

# ***CASE STUDY: GRIZZLY BEAR NDF FOR CANADA***

**David F. Fraser, SA for British Columbia,  
Carolina Caceres ,SA for Canada**



**Environment  
Canada**

**Environnement  
Canada**

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# CITES Responsibilities in Canada

Canadian responsibilities for wildlife management are divided between Federal and Provincial/Territorial governments as per constitutional delegation of power

## **Federal Government Departments:**

- overall implementation of CITES, international, borders, wildlife management/enforcement within federal jurisdiction

## **Provincial/Territorial Governments:**

- Wildlife management (including enforcement) of indigenous species within P/T boundaries

## **Aboriginal constitutional rights:**

- Rights to participation in land, water, wildlife and environmental management and guaranteed wildlife harvesting rights within various land claim acts



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# Canadian Non-Detrimental Findings

- ▣ NDFs are made for individual exports based on knowledge of P/T management systems in place
- ▣ Standing national NDF reports are being developed for frequently traded indigenous species
  - Based on IUCN Checklist
  - National document summarizing management practices of all range jurisdictions for a species
  - Collaborative approach
    - ▣ Federal leadership/coordination
    - ▣ Provincial/Territorial participation
    - ▣ Species experts (management and conservation)



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# Making an NDF in Canada

- ▣ Role of Canadian Scientific Authorities is to evaluate the information that goes into an NDF such as:
  - Management plan or practices exist at P/T level (as is the case for all vertebrates under P/T wildlife acts)
  - Plan and/or practices are established and based on regular appropriate assessment of species populations
  - Some evidence that plan/ practices are responsive to changes in species trends and status





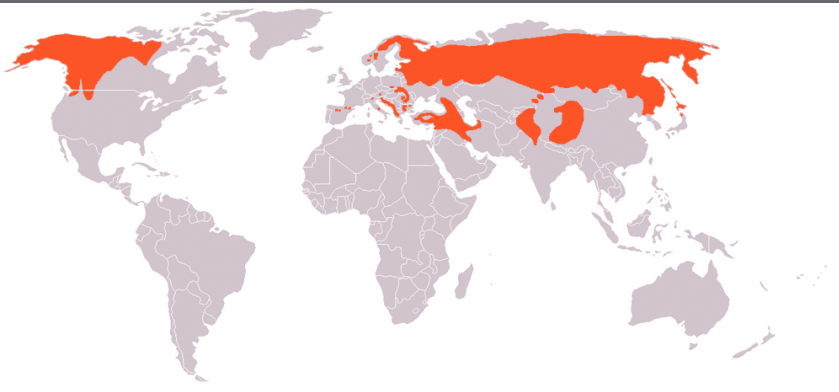
# Grizzly Bear (*Ursus arctos horribilis*)

- Sub-species exclusive to North America
- Distribution across 26% of Canada's land mass
  - Interconnecting populations distributed in the Yukon Territory, the Northwest Territories, Nunavut, British Columbia and Alberta
  - Isolated populations in southern British Columbia
  - Approximately 50% of Canadian population is in British Columbia

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Figure 2. Current and historic North American range of *Ursus arctos horribilis* (Grizzly bear). Adapted from Servheen (1990).



<b>Global</b>	<b>IUCN</b>	Critically Endangered. / Endangered	Vulnerable	Near Threatened	Least Concern ✓
<b>National</b>	<b>COSEWIC</b>	Endangered	Threatened	Special Concern ✓	Not at risk
<b>National</b>	<b>General Status</b>	At risk	May be at Risk	Sensitive ✓	Secure
<b>Provincial</b>	<b>BC status</b>	Red	Red	Blue (S3) ✓	Yellow

Increased extinction risk



# Grizzly Bear Canadian Populations

- ▣ Canadian populations listed under Appendix II for look-alike reasons





# Role in the Ecosystem

- ▣ Top level predator
- ▣ Symbol of wilderness and often used as an umbrella spp for management purposes.
- ▣ Key role in distribution of nutrients from salmon to terrestrial ecosystems.



# Grizzly Bear Management in British Columbia



A. Teucher photo

- ▣ Listed as wildlife under the *Wildlife Act*
- ▣ Classified as a game animal
- ▣ Also managed for wildlife viewing
- ▣ Some populations managed for recovery.

