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APPENDIX A: NONCONSENSUS ITEMS

The stakeholders considered but did not reach consensus on three items: 1) Kenai Borough and municipal ordinances regarding garbage management, including garbage-proof containers, and the storage of pet food, livestock feed, and bird seed; 2) the designation of six land parcels as "wildlife **habitat**";[18] and 3) petitioning the Board of Game to eliminate black bear baiting. The proposed recommendations follow.

I. GARBAGE ORDINANCES

Some stakeholders believed that requiring residents to properly manage garbage and other brown bear attractants was important for the conservation of brown bears on the Kenai Peninsula. Others were concerned about regulations being imposed on residents and thought that the borough would not have the funding to enforce such ordinances. The proposed recommendations were as follows:

R: Recommend to municipalities and industrial facilities that they develop and enforce bear-friendly regulations or ordinances for waste management.

R: Encourage adequate peninsula-wide ordinances regarding garbage and other brown bear attractant management and enforcement of such ordinances.

R: Pursue additional ordinances regarding storage and/or bear proof containers.

R: Pursue additional ordinances regarding storage of pet food, livestock feed, or bird seed and/or encourage the use of bear-proof containers.

II. KENAI AREA PLAN PARCELS

The stakeholders discussed whether certain land classifications in the Kenai Area Plan should be changed in order to conserve brown bear **habitat.** Some stakeholders believed that the six land parcels that were identified by ADF&G as key bear **habitat** areas should be designated as "wildlife **habitat.**" One stakeholder did not agree that the six land parcels should receive such a designation. The proposed recommendation was as follows:

R: Designate all six land parcels wildlife **habitat.**

[18] The six land parcels had not been designated in the Kenai Area Plan as wildlife habitat. ADNR agreed to amend the Kenai Area Plan pursuant to consensus recommendations of the Kenai Peninsula Brown Bear Conservation Strategy stakeholders. Because the stakeholders did not reach consensus on this item, the Kenai Area Plan will not be amended. (See Kenai Peninsula Brown Bear Conservation Strategy stakeholder meeting summary, 2/28/00, for further details.)

III. BLACK BEAR BAITING

The stakeholders discussed whether or not to recommend the elimination of black bear baiting. The stakeholders recognized that black bear baiting is a controversial issue, and they considered public comments in this area. However, the stakeholders learned that, according to ADF&G records, only one brown bear has been killed in association with black bear baiting in the past eight years. Although the stakeholders did recommend measures to reduce the attractiveness to brown bears of black bear bait stations (see Chapter 2), they did not reach consensus on the following recommendation:

R: ADF&G should petition the Board of Game to eliminate black bear baiting.

APPENDIX B: DEFINITIONS OF TERMS

The following definitions apply only to this Conservation Strategy and should not be confused with other commonly used and/or scientific definitions.

Anadromous waters/water body: the portion of a fresh water body or estuarine area that is cataloged under AS 16.05.870 as important for anadromous fish; or is not cataloged under AS 16.05.870 as important for anadromous fish but has been determined by the ADF&G to contain or exhibit evidence of anadromous fish, in which event the anadromous portion of the stream or waterway extends up to the first point of physical blockage.

Buffer: an area of land between two activities or resources used to reduce the effect of one activity upon another.

Cumulative effects: the combined effects of all human activities on a defined area of land or water. In isolation, each individual action may not have a measurable effect on a given brown bear population. Over time, however, each incremental activity may have combined (or even magnified) effects on the population. (NOTE: This definition should not be interchanged with the definition of cumulative effects used by the IBBST in the **habitat** capability model analysis of cumulative effects, which has a specific meaning in the context of that scientific application.)

Disposals: parcels of land that have been selected to be disposed of by the state or the Kenai Borough, primarily for settlement or recreational purposes.

Habitat fragmentation: a process by which **habitat** is increasingly subdivided into smaller units, resulting in the increased isolation of brown bear subpopulations. Fragmentation can result in separating previously continuous populations, causing the separate subpopulations to become more vulnerable to local extinction.

Habitat linkages: a finite geographical area used by brown bears for movement between different areas of their range (large areas of **habitat**). These linkages are often constrained by natural access barriers (e.g., movement around the end of a large lake or through a mountain pass).

Habitat: the physical and biological resources required by an organism for its survival and reproduction; these requirements are species specific. Food and cover are major components of **habitat** and must extend beyond the requirements of the individual to include a sufficient area capable of supporting a **viable** population.

Important brown bear habitat: that **habitat** necessary to sustain a population at an **optimal** level so that brown bears do not approach threatened status. It is defined as major feeding areas, including **anadromous** salmon streams to the upper limits of known spawning areas, and **significant habitat linkages**. The stakeholders recognize the need for further identification and delineation of the specific geographic boundaries of

important brown bear **habitat**, including important feeding areas and **significant habitat linkages.** Each location will have its own unique conservation needs and **habitat** assessment values.

Nodal: development concentrated around a center and not dispersed throughout a geographic region.

Optimal/optimum: an **optimal** population is one that is higher than the minimum **viable** population at a level that allows for sustained economic and recreational opportunities while accommodating human-caused mortality from hunting, DLP, road kills, and other causes.

Primitive living facilities: buildings or tents used for the purpose of providing living quarters. They must be removed and the site restored to its natural state at the end of the term of use for which the activity was authorized. Such facilities may include recreational cabins, guide and outfitter camps, and quarters needed for resource extraction or construction (e.g., camps used by seismic crews, road construction, and placer mining).

Recreational facilities: developed facilities such as visitor centers, campgrounds, cabins, picnic sites, trails, trailheads, boat launches, boardwalks, and designated wildlife viewing sites.

Significant habitat linkages: those **habitat linkages** that allow unimpeded movement of brown bears between major areas of the Kenai Peninsula and/or between areas of **important brown bear habitat** and that are necessary for preventing the creation of small, isolated brown bear subpopulations. Examples on the Kenai Peninsula include the outlets below Skilak and Tustumena lakes.

