Brown Bear Management Report and Plan, Game Management Units 14A and 14B:

Report Period 1 July 2014–30 June 2019, and

Plan Period 1 July 2019–30 June 2024

Tim Peltier

2023

Alaska Department of Fish and Game Division of Wildlife Conservation

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Hunters are important founders of the modern wildlife conservation movement. They, along with trappers and sport shooters, provided funding for this publication through payment of federal taxes on firearms, ammunition, and archery equipment, and through state hunting license and tag fees.

Species management reports and plans provide information about species that are hunted or trapped and management actions, goals, recommendations for those species, and plans for data collection. Detailed information is prepared for each species every 5 years by the area management biologist for game management units in their areas, who also develops a plan for data collection and species management for the next 5 years. This type of report is not produced for species that are not managed for hunting or trapping or for areas where there is no current or anticipated activity. Unit reports are reviewed and approved for publication by regional management coordinators and are available to the public via the Alaska Department of Fish and Game's public website.

This species management report and plan was reviewed and approved for publication by Todd A. Rinaldi, Management Coordinator for the Division of Wildlife Conservation.

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Cover Photo: A brown bear searching for salmon. ©2018 ADF&G. Photo by Tim C. Peltier.

Contents

List of Figures

List of Tables

Purpose of this Report

This report provides a record of survey and inventory management activities for brown bear (*Ursus arctos*) in Game Management Units 14A and 14B for the 5 regulatory years 2014–2018 and plans for survey and inventory management activities in the next 5 regulatory years, 2019–2023. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY14 = 1 July 2014–30 June 2015). This report is produced primarily to provide agency staff with data and analysis to help guide and record agency efforts but is also provided to the public to inform it of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC) launched this 5 year report to report more efficiently on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the brown bear management report of survey and inventory activities that was previously produced every 2 years.

I. RY14–RY18 Management Report

Management Area

Unit 14A is located in Southcentral Alaska, north of Anchorage. The total area of Unit 14A is 2,685 mi^2 and consists of all land from the east bank of the Susitna River beginning at the mouth at Cook inlet heading north to the mouth of Willow Creek. The Unit 14A boundary then follows a line south of the north bank of Willow and Peters creeks to the headwaters, and south of the hydrologic divide separating the Susitna River and the Knik Arm drainages to the outlet creek at Lake 4408. From there the boundary continues southeast in a straight line to the northern most fork of the Chickaloon River then south along the east bank of the Chickaloon River to the bridge on the Glenn Highway at milepost 77.7. From there the boundary follows the hydrologic divide separating Carbon and Coal creeks to the hydrologic divide between the waters of the Matanuska River and the Knik Glacier across the face of the glacier south to the south bank of the Knik River to Cook Inlet, following Cook Inlet to the mouth of the Susitna River (Fig. 1).

Unit 14B covers approximately 2,512 mi^2 of the Talkeetna Mountains. It consists of all land east of the Susitna River to its confluence with the Talkeetna River south and west to its headwaters, and north of the north bank of Willow Creek and Peters Creek to the headwaters, and the hydrologic divide separating the Susitna River and the Knik Arm Drainages to the outlet creek at Lake 4408 (Fig. 1).

Approximately 36% of Unit 14A is above timberline, and over 63% of Unit 14B is above timberline. Below timberline, both units are heavily forested with birch (*Betula* spp.), aspen (*Populus* spp.), and spruce (*Picea* spp.). Unit 14A serves as the valley population center and contains a high degree of development. In addition, parts of Unit 14A were developed into agricultural lands in the 1930s and remain so today. Small-scale logging and mining operations have occurred in both units.

