing factors that may be adversely affecting the Pack Creek brown bear population.
   Job/Activity a: From June through early September ADF&G staff will be on site at Pack Creek to explain guidelines to visitors, to receive public input, and to monitor human and bear interactions to ensure that human behavior does not interfere with brown bear use of the area.
   Job/Activity b: Review information collected during in-season monitoring and observations and determine whether management adjustments are needed. Make recommendations on whether a formal management plan for the PCCMA is advisable.

2. Gather behavioral and genetic information about brown bears from observation and hair sampling stations.
   Job/Activity: Staff will collect hair samples at pre-selected sites at Swan Cove, Pack Creek and Windfall Harbor for genetic testing. Also, staff collect data on the number of bears present and their activities using established protocol. One staff person will identify individual bears using a spotting scope, 35 mm camera and video camera. Field notes and pictures that are collected on site at Pack Creek will be analyzed after the field season.

3. Monitor human and bear use of Windfall Harbor to collect information for the Zoologic Area Plan that is being written in cooperation with the US Forest Service.
   Job/Activity: Staff will tally the number of visitors to Windfall Harbor and observe what affect their presence has on the brown bears who use the creeks in that part of the Closed Area.

Summary of Project Accomplishments (numbers correspond to objectives' numbers)**:**

1.a. Staff from ADFG and the U.S. Forest service were on-site from June through the first week and a half of September. They explained guidelines to visitors, answered questions, monitored human and bear interaction to insure that humans did not displace bears, and gathered public input.

b. Information collected by ADFG staff, including visitor information, information on viewable bears and bear/human interactions, and identification of individual bears will be combined with the data collected by our partners, the U.S. Forest Service, and discussed in preparation for the Zoologic Area Planning process this fall. The first step will include identification of management issues within the Pack Creek closed area and presentation of background information.

2. Staff set up seven traps and collected hair samples from bears in Windfall Harbor, Pack Creek, and Swan Cove. Useable genetic material was obtained in 74% of the samples. Twelve different individual bears were identified. Hair from five of those bears was also captured in 2002 while seven hair samples were identified as belonging to seven new bears. Six individual bears used the Pack Creek drainage and of those six, three bears also used Windfall Harbor or Swan Cove.

   Information about individual bears and their behavior was recorded by staff and submitted in end of the season reports. In addition, video and photo records of bears were made during a week- long period in early August.

3. During the 2003 summer season staff kept track of the number of boats, kayaks, and planes that landed in Windfall Harbor and Swan Cove and provided a report at the end of the season.

Project Costs (includes indirect costs)**:**
Federal share $ 35,025.31 + state share $11,675.11 = total cost $ 46,700.42

Prepared By: Anne Post

Date: August 25, 2004

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 25526
Juneau, AK 99802-5526

STATE WILDLIFE GRANT (SWG)

STATE: Alaska **GRANT AND SEGMENT NR.:** T-1- 8
PROJECT NR.: 3

WORK LOCATION: Juneau, Admiralty Island

PROJECT DURATION: 1 July 2004 – 30 June 2005

PROJECT REPORTING PERIOD: 1 July 2004 – 30 June 2005

PROJECT TITLE: Stan Price State Wildlife Sanctuary Conservation Planning

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Project Objectives

1. Conserve population of Pack Creek bears and ensure that they are not displaced by human activity. Review operations, develop strategies for assessing factors that may be adversely affecting the Pack Creek brown bear population, and use collected information to write the new Zoologic Area Forest Service Plan as well as update ADF&G's 1976 Pack Creek/Windfall Harbor management plan.
2. Gather behavioral and genetic information about brown bears from observation and hair sampling stations.
3. Monitor human and bear use of Windfall Harbor, an area adjacent to Pack Creek that is closed to bear hunting, to collect information for the Zoologic Area Plan.

Summary of Project Accomplishments:

1. Staff from ADFG and the U.S. Forest service were on-site from June through the first week and a half of September. They explained guidelines to visitors, answered questions, monitored human and bear interaction to insure that humans did not displace bears, and gathered public input.

   Information collected by ADFG staff, including visitor information, information on viewable bears and bear/human interactions, and identification of individual bears was combined with the data collected by our partners, the U.S. Forest Service, and integrated into a draft for the Zoologic Area Plan. Pack Creek staff reviewed and commented on the draft plan in preparation for public meetings later in 2005. Updates to the Fish & Game Pack Creek/Windfall Harbor Management plan will follow the public comment period for the Forest Service plan.

