East Kootenay Elk Management Plan 2005-09

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7 February 2005

Executive Summary

Declining elk populations in the East Kootenay, characterized by distorted bull to cow ratios and low calf recruitment, led to intense public controversy during the mid 1990s. In response, the BC Ministry of Environment, Land and Parks initiated various hunting restrictions and hired an outside consultant to independently assess elk harvest management in the region and province. The resulting report provided short- and long-term recommendations for managing elk hunting as well as a list of recommendations to promote recovery of the Kootenay elk herds (Raedeke 1998).

Raedeke (1998) recommended that a formal elk management plan be developed for the East Kootenay. A plan was required to clearly articulate management objectives and options, to provide a level of certainty for hunters and guide-outfitters, and to direct government and public efforts in areas of population and habitat management. The result was the *East Kootenay Elk Management Plan 2000-2004* (Bircher et al. 2001).

The status of the elk population in the East Kootenay changed considerably during 2000-04 and the BC Ministry of Water Land and Air Protection (WLAP) requested a formal review and revision of Bircher et al. (2001) to guide elk management during 2005-09. This report presents an updated elk management plan, based on extensive public consultation, professional input, and recent harvest and population data.

Since the last management plan was completed, all evidence pointed to a substantial recovery of the elk population in most of the East Kootenay. Although survey data were insufficient to estimate absolute elk abundance, both bull-to-cow and calf-to-cow ratios increased to levels that were higher than objectives set by Bircher et al. (2001). Many hunters reported that population recovery throughout the East Kootenay had been uneven. We heard most commonly that the population north of Radium had not recovered since 2000, as well as the upper Elk Valley, Flathead Valley and the upper Kootenay Valley.

Available evidence suggested that the primary reason for the recovery of the elk population during 2000-04 was a succession of mild winters. Secondarily, continuing restrictions on calf-cow hunting and perhaps lower cougar populations also contributed. In addition, the 6-point bull season had been very successful in achieving population objectives (principally bull escapement as measured by bull-to-cow ratios), and had resulted in almost universally high hunter satisfaction. Hunters reported excellent hunting experiences, although the 6-point restriction did not guarantee success.

Unfortunately, an increasing elk population resulted in higher forage and improved pasture losses to private landowners. A primary response to these losses was an increase in fencing of private land, which in turn increased pressure on remaining unfenced private land and adjacent Crown ranges. During public consultations there was almost universal support among all stakeholders for measures to reduce losses on private land due to wildlife depredation.

Another common theme during consultation was concern regarding the continuing deterioration of Crown range, although there was little agreement on the relative importance of various factors. Most hunters were adamant that there were too many cattle on Crown ranges, that grazing practices were poor (little or no rotation), that cows remained on ranges too late into the fall (reducing standing crops available for wintering ungulates), and that there was little or no enforcement of grazing tenure privileges. The agricultural community was equally convinced that expanding elk and deer populations were contributing to range deterioration. Some stated that cattle stocking rates and season grazing lengths were being reduced while elk numbers were increasing. Professional agrologists and biologists familiar with the Crown range of the East Kootenay were concerned about the condition of grassland ecosystems and reported widespread deterioration of grassland habitats and, in particular, shrub communities.

Forest in-growth and encroachment was another topic of concern with respect to Crown ranges. The area treated under ecosystem restoration initiatives during 2000-04 did not keep pace with the estimated rate of in-growth of approximately 3000 hectares per year.

Based on public consultation, professional input, and analysis of harvest and population data, we made the following recommendations:

Population Management Recommendations

1. Use sex-age-kill analysis to address knowledge gaps regarding elk population status and structure and to explore the sustainability of the 6-point bull elk season under current management.
2. Expand the inventory program to address specific data gaps; specifically, data required for population modelling, to determine the age of harvested bulls, and to assess the status of the population outside the Trench.
3. Continue to manage for a post-hunting season observed ratio of >20 bulls (including >10 branch-antlered bulls) per 100 cows unless further population analyses suggest that the ratio should be increased.
4. Manage for a post-hunting season observed ratio of >25 calves per 100 cows. If observed ratios fall below this objective for 2 consecutive years, the antlerless harvest should be reduced and other possible causes for the low calf-to-cow ratio should be investigated.