Silvicultural prescription: a planned series of (forest) treatments designed to change current (forest) stand structure to one that meets management goals with consideration of ecological, economic, and societal considerations.

Sustainable: as it pertains to brown bear populations, the maintenance of the brown bear population at a level where the number of deaths from all causes does not exceed the number of brown bears produced.

Viable: the minimum number of a species necessary to persist as a population over time.

Wildlife conservation: planned management of wildlife resources and their habitats to 1) ensure that these resources yield the greatest **sustainable** benefit to current and future generations and 2) ensure that the development of these resources is in the best interests of the economy and well-being of the state.

APPENDIX C: ABBREVIATIONS AND ACRONYMS

ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOT/PF	Alaska Department of Transportation and Public Facilities
CIRI	Cook Inlet Region, Inc. (Native corporation)
DLP	defense of life or property (mortality of a brown bear)
DOF	Division of Forestry
ESA	(federal) Endangered Species Act
GMU	Game Management Unit
GPS	Global Positioning Satellite
IBBST	Interagency Brown Bear Study Team
KPB	Kenai Peninsula Borough
NPS	National Park Service
ORV	off-road vehicle (e.g., all-terrain vehicles, excluding snowmachines for the purposes of this document)
USDA-FS	U.S. Department of Agriculture–Forest Service
USFWS	U.S. Fish and Wildlife Service

APPENDIX D: STAKEHOLDER CHARTER

Kenai Peninsula Brown Bear Conservation Strategy Stakeholder Charter

Brown bears are a significant component of the Kenai ecosystem and are important for the continued use and enjoyment by people. The purpose of this Stakeholder Charter is to guide the Kenai Peninsula Brown Bear Stakeholder Group in the development of a Kenai Peninsula brown bear conservation strategy. Stakeholders are a diverse group that represent various public interests and government agencies concerned with the conservation of brown bears on the Kenai Peninsula. The Stakeholder Group is responsible for developing a long-term brown bear conservation strategy that has scientific integrity and broad public support. This Charter provides the background, purpose, goals, and objectives for the brown bear Stakeholder Group. It also identifies expected group products and standards, stakeholder interests represented, available resources, constraints, and authority to implement outcomes of the process.

I. BACKGROUND

The Alaska Department of Fish and Game (ADF&G), Alaska Department of Natural Resources (ADNR), U.S. Department of Agriculture–Forest Service (USDA-FS), U.S. Fish & Wildlife Service (USFWS), U.S. National Park Service (NPS), and the Kenai Peninsula Borough (KPB) have concerns about the long-term conservation of brown bears on the Kenai Peninsula. Presently, ADF&G biologists believe the brown bear population on the Kenai is stable or slightly increasing, and there is no evidence the population has undergone a significant decline. However, human activities such as road construction and commercial, residential, recreational and industrial developments are altering **important brown bear habitat.** Also, human encroachment into brown bear **habitat** has led to significant increases in the number of bears killed to protect life and property. A comprehensive Conservation Strategy will identify the policies and management actions that will ensure the future of brown bears and their **habitat** on the Kenai Peninsula and avoid restrictive actions such as listing of the Kenai Peninsula brown bear under the Endangered Species Act.

The Interagency Brown Bear Study Team (IBBST) is a group of wildlife scientists from ADF&G, USFWS, USDA-FS, and NPS. The IBBST has primary responsibility for coordinating brown bear research on the Peninsula and summarizing their knowledge of these bears. The IBBST is responsible for developing the scientific and technical elements which must be considered by the stakeholders when developing the brown bear conservation strategy. These elements will include among other things, identification and evaluation of **habitat** essential to the conservation of brown bears on the Kenai Peninsula based on scientific research, brown bear management data, and local knowledge.

Although bear natural history and biology form the necessary basis for a brown bear conservation strategy, the Stakeholder Group must also incorporate social science information to fashion a conservation strategy with broad public support. Implementation of the conservation strategy may require changes in activities and behaviors among a broad range of agencies, corporations, recreational and resource user groups, and individuals. A Conservation Strategy based on sound science that has broad public support and acceptance will demonstrate that citizens, local, state and federal resource managers in Alaska have the foresight and coordination necessary to ensure the future of brown bears on the Kenai Peninsula.

II. PURPOSE of the STAKEHOLDER GROUP

The *purpose* of the Stakeholder Group is to develop a Conservation Strategy that has specific recommendations to help ensure the sustainability of the Kenai Peninsula brown bear population. The Strategy will reflect relevant biological and social science information.

III. OBJECTIVES

The specific *objectives* of the Stakeholders are:

1. To review the available biological and social science information on Kenai Peninsula brown bears, evaluate all relevant aspects of bear management that may affect the Peninsula bear population, and prepare specific recommendations regarding the management and conservation of brown bears by April 1, 2000. The Stakeholder Group will consider biological and social science information to produce a Conservation Strategy that has scientific integrity and broad public support. Stakeholders should consider all biological and social aspects of brown bear management on the Kenai Peninsula, which they deem relevant to bear conservation. In developing the Conservation Strategy, the stakeholders will consider, at a minimum: a) issues such as the **optimal** size of the brown bear population to be maintained on the Peninsula; b) identification of important bear habitats, including travel corridors, feeding, and denning areas that need to be maintained to support the **optimal** bear population; c) recommendations regarding public education and management actions required to minimize harmful bear-human interactions; and d) other considerations and actions deemed necessary by the Stakeholder Group. The conservation strategy may also contain recommendations for monitoring systems to assess the effectiveness of the strategy.