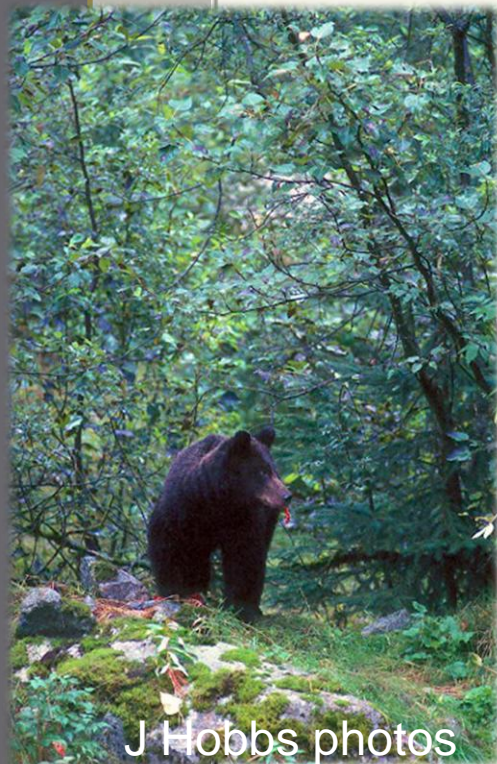


- 57 population units
- 9 are considered “threatened”\*
- 4 have extirpated populations
- Threatened and extirpated units are closed to hunting



### Grizzly Bear Population Units

March, 2004



J Hobbs photos



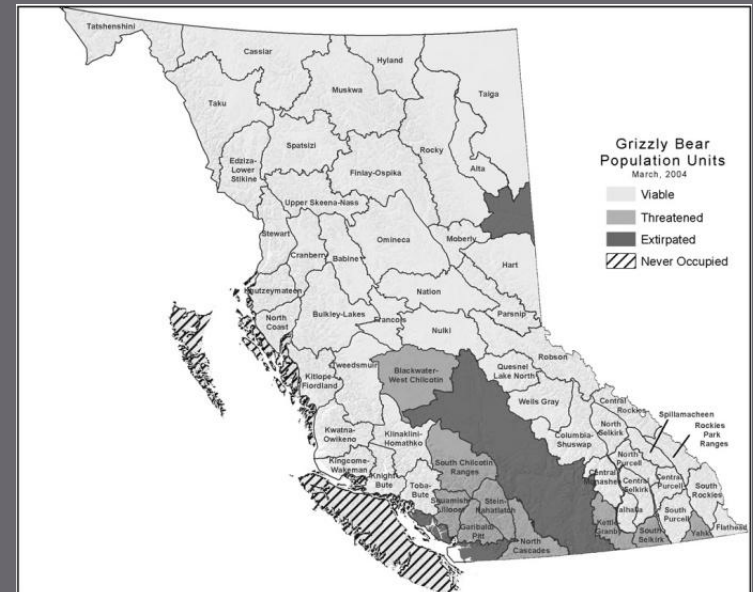
# Threatened Populations are Managed

Recovery actions proposed or underway:

- ▣ motorized access management,
- ▣ habitat restoration,
- ▣ mortality risk reduction around communities,
- ▣ enhanced protection of critical habitats.



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- ▣ About 2000 bears occur in areas with no hunting
- ▣ About 120,000 square miles of habitat are protected in parks and nearly 1 million ha have been protected from logging because of high grizzly bear habitat values

