

Grizzly Bear

Management Guidelines

July 97



Foreword

These interim management guidelines were developed by the Bear Management Team from the Yukon Department of Renewable Resources. The management principles, concepts and assumptions outlined here represent the consensus of the team. The guidelines are intended to provide a framework for consistent Departmental input and responses to management plans, programs, and regulation proposals. In addition, they should provide a common understanding amongst those involved in grizzly bear management decisions and serve as a focus for future discussions and refinement. These guidelines are not formal policy, but working guidelines which will be reviewed periodically and amended and updated based on new and additional information, including local and traditional knowledge and experience. The guidelines are provided for your information and use.

Comments, suggestions and questions are welcome.



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GRIZZLY BEAR MANAGEMENT PRINCIPLES

Management Principles, Concepts, and Assumptions

"The grizzly is a symbol of what is right with the world."

Primary Principle

- (1) The conservation of grizzly bears, as an integral part of northern ecosystems and biodiversity, is the primary principle of grizzly bear management.

Abundance & Distribution

- (2) Grizzly bears have been extirpated in much of their historic range in North America [Figure 1], and are in decline in much of their current range.

- (3) In North America, only Yukon, Alaska, B.C. and the N.W.T. have viable grizzly bear populations:

Alaska	25,000-39,000
B.C.	10,000-13,000
Yukon	6,000- 7,000
NWT	4,000- 5,000
Alberta	780
Montana	500
Wyoming	200
Idaho	20-30
Washington	10-20

- (4) Yukon is responsible for 30 percent of Canada's, and 11 percent of North America's grizzly bears.

- (5) The Committee on the Status of Endangered Wildlife in Canada classified grizzly bears as "vulnerable" due to habitat loss, low reproduction, and slow recovery rates.

Reproduction & Recruitment

- (6) Northern interior grizzly bears have the lowest recruitment rates of all terrestrial mammals:

- a. Females do not reproduce until age 6.5 to 9;
- b. Average litter size is 1.6 to 1.9;
- c. There is a 3-5 year interval between litters;
- d. Cub of year mortality is 25-45% in first year.

- (7) The biological limits to reproduction and recruitment in grizzly bears preclude a rapid increase in numbers.

Habitat Use

- (8) Habitat, particularly food availability, affects reproduction. If a female does not accumulate enough fat, eggs fertilized in spring will not implant and she will not reproduce.

- (9) Grizzly bears require large multi-annual home ranges: 1682 km² for males, 491 km² for females.
- (10) Use of home range reflects annual variations in food availability. Grizzly bears are omnivores, which means they eat both plant life and meat.
- (11) Particular foods, such as berries and salmon, may be essential for reproduction. Alternate food, such as roots, may supply enough fat reserves to overwinter but may not supply enough to reproduce.
- (12) Areas providing alternative food sources, although they may be used only a few times in a bear's lifetime, are important parts of home ranges.
- (13) A major reason for the decline of grizzly bear populations is habitat loss.
- (14) Habitat inventory and assessment is important as a basis for:
 - a. Assessing development in grizzly bear range;
 - b. Selecting and specially managing key grizzly bear habitat/ecosystems.
- (15) Large intact natural areas will be essential to conserve and maintain viable populations of grizzly bears.
- (16) Specific key habitats such as salmon spawning and berry-rich areas should be protected.
- (17) Detailed land-use guidelines are required to deal with development impacts on grizzly bears.
- (18) Provisions allowing for effective protection of grizzly bear habitat should be incorporated into appropriate legislation, policies, and plans.

Habitat Management & Protection

Impact of Roads

- (19) Roads reduce grizzly bear survival by:
 - a. Displacing them from optimum habitats and forcing them to use less productive habitat;
 - b. Causing bears to flee which wastes energy reserves bears must accumulate in the short summer season;
 - c. Increasing human access that concentrates and increases the number of bears killed;
 - d. Increasing human use of backcountry areas leading to a greater likelihood of human/bear conflicts, food conditioning, and subsequent killing of bears.

- (20) Bears respond to roads/development in two ways:
- a. Intolerant bears characterized by wariness, avoid humans. These bears are easily displaced from habitat and food sources necessary for survival and reproduction.
 - b. Tolerant bears are those that accept, in varying degrees, human presence. These are less easily displaced, but more likely to suffer high mortality as a consequence of their tolerance of close proximity to people.