Harvest Management Recommendations

1. Continue the general open season on 6-point bulls unless data indicate a levelling off or decline in absolute harvest *and* indications of breeding disruption.
2. Expand private land antlerless LEH hunting opportunities to nearby Crown ranges below 1100 m, in areas of the Trench where depredation is most chronic and where Crown ranges are degraded as a result of over-utilization by elk.
3. Establish a monitoring program to assess the effectiveness of the hunt in meeting private and Crown land objectives.
4. Discontinue the expanded hunt if observed calf-to-cow ratios fall below 25 calves per 100 cows for 2 consecutive years.
5. Consider expanding the antlerless LEH after 3 years to include 3-point bulls if the antlerless hunt is meeting population and harvest objectives but is failing to meet habitat objectives.
6. Consider authorizing summer elk hunts on private land on a case-by-case basis and consider expanding summer hunts after 5 years if objectives related to private land depredations are not being met.

Habitat Management Recommendations

1. Improve the condition of Crown ranges by managing grazing allocations to approximately 25% livestock and 25% wildlife utilization (with 50% for conservation to ensure the sustainability of the resource). If this allocation objective is impractical to monitor, then related surrogate objectives should be developed and sufficient resources allocated to collect required information.
2. Conduct detailed forage assessments and assess ecosystem health of Crown range in priority (i.e., high-conflict and degraded) areas to support recommended changes to forage utilization.
3. Develop an inter-agency procedure for responding to, and implementing the recommendations designed to restore and manage Crown range ecosystems. This procedure should include: a) range supply reviews (RSR) at 5-year intervals; b) strategies with which WLAP responds to recommendations for reduced use by wildlife (e.g., harvest and access management); c) a dispute resolution mechanism to minimize interference in local Crown management and livestock allocation decisions; and d) clear accountability for management successes and failures.
4. Focus ecosystem restoration efforts on removing barriers to substantial increases in effort, including: a) convincing government(s) to make a political commitment to a multiyear, secure program of range restoration; and b) improving inter-agency cooperation in range restoration efforts.

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1. Introduction

Declining elk populations in the East Kootenay, characterized by distorted bull to cow ratios and low calf recruitment, led to intense public controversy during the mid 1990s. In response, the BC Ministry of Environment, Land and Parks initiated various hunting restrictions to limit the harvest of elk. Public concern continued and in 1998 the Ministry hired an outside consultant to independently assess elk harvest management in the region and province. The resulting report provided short- and long-term recommendations for managing elk hunting as well as a list of recommendations to promote recovery of the Kootenay elk herds (Raedeke 1998).

Raedeke (1998) recommended that a formal elk management plan be developed for the East Kootenay. A plan was required to clearly articulate management objectives and options, to provide a level of certainty for hunters and guide-outfitters, and to direct government and public efforts in areas of population and habitat management. The result was the *East Kootenay Elk Management Plan 2000-2004* (Bircher et al. 2001). The report contained 22 key management recommendations and was approved by the Ministry of Environment, Lands and Parks in 2000.

The status of the elk population in the East Kootenay changed considerably during 2000-4 and the BC Ministry of Water Land and Air Protection (WLAP) requested a formal review and revision of Bircher et al. (2001) to guide elk management during 2005-2009. This report presents an updated elk management plan, based on extensive public consultation, professional input, and recent harvest and population data.

2. Methods

Public Consultation

Public input was solicited throughout the development of the management plan and was summarized in a separate document (Morley and Wilson 2004; Appendix I). Open houses were held in Invermere, Cranbrook and Fernie during August-October, 2004. Attendees were invited to talk individually with biologists, to offer comments and to ask questions during an evening presentation. Written submissions were received at the open houses and were also received via fax, e-mail and a web-based form on the WLAP website. Finally, a number of stakeholder meetings were held in October.

The public were asked to focus on the following questions related to the management of elk in the East Kootenay:

1. Are the vision and goals articulated in the 2000-04 elk management plan still appropriate?
2. What have been the successes and failures of elk management in the East Kootenay since the original plan was implemented?
3. What additional issues regarding elk management are of concern?
4. To what extent were management objectives and strategies identified in the 2000-04 elk management plan implemented?
5. What data and assumptions that led to the 2000-04 objectives and strategies need to be reconsidered?
6. What objectives and strategies from the 2000-04 plan need to be revised?
7. What options are available to deal with any new and revised objectives and strategies?

Comments received from public participants were collated and circulated as a separate report (Morley and Wilson 2004; Appendix I).

Information Review

We reviewed recent scientific and management literature relevant to the issue of elk management in the East Kootenay. Bircher et al. (2001) and Raedeke (1998) provided extensive literature reviews; therefore, rather than repeating information adequately covered in those reports, we focussed on new information that became available during 2000-04.

We also interviewed several professional biologists and agrologists regarding their perspectives on elk management past, present and future (Table 1).

Table 1. Names and affiliations of technical experts interviewed during the development of the elk management plan.