2. **To ensure public support for the Conservation Strategy by involving the public in the stakeholder process.** The key to success in this project is building a partnership that includes local government, federal and state agencies and private interests with a stake in the decisions about brown bear conservation. The public will be afforded an opportunity to participate in each stakeholder meeting and the Stakeholder Group will schedule forums to gather local knowledge and opinions and inform the public of their progress.

IV. EXPECTED PRODUCTS & STANDARDS

1. The Stakeholder Group is expected to produce a draft Conservation Strategy for public comment by February 1, 2000. The final Conservation Strategy will be submitted to ADF&G by April 1, 2000. The Strategy will contain recommendations for policies and actions that have broad, public support and acceptance and are consistent with the mission of each managing agency and the Kenai Peninsula Borough. The Conservation Strategy will be developed based on the following considerations: a) sound biological and social science information; b) prudent management; and, c) public input resulting from an open public process encouraging collaboration among all interested private and public parties.

2. The Stakeholder Group is expected to use a consensus-building process facilitated by a neutral party to guide development of the plan. Each stakeholder enters the process with the intention of working cooperatively with other stakeholders to reach consensus decisions on actions supporting the conservation of Kenai Peninsula brown bears. The Conservation Strategy will include only consensus decisions. In some cases, consensus may not be possible. In these cases, stakeholders will document the points of disagreement. However, it is expected that the facilitator and stakeholders will work diligently to reach consensus on even the most difficult issues.

3. Each Stakeholder is responsible for communicating with their constituents throughout the process. For example, stakeholders will provide updates regarding the activities and outcomes of the stakeholder meetings to those individuals or groups that hold similar interests. In addition, stakeholders will be encouraged to participate in community outreach efforts coordinated by ADF&G and other participating agencies.

V. RESOURCES & CONSTRAINTS

Several people will provide professional support and assistance to the Stakeholder Group as they develop the Conservation Strategy. A neutral party will assist the Stakeholder Group by facilitating meetings and guiding development of the Strategy. Sean Farley, Chair of the IBBST, and other IBBST members will provide the fundamental biological information about brown bears on the Kenai Peninsula. Cynthia Loker, ADF&G Wildlife Planner, will serve as a technical advisor to the stakeholders on planning issues, will coordinate the communication and public outreach effort, and will provide logistic and administrative support. Additional resources will be available to the Stakeholder Group as needed.

Up to 10 stakeholder meetings may be held on the Kenai Peninsula or in Anchorage. If necessary, stakeholders may be reimbursed for actual expenses. Funds for additional meetings are contingent upon expenses incurred by Group activities. The Stakeholder Group will begin work in late-September, 1999 and work until a mid-December break for the holidays. All work must be completed, and the Conservation Strategy submitted to ADF&G no later than April 1, 2000.

Stakeholders will limit the scope of their work to brown bears on the Kenai Peninsula. The Kenai Peninsula, for the purposes of the Conservation Strategy, is limited to Game Management Units seven and 15 as defined in the codified hunting regulations.

VI. AUTHORITY

The public agencies and the Kenai Peninsula Borough[19] have agreed to adopt the items developed by consensus by the Stakeholder Group, including the goals, objectives, strategies, and actions to be identified in the Conservation Strategy, subject to: available funding and staffing; applicable laws; and the administrative procedures and regulations of the managing agency/borough. Each agency/borough will take lead responsibility for lands, resources and uses they manage or control.

No assumptions have been made regarding the commitment of other landowners to implement the recommendations of the stakeholders. However, stakeholders are free to include such recommendations in the conservation strategy.

VII. PERFORMANCE REVIEW

The Stakeholder Group is asked, as a final task, to evaluate this process to assist ADF&G in refining the methods by which public input and involvement is accomplished. An evaluation process and format is to be determined by consensus, and results are to be submitted with the final group report.

[19] The Kenai Peninsula Borough reconsidered its participation after the change in administration in the fall of 1999. The current administration is not a party to this agreement.

APPENDIX E: SUMMARY OF INFORMATION PRESENTED BY THE IBBST[20]

This following is a summary of the information presented to the stakeholders at the November 4, 1999, meeting.

1. Because of brown bears' low reproductive rate, their populations are particularly sensitive to increased mortality and to environmental and ecological changes.

2. A scientific census of the Kenai Peninsula brown bear population has not been conducted. For harvest management purposes, a working estimate of 250 to 300 is used; a statistically defensible estimate is required for future harvest management, however. Work is beginning on such an estimate but will not be completed for several years. There is evidence that at least 103 brown bears were alive on the Kenai Peninsula in the spring of 1999, and undoubtedly there are more than 103 brown bears in the total Kenai population.

3. The **sustainable** harvest of brown bears should be determined using a newer, more rigorous calculation that considers all females to be of equal value, irrespective of age.

4. Based on mitochondrial DNA analysis, Kenai Peninsula brown bears are not genetically distinct from mainland Alaska brown bears. Further work employing microsatellite markers may be able to determine the amount of gene flow across the Kenai Peninsula and from and to the mainland.

5. Though apparently not genetically distinct, Kenai Peninsula brown bears may be geographically isolated from mainland brown bears. Thus, natural immigration of mainland brown bears may not be augmenting the Kenai Peninsula population.

6. Kenai Peninsula brown bears are large, and dietary meat intake is critical to brown bear population health. Body composition reserves accumulated by brown bears from May through October support the costs of hibernation, cub production, and lactation and therefore are critical to population productivity.

7. All Kenai Peninsula brown bears monitored by researchers consume salmon during the summer and fall.

8. Lone female brown bears tend to arrive at streams before females with yearlings, and females with new cubs are the last to use salmon streams.

9. The seasonal mass dynamics and diets of adult male Kenai Peninsula brown bears have not been determined, but it is anticipated that salmon are a critical resource to males as well as to females. Therefore, the timing of salmon arrival,

[20] This is a modified summary of the information presented to the Stakeholder Group by the ISBBT. For a copy of the full and original presentation, contact the Alaska Department of Fish and Game.

the strength of salmon runs, ***and the accessibility of the salmon to the brown bears*** are critical to Kenai Peninsula brown bear population health.