Waste/Food
Management

- (21) The main cause of bear/human conflict is food and garbage conditioning (when bears associate humans with developed areas and food and garbage).
- (22) All existing and future landfill sites should be equipped with electric exclusion fences.
- (23) The public should be encouraged to take responsibility for avoiding conflict resulting from poor storage of food and garbage.
- (24) Tourists must be made aware that feeding bears is illegal.

Sustainable
Viewing

- (25) The primary management consideration for areas where bears congregate is to ensure long-term survival of grizzly bears and their habitat; viewing is secondary.
- (26) Viewers value watching grizzly bears over any other large mammal. Viewing can be an effective use of wildlife; the same bear can be photographed or viewed by many people.
- (27) Viewing bears has special considerations that the viewing of other wildlife does not. The presence of humans can create stress for bears and cause them to abandon a habitat. Viewers may also be at risk if they do not act appropriately.
- (28) Effectively managed viewing areas may:
- a. Increase public understanding and appreciation of bears and bear ecology;
 - b. Increase public understanding of appropriate human behaviour in bear habitat;
 - c. In controlled circumstances, increase tourism and provide economic benefit.
- (29) Issues for specially managed bear viewing areas include the incompatibility

of hunting, importance of habitat protection, and access management.

Sustainable
Harvest

- (30) Grizzly bears are harvested by sport hunters, clients of outfitters, Inuvialuit, and Yukon First Nation hunters [Figure 2].
- (31) Allowable harvest levels must include kills in defense of life and property [Figure 3], and estimated unreported and illegal kills.
- (32) Harvest for the sale of parts (paws, claws, galls, teeth) is prohibited as grizzly bears may be at risk if economic incentives increase harvest.
- (33) Populations were estimated, by management unit in 1983, based on interviews with outfitters/guides and density estimates from 16 northern interior population studies [Figure 4].
- (34) Grizzly bear populations can be overestimated when access to bear habitat, and sightings, increase.
- (35) Harvest levels must be conservative because:
 - a. Low reproductive rates mean grizzly bears can only sustain low harvest rates and recover slowly from overharvest; and
 - b. Population estimates are imprecise.
- (36) 100 females could sustain the loss of two females per year from all human sources if each female is taken from a different 1000 km²; 100 males could sustain the loss of six males per year from all human sources.
- (37) In many areas females are being harvested at, or above, sustainable levels while fewer than the allowable males are taken.
- (38) Achieving the allowable harvest of males and females as set out in (35) depends on:
 - a. Ability and motivation to sex bears; and,
 - b. Knowledge of gender difference in habitat use.
- (39) Females with young, and young up to and including two years of age, are protected from harvest.
- (40) Age and sex composition of the bear harvest is important because natural populations require older individuals for stability.
- (41) An inflow of subadult males to disturbed areas may mask an actual population decline.

- (42) Only very significant changes in grizzly bear populations can be detected by harvest data alone. Trends in where and when bears are harvested, and other indicators of population, should be used.
- (43) Monitoring, and corrective prescriptions should be initiated where populations are at risk of excessive mortalities.
- (44) One crude tool to test if human-caused kills can be sustained, compares the female population required to sustain kills over a 10-year period to the female population estimated to reside in the area. Because females ranges are small and they do not disperse far from where they or their grandmothers were born, excessive local kills cannot be sustained. The calculations are as follows:

a. Female population required to sustain kill = $\frac{\text{Females killed over 10 yrs}}{10 \text{ years}} \times \frac{100 \text{ females}}{2 \text{ can be removed/year}}$

b. Estimated female population = $\frac{\text{Area in square km.}}{\text{sq. km per grizzly}} \times \frac{50 \text{ females}}{100 \text{ grizzlies}}$

Harvest Allocation

- (45) Allocations are made separately for males and females. A 50:50 sex ratio is assumed.
- (46) The first allocation is for anticipated “defense of life and property” kills. At present, this estimate is based on a recent average of kills.
- (47) The second allocation is for resident sport harvests. This estimate is based on recent average of previous harvests.
- (48) The third allocation, if any part of allowable harvest remains, is allocated to big game outfitters. A point system is used that provides incentives for hunting parties to avoid harvesting females [Figure 5].