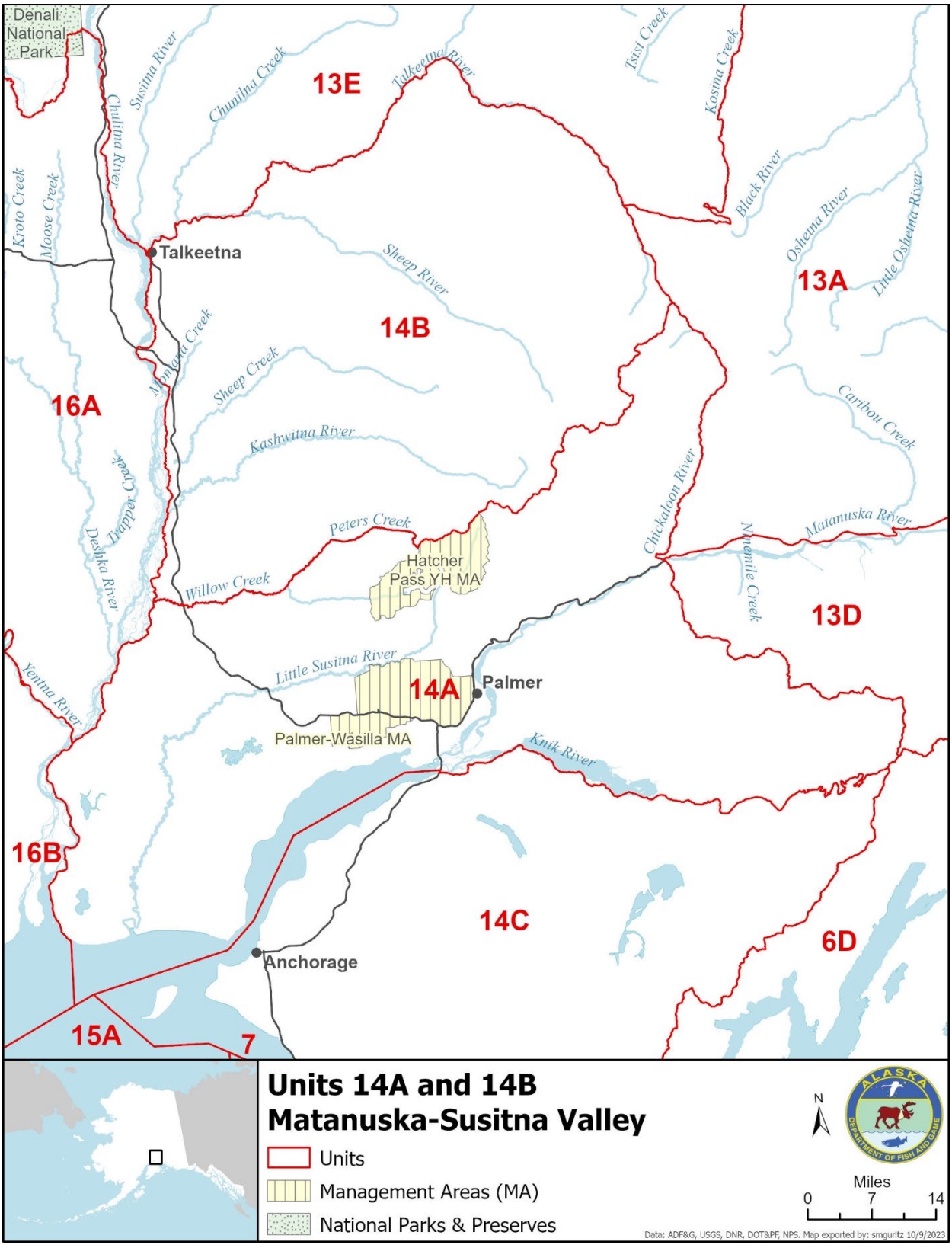

Figure 1. Map showing Units 14A and 14B boundaries, Matanuska-Susitna Valley, Alaska.