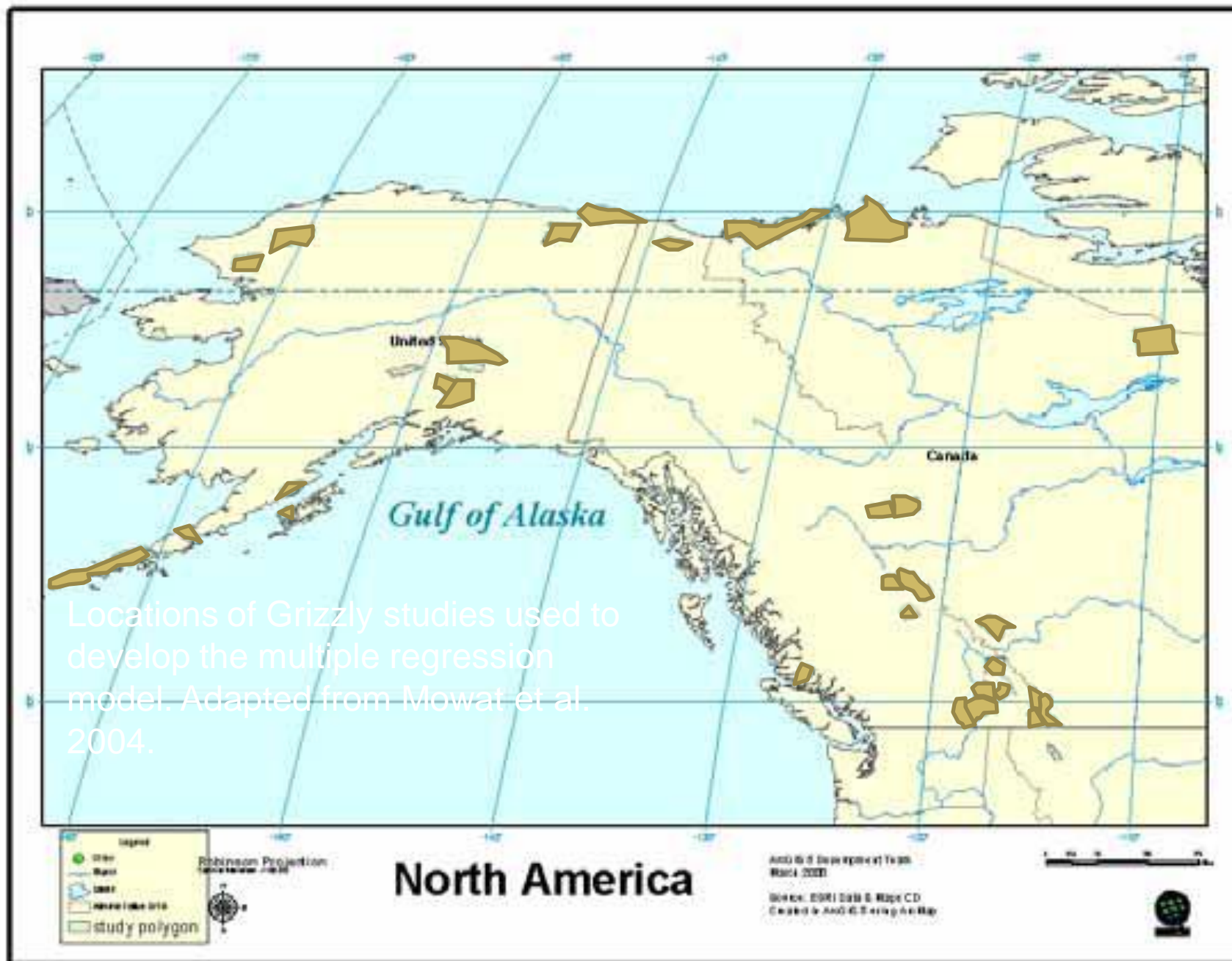


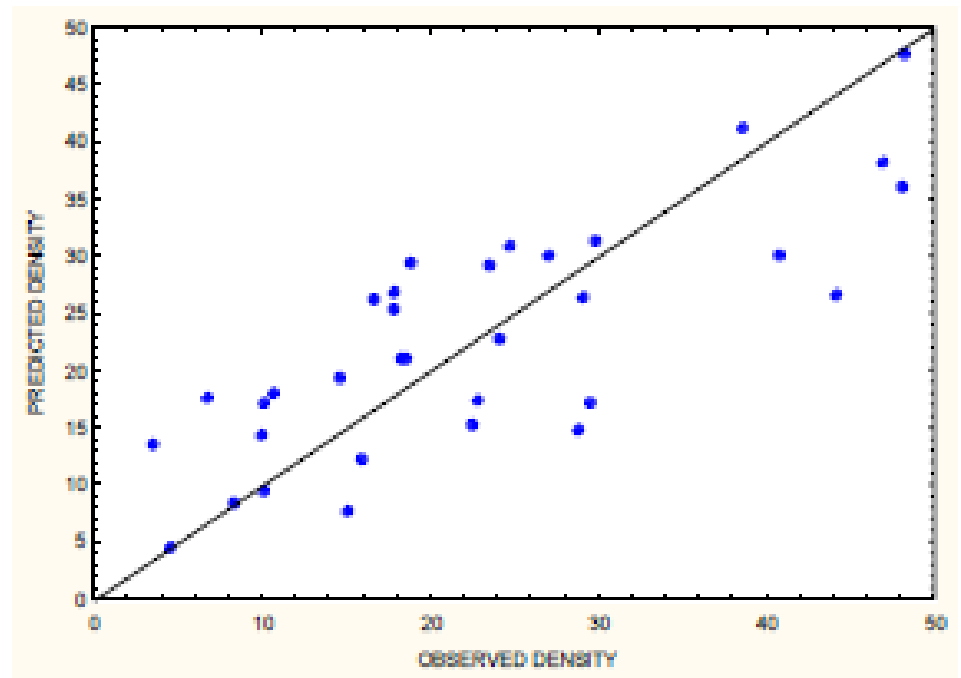
# Population estimates

- ▣ Current estimate is 17,000 bears in British Columbia
- ▣ Estimate based on a habitat based model, an expert opinion model and modified by DNA analysis mark-recapture based studies
- ▣ For most of the province population estimates are based on direct inventory and extrapolation to similar areas based using a multiple regression model.