Managing Bears for Ungulates

- (49) Although bears gain energy and nutrients mostly from vegetal diet items, protein and fats from animal tissue such as salmon, ground squirrels, marmots, pike, voles, moose calves, caribou calves, sheep lambs, and carrion are utilized by many grizzly bears.
- (50) Some grizzly bears can be efficient predators on moose and caribou calves up to 1 month old. Kill rates can vary greatly between individual bears. Kill rates vary between areas as well: in some places in the Yukon, half the moose calves born may be taken by grizzlies. In other areas, very few calves born are killed by grizzlies.
- (51) Some adult grizzlies kill adult moose and caribou.

- (52) Hunting or removing grizzly bears beyond sustainable harvest levels to increase moose numbers has long term negative effects on grizzly bears and may not help moose.
- a. Conservation of grizzly bears is the primary principle of grizzly bear management, world wide.
 - b. Grizzly bears are much less able to recover from excessive harvest than other species: wolves recover 10 times as quickly.
 - c. Killing grizzly bears to increase survival of moose calves assumes that hunters take predatory bears, and that wolves or black bears will not take the 'extra' calves. In a 5-year study in central Alaska, hunters reduced grizzly numbers by half; moose showed no response.
 - d. Reducing grizzly bear numbers may increase black bear numbers, and taking adult males may allow other bears to move in.
 - e. In the southern Yukon, over a 10 year period, there was little interest from hunters in liberalizing grizzly bear hunting, moose calf survival increased for other reasons, and moose continued to decline.
 - f. Monitoring the status and hunting of depleted grizzly bear populations is costly and difficult.

Public Support

- (53) Grizzly bears will be conserved only if the public is willing to respectfully co-exist with, and share the commitment to effectively manage for bears.
- (54) Better understanding of the ecological needs of grizzly bears will help the public to assess the trade-offs between development and conservation.



Figure 1. Current and historic grizzly bear distribution in North America.

Figure 2. YUKON WIDE GRIZZLY BEAR HARVEST
 (Harvest by First Nations not included)