Name and Position	Affiliation
Sue Crowley, Ecosystem Biologist	Ministry of Water, Land and Air Protection, Invermere
Rieva McCuaig, P.Ag., Resource Stewardship Agrologist	Ministry of Agriculture, Food and Fisheries
Dave Dunbar, R.P.Bio., Section Head Science and Allocation	Ministry of Water, Land and Air Protection, Cranbrook
Bob Forbes, R.P.Bio., Former Section Head	Ministry of Water, Land and Air Protection, Cranbrook
Jody Kekula, P.Ag., Range Supervisor	Ministry of Forests, Cranbrook
Dr. Walt Klenner, Research Wildlife Habitat Ecologist	Ministry of Forests, Kamloops
Val Miller, P.Ag., Former Invasive Plant Specialist	Ministry of Forests, Nelson
Jeff Morgan, Senior Analyst, Economic Incentives	Ministry of Water, Land and Air Protection, Kamloops
Darrell Smith, P.Ag., Program Manager	East Kootenay Conservation Program, Invermere
Irene Teske, R.P.Bio., Wildlife Biologist	Ministry of Water, Land and Air Protection, Cranbrook

3. Management Outcomes 2000-04

In the following section we present Bircher et al.'s (2001) management objectives and available information related to the outcomes of those objectives during 2000-04.

Population Management

Objective 1: Increase the sub-regional elk population to 25,000 (±20%). Within the constraints of habitat supply and private landowner tolerance, develop population objectives for each Elk Management Zone.

Since the last management plan was completed, all evidence pointed to a substantial recovery of the elk population in most of the East Kootenay. Inventory surveys were insufficient to determine whether or not the population objective of 25,000 had actually been met. Surveys of subunits of winter ranges within selected Management Units were flown in 1992, 1997, 1998, 1999, 2001, 2003 and 2004 (Simpson 1992, Halko and Hebert 1997, 1998, 1999, 2001, Beswick and Fontana 2003, 2004). Survey methods were similar among years, although the management units, winter ranges and winter range subunits flown varied between years due to a variety of factors such as weather and available resources (Beswick and Fontana 2004). As a result, estimates of absolute elk abundance in the East Kootenay were impossible to establish.

Elk management zones were not clearly defined, nor were specific population objectives developed for them. Some hunters inferred that the overall population was approaching the target of 25,000 based on anecdotal references to past observations of elk abundance and/or hunting success.

Many hunters reported that population recovery throughout the East Kootenay had been uneven. We heard most commonly that the population north of Radium had not recovered since 2000, as well as the upper Elk Valley, Flathead Valley and the upper Kootenay Valley.

Objective 2: Manage for a post-hunting season observed bull-to-cow ratio of greater than 20 bulls per 100 cows.

Inventory data collected during 2000-04 indicated a recovery in bull-to-cow ratios (Figure 1). These data were collected during aerial surveys and the same cautions as those mentioned above apply: the management units, winter ranges and subunits varied among years. The differences among years can directly affect the ratios observed because of differential habitat use by bulls and cow groups (e.g., bulls are often observed in timber farther from agriculture areas than are cow groups; Beswick and Fontana 2004). A cautious interpretation of these data still suggests that the bull-to-cow ratio met Bircher et al.'s (2001) objective, at least in areas where surveys were conducted. One caution is that recent surveys have been conducted in the Trench near agricultural land where antlerless depredation hunts have been authorized. The harvest of cows in these areas might slightly skew upwards both the bull- and calf-to-cow ratios (see below).

Objective 3: Increase and maintain post-season calf-to-cow ratios of greater than 30 calves per 100 cows.

Inventory data also suggested that the objective of maintaining a calf-to-cow ratio of >30 was also met during 2000-04 (Figure 1). The recovery in calf survival (i.e., calf-to-cow ratios) was probably the single most important factor in the recovery of the East Kootenay elk population during 2000-04. It was suggested during the public consultation that calf-to-cow ratios were probably higher among the non-migratory population because of forage quality and perhaps lower predation. This is plausible, but it cannot be corroborated because it was impractical to acquire post-season calf-to-cow ratios on migratory and non-migratory elk herd separately (because they share the same winter range). Of course, any forage and predator benefits afforded to non-migratory elk would have been occurring before 2000 when calf-to-cow ratios were very low. If so, then the observed increase could only occur if the relative proportion of the non-migratory herds observed on surveyed winter ranges had increased several fold. Although many would argue that non-migratory herds have increased substantially in relation to migratory herds over the past 5 years, there is little chance they have increased on the order of that required to completely explain the increase in calf-to-cow ratios.