10. Significant findings from the research using Global Positioning Satellite (GPS) collars include the following:

    a. Research indicates a large variation in the distances covered by female brown bears. Home range size varies from tens to hundreds of square miles, and, because of this variability, the concept of an average home range size for brown bears may not be useful in the context of land management planning.

    b. A core denning area does not exist, and den site locations are quite varied across the peninsula.

    c. The presence of ***available*** salmon has a major influence on brown bear movements. Although salmon are present across the Kenai Peninsula, they are not equally available to brown bears across the Kenai Peninsula. For example, Slikok Creek near Soldotna has a strong run of fish, yet those salmon are not readily available to brown bears because of human development. Hundreds of thousands of salmon swim up the Kenai River each year, yet only those fish that reach accessible locations (i.e., upper Russian Lake, Goat Creek, Killey River, Benjamin Creek, Funny River) represent a viable food resource to brown bears.

    d. Brown bear use of streams varies by brown bear reproductive class over the course of the summer and fall months. The various classes (i.e., single females, females with two-year-old cubs, females with yearling cubs, and females with cubs of the year) use the streams at different times throughout the season. Thus, fish availability throughout the entire salmon season, as well as the availability of fish carcasses following the salmon season, is critical to brown bear population conservation.

    e. Geographic constraints to brown bear movement may exist on the Kenai Peninsula. All brown bears collared north of Tustumena Lake have remained north of the lake, and all brown bears collared south of Tustumena Lake have remained south. Brown bears may traverse the ice fields, but not routinely. Brown bear sightings are rare on the eastern edge of the Kenai Peninsula and south of Kachemak Bay.

    f. These geographic constraints, coupled with human development, can lead to **habitat** and population fragmentation. Areas that have the potential for this type of fragmentation include the outlet of Skilak Lake, Cooper Landing, the outlet of Tustumena Lake, and much of the Kenai Peninsula south of Tustumena Lake.

11. Researchers have collected more than 12,000 relocation data points from radio-collared brown bears on the peninsula. These data clearly show that, in addition to using actual stream corridors, brown bears use **habitat** ranging from immediately adjacent to streams to as far as a mile from steam banks. Only a fraction of the data points occur within the stream bank setback distances (stream **buffers**[21]) imposed by land managers on development activities proposed near streams.

12. The Kenai Peninsula brown bear population age structure is of major concern because the female age distribution is markedly different from that of a "normal" population. Few young females from three through six years of age have been found.[22]

13. Brown bear mortality south of Tustumena Lake is nearly twice that of brown bear mortality north of Tustumena Lake. It appears that human-related causes contribute greatly to the mortality rate south of Tustumena Lake.[23]

[21] Stakeholders' NOTE: the setbacks were originally developed to protect against bank erosion and degradation of water quality and fish habitat. They are an effective tool for these purposes.
[22] Refers to data collected on collared bears.
[23] Refers to data collected on collared bears.

APPENDIX F: SURVEY RESULTS AND DISCUSSION

The three-phase public process helped to facilitate the integration of input from both stakeholders and the general public to the development of the Conservation Strategy. The general public survey (Phase I) provided systematically collected information about public attitudes toward brown bears and brown bear conservation as well as information necessary to craft an audience-oriented communication and outreach program. The purpose of the survey was twofold:

1. to understand Kenai Peninsula and Anchorage residents' general attitudes about brown bears, brown bear conservation, and residents' perception of the brown bear population; and
2. to identify information needs and communication preferences regarding the stakeholder process and the most effective communication channel to meet residents' information needs.

Anchorage residents were identified as frequent visitors to the Kenai Peninsula and thus were surveyed as a distinct population using the same survey instrument used for Kenai Peninsula residents. A telephone instrument was developed by ADF&G staff and was reviewed by the Interagency and Borough Planning Group and by a private research firm, Dittman Research, Inc. A random-digit-dialing respondent selection process was utilized to ensure that each community resident with a telephone had an equal opportunity of being included.

The number of contacts made for the two populations (i.e., Kenai Peninsula residents and Anchorage residents) was

- Kenai Peninsula residents–401
- Anchorage residents–403

For both samples, respondents were nearly evenly split between male and female. For Anchorage, 199 (49%) of respondents were male, and 204 (51)% were female. For the Kenai Peninsula, 163 (41)% were male, and 238 (59%) were female.

The majority of residents for both populations had lived in their respective communities more than 15 years.

Residents were asked the extent to which they enjoyed the presence of Kenai Peninsula brown bears. A majority of Kenai Peninsula and Anchorage residents enjoyed brown bears to some extent; however, many worried about problems caused by Kenai Peninsula brown bears (Table 1). Kenai Peninsula and Anchorage residents did not differ significantly in their attitudes toward brown bears. Fewer than 10 percent of residents of both areas said they did not enjoy brown bears.

Table 1. Attitudes about Kenai Peninsula brown bear. (data in percentages)*		
Attitude	***Kenai Peninsula Residents***	***Anchorage Residents***
Enjoy bears	39	34
Enjoy bears but worry about problems	42	51
Don't enjoy bears	5	3
No particular feelings about bears	12	10
Unsure	2	2
*Chi-square statistics for Kenai Peninsula Residents vs. Anchorage Residents indicate no significant difference at P $\leq$.05.		

When asked about the importance of a healthy Kenai Peninsula brown bear population, a majority of residents of both areas thought it was important, and a plurality of residents thought it was very important to have a healthy brown bear population (Table 2).

Table 2. Importance of a healthy brown bear population (data in percentages)*		
Importance	***Kenai Peninsula Residents***	***Anchorage Residents***
Very	28	38
Quite	25	24
Somewhat	26	26
Not too	13	8
Not at all	8	3
Unsure	<1	1
*Chi-square statistics for Kenai Peninsula Residents vs. Anchorage Residents indicate no significant difference at P $\leq$.05.		