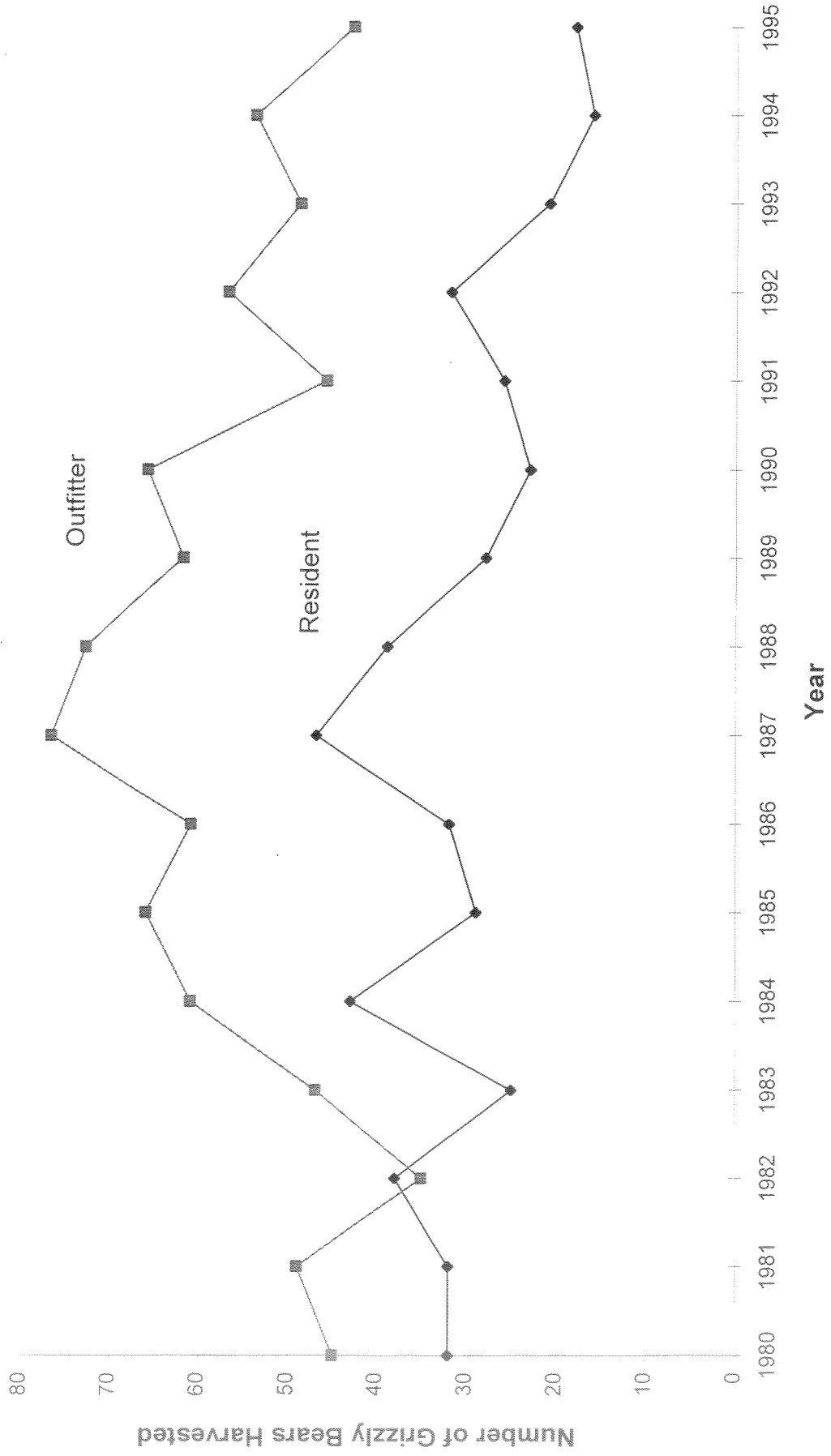


Figure 3a.
ECOREGIONS OF YUKON TERRITORY