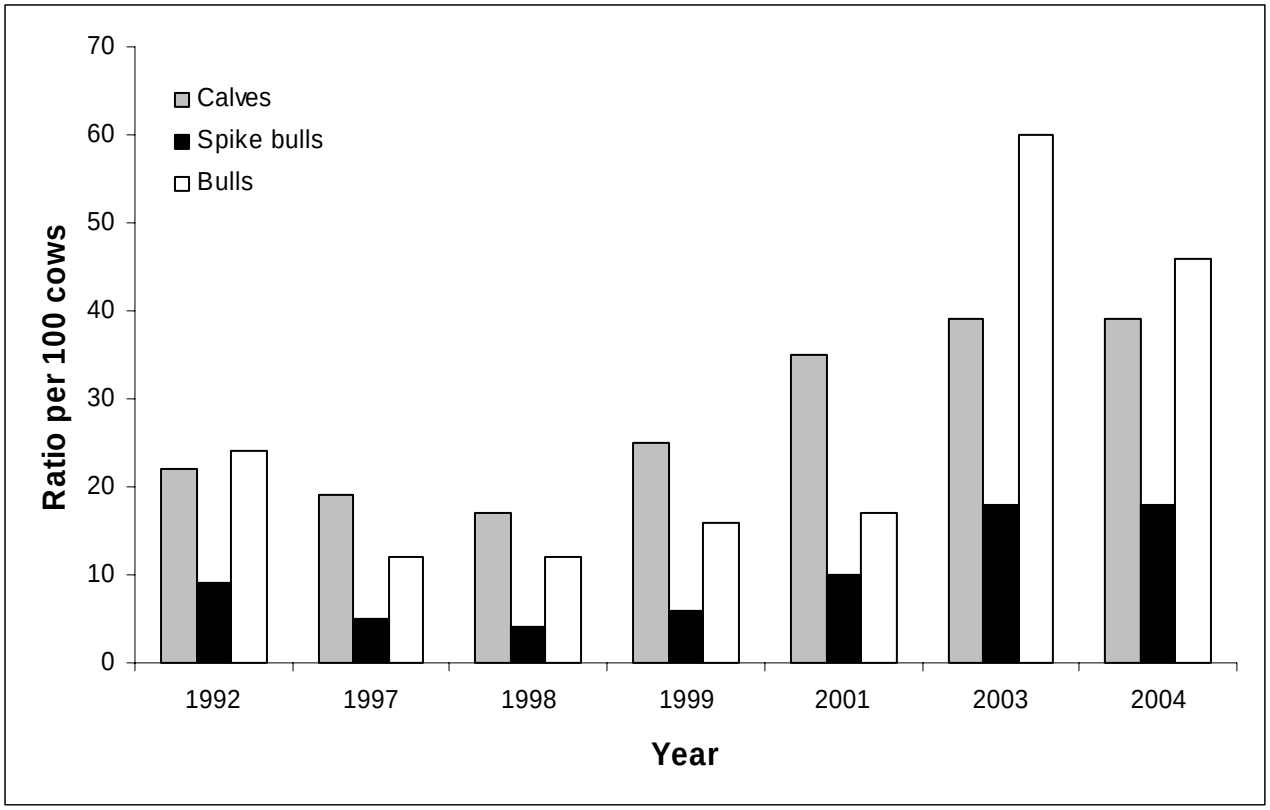

Figure 1. Number of calves, spike bulls and bulls per 100 cows observed during aerial surveys of select management units, winter ranges and subunits during 1992-2004, as reported by Beswick and Fontana (2004).

<u>Objective 4</u>: Liberalize the harvest regulations for carnivores… if it is determined that predation… is a significant factor preventing elk population recovery.

Raedeke (1998:38) suggested that population growth of the East Kootenay elk population was limited primarily by the survival and recruitment of calves, and that "both habitat and predation are likely major causes." He also cited the possible role of the two prior severe winters. Raedeke (1998) recommended that the ultimate cause of low calf-to-cow ratios be investigated. Fortunately, we were provided with a correlative natural experiment during 1998-2004 as calf-to-cow ratios returned to higher levels. There was widespread agreement during the public consultation that range conditions had deteriorated since 1998. Cougars had been hunted liberally through the late 1990's and were probably lower by 2004 than when Raedeke (1998) proposed the predator hypothesis. In contrast, the harvest of other predator populations had not changed significantly and there were consistent suggestions that some predators had increased (grizzly bears and wolves in particular). Therefore, anecdotal evidence for the habitat hypothesis was weak, but lower predation by cougars could have contributed to the elk population recovery.

Although Raedeke (1998) suggested that habitat and predation were the probable causes of low calf-to-cow ratios, he also noted that the problem of low ratios was common at that time throughout western North America. Other jurisdictions are characterized by significantly different habitat characteristics and predator-prey systems (including the absence or near-absence of grizzly bears and wolves), which suggests that the phenomenon of low calf-to-cow ratios (and their subsequent recovery) were relatively insensitive to habitat quality or to the structure of predator-prey dynamics, and were more likely related to broader-scale phenomena, such as sub-continental weather trends.