Summary of Status, Trend, Management Activities, and History of Brown Bear in Units 14A and 14B

Since colonization of the Matanuska Valley began in the 1930s, the area has changed significantly, first by agricultural settlement, then through increased development and urbanization (Peltier 2011). The human population of the area has increased rapidly in the last 37 years, from 17,816 in 1980 to 104,166 in 2017(Alaska Department of Labor and Workforce Development [n.d.]). These changes altered brown bear abundance and distribution. Del Frate (2003) and Kavalok (2007) noted an increase in the number of reports of bears in urban areas, bears causing property damage, and human-bear encounters in Units 14A and 14B compared to the number reported 10–15 years earlier. The number of conflicts as reflected in the nonhunting kills through defense of life or property (DLP; 5AAC 92.410) has remained relatively constant since the early 2000s.

The differences in development between Units 14A and 14B has resulted in varying amounts of available habitat, and subsequently, differences in hunting opportunities and management strategies between the 2 units. Emphasis has been placed on reducing bear-human conflicts in Unit 14A. Unit 14B is less developed and human settlements are found only along the western edge of the unit. In this less developed area, brown bear management has focused on reducing the number of nuisance complaints from seasonal cabin owners, providing hunting opportunity, and improving moose-calf recruitment through an overall reduction in the bear population (Peltier 2015).

Previously, the department has attempted to estimate brown bear abundance in Unit 14 based on anecdotal information. Grauvogel's (1990) estimate of 169–262 brown bears for all of Unit 14 was later refined by Harkness (1993) to 185–239 brown bears. Both estimates included Unit 14C. Building upon those previous estimates and extrapolating bear densities calculated for adjacent units, we developed an estimate of 30–60 brown bears in Unit 14A and 90–130 in Unit 14B in 2011 (Peltier 2011). A sustainable harvest rate for brown bear was thought to be about 5.7% in the 1990s (Miller 1990). However, more recent studies indicate that brown bear populations can have much higher sustainable harvest rates 10–14% (McLellan et al. 2017, and Brockman et al. 2020). The management objective has been to allow for harvest of up to 25 bears annually and has averaged 22 bears between 2003 and 2013. Given a population estimate of between 120 and 190 brown bears, a sustainable harvest would be between 12 and 26 bears annually.

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

- *Alaska Wildlife Management plans: Nelchina Basin Brown Bear Management Plan* (ADF&G 1976).
- *Alaska Wildlife Management plans: Lower Matanuska-Susitna Brown Bear Management Plan* (ADF&G 1976).
- *ADF&G Division of Wildlife Conservation Strategic Plan* (ADF&G 2002).

GOALS

Since 1976 the management goal in Units 14A and 14B has been to provide the greatest opportunity possible to participate in hunting brown bears. In addition, the 1976 plan identified the secondary goal of providing for an optimum harvest of brown bears in Unit 14A (ADF&G 1976).

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Alaska Board of Game has made no determination regarding the customary and traditional use of brown bears in Units 14A and 14B.

Intensive Management

Not applicable.

MANAGEMENT OBJECTIVES

- Maintain a brown bear population that can sustain an annual harvest of 25 bears composed of at least 50% male brown bears.
- Maintain the brown bear population at a level that minimizes bear-human conflicts.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Analyze harvest records for trends that would indicate a change in population status or composition.

Data Needs

Analysis of current harvest trends can indicate any possible changes in the population density in Units 14A and 14B. Large shifts in harvest or sex ratios of animals harvested can indicate the

need for further examination of the brown bear population and the need for season or bag limit changes in regulation.

Brown bear population size or sex and age ratios have not been determined through standardized sampling and analytical methods in Units 14A and 14B. Simple, repeatable, precise, and accurate surveys have not been developed to assess this cryptic population of animals in dense forest.

Methods

Examine harvest data for changes in total harvest and the percent of females in the harvest.