Despite residents' positive attitudes about the presence of Kenai Peninsula brown bears and their desire that a healthy population be maintained, a majority of residents in both areas thought that the Kenai Peninsula brown bear population should stay the same (Table 3).

Table 3. Attitudes about the Kenai Peninsula brown bear population (data in percentages)*		
Bear Numbers Should . . .	***Kenai Peninsula Residents***	***Anchorage Residents***
Increase	12	12
Stay the same	49	51
Decrease	8	15
No feelings	26	20
Unsure	5	2
*Chi-square statistics for Kenai Peninsula Residents vs. Anchorage Residents indicate no significant difference at P $\leq$.05.		

Kenai Peninsula residents were nearly evenly split between being somewhat and very interested in the activities and outcomes of the stakeholder meetings (Table 4). A plurality of Anchorage residents were somewhat interested in being informed about the activities and outcomes of the stakeholder meetings.

Table 4. Residents' interest in the Kenai Peninsula brown bear stakeholder process (data in percentages)*		
Interest Level:	***Kenai Peninsula Residents***	***Anchorage Residents***
Very	28	17
Quite	18	17
Somewhat	29	38
Not too	13	13
Not at all	12	15
Unsure	<1	<1

Residents of both Kenai Peninsula and Anchorage were not particularly interested in attending stakeholder meetings or interacting with stakeholders at local club meetings (e.g., Rotary Club) (Table 5). Residents of both areas were most interested in receiving information through mass media channels, particularly print media.

Table 5. Preferred sources of information about the stakeholder process (data in percentages)*		
Source	***Kenai Peninsula Residents***	***Anchorage Residents***
Anchorage Daily News	51	87
Local paper	88	32
Newsletter	74	68
Public meetings	24	23
Local club meetings	17	18
Web site	35	46
Radio	76	78
TV	67	83

A post-stakeholder–process survey will provide information necessary to evaluate the success of the public communication and outreach efforts regarding the stakeholder process.

APPENDIX G: ECONOMIC CONSIDERATIONS DISCUSSION

In considering the many values and aspects of ensuring the future of brown bears on the Kenai Peninsula, the stakeholders acknowledge that many recommendations have economic consequences. Stakeholders' homework and subsequent discussions of economic consequences identified four basic categories of economic considerations:

1. the costs of recommendations that may limit development and growth;
2. the costs of implementing bear conservation recommendations;
3. the costs of not conserving brown bears (and having the federal Endangered Species Act result in much greater restrictions); and
4. economic opportunities related to a healthy brown bear population.

The stakeholders ask the reader to carefully consider the considerations outlined below.

I. COSTS OF RECOMMENDATIONS THAT MAY LIMIT DEVELOPMENT AND GROWTH

The stakeholders recognize that Alaska's future depends on continued economic development. This development may take the form of a) urbanization and population increases such as new home and recreational subdivisions and associated services, shopping, landfills, and recreation; b) increased logging and timber activity; c) enhanced fisheries activity; d) resource and mineral extraction (oil and gas, sand and gravel, mining); e) increased road and highway construction; f) extending utilities/rights of way; and g) expansion of back-country recreation. These types of development, with the accompanying increase in human activities on the Kenai, could encroach into brown bear **habitat** areas with potential negative impacts on the Kenai Peninsula brown bear population. However, restrictions placed on municipal and state lands for purposes of decreasing or prohibiting land and resource development may have a negative impact on local economies and residents' standards of living. The challenge before the Stakeholder Group was to balance conservation of brown bears with the present and future economy of the Kenai Peninsula.

The Kenai Peninsula Borough needs to develop lands and increase its tax base; further, it is concerned about its ability to manage municipal lands currently under its jurisdiction and other lands to be transferred from the state under municipal entitlement. Residents are rightly concerned about any impact to their personal rights and economic prosperity. A negative impact on residents from one conservation action may result in an unwillingness to consider any brown bear conservation recommendations. There is no simple mechanism to resolve all of these concerns.

II. COSTS OF IMPLEMENTING BROWN BEAR CONSERVATION RECOMMENDATIONS

There are costs associated with all conservation actions, including those recommended by stakeholders in this document (e.g., waste management actions). In some cases, these costs may be minimized by simply identifying opportunities for conservation as they occur, rather than relying on remedial action. However, where conservation actions require funding, the public and involved agencies, businesses, and organizations are encouraged to identify sources of funding via government, corporate, and/or community sponsorship.

III. COSTS OF NOT CONSERVING BROWN BEARS

In discussing brown bear conservation on the Kenai Peninsula, one of the primary considerations was the opportunity for effective action now, while the brown bear population is stable. The primary cost of a "no-action" strategy, given the human popularity of the Kenai Peninsula, is the possibility of a future listing of the brown bear as a threatened or endangered species under the federal Endangered Species Act (ESA). The economic impact of such a listing is significant. For example, in Yellowstone National Park, the cost of the brown bear conservation recovery strategy is $1,903,900 each year. If these efforts are successful and the brown bear is removed from the list, those annual costs not only continue, but increase by $511,500 per year for additional and required intensive monitoring (personal communication, Chuck Schwartz, Ph.D., Feb. 2000). Such costs would not address the additional costs of restricted development and recreation on the Kenai Peninsula and the potential loss of revenues from residents and visitors as those restrictions take effect.

In sum, the stakeholders believe that prevention is more cost effective than crisis management. A good conservation strategy that is implemented and refined over time will avoid the need for listing of the Kenai Peninsula brown bears under the federal ESA. In short, reasonable recommendations, if implemented, will avoid unreasonable restrictions later.