The winter severity hypothesis is consistent with work from other jurisdictions. Radio-collared elk calves in Yellowstone National Park had lower summer survival (due to predation) and lower winter survival (due to malnutrition) during severe winters and when populations were larger (suggesting both an additive and compensatory population effect of severe environmental conditions; Singer et al. 1997). The dynamics of multiple predator-multiple prey systems are extremely complex and poorly understood (e.g., Kunkel and

Pletscher 1999). Predation and winter conditions are also known to interact. For example, Mech et al. (2001) found that several indices related to wolf predation success on elk were higher during severe winter conditions than during subsequent mild winter conditions.

For all of these reasons, we suggest that a succession of mild winters was the primary reason that calf-to-cow ratios recovered during 1998-2004.

Objective 5: Enhance the inventory program.

The inventory program was, in fact, reduced during 2000-04. There were specific recommendations in Bircher et al. (2001) to conduct comprehensive surveys every 5 years beginning in 2001, to validate the Idaho sightability model, to radio-collar an additional 50 elk, and to continue to refine population models. Only the recommended strategy of conducting annual absolute abundance/composition trend surveys was completed during 2000-04, and resources were insufficient to maintain year-to-year consistency in survey intensity. Additionally, there were no attempts to collect fecundity data or to survey the suitability of available habitat.

Objective 6: Develop a contingency plan to direct non-government organization sponsored supplemental feeding of elk populations during very severe winters.

A wildlife feeding policy was developed; however, it was not applied because winter conditions were not severe during 2000-04. Winter feeding is a controversial management practice, both regionally and internationally. Supplemental winter feeding can increase overall survival rates (Peek et al. 2002) and early calf development (Smith et al. 1997); however, feeding is broadly considered among biologists to be antithetical to the founding principles of wildlife management (Peek et al. 2002) because it promotes a dependence of wildlife on human intervention and creates a disincentive to properly manage wildlife habitat.

Although supplemental feeding can increase over-winter survival, it can also lead to incidental mortalities as a result of railway and highway collisions. Because of the large volumes of forage required and the distribution of winter ranges, feeding often occurs near major transportation corridors in valley bottoms. Smith (2001) identified other negative consequences of winter feeding programs, including: cost, habitat impacts near feeding sites and disease transmission.

Winters in which large numbers of ungulates die are natural events and are in part responsible for regulating ungulate numbers. Widespread winter feeding of elk in parts of the United States (e.g., National Elk Refuge, Jackson, WY) and of red deer in parts of Europe (e.g., Austria) is largely in response to the political desire to maintain ungulate populations at levels above the carrying capacity of remaining winter range (Peek et al. 2002). This is considered the "best of a bad situation" by biologists, who prefer to maintain adequate habitat to sustain ungulates at desired population levels. It is also very expensive; daily rations of pelleted alfalfa at the National Elk Refuge have varied between 5.4 and 9.6 kg/head (Peek et al. 2002).

Unlike the US and Europe, most of the winter range in BC is on public land (although there are areas of high quality winter range on private land in the East Kootenay). Proper management of these extensive winter ranges makes widespread winter feeding unnecessary.

We agree with Bircher et al. (2001) that winter feeding programs, even during severe winters, are a poor and likely ineffective strategy. A massive feeding program would be required to significantly increase the survival of the elk population in the East Kootenay during a severe winter. Supplemental feeding did occur during 1996-97 but was insufficient to compensate for the severe winter conditions. We agreed with the biological principle that the availability and quality of winter range should be sufficient to sustain the elk population at desired levels through severe winter conditions, without supplemental feeding.

Objective 7: Reduce agricultural damage caused by elk.

This objective is largely covered by harvest and habitat management recommendations (see below); however, the agriculture community continued to suffer forage and improved pasture losses (in addition to other financial costs such as damage to fences, etc.) due to wildlife depredation during 2000-04. Assessed losses under the East Kootenay Wildlife Damage Pilot Project (administered by the Kootenay Livestock Association) averaged 30%. Representatives from the agriculture community who participated in the public consultation were adamant that additional measures were required to reduce losses, although the community

was willing to accept some use by elk. There was some question as to whether damage compensation would make landowners less likely to participate in the LEH hunt.