Observed vs predicted Grizzly Bear densities in the 33 study areas using the multiple linear regression model. Line indicates a perfect relationship between observed and predicted densities. From Mowat et al 2004.

# Population estimates cont.

- ▣ Stable isotope analysis of hair samples measuring salmon consumption have been used to modify some population estimates
- ▣ Methods have been peer-reviewed by experts recommended by the Int. Bear Association



MOE photo



# Population estimates (cont.)

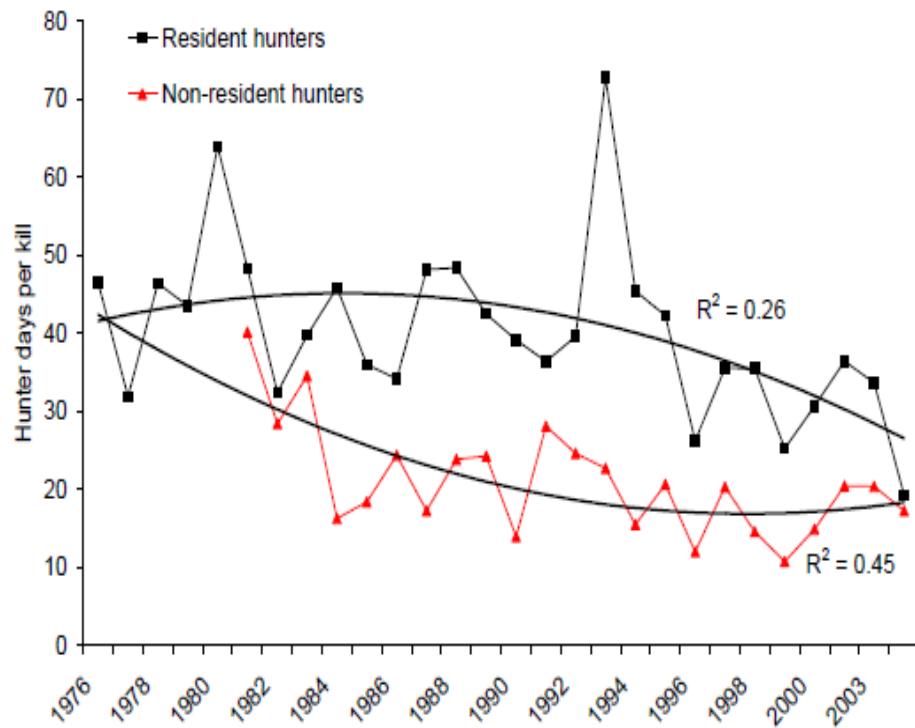
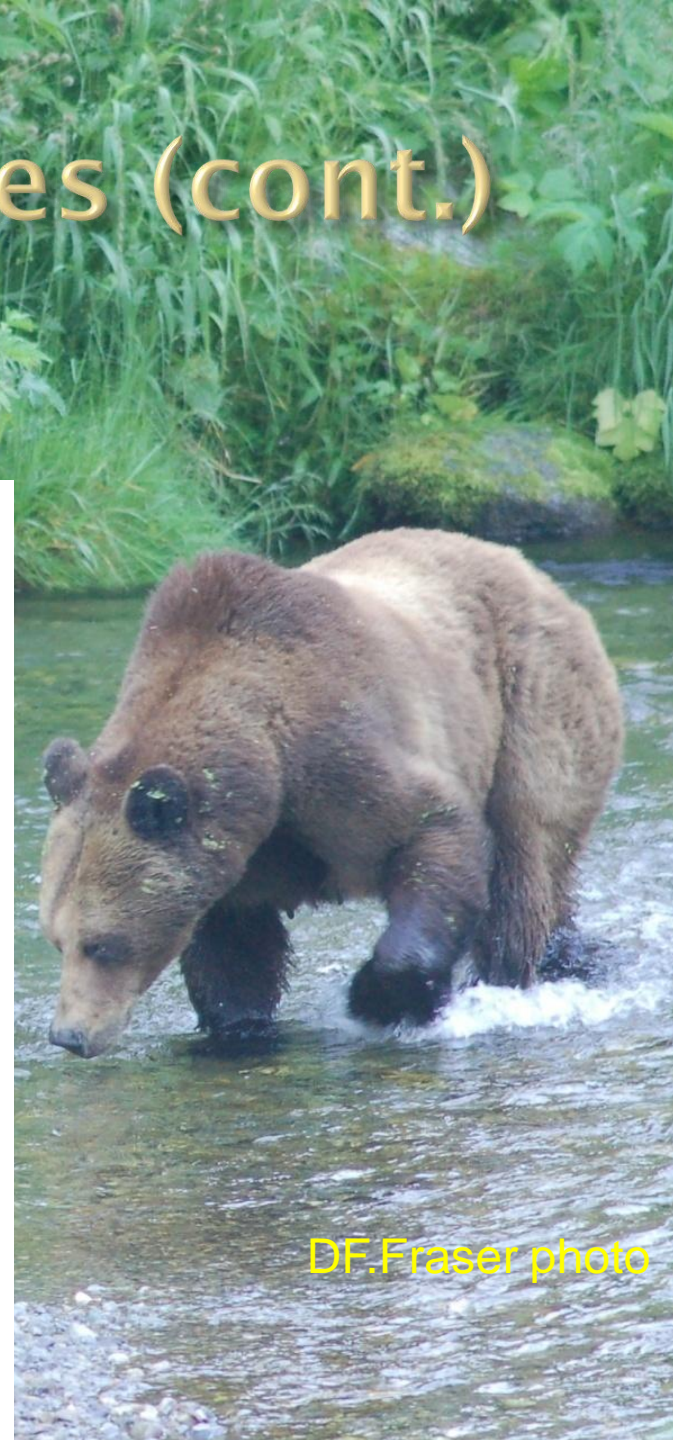