IV. ECONOMIC OPPORTUNITIES RELATED TO A HEALTHY BROWN BEAR POPULATION

Many activities promoted and pursued on the Kenai Peninsula depend on healthy wildlife populations, including brown bears, for their economic health. Tourism is the second largest industry in Alaska and relies heavily on wildlife marketing for its success. However, in a recent study (Miller & McCollum 1999), visitors reported disappointment with the amount of wildlife they were able to see during their visit, despite a willingness to pay for the privilege of seeing wildlife. Indeed, visitors are willing to pay from $100 for a day trip to see moose to more than $350 for a day trip to see brown bears. Alaska residents are willing to pay even more, as much as nearly $500 to see brown bears. Earlier studies (Miller and McCollum 1997, McCollum and Miller 1994) also addressed

the economic value of Alaska brown bears to the economy, for both consumptive (hunting) and aesthetic (viewing) purposes.

Clearly, there are economic benefits to be realized from both types of activities. A healthy brown bear population that provides opportunities for all uses is **optimal**, both for the satisfaction of the public and for economic reward.

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APPENDIX I: PUBLIC REVIEW PERIOD

Kenai Peninsula Brown Bear Conservation Strategy Public Process[24]

April 24, 2000

The Kenai Brown Bear stakeholders have sought public input throughout development of the Kenai Brown Bear Conservation Strategy. An additional 30-day public review and comment period has been designated specifically for this purpose. The 30-day public review and comment period begins on April 18 with release of the public review draft of the Conservation Strategy. The objectives of the public review period are: 1) to provide a forum within which the stakeholders and the public can interact; 2) to provide useful information to the public regarding the Conservation Strategy and the Conservation Strategy development process; and 3) to obtain feedback from the public regarding the Conservation Strategy. The public review/comment period begins on April 18 and continues through May 17, 2000.

As of April 18, the draft Conservation Strategy will be available for review at local public libraries and ADF&G offices. It will also be available on the ADF&G web page (http://www.state.ak.us/local/akpages/FISH.GAME/wildlife/geninfo/planning/plan.htm). The public will have various opportunities to interact with the stakeholders.

Opportunities for Public-Stakeholder Interaction

Day	Date	Time/Location	Format
T	4/25	6:30 p.m. Moose Pass Community Hall	Presentation (7:00 p.m.) and workshop
W	4/26	6:30 p.m. Cooper Landing Community Club	Presentation (7:00 p.m.) and workshop
Th	4/27	6:30 p.m. Kenai Peninsula Borough Bldg.	Afternoon, open house (1:00) evening presentation (7:00 p.m.) and workshop
W	5/3	6:30 p.m. Seward Alaska Vocational Center	Presentation (7:00 p.m.) and workshop
Th	5/4	6:30 p.m. Homer Elks Lodge	Presentation (7:00 p.m.) and workshop
W	5/10	6:00 p.m. Anchorage Senior Center	Afternoon, open house (1:00) evening presentation (7:00 p.m.) workshop

[24] This handout was given to the public prior to and during the public meetings.

Format:

- **Presentation:** There will be a 10-minute briefing by ADF&G staff regarding the purpose of the Stakeholder Group and the Conservation Strategy. Staff will also explain how the workshop format works and outline the various ways for the public to provide input.
- **Workshop:** Following the presentation, the public will have an opportunity to interact with the stakeholders at stations corresponding to the chapters (i.e., interest areas) of the Conservation Strategy. At least one stakeholder will be at each station. The stakeholder's role is to lead discussions and provide feedback to the public.
- **Open House:** The open house provides an opportunity for the public to receive information about the Conservation Strategy and interact with stakeholders one-on-one. In addition, visual displays and handouts will be used to provide information.

Ways the Public Can Provide Input

- Speaking directly to stakeholders at the public meetings
- Providing written comments to a recorder at the public meetings
- Sending in written comments (comment sheets addressed to ADF&G will be provided at the public meetings)
- Sending e-mail messages to Cindi Loker at cindi_loker@fishgame.state.ak.us

APPENDIX J: SUBMISSIONS OF WRITTEN COMMENTS

The following people and organizations submitted written comments regarding the Kenai Peninsula Brown Bear Conservation Strategy:

State Government		
Kenai Peninsula Interagency Brown Bear Study Team	Sean Farley, Chair	May 7, 2000
Organizations		
Anchorage Audubon Society, Inc.	George Matz, President	May 16, 2000
The Conservation Fund	Brad Meiklejohn, Alaska Representative	May 11, 2000
Eastern Kenai Peninsula Environmental Action Association	Mark Luttrell, Director	May 15, 2000
The Nature Conservancy of Alaska	Michelle H. Brown, Kenai River Programs Manager	May 15, 2000
Sierra Club	Paul Forman, Knik Group Chair	May 15, 2000
General Public		
Edgar Bailey	Homer	May 9, 2000
Dick Bogard	Sterling	May 15, 2000
Nina Faust	Homer	May 9, 2000
Nancy Hillstrand	Homer	May 15, 2000
Charlie Holland	Homer	May 17, 2000
Daisy Holland	Homer	May 17, 2000
Euretta M. Kobylk	Sterling	May 10, 2000
Mary McBee	Home	May 13, 2000
Jeff Mitchell	Moose Pass	April 30, 2000
Sandy Stark	Homer	May 13, 2000

APPENDIX K: SYNTHESIS OF PUBLIC COMMENTS

We received public comments from 18 people and groups.[25] This appendix reflects the major themes from the public comments (on the draft, public-review version of this document) received as of May 22, 2000. While not indicated in this appendix, sentiments were often shared by more than one individual. The stakeholders were given packets of the actual public comments.

I. GENERAL COMMENTS

- Nearly all of the people who provided comments appreciated the efforts of the stakeholders.
- Nonprofit conservation groups should be included as participants in action-oriented recommendations (e.g., education, land-use planning, future research). Many groups have the interest and funding to provide assistance.
- The stakeholders need to discuss bears in the Kenai Fjords National Park and proposed NPS facilities development.
- The use of cumulative effects throughout is confusing. Clarify the difference between how the IBBST uses the term and how the stakeholders use it.