***Objective 8*: Reduce vehicular and train collisions with elk.**

High deer and elk mortality rates were observed during the severe winters of 1996 and 1997. Because of ploughing and the resulting high snow banks, many animals were trapped in rail corridors and on roads. Efforts were made to have rail engineers maintain records of wildlife injuries or kills and a Provincial tracking system was developed, although no details were available for this report. WLAP staff were also concerned that round bales were being unloaded and left near rail lines by volunteers. Apparently, this feeding led to an increase in wildlife injuries and mortalities. Railway and highway contractors were asked to plough wide areas and run-outs on corners to serve as escape routes. In addition, the BC Ministry of Transportation was to keep track of wildlife injuries and mortalities.

***Objective 9*: Maintain, enhance and promote opportunities to appreciate, study and view elk in the natural habitats.**

Pamphlets were developed with funding from the Federation of BC Naturalists and BC Wildlife Watch. Commercial recreation applications are reviewed for impacts on elk.

Notably, we received no written or verbal submissions during the public consultation regarding the non-consumptive uses of elk. However, elk are clearly an important feature of the East Kootenay landscape for residents and non-residents alike. Elk are an icon throughout the region and are commonly featured in photographs and art depicting the East Kootenay experience. The cultural and economic significance of non-consumptive uses should not be underestimated.

***Objective 10*: Encourage investigation of competition between elk and other wild ungulates, especially mule deer and Rock Mountain bighorn sheep.**

No new studies were initiated regarding the interaction of elk with mule deer and bighorn sheep; however, a recent study demonstrated that mule deer and elk and cattle partitioned food resources but that cattle displaced elk spatially (Stewart et al. 2002). It is unclear how a demonstration of competition among ungulates would lead to management changes.

An issue related to competition among ungulates that has emerged over the past 5 years is the role that expanding populations of deer, elk and moose may be playing in the decline of mountain caribou. The "alternate prey" hypothesis postulates that predators of mountain caribou have responded numerically and spatially to expanding ungulate populations, and are incidentally preying on mountain caribou, whose primary anti-predator strategy has historically been to exist at low densities in habitats infrequently visited by predators (e.g., Bergerud and Elliot 1986, Seip 1992). The hypothesis has usually been applied to wolf-moose systems, although cougars are assumed to respond numerically to changes in deer populations (e.g., Sandell 1989). The mountain caribou subpopulation in the south Purcells is estimated to be 17 animals (Kinley 2004) and, as a result, the subpopulation is a current focus of recovery efforts (MCTAC 2002). Subpopulations farther north are larger, but all are in decline (Wittmer 2004). There may be efforts to manage "alternate prey" such as elk in order to address mountain caribou population recovery, as is occurring in the West Kootenay (G. Woods, pers. comm.).

Harvest Management

***Objective 1*: Optimize hunting opportunity within the constraints of population and demographic objectives.**

The main strategy associated with this objective was the maintenance of the 6-point bull elk harvest strategy. This was seen as a way of minimizing harvest without restricting hunter participation via limited entry hunting (LEH). Bircher et al. (2001) recommended that the outcomes of this strategy be evaluated after 4 years, and if population objectives had been achieved, to then provide additional recreational opportunities.

As of 2004, the 6-point bull season had been very successful in achieving relevant population objectives (principally bull escapement as measured by bull-to-cow ratios), and had resulted in almost universally high

hunter satisfaction. Hunters reported excellent hunting experiences, although the 6-point restriction did not guarantee success. Hunter success data suggest that both total harvest (Figure 2) and hunter success were continuing to improve as of 2003 (Figure 3). The harvest of bulls had reached 55% of the peak 1976-2003 harvest by 2003, based entirely on 6-point bulls. The same trend in hunter success and total harvest (but to a smaller extent) was also evident north of Radium and in the Flathead where hunters had expressed concern about the recovery of elk populations.