Fig. G7. Catch per effort (days per kill) by resident and non-resident hunters for grizzly bears in the Kootenay Region, 1976-2004. Lines are second-order polynomials fitted to these points.





# Population estimates (cont.)

- ▣ \$ 4M (\$3.2M US) has been spent since 1979 on Grizzly Bear inventory in British Columbia.





# Harvest Management.

- ▣ Harvest is by Limited Entry Hunts(LEH)which is a lottery system for residents of BC and by guide quotas for non resident hunters. Nonresidents must hunt with a guide..
- ▣ Total number of LEH and guide quotas are set annually, based on an allocation policy.



# Harvest Management cont.

- ▣ Maximum allowable mortality from all human caused sources ranges from 4-6% depending on the GBPU
- ▣ No more than 30% of this may be from the loss of female bears to ensure that reproductive capacity is maintained.





# Harvest Management cont.

- ▣ All harvested bears must undergo an inspection
- ▣ Sex, location, date is recorded, and a tooth is extracted for ageing.



J Hobbs photo



# Harvest Management cont.

- ▣ Hunters may only take a single bear a year.
- ▣ it is illegal to kill a bear <2 years old or any bear in its company (usually its mother)



# Harvest Management cont.

- ▣ Allocation procedure takes into account bears that are killed by humans (conflict), traffic, first nations harvest, poaching, and any other adjustments needed to meet population objectives.



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# Harvest Management cont

Average harvest of grizzly bears is about 300 animals annually, plus an estimated 50 bears are killed each year in human conflict kills and other human caused mortality (e.g. road and rail kills)





# Harvest Management cont

- ▣ A five year running average of hunter success rates are used to adjust the number of LEH permits that are issued each year to ensure that resident hunter kills do not exceed allocation.