II. CHAPTER 2: HUMAN-BEAR INTERACTIONS

General Comments

- ADF&G and other natural resources agencies and nonprofit groups should find funding to hire a specific brown bear management specialist, based on the Montana Fish, Wildlife, and Parks Department position. This position has proved instrumental in Montana to help landowners deal with bear problems and respond to bear calls.
- Bears need to be considered in determining fishing allocations.
- The subject of poaching should be addressed. Without population monitoring, it is difficult to assess the impact of poaching on a wild population and is therefore not typically a consideration in the management of a population. However, we have been studying the Kenai Peninsula brown bear population for five years. To date, 15 collared brown bears have died during the IBBST study. The causes are as follows:

[25] One comment consisted of pictures of a dump site. They were made available to stakeholders at a meeting.

- Bears killed in DLP: 2
- Vehicles: 1
- Poaching: 3
- Legal harvest: 2
- Natural or unknown: 7

Thus poaching deaths are important and should at least be mentioned. The stakeholders could recommend that 1) poaching cases be investigated and 2) poaching cases be prosecuted. While it is often difficult to successfully prosecute poaching cases, the public will receive the message that these crimes will be taken seriously.

Hunting

Brown bear hunting: The brown bear hunting season should be prohibited because of increasing number of bears killed in DLP and unreported brown bear killings.

- ADF&G should reduce the acceptable brown bear annual mortality rate from 14 to 10 and disallow hunting of females.
- There should be no brown bear hunting within one-quarter to one-half mile of an artificially enhanced aquaculture project.

Moose hunting: The following should be considered:

- Allow a healthy number of natural moose starvation carcasses, especially in GMU 15C near urban areas. This is a critical first natural food source appearing as the snow melts. The historic high harvests we have had for the past four years have removed the opportunity for many early spring carcasses.
- Moose carcasses should be removed to a remote area, not taken to the dump. We need to identify where these areas should be and require a removal fee from citizens who request the removal.

Black bear baiting: Of all of the issues mentioned by the public, black bear bating was mentioned most often. Some members of the public believed that a contradictory message was being conveyed in that the relationship between the proper handling of garbage and the killing of bears in DLP was stressed, but the issue of bear baiting is not addressed adequately. Suggested recommendations included the following:

- Bear baiting should be prohibited.
- The use of cooking oils, fat, and other human food attractants should be disallowed
- Page 10, l lines 9–15 [of the draft, public-review version of this document], delete because it is “misleading and circumvents and delays the obvious habituation consequences.”

Southern peninsula population:

- A southern peninsula population has not been identified. Only refer to collared bears.
- Delete entire recommendation. What will constitute "if warranted"?

Hunting and/fishing campsites: Add the following:

- Strict adherence to hunting camp etiquette and kill sites and gut piles must be part of the hunter education classes.
- The immediate removal of eviscerated carcasses from the kill site must also be in regulations and part of the hunter education training if we are to protect bears as well as care properly for the moose carcass.
- All garbage at the campsite must treated as if it is food until removal is possible. Failure to remove garbage from a campsite must be a wildlife violation.
- Garbage needs a definition in regulation.

Sport Fishing Impact

- Page 10-11, lines 36-8 [of draft version of this document]. This is a good start, but falls short. The authority to close the stream must rest with Division of Wildlife Conservation. If authority remains with managers within ADF&G Division of Sport Fish, it must be recognized that they have no incentive whatsoever to close a fishery for bear conservation.
- Wildlife and fish management strategies must incorporate and strive to anticipate cycling climatic oscillations and other climatic and oceanographic phenomenon into the fish and wildlife equation.
- Management must be integrated to form regulations that are mutually beneficial to both fish and wildlife to reflect critical interrelationships and our high latitude.
- The combined Board of Fisheries and Board of Game process can play a big role in brown bear sustainability combined with critical salmon sustainability through the proposed integrated plan.
- Education for head and visceral removal and disposal along river systems is needed for anglers.
- Bears will key into new aquaculture enhancement areas. Anglers need to be educated and made aware that these areas where they may never have seen a bear will be now frequented during the presence of fish. A notification mechanism between the aquaculture association and the Department of Fish and Game should be formed.
- The Cooper Lake dam should not be reauthorized, and the Department [of Fish and Game] should work closely with Trout Unlimited to form a bear plan prior to the salmon run being restored.

Recreation Cabins

- Revoke permits for those who violate proper food and garbage handling practices.

Dump Sites/Waste

Several members of the public identified garbage management as an issue. Suggested recommendations included the following:

- [There needs to be] a Kenai Borough ordinance requiring proper garbage and other bear attractant storage/disposal.
- The borough should develop incentives to reward people for proper garbage handing.
- Homes and subdivisions on the edge of residential areas should consider pooling the use of bear-proof containers in order to reduce the cost burden on individual homeowners.
- We should not depend on borough or city regulations for trash control. Efforts should be made to partner with nonprofit groups to buy bear-proof garbage cans for residents and businesses in problem areas.
- Encourage the borough to immediately clean up the McNeil Canyon transfer site and bear-proof it.
- Provide low cost bear-proof garbage containers.
- Educate people that feeding bears is illegal. Improperly stored garbage can constitute feeding bears.
- State statute should make improper food material storage at homes, industry, business camps, or on trails an Alaska wildlife violation.
- If a DLP brown bear mortality occurs due to improperly stored food material, the violation would be under regulation: taking a brown bear out of season.
- The borough should require that all dumpsters and transfer facilities be of bear-proof design and function.