2. In July and August, staff obtained 25 hair samples from 8 different trap sites of which 16 genetic samples were useable. Nine new bears were identified and sexed which makes a total of 30 individual bears identified in the Seymour Canal Closed area during the Pack Creek viewing season. In the spring of 2005, we increased the number of hair snares set in Windfall

Harbor, Swan Cove and Pack Creek due to help from U.S. Forest Service Admiralty Monument biology staff. In addition, some snares were placed earlier this year, in late April and May, in an effort to determine if Pack Creek bears use adjacent drainages, especially Swan Cove, before the viewing season begins.

Staff organized and dubbed videos taken of Pack Creek bears during the 2004 viewing season. The videos were reviewed and written commentary on their content was provided. Videos shot in past years were also previewed and similarly summaries of the contents were recorded. In addition to videos, photos taken by past and present staff and visiting photographers were located, reviewed and cataloged. This was a big job as photographic information of Pack Creek bears spans many years and was scattered in several places. In addition to videos and photographs, staff recorded descriptions and habitat use of viewable bears throughout the season. This data will be more thoroughly analyzed as time and funding allow.

3. As the U.S. Forest Service employed a monitoring crew for the 2004 Pack Creek viewing season to gather information about brown bear activity and human visitors, ADFG staff did not report on Windfall Harbor visitors – animal or human. The Forest Service Monitoring Crew generated an end-of-year report which was shared with ADFG staff.

Project Costs

Stewardship Investment items: None
Total costs: Federal share $30,813 + state share $10,271 = total cost $41,084

Prepared By: Anne Post

Date: August 1, 2005

FEDERAL AID
FINAL PERFORMANCE REPORT

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 115526
Juneau, AK 99811-5526

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: T-3 **Segment Number:** 1

Project Number: 8.10

Project Title: Evaluation of the potential for wood bison restoration in Alaska

Project Duration: July 1, 2006 – June 30, 2007

Report Period: 1 July 2006 – 30 June 2007

Report Due Date: September 30, 2007

Partner: Alaska Department of Fish and Game

Project Objectives

OBJECTIVE 1: Inform the public of the primary environmental and regulatory issues involved in restoring wood bison to Alaska and provide opportunities for public review and comment to help gauge the level of public support for the project.

JOB/ACTIVITY 1A: Complete an analysis of environmental and regulatory considerations involved in wood bison restoration in Alaska and make the analysis available for public review and comment by September 1, 2006.

JOB/ACTIVITY 1B: Prepare and distribute a newsletter to inform people about the primary issues and recommendations in the wood bison restoration environmental analysis and seek public comment.

OBJECTIVE 2: Implement a wood bison health certification program to verify that wood bison stock in Canada are disease-free and can be brought into Alaska for eventual release into the wild without significant risk to existing wildlife species or agriculture.

JOB/ACTIVITY 2A: Work with the ADF&G and State Veterinarians to finalize the wood bison stock disease testing protocols. (To be completed by December 1, 2006.)

JOB/ACTIVITY 2B: Complete necessary disease testing of potentially available wood bison stock in the Yukon to verify they are suitable to import into Alaska. (To be completed by January 1, 2007.)

OBJECTIVE 3: Complete ADF&G requirements necessary for proceeding with wood bison restoration.

JOB/ACTIVITY 3A: Complete a review of the wood bison restoration project as required by the ADF&G Wildlife Transplant Policy by March 1, 2007.

JOB/ACTIVITY 3B: Complete a cooperative agreement with the Alaska Wildlife Conservation Center to serve as a temporary wood bison holding and disease testing facility by March 1, 2007.

OBJECTIVE 4: Initiate collaborative planning to evaluate wood bison restoration in one or more specific locations and develop cooperative management plans.

JOB/ACTIVITY 4A: Establish one or more citizens' stakeholder planning teams to work with the ADF&G, land owners and management agencies and local residents to seek consensus on wood bison restoration and management in specific locations.

JOB/ACTIVITY 4B: If consensus is reached on re-establishing a wood bison population in a specific location initiate development of cooperative implementation and management plans.

Summary of Project Accomplishments for entire project

OBJECTIVE 1:

JOB/ACTIVITY 1A: A report titled "Wood Bison Restoration in Alaska: A Review of Environmental and Regulatory Issues and Proposed Decisions for Project Implementation" (Environmental Review) was completed and made available for public review and comment in April 2007. Display advertisements were printed in the Fairbanks and Anchorage newspapers to inform the public of the opportunity to comment on the wood bison project. The report was not completed on the projected date of September 1, 2006 because of an extended pre-review within the ADF&G and the U.S. Fish and Wildlife Service.