Results and Discussion

The average harvest for RY14–RY18 (18 brown bears) was similar to the previous 20-year average (RY98–RY13; 19 brown bears); however, there has been an increasing trend (Fig. 2). Percent of females in the harvest has increased, although not consistently over the same period of time (40%; RY98–RY13 versus 45%; RY14–RY18). Both harvest and percent of females in the harvest are highly variable.

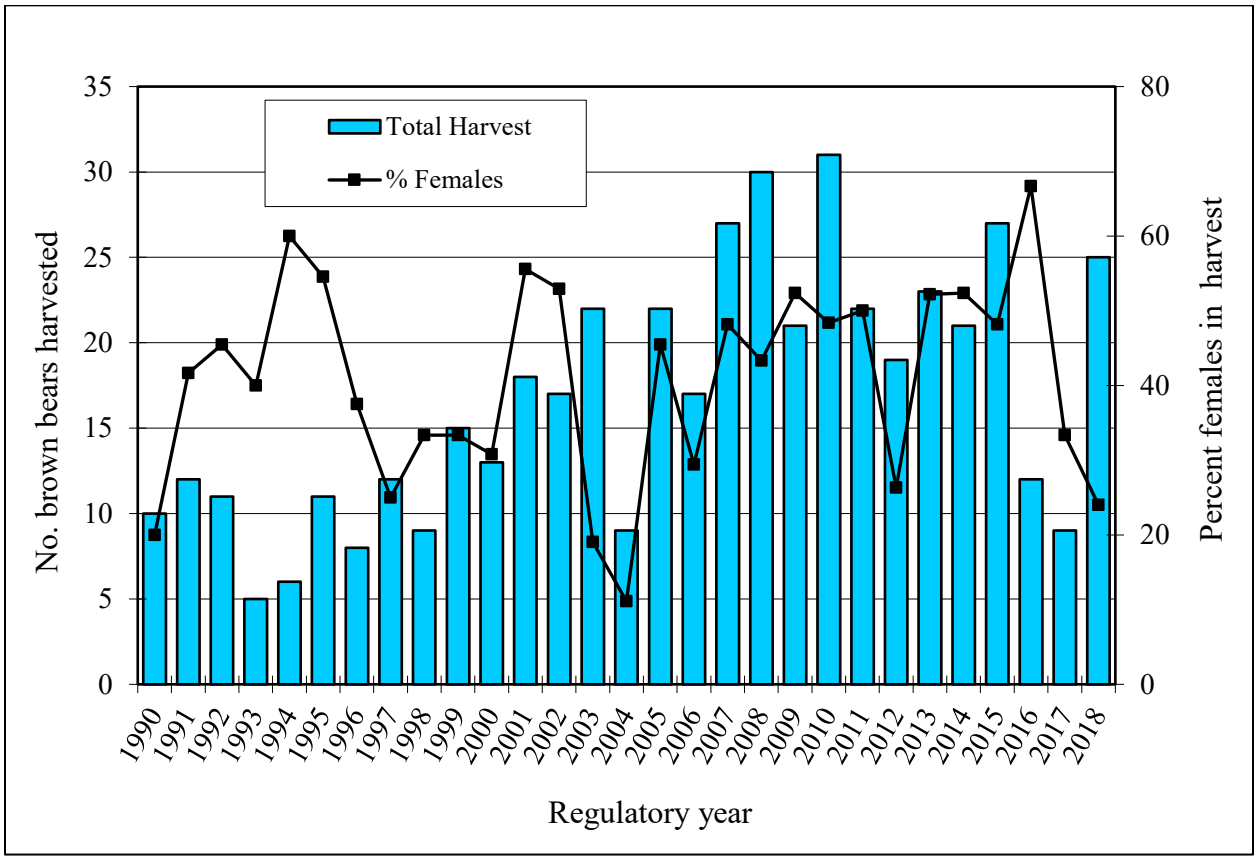

Figure 2. Brown bear harvest for Units 14A and 14B combined, regulatory years 1994–2018.