III. CHAPTER 3: LAND PLANNING, MANAGEMENT, AND AUTHORIZATIONS

General Comments

- It is important that lands being considered for selection be evaluated with bears in mind before they are selected by the borough and sold to private parties, especially in Moose Pass and Cooper Landing.
- Restricting growth and related roads and development is important. Development and expansion should occur in areas that are already developed.

- More emphasis needs to be placed on getting cooperation from some private landowners and private companies that intend to use public lands and public agencies.
- The most significant threats to Kenai Peninsula brown bears are "the possible development of CIRI lands near the Funny River, Chugach Electric's proposal to build an electric intertie across the KNWR [Kenai National Wildlife Refuge], and ADOT/PF's desire to build a bypass around Cooper Landing using Chugach National Forest lands. If these organizations aren't voluntarily willing to avoid serious brown bear impacts, stronger measures are needed."
- Develop a "brown star" system for private property owners, logging operations, etc., that strive to consider brown bear conservation. The private property owners would "get a carved brown star and framed certificate to show their support for brown bear conservation."

Land Acquisition

- Page 16, line 39 [of draft version of this document], insert: "Conservation easements, exchanges, and land acquisition from willing sellers should be considered as potential conservation tools for protecting **important brown bear habitat.**"
- The stakeholders should put greater emphasis on voluntary land acquisition. One person stated, "The Conservation Plan should make a clear, undiluted recommendation on the importance of protecting brown bear through acquisition, exchanges, or conservation easements." It was suggested that the following language be used on page 25 [of the draft, public-review version of this document] in conjunction with the recommendation starting on line 6:

  > Protection of important brown bear **habitat**, particularly in the vicinities of Skilak Lake, the Killey River, and Funny River, should be pursued through fee acquisition, conservation easements, or land exchanges.

- Page 25, line 6 [of the draft, public-review version of this document], insert: "Consider using the land acquisition options to conserve brown bear **habitat** in this area."
- I don't "like the idea of tying up any more land. Be it for bears or whatever."

Residential Growth

- Human growth on the peninsula should be discussed by the stakeholders.

Recreation/Tourism

- Specific fish-cleaning stations with appropriate rules of use should be developed.
- Encourage owners of private roads to close them year round, including during hunting season.

Commercial and Resource Development

- Page 19, lines 14-16 [of the draft, public-review version of this document], delete this recommendation. What is a "bear interaction plan?" Rerouting human traffic to avoid a few known dens assumes the rerouting will not send someone directly into an unknown den site. The magnitude of the threat does not warrant creating additional bureaucracy.
- Page 19, line 22 [of the draft, public-review version of this document], rewrite as "Remove access after logging…" This is a common mitigation process in the Yellowstone ecosystem. It can be done, and it should be done on the Kenai Peninsula.

Access/Roads

- Page 20[in the draft, public-review version of this document], line 18, this sentence implies that snowmachines do not have an impact on bears. This is unknown.
- Increased access is a significant issue, new roads should be discouraged, and roads should be put to bed upon completion of a project.
- Logging roads should be closed once timber has been removed. This person also noted that damage is being caused by all-terrain vehicles and logging operations in upper tributaries of the Anchor River and Deep Creek systems and that these areas need to be protected.
- Item 5, on page 20 line 4 [of the draft, public-review version of this document], should be stronger (e.g., close unnecessary roads in the back country).

Access/Trails

- Snowmachines should not be excluded from the list because they believed the impact to brown bear **habitat** would be negative or has not been determined.
- ORVs do increase impacts on bears and their **habitat**.

Utilities

- Establish routes should be used for new utility corridors or sites to decrease the number of new roads.

Site Specific Recommendations

Deep and Clam creeks, Anchor River areas

- People should be discouraged from clearing lands and building cabins.
- Remove unauthorized cabins.

Sterling Highway Upgrade at Cooper Landing

- Stronger language should be used to convey the need for brown bear conservation in the Juneau Creek Falls area. One person thought the recommendation should use data to "clearly and explicitly predict what impact is likely to occur if the bypass proposal is implemented."

IV. CHAPTER 4: PUBLIC EDUCATION AND OUTREACH

Of the people who submitted comments, nearly all commended the stakeholders on their efforts to improve education and communication about Kenai Peninsula brown bear conservation.

- Signs should be printed in a variety of languages (Spanish, German, etc.).
- Public education is important, but all of the other recommendations are unnecessary.
- People should be educated on the history of brown bears on the Kenai version vs. the history of humans on the Kenai.
- It was recommended that community training be held in the winter.
- Increase awareness that building along rivers is not good for bears.
- Increase hunter education re: garbage and food storage.
- Real estate contracts signed by purchasers should state, "I am fully aware that wildlife animals such as brown bear, moose, wolves, coyotes, etc., have been resident on the Kenai Peninsula for millions of years and that it is my full responsibility to keep garbage removed from my premises; animal feed placed in approved storage; compost stored away from my living quarters, and any foreign ornamental plant material covered. Failure to do so places me in violation of State Statute XXX."

V. CHAPTER 5: FUTURE RESEARCH

- Page 35, line 19 [of the draft, public-review version of this document], this sentence should be rewritten to include "develop an ecologically and biologically relevant definition for travel corridors/**habitat linkages** and then apply this to Kenai Peninsula brown bear movement data to determine if such corridors or linkages exist and are used by brown bears on the Kenai Peninsula."
- Page 35, delete line 42-43 [of the draft, public-review version of this document]. This implies that there is a low level of human-bear conflict in this area. IBBST information indicates this area can have high levels of human-bear conflicts.

VI. APPENDIX A: NONCONSENSUS ITEMS

Garbage Ordinances

Many of the public comments supported a peninsula-wide garbage ordinance.

Kenai Area Plan Parcels

- The effect of not achieving consensus on this item is unclear (e.g., what is the designation of these plots at this time?).
- Agree with the majority of the stakeholders regarding designation of the six parcels of state land as "wildlife **habitat**."