JOB/ACTIVITY 1B: The third issue of the "Wood Bison News" was completed and distributed in May 2007. The newsletter included a 12 page summary of the Environmental Review and a public comment response form which were enclosed in the newsletter. The newsletter was distributed to over 400 persons and organizations on the wood bison project mailing list and sent to over 1,600 post office box holders in communities near the sites being considered for wood bison restoration.

OBJECTIVE 2:

JOB/ACTIVITY 2A: Wood bison project staff has continued to work with the Alaska State Veterinarian, the DWC veterinarian and veterinarians in Canada to complete wood bison disease testing protocols. DWC staff assisted Canada's Wood Bison Recovery Team in preparing a report titled "An Assesment of the Risk of Introducing the Organism Associated with Johnes Disease (*Mycobacterium avium paratuberculosis*) to New Areas in Alaska as a Result of Translocating Wood Bison (*Bison bison athabascae*) From Elk Island National Park." While significant progress has been made during the term of this SWG project, final wood bison disease testing protocols will be completed by September 30, 2007 based on the risk assessment and continued consultation with the veterinarians involved.

JOB/ACTIVITY 2B: There were no disease tests conducted on potential wood bison stock in Yukon Territory, Canada during the term of this project because efforts have been focused on obtaining wood bison stock from Elk Island National Park in Alberta, CA. Routine disease testing of wood bison at Elk Island National Park is accomplished by Parks Canada Agency.

OBJECTIVE 3:

JOB/ACTIVITY 3A: A Wildlife Transplant Policy (WTP) Scoping Report was completed and approved by the Director of the DWC in August, 2006. Pursuant to this scoping report, a WTP Review Committee was established and the committee completed its proposed findings in January 2007. There was a 60-day public review and comment period on proposed findings that occurred in conjunction with the public comment period for the wood bison environmental review. Virtually all the work required to comply with the WTP has been completed and the final findings of the WTP Committee will be forwarded to the Director in September 2007.

JOB/ACTIVITY 3B: DWC and Alaska Wildlife Conservation Center staff prepared a draft cooperative agreement to use AWCC as a temporary holding and disease testing facility for wood bison. The agreement was expanded to provide for an Alaska Wood Bison Restoration Fund that can be used to accept and manage private donations to support the wood bison restoration effort. The final Memorandum of Understanding was completed and ready for the Commissioner's signature by the end of the project period.

OBJECTIVE 4: Because of the time required to complete the wood bison Environmental Review and provide adequate opportunity for public review and comment, we were unable to initiate site-specific planning involving citizen stakeholder planning teams during the term of this project. Funds that might have been used for this purpose were used to support other project objectives. We will likely proceed to site-specific planning in fall 2007 after the final record of decision on the Environmental Review is completed.

Prepared By: Randy R. Rogers, Wildlife Planner

ALASKA DEPARTMENT OF FISH AND GAME
DIVISION OF WILDLIFE CONSERVATION
PO Box 115526
Juneau, AK 99811-5526

Alaska Department of Fish and Game
State Wildlife Grant

Grant Number: T-**7** **Segment Number:** 1

Project Number: 1.0

Project Title: Planning for and implementing wood bison restoration in interior Alaska

Project Duration: 26 February 2008 – 30 June 2010

Report Period: February 26, 2008 – February 25, 2009

Report Due Date: May 25, 2009

Partner: Alaska Department of Fish and Game

Project Objectives:

OBJECTIVE 1: Continue public information and education efforts, initiate collaborative planning to evaluate wood bison restoration in one or more specific locations and develop cooperative management plans.

JOB/ACTIVITY 1A: Establish one or more citizens' stakeholder planning teams to work with ADF&G, land owners, management agencies and local residents to seek consensus on wood bison restoration and management in specific locations. If consensus is reached on reestablishing wood bison in a specific location, initiate development of cooperative implementation and management plans.

JOB/ACTIVITY 1B: Develop cooperative management and implementation plans for one or more of the three sites being considered for wood bison restoration and provide them for public and agency review and to state and federal regulatory boards for review and endorsement. The target date for completing the first site-specific planning effort for Minto Flats is November 30, 2008.

JOB/ACTIVITY 1C: Continue producing the Wood Bison News and other informational materials to keep the public informed about wood bison restoration and provide additional opportunities for public input.