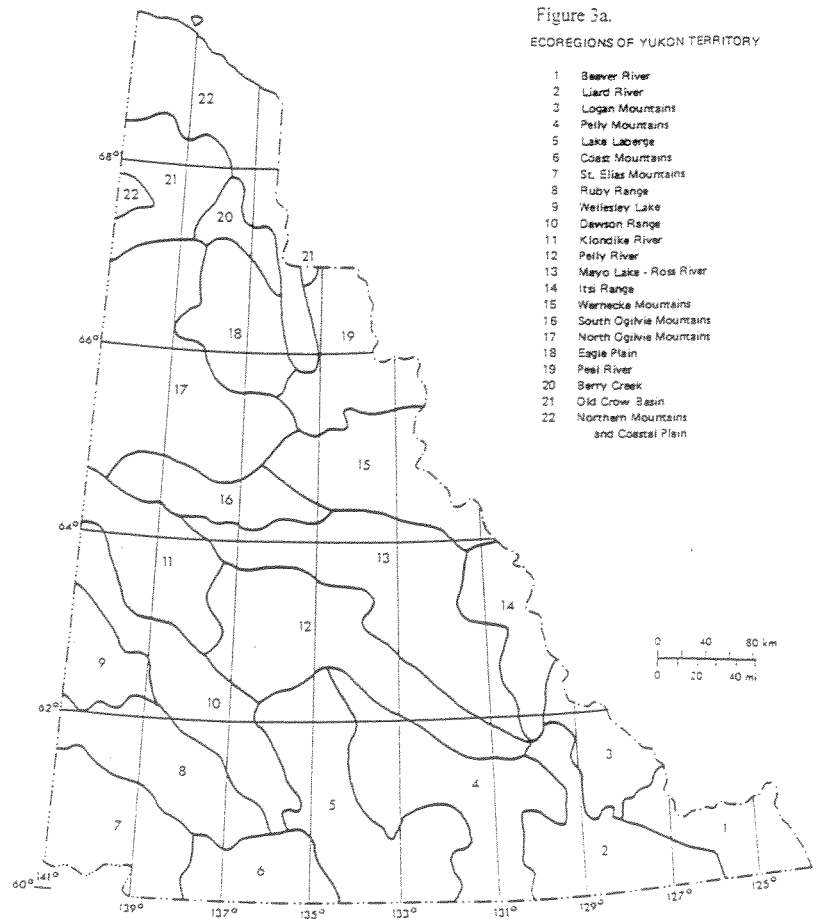
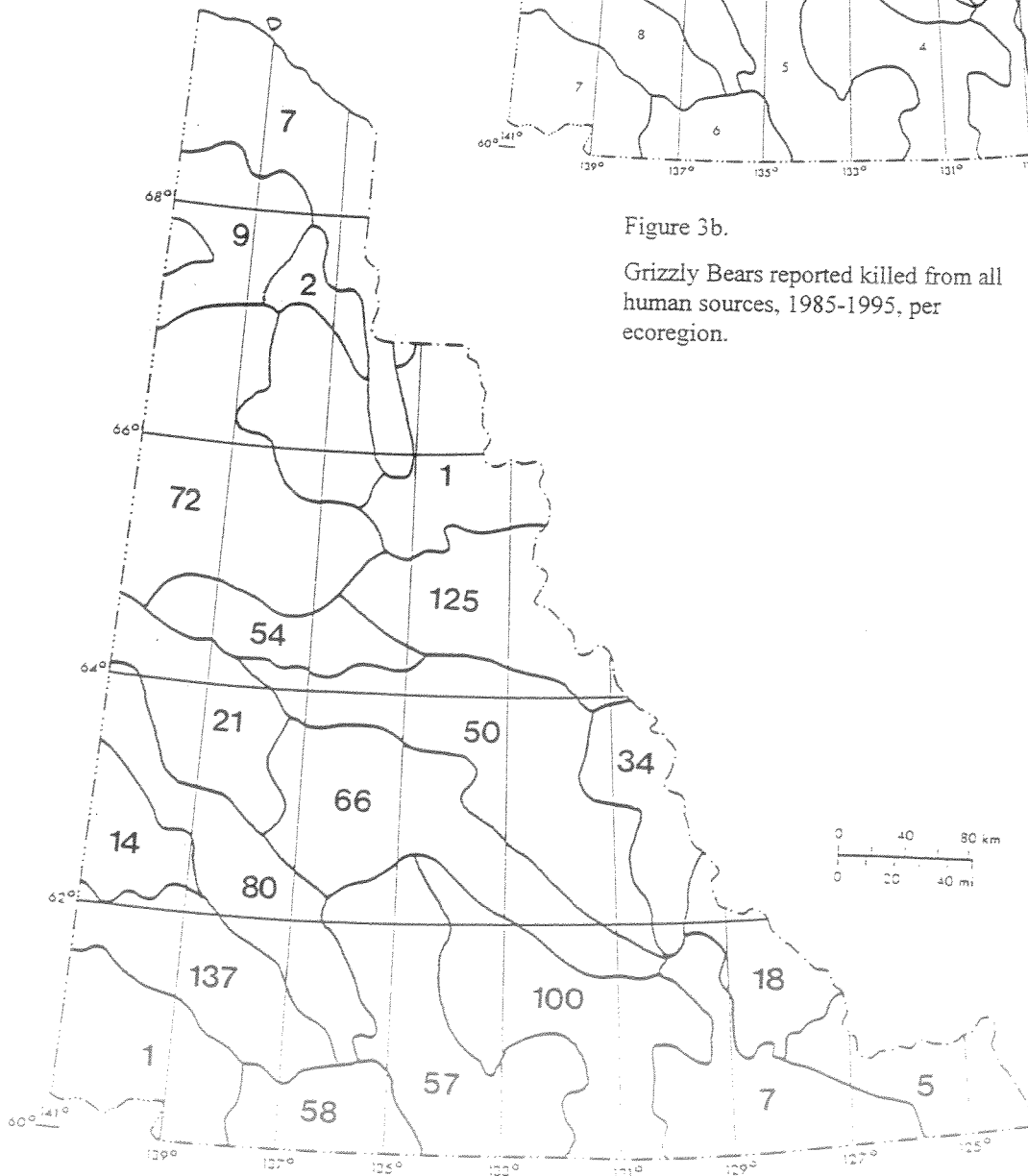


Figure 3b.