Recommendations for Activity 1.1

Continue.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor harvest through sealing records and defense of life or property (DLP) reports.

Data Needs

Mortality of brown bears must be assessed to understand the potential impact of brown bear hunting activities and other forms of mortality. These data inform brown bear management in Units 14A and 14B.

Methods

Department staff monitored brown bear mortality by collecting harvest information through the sealing of hides and skulls of bears taken by hunters or killed for other reasons (i.e., roadkill, DLPs, etc.) During the sealing process, the skull is measured, and a tooth is taken for aging. In addition, hunting effort, sex, method of take, type of transportation used, location of kill, and date of kill are recorded. Whether bears were taken over bait, incidentally harvested, and/or salvaged for meat was also noted on sealing reports. Season and Bag Limit

Brown bear hunting was open from 1 September to 31 May in Unit 14A, and 10 August to 31 May in Unit 14B. The bag limit in Unit 14A was 1 bear every 4 years from RY14 to RY17. Beginning with the RY18 season, the bag limit was 1 bear per year. During RY14–RY18, the bag limit for Unit 14B was 1 bear per year. Resident locking tags were required in both units. Baiting for brown bear became legal in RY15 in Unit 14B, and RY18 in Unit 14A.

Results and Discussion

Harvest by Hunters

Harvest by hunters averaged 19 bears per year, which is a decrease from an average of 23 from RY09–RY13 (Table 1). The percent of females in the harvest averaged 45%, a slight increase from the previous 5 years (RY09–RY13) of 43%; however, it is still within the management objective of less than 50% females.

Table 1. Units 14A and 14B reported brown bear harvest, regulatory years 2014–2018.

Regulatory year	Hunter harvest						Nonhunting mortality			Total estimated mortality					
	Male	(%M)	Female	(%F)	Unknown	Total	Male	Female	Unknown	Male	(%M)	Female	(%F)	Unknown	Total
2014															
Fall	10	(48)	11	(52)	0	21	1	0	0	11	(50)	11	(50)	0	22
Spring	0	–	0	–	0	0	1	1	0	1	(50)	1	(50)	0	2
Total	10	(48)	11	(52)	0	21	2	1	0	12	(50)	12	(50)	0	24
2015															
Fall	5	(42)	7	(58)	0	12	1	0	0	6	(46)	7	(54)	0	13
Spring	9	(60)	6	(40)	0	15	0	0	0	9	(60)	6	(40)	0	15
Total	14	(52)	13	(48)	0	27	1	0	0	15	(54)	13	(46)	0	28
2016															
Fall	2	(22)	7	(78)	0	9	0	0	0	2	(22)	7	(78)	0	9
Spring	2	(67)	1	(33)	0	3	0	1	0	2	(50)	2	(50)	0	4
Total	4	(33)	8	(67)	0	12	0	1	0	4	(31)	9	(69)	0	13
2017															
Fall	4	(67)	2	(33)	0	6	1	0	0	5	(71)	2	(29)	0	7
Spring	2	(67)	1	(33)	0	3	0	2	0	2	(40)	3	(60)	0	5
Total	6	(67)	3	(33)	0	9	1	2	0	7	(54)	5	(38)	0	13
2018															
Fall	9	(100)	0	(0)	0	9	0	1	0	9	(90)	1	(10)	0	10
Spring	10	(63)	6	(38)	0	16	0	1	0	10	(59)	7	(41)	0	17
Total	19	(76)	6	(24)	0	25	0	2	0	19	(70)	8	(30)	0	27

Hunter Residency and Success

Most brown bears were harvested by local residents during the RY14–RY18 period. Nonresidents accounted for 27% of the harvest from regulatory years 2014–2018 (Table 2). Nonlocal resident take of bears was small in Units 14A and 14B.

Table 2. Successful brown bear hunters in Units 14A and 14B by residency, regulatory years 2014–2018, Alaska.