JOB/ACTIVITY 1D: Develop cooperative management agreements with local residents, landowners and others and establish programs to involve the public in the wood bison restoration project.

OBJECTIVE 2: Purchase and import up to 70 young wood bison from EINP in early 2008 or at the earliest opportunity, and transport them to the temporary holding facility at AWCC.

JOB/ACTIVITY 2A: Cooperate with staff at EINP to identify wood bison stock that can be made available for restoration in Alaska and to complete the necessary disease testing procedures to obtain the health certification required for import

into Alaska. The target date for completing this task is January 30, 2008, if all the required permits and approvals are issued in a timely manner.

JOB/ACTIVITY 2B: Accomplish the necessary permitting and logistical arrangements to transport wood bison stock from EINP to AWCC in early 2008.

OBJECTIVE 3: Provide support for maintaining wood bison at the temporary holding facility at AWCC and health monitoring required prior to release.

JOB/ACTIVITY 3A: Support AWCC wood bison handling and husbandry efforts and purchase feed and other supplies needed to support bison in captivity.

JOB/ACTIVITY 3B: Support disease testing and health monitoring at AWCC so the bison receive the necessary health certification to be approved for release to the wild.

JOB/ACTIVITY 3C: Work with the Alaska State Veterinarian, AWCC and others to develop protocols to be used in the event that any wood bison are found to have disease problems that might prevent their release into the wild and to ensure proper disposition of the animals.

OBJECTIVE 4: Prepare temporary facilities and transport wood bison from AWCC to Minto Flats or other approved locations for release into the wild.

JOB/ACTIVITY 4A: Construct a temporary enclosure and obtain hay and other supplies needed to implement restoration on Minto Flats or other approved restoration locations. Purchase fencing, tools and supplies for a 5-10 acre enclosure, arrange for local assistance in constructing that enclosure and purchase and transport a supply of hay to release site.

JOB/ACTIVITY 4B: Transport bison from AWCC to Minto Flats by truck or trailer. Stock will be held for about 2 months and released in early spring 2010, or at the earliest opportunity.

OBJECTIVE 5: Prepare for and initiate baseline biological monitoring and post-release biological and population monitoring.

JOB/ACTIVITY 5A: Prior to implementing wood bison restoration, develop plans for biological monitoring programs individually tailored for Minto Flats or other restoration locations.

JOB/ACTIVITY 5B: Implement the baseline biological monitoring identified in biological monitoring plans in cooperation with other agencies and the University of Alaska (some biological monitoring may be funded through other SWG projects or sources).

JOB/ACTIVITY 5C: Purchase radio collars and other equipment needed to monitor wood bison so they can be attached prior to transport from AWCC.

JOB/ACTIVITY 5D: Monitor bison movements after release using aerial telemetry and surveys.

Summary of Project Accomplishments:

OBJECTIVE 1: ADF&G has continued with extensive public information and education efforts on the wood bison project. We have not been able to initiate site-specific collaborative planning because of controversy surrounding the status of wood bison in Alaska under the Endangered Species Act (ESA). We have devoted significant planning resources to addressing the status of wood bison under the ESA, developing a special rule for wood bison under sections 10(j) and 4(d) of the act and beginning preparation of an Environmental Assessment for the proposed ESA special regulation. This work is necessary to gain political support for the project and to obtain approval to expend funds under this grant for Objectives 4 and 5.

JOB/ACTIVITY 1A: ADF&G initiated efforts to establish a citizen planning team for wood bison restoration on Minto Flats in October 2008. The Minto-Nenana State Fish and Game Advisory Committee designated representatives for the planning team; however the task was delayed pending further work on the ESA and completing National Environmental Policy Act (NEPA) requirements.

JOB/ACTIVITY 1B: As noted above, the task of developing cooperative management plans and distributing them for public review and comment has been delayed.

JOB/ACTIVITY 1C: In addition to newsletters, other work accomplished involving public information and education activities are reported under this task

- In July 2008 a ceremony was held at the Alaska Wildlife Conservation Center (AWCC) to celebrate the arrival of 53 wood bison from Elk Island National Park (EINP) in Canada and the international cooperation involved.
- A winter 2008-09 issue of the Wood Bison News was prepared and distributed to over 2,500 individuals and organizations in January 2009.
- A supplemental Wood Bison Restoration Project Update was distributed in February 2009 to inform people about a resolution introduced into the Alaska Legislature to halt the wood bison project due to concerns about the ESA and let people know how to submit comments.
- A wood bison poster was produced using the donated artwork of Alaskan wildlife artist Randall Compton. The back of the poster includes information about the wood bison project and how people can get involved if they are interested.
- Numerous public presentations were provided on the wood bison project at forums including the Alaska Travel Industry Association, the Eastern Interior Regional Subsistence Advisory Council, several state fish and game advisory committees, the Fairbanks Chamber of Commerce and the Alaska Natural Resources Conservation and Development Board.