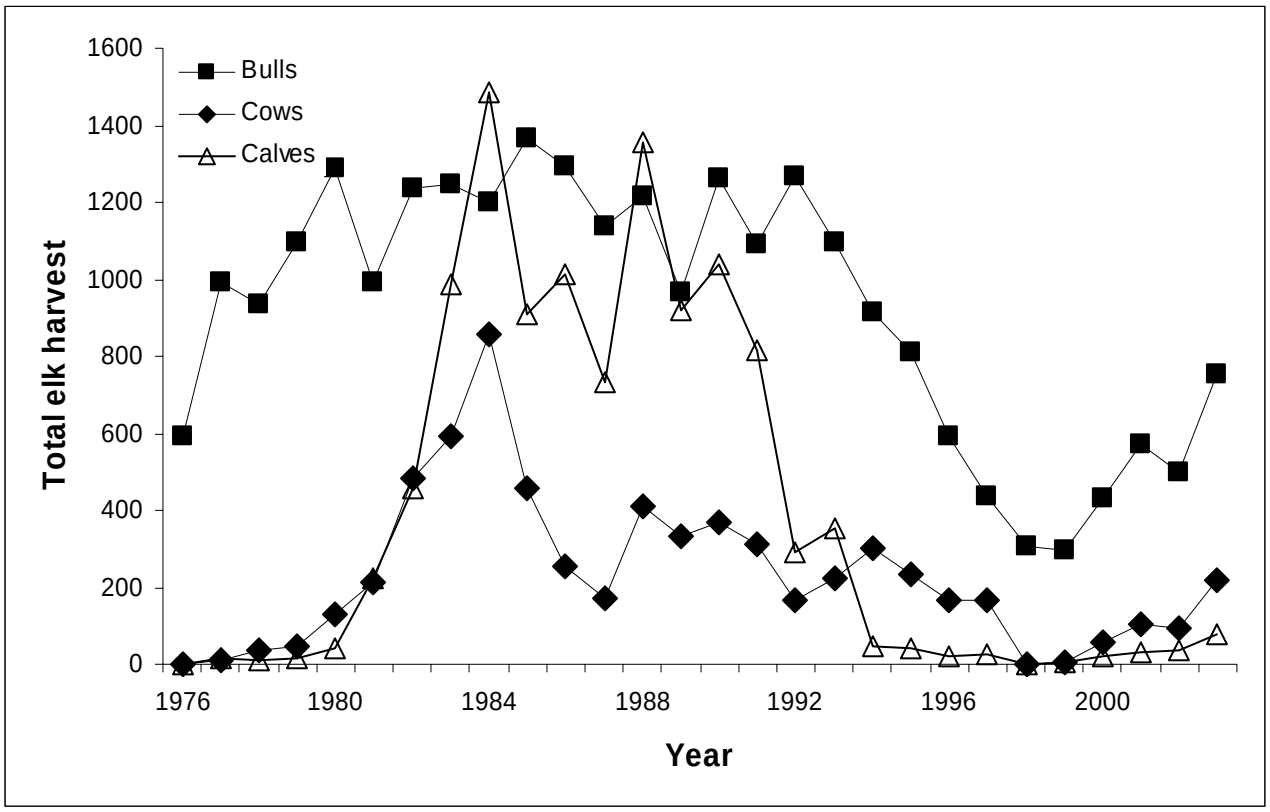

Figure 2. Total elk harvest in the East Kootenay sub-region, 1976-2003, by age-sex class.

Although Bircher et al. (2001) suggested that a standard, sub-region wide harvest regulation was preferable, many hunters expressed the opposite sentiment, requesting that regulations should in fact be more responsive to local and seasonal conditions (e.g., acknowledge the slow recovery of elk north of Radium or in response to severe winters).

There were some concerns expressed by the public regarding the continuation of the 6-point bull season. Many thought that the recovery in the elk population had been obvious a number of years ago, and that the Province had been slow to respond with additional hunting opportunities, instead waiting for the development of a new elk management plan.

Others expressed concern that continuing to harvest only 6-point or better bulls might have both short- and long-term consequences. The main short-term concern is related to behavioural disruption during the rut by killing herd bulls. Raedeke (1998) noted that only 22% of bulls were harvested during the rut and that his analysis of pregnancy rates and the timing of the rut indicated no significant shift between 1984 (pre 6-point season) and 1997. Still, Raedeke (1998) expressed concern about the long-term effects of a 6-point bull elk season. Changes in seasons since then have shifted the entire harvest period to the rut. Unfortunately, the collection and analysis of uteri from harvested cows did not occur during 2000-04 and we were unable to determine whether there had been any shift in the peak of the rut or in pregnancy rates subsequent to 1997.

The mature bull-to-cow ratio required to achieve early, synchronous and successful breeding is unknown (Stalling et al. 2002); however, Noyes et al. (1996) reported an early, synchronous rut and high pregnancy rates in a captive herd of 18, 3-year-old bulls per 100 cows. The breeding seasons shifted even earlier and

become more synchronous as bulls aged to 5 years. Noyes et al. (1996) recommended that harvest strategies should ensure that bulls ≥3 years old are retained in the population.