Grizzly Bears reported killed from all human sources, 1985-1995, per ecoregion.



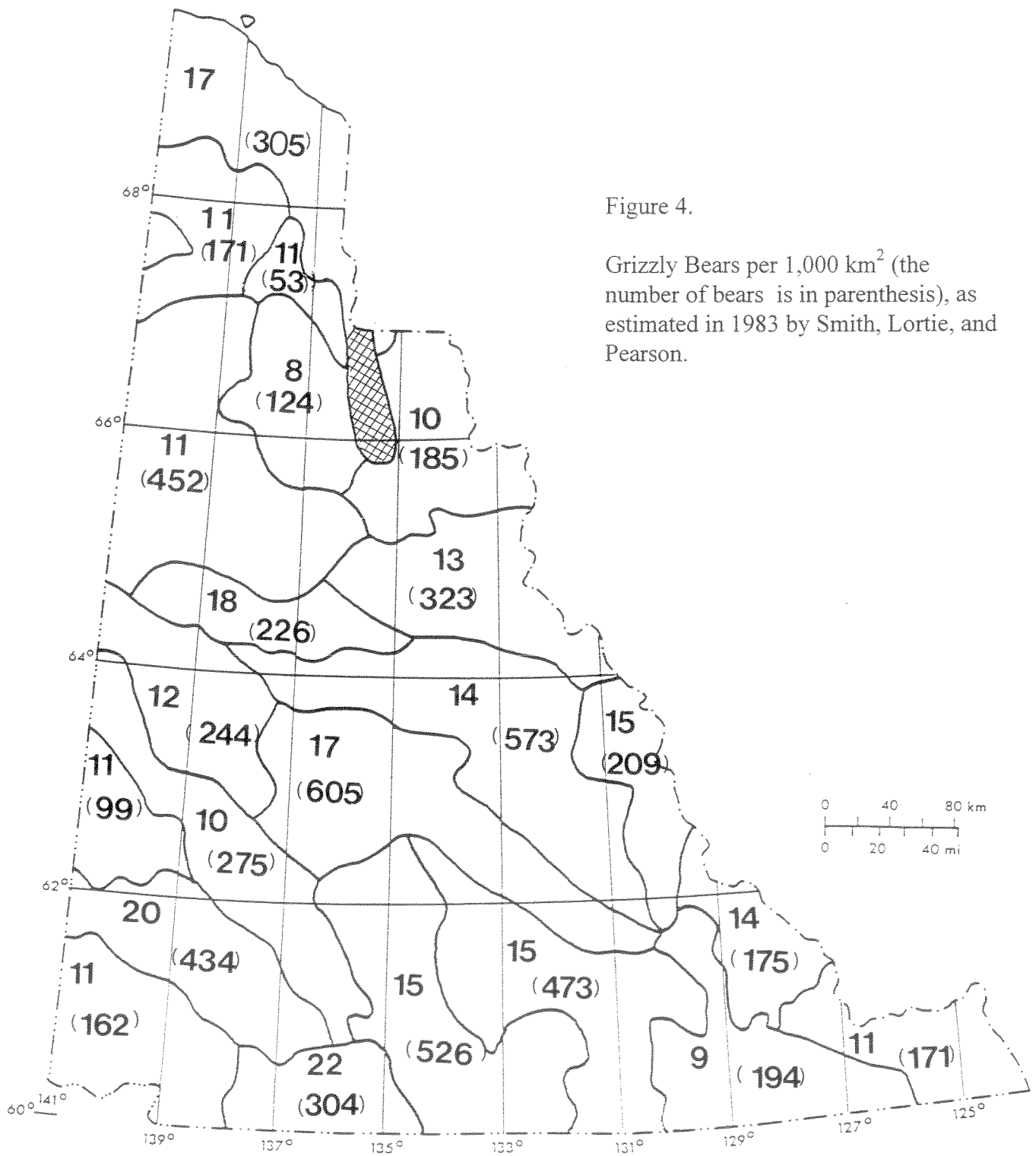


Figure 4.

Grizzly Bears per 1,000 km² (the number of bears is in parenthesis), as estimated in 1983 by Smith, Lortie, and Pearson.

Figure 5. GRIZZLY BEAR QUOTA