Regulatory year	Local[a] resident	(%)	Nonlocal resident	(%)	Non-resident	(%)	Total bears harvested
2014	17	(81)	1	(5)	3	(14)	21
2015	22	(81)	0	(0)	5	(19)	27
2016	7	(58)	2	(17)	3	(25)	12
2017	3	(33)	0	(0)	6	(67)	9
2018	17	(68)	0	(0)	8	(32)	25

[a] Unit 14 residents (Units 14A, 14B, and 14C).

Harvest Chronology

The chronology of the harvest has shifted slightly from fall to spring. While most harvest is still taken in fall, the proportion of brown bears taken in spring increased from 25% during RY09–RY13 to 34% during RY14–RY18. Taking brown bears over bait in the spring began in RY15 in Unit 14B, and in RY18 in Unit 14A. This change is reflected in the shift in chronology of the hunt (Table 3).

Table 3. Percentage of brown bear harvest in Units 14A and 14B by month, regulatory years 2014–2018, Alaska.

Regulatory	Percentage of harvest by month								Total
year	Jul	Aug	Sep	Oct	Nov	Apr	May	Jun	harvest
2014	10	19	57	10	4	0	0	0	21
2015	0	11	30	3	0	4	48	4	27
2016	0	17	50	8	0	0	25	0	12
2017	0	22	34	11	0	0	33	0	9
2018	0	16	20	0	0	0	64	0	25

Transport Methods

A significant portion of Unit 14A and the western half of Unit 14B are more accessible than many other parts of the state. As such, a variety of means of transportation including highway vehicles and all-terrain vehicles (ATVs) are used to hunt brown bears (Table 4). Airplanes are often used to access bear hunting opportunities in the back country.

Table 4. Proportion of brown bear harvest in Units 14A and 14B by transport method, regulatory years 2014–2018, Alaska.

Regulatory year	Percent of harvest by transport method							
	Airplane	Horse	Boat	ATV/ ORV[a]	Snow-machine	Highway vehicle	Unknown	*n*
2014	24	0	5	48	0	9	14	21
2015	19	0	4	67	0	12	0	27
2016	42	0	17	33	0	0	8	12
2017	34	0	11	22	22	11	0	9
2018	24	0	16	52	0	8	0	25

[a] All-terrain vehicle/off-road vehicle.

Other Mortality

During RY14–RY18 there was an average of 2 bears killed by either DLP or illegal take in Units 14A and 14B. This is a decrease from 3.6 bears during RY09–RY13. The low density of the bear and human populations result in relatively few conflicts in these units. By comparison, during this same time period Unit 14C (Anchorage) averaged 7 nonhunting brown bear kills, 3 of which were bears killed by ADF&G staff annually.

Alaska Board of Game Actions and Emergency Orders

At the spring 2016 Alaska Board of Game meeting, the board allowed the taking of brown bears at black bear bait stations during the spring baiting season in Unit 14B. At the spring 2018 board meeting, the board allowed the take of brown bears at bait stations during the open black bear baiting season with a bear baiting permit in Unit 14A. Also, brown bears were allowed to be

taken at bait stations the same day a hunter had flown provided that the bear was at the bait station and that the hunter is at least 300 feet from the airplane.

Recommendations for Activity 2.1

Continue.

3. Habitat Assessment-Enhancement

There were no habitat assessment or enhancement activities in Units 14A or 14B during the RY14–RY18 report period.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Educational efforts that emphasize the relationship between problem bears and attractants increase compliance and safety. Education about safety in bear country has been ongoing in Units 14A and 14B. Proper storage of attractants continues to be a problem in both units, particularly in the more rural portions of the valley.

Data Recording and Archiving

- Data from copies of sealing and defense of life or property (DLP) forms are stored on an internal database housed on a server (http://winfonet.alaska.gov/index.cfm).
- DLP forms are scanned and housed on the network server in the Palmer Area Biologist's office (O:\WC\Palmer Area Office Folder\Species\Furbearer\Scanned Archive Files) and stored in file folders located in the Palmer Assistant Area Biologist's office.

