



November 26, 2003

Reference: 75482

Margot Wallström
Member of the European Commission
Wetstraat, 200
B-1049
Brussels Belgium
Via Fax: + 322 2981899

Dear Ms. Wallström:

Further to your letter of June 24, 2003, regarding the European Union CITES Scientific Review Group's decision to maintain a positive opinion on the import of grizzly bears from British Columbia, I am writing to update you on the work that the British Columbia Ministry of Water, Land and Air Protection (MWLAP) is undertaking to respond to the recommendations from our independent Grizzly Bear Scientific Panel. As I have previously indicated, we will meet our commitment to implement the panel's recommendations that deal directly with the management of grizzly bear harvest beginning with the spring, 2004 hunting season. The following information clearly outlines the considerable progress that has been made in that regard.

I have excerpted the three sections from the panel's report that include recommendations that deal directly with the management of grizzly bear harvest below and have provided a progress report for each in italics.

A. Estimation of grizzly bear numbers

1. The Panel recommends that the MWLAP recalibrate the scale of densities associated with the various habitat categories (i.e., habitat capability rating) by using additional benchmark density estimates, especially for habitat categories three to five. Benchmark density estimates must be based on rigorous sampling designs such as mark-recapture models for open populations. An effort should be made to secure "replicates" for each of the habitat categories, resulting in a single reference density per habitat category. Further, the calibration should be based on the (point) estimate of density, not the estimate minus 1 SE.

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As an alternative to the Fuhr-Demarchi habitat-based method of estimating grizzly bear population size, known grizzly bear population densities from 55 locations in North America including 17 in British Columbia are being assessed based on a multiple regression model.

Variables that are currently being evaluated for inclusion in an objective, data-driven density model include rainfall, temperature, connectivity, proportion of meat in the diet, road density, human population density, past human-caused mortality and livestock density. The intent is to use the relationships in the model with the best fit to extrapolate population estimates for areas of the province where direct field-based estimates are not available. Model derived population estimates will all have a measure of their statistical precision.

It has been determined that the multiple regression model performs well in interior areas of the province where grizzly bear densities are moderate to high. An improved Fuhr-Demarchi method will be used for coastal areas and low density interior areas for which there is less information available to inform the multiple regression model. It is hoped that further refinements will allow the multiple regression model to be applied to the entire province in the future.

In the future the best fit (point) population estimates will be used for calibrating population estimates and for calculations of allowable mortality and harvest levels.

2. The Panel recommends that the MWLAP explore the possibility of using resource selection functions (RSF) to assess bear density by MUs based on habitat attributes and other disturbance factors. It would be advisable to develop RSFs through studies in areas with a range of average habitat capabilities. RSFs can be developed and applied with far less subjectivity than the F-D method of assessing bear density.

The ministry has evaluated the potential use of resource selection functions to predict grizzly bear population density and has determined that in the short-term this is not possible at a provincial scale. Instead, the multiple regression model approach described above is being pursued and shows great promise for yielding objective, data-driven population estimates with associated estimates of precision. One of the members of the Grizzly Bear Scientific Panel, Dr. Sterling Miller, is directly involved in this work.

3. The Panel recommends fully documenting and standardizing the basis for the rating of the final step-down in the F-D process, concerning “human-caused mortality.” Ideally, the rating should be based on a demographic model to assess the effect of past harvests and the sex/age ratio of such harvests.

In interior areas where the multiple regression model can be applied successfully, the Fuhr-Demarchi approach will be replaced. Instead the model will consider past human-caused mortality as one element of estimating grizzly bear population density as opposed to having subjective “step-downs” completed by ministry biologists.

In the areas where the Fuhr-Demarchi approach is maintained, it will be improved through the application of a fully documented, and standardized “step-down” process. This process will involve the use of a geographic information system to assess current carrying capacity by calculating the impact of human settlement, agriculture, roads and forest harvesting. Historic human-caused mortality will be addressed through the reconstruction of the 1980 population size using mortality data and information on the proportion of grizzly bear mortalities that are known by managers.

A population model will then be applied combining the 1980 population estimate with an estimated potential rate of increase, an estimated annual rate of unreported human-caused mortality calculated based on a series of indices that will be related proportionally to an area where the unreported human-caused mortality rate is known and, finally, the known human-caused mortality each year from 1980 onward to arrive at the current estimated population size. This population estimate will then be compared with the estimated current carrying capacity of the area to determine the historic human-caused mortality “step-down”. For example, if the carrying capacity of an area was estimated to be 200 grizzly bears and the population model predicted a current population size of 180, the historic human-caused mortality “step-down” would be 10% (i.e. 200 reduced by 10% = 180).

4. The Panel recommends that the MWLAP take steps to ensure consistencies in the application of the F-D step-down process relative to habitat changes. The goal should be to develop standardized, well-documented protocols that will be applied in a systematic way for all MUs. Considering this, protocols should be applied province-wide, and the central office should play a pivotal role in coordinating and assuring continuity and consistency in implementing policies.