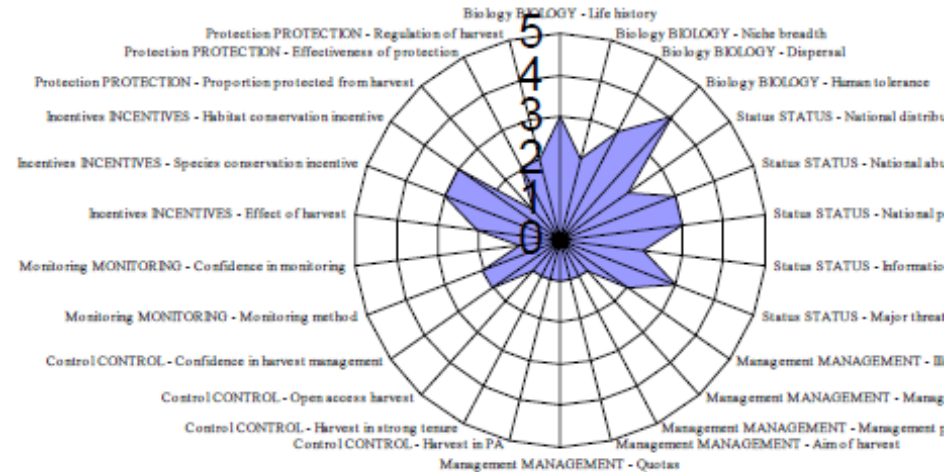




# British Columbia NDF

- Made extensive use of the IUCN checklist

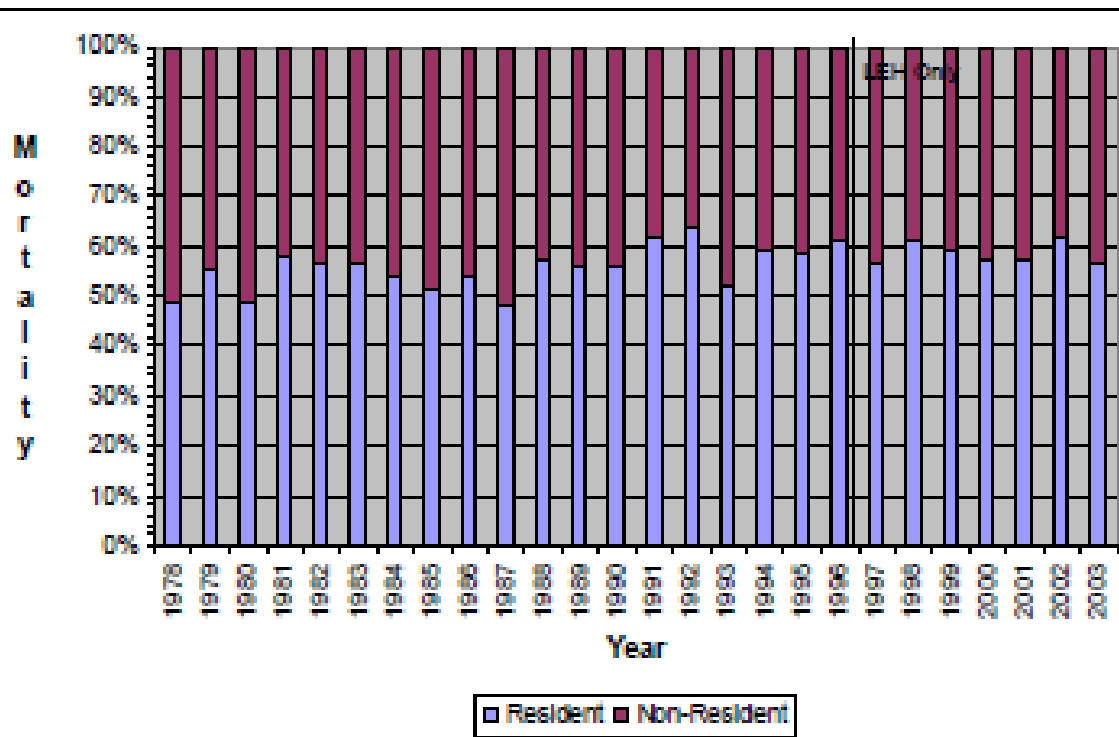
## Non-detriment finding for Grizzly Bears in British Columbia





# British Columbia NDF

- ▣ A little under 50% of Grizzly Bears in BC are taken by nonresident hunters.





# NDF in British Columbia

- ▣ All human caused mortalities are monitored and adjustments are made to the management regime when necessary.
- ▣ Populations deemed to be at risk are not harvested, but managed for recovery.



# NDF in British Columbia cont

- ▣ Trade in legally harvested bears is not a detriment to the population
- ▣ Over the area that is legally harvested GB fulfill their role in the ecosystem
- ▣ NDF posted on the web:
- ▣ <http://www.env.gov.bc.ca/wld/grzz/#nondetriment>