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

Harvest peaked in RY10 and has been slightly decreasing since that time. Annual harvest varies greatly from year to year as shown by the range of harvest during this reporting period (RY14–RY18; between 9 and 27 brown bears). This low and variable harvest is probably because Units 14A and 14B are not regarded as "go to" brown bear harvest areas. Bears harvested in the unit are often targeted opportunistically by either fall moose hunters or at bait stations that are targeting black bears. There is no biological concern for brown bears in Units 14A or 14B. The percentage of females in the harvest (45%) does not reflect a change in bear density. Nonetheless, sex and age ratios in the harvest should continue to be monitored to prevent overharvest of the reproductive segment of the population. To date no surveys of brown bear density have been conducted in these units. Brown bears are difficult to survey due to their cryptic nature and dense forested habitat. However recent advances in genetic close kin mark–

recapture techniques have made this a possibility in some areas. Development of hair snaring techniques such as those being developed in Unit 13 could lead to a density estimate of the area and would be feasible in this relatively developed area.

II. Project Review and RY19–RY23 Plan

Review of Management Direction

MANAGEMENT DIRECTION

The existing management direction and goals appropriately direct management of brown bears in Units 14A and 14B of ensuring that brown bears will persist as part of the natural ecosystem and ensures continued hunting and viewing opportunities. Long-term sustainability of the brown bear populations and statewide goals (ADF&G 1976) for human uses are expected to be met. Therefore, brown bears will continue to be managed in alignment with statewide brown bear management goals.

GOALS

To provide the greatest opportunity possible to participate in hunting brown bears and to provide for an optimum harvest of brown bears.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Alaska Board of Game has made no determination regarding the customary and traditional use of brown bears in Units 14A and 14B.

Intensive Management

Not applicable.

MANAGEMENT OBJECTIVES

- Maintain a brown bear population that can sustain an annual harvest of 25 bears composed of at least 50% males.

- Maintain the brown bear population at a level that minimizes bear-human conflicts.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Analyze harvest records for trends that would indicate a change in population status or composition.

Data Needs

Analysis of current harvest trends can indicate any possible changes in the population density in Units 14A and 14B. Large shifts in harvest or sex ratios of animals harvested can indicate the need for further examination of the brown bear population and the need for season or bag limit changes in regulation.

Methods

Examine harvest (sealing) data for changes in total harvest and percent females in the harvest.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor harvest through sealing records and defense of life or property (DLP) reports.

Data Needs

Mortality of brown bears must be assessed to understand the potential impact of brown bear hunting activities and other forms of mortality. These data inform brown bear management in Units 14A and 14B.

Methods

Brown bear mortality will be monitored using harvest information from sealing records. During the sealing process, the skull is measured, and a tooth is taken for aging. In addition, hunting effort, sex, method of take, type of transportation used, location of kill, and date of kill are recorded. Whether bears were taken over bait, incidentally harvested, and/or salvaged for meat will also be noted on sealing reports.

3. Habitat Assessment-Enhancement

There are no habitat assessment or enhancement activities planned in Units 14A or 14B during the RY19–RY23 plan period.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

DWC staff will continue outreach efforts to reduce property damage by brown bears. Information will continue to be distributed regarding conflict avoidance in the back country and in more developed areas.

Data Recording and Archiving

- Harvest data and copies of sealing forms will be stored on an internal database housed on a server (http://winfonet.alaska.gov/index.cfm).

- Field data sheets, appropriate defense of life and property reports, other potential brown bear data will be scanned and housed on the network server in the Palmer Area Biologist office (O:\WC\Palmer Area Office Folder\Species\Black bear\Scanned Archive Files) and stored in file folders located in the Palmer Assistant Area Biologist's office.

Agreements

None.

Permitting

None.

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