As indicated above, considerable effort is being directed toward ensuring that the process used to develop population estimates is objective and consistent province-wide. Headquarters staff continue to play a pivotal role in developing and implementing these approaches.

B. Risk management in grizzly bear harvests

1. The Panel recommends that the MWLAP assign higher priority to securing precise population size estimates, than to securing precise vital rate estimates. Sampling error

in population estimates are particularly important in terms of risks of population decline due to over-harvest, especially under a LEH system.

The ministry will place a higher priority on obtaining precise population estimates as opposed to precise estimates of vital rates. Additional population estimates will allow further improvement of the multiple regression model.

2. The Panel recommends that the MWLAP acknowledge the effect of sampling error on estimates of population size and vital rates when establishing maximum allowable human-caused mortality rates. Instead of attempting to incorporate uncertainty into population estimates (e.g., by reducing estimates by the equivalent of 1 SE), we recommend including effects of this uncertainty in the scale of maximum allowable human-caused mortality. Until better information becomes available, we recommend that the upper end of the current scale be reduced by 1% (i.e., from 6% to 5%) to ensure that it captures the full extent of uncertainty.

The Grizzly Bear Harvest Management Procedure is being revised to include a reduction in allowable mortality rates based on uncertainty in population estimates. The maximum allowable human-caused mortality rate is also being lowered from 6% to 5%.

3. The Panel recommends that the scale used to determine the level of allowable human-caused mortality be matched to the current habitat conditions of a MU (and hence the actual productivity of resident grizzly bears), not the potential habitat capability without human disturbances (as is currently the case).

The Grizzly Bear Harvest Management Procedure is being revised to indicate that the maximum allowable human-caused mortality rate will be based on current carrying capacity as opposed to habitat capability.

C. Administrative process for managing grizzly bears

1. The Panel recommends that regional biologists prepare a report describing the procedure used for estimating population sizes and quota allocation in MUs for each allocation period, including justification of parameters (e.g., F-D step-down). The report should include all information used in estimating population sizes and harvest allocations, as well as documentation of model assumptions, model outputs, and other data that were considered (e.g., trend information, demographic data, etc.).

The new population estimates that are being developed and will be applied to harvest management beginning in spring 2004 will be supported by a detailed scientific rationale including model assumptions, model outputs, and other data that were considered.

2. The Panel recommends that management boundaries be revised as necessary so that each LEH zone is contained wholly within a MU and each MU contained wholly within a GBPU. There should be a direct correspondence between the unit base used for calculating an allowable quota and the area where the quota is used. Hunting statistics should be compiled at the LEH level, but they can be summarized at the GBPU level.

Grizzly Bear Population Unit (GBPU) boundaries have been reviewed and revised as necessary. Where a Management Unit is divided between two GBPUs and is open to hunting, Limited Entry Hunting Zones will be created or adjusted to ensure that there is direct correspondence between the area used for calculating allowable harvest and the area where the harvest occurs.

3. The Panel recommends that GIS layers for land use and land condition attributes be updated prior to each allocation period to ensure that the latest habitat information is used in estimating populations and allowable harvest rates.

A new allocation period will begin in 2004 and the most current data available on habitat conditions are being used as inputs to the process of calculating new population estimates.

4. The Panel recommends better joint planning between the Ministry of Forests, Ministry of Sustainable Resource Management, and the MWLAP. For example, the MWLAP should ensure that land use planning initiatives by the Ministry of Forests reflect the needs of wildlife in general, and the needs of grizzly bears in particular, within a context of ecosystem management.

This recommendation will be pursued through the revision of the provincial Grizzly Bear Conservation Strategy.

5. The Panel recommends the establishment of management objectives for bear populations (i.e., GBPUs) using a formalized planning process. Management objectives should recognize that both hunting and non-consumptive uses are acceptable. Province-wide guidelines should be developed to guide this planning process, especially with regard to the interaction between hunting and bear-viewing activities.

The Grizzly Bear Harvest Management Procedure is being revised to indicate that population objectives must be established for each GBPU by March 31, 2006. A provincial process for developing these objectives will be prepared by March 31, 2005.

The panel's recommendations regarding habitat and research issues will be pursued through the revision of the provincial Grizzly Bear Conservation Strategy. The process of revising the strategy will involve the Ministry of Water, Land and Air Protection, other ministries within the provincial government, municipal governments, the federal government, First Nations and stakeholders as well as an independent Grizzly Bear Scientific Advisory Committee. The new Grizzly Bear Conservation Strategy is expected to be completed in 2005.

If you or the Scientific Review Group have any questions regarding grizzly bear conservation and management in British Columbia, please feel free to contact Nancy Wilkin, Assistant Deputy Minister, Environmental Stewardship Division, by telephone at (250) 356-0121 or e-mail at Nancy.Wilkin@gems7.gov.bc.ca. I will provide a final update early in 2004 when the revised process and procedures are announced.

Best regards,

A handwritten signature in black ink, appearing to be 'JM' followed by a stylized flourish.

Joyce Murray
Minister

cc: The Honourable David Anderson, Minister of Environment
Nancy Wilkin, Assistant Deputy Minister, Environmental Stewardship Division