JOB/ACTIVITY 1D: Because cooperative planning has not proceeded on schedule we have not been able to develop cooperative agreements with local landowners and others.

OBJECTIVE 2: This objective was completed when 53 young wood bison were purchased from EINP in Canada and transported to the AWCC in June 2008.

JOB/ACTIVITY 2A: In January 2008 staff from ADF&G, AWCC and the Alaska State Veterinarian traveled to EINP and assisted in the park's wood bison handling and disease testing operation. Approximately 60 young wood bison were separated from the herd and placed in a separate enclosure for possible import to Alaska.

JOB/ACTIVITY 2B: An extensive effort was required to obtain all the necessary permits to import wood bison into Alaska. In March 2008 the U.S. Department of Agriculture determined that in order to issue the necessary import permit they would have to conduct a complete risk assessment of the possibility of bovine tuberculosis or brucellosis occurring in the wood bison herd at EINP. The risk assessment was completed and the final import permit issued in June 2008. The delay in obtaining this permit resulted in additional logistical complications because wood bison are normally only transported from EINP during cooler winter-spring weather conditions. Special stock hauling trailer with extensive ventilation and on-board misting sprayers were used to ensure the wood bison did not overheat during the 2,000 mile journey.

OBJECTIVE 3: There is extensive and on-going work to fulfill Objective 3. Costs of maintaining wood bison in captivity and conducting the disease testing and health certification have increase significantly above the amount originally envisioned. These costs will increase further if the grant project is not approved for Objectives 4 and 5 in the near future.

JOB/ACTIVITY 3A: Hay, grain and mineral supplements have been provided as needed. The majority of feed has been haylage obtained from the University of Alaska farms in Palmer and trucked to AWCC by Carlile Transportation. This activity will be on-going as long as the wood bison are held in captivity.

JOB/ACTIVITY 3B: Two wood bison handling operations have been conducted thus far; one in November 2008 and one in March 2009. Tests have included bovine tuberculosis, brucellosis and Johne's disease. Two wood bison were euthanized and necropsies were conducted to check for Johne's disease. The USFWS Division of Management authority was consulted on the need to euthanize the animals for disease testing and approvals were given. The only significant health problems have involved the presence of parasites. Additional parasite treatments are being administered.

JOB/ACTIVITY 3C: The ADF&G completed a cooperative agreement with the Department of Environmental Conservations, Office of the Alaska State Veterinarian, to define wood bison disease testing protocols for import of wood bison to Alaska, the tests needed while the bison are being held in captivity and

the health criteria required to receive certification to be released into the wild. The agreement also addresses measures that will be taken if there is a positive result to a major disease of concern to the USDA or the Alaska State Veterinarian. This activity is complete for now; however the agreement could be modified in the future if a need is identified.

OBJECTIVES 4 AND 5: This grant is currently approved for Objectives 1-3 only.

Significant Deviations:

Wood bison mortalities and health issues:

1. Mortalities in the group imported in June 2008

One bison died a few days after import from injuries caused by another bison during the transport. Five other bison died during the fall and winter of 2008-09 due to injuries caused by another bison due to competition for feed. We have never had this problem with the 2003 herd. The best explanation we have is that the wood bison that came from Elk Island National Park last summer were taken from an entire herd of over 350 bison. They were all 1, 2 and 3 year olds and it was not possible to sort them by family groups and they were randomly mixed together. There is likely a higher degree of competition in these bison because they did not come with established family bonds and dominance hierarchy. We hope they have sorted out their pecking order by now and no more mortality will occur.

2. Mortalities in the group transferred to AWCC in 2003 and their progeny

We euthanized 2 animals from the 2003 group in the last year because of concern about the possible presence of Johne's disease, a bacterium that causes chronic diarrhea. It was necessary to necropsy the animals to conclusively prove that the disease was not present in the herd.

3. Health issues

Through fecal tests and necropsies we have identified the presence of round worms in the 2003 group. Both herds are undergoing an aggressive de-worming program this spring.

For more detail, attached is ADF&G's February 13, 2009, Annual Report on Endangered Species Import Permit MA 150411-0

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