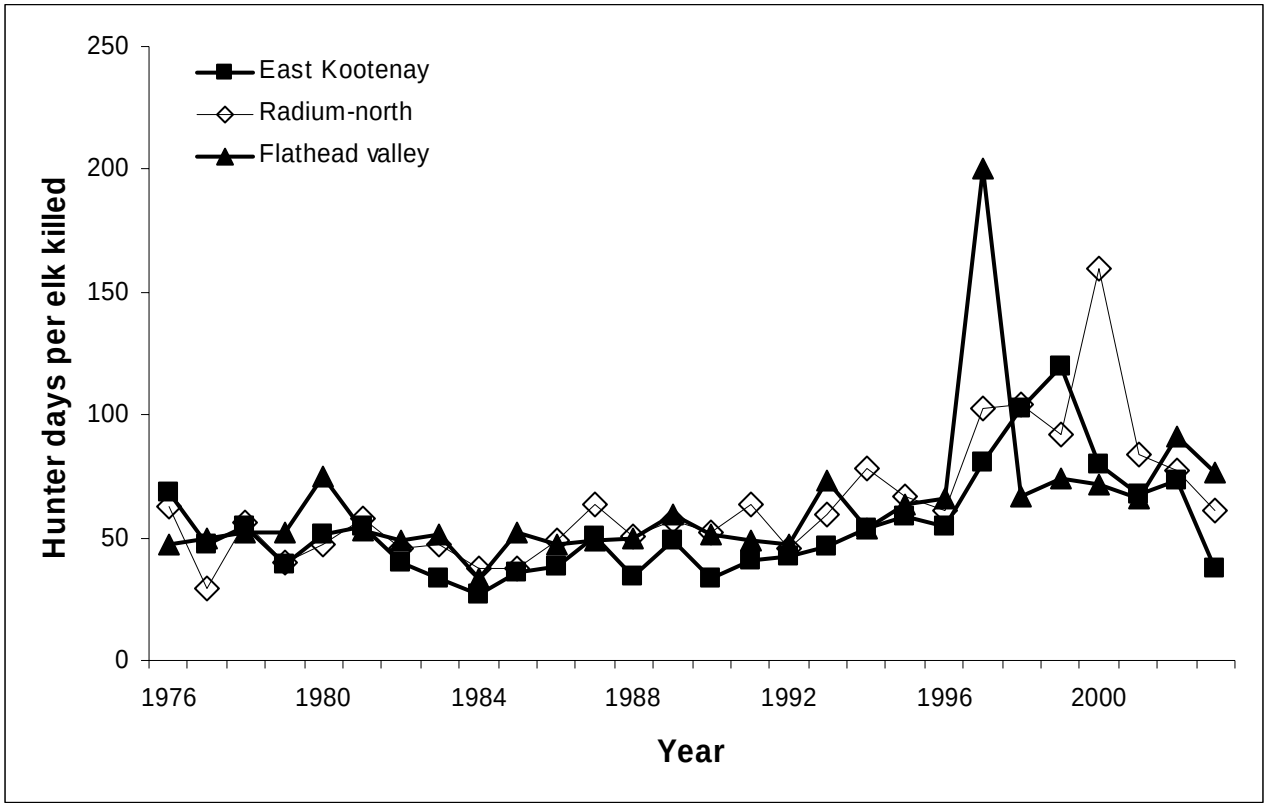

Figure 3. Success of elk hunters in the East Kootenay subregion, 1976-2003 for the entire subregion and for Management Units north of Radium and the Flathead valley.

A harvest strategy that selects only 6-point or better bulls achieves a breeding population of primarily ≥3 year-olds. A study of incisors from 205 harvested bulls in Nevada found that the point class of bulls was a poor predictor of age, with nearly 80% of bulls over one-year old being 6-points or better (Nevada Department of Wildlife, *unpublished data*). East Kootenay data are also available and also suggest that the majority of bulls achieve six points at an age of 4 or 5.

An obvious cost of the 6-point bull general open season is that it reduces the escapement of older bulls and reduces hunting opportunities for "trophy" animals, compared to a hunting strategy based primarily on LEH. Noyes et al. (1996) provided evidence that the timing and synchrony of the rut, as well as pregnancy rates, improved when older bulls (e.g. 5-year-olds) were the breeders. Early and synchronous ruts can make populations more resilient to severe winters and predation (Singer et al. 1998).

Although elk in the East Kootenay are typically surveyed after the hunting season, the rate of escapement by 6-point bulls cannot be determined reliably because they are difficult to distinguish during aerial surveys; however, there are anecdotal reports of 6-point or larger bulls on winter ranges.

Carpenter and Gill (1987) outlined many possible negative consequences of using antler-point restrictions in general to increase bull-to-cow ratios. They argued that if hunting mortality was compensatory instead of additive to natural mortality (as it might be when the population is near carrying capacity), then antler-point restrictions might result in actual declines of the bull class that the restrictions are targeting to increase. From data available for the East Kootenay, there was no evidence that this had occurred during the history of the 6-point season.

There are also longer-term evolutionary concerns related to the 6-point bull season. Could the continued harvest of 6-point bulls lead to a population with smaller antlers? A link between hunting pressure and a reduction in horn size was studied in an Alberta bighorn sheep population (Coltman et al. 2003). This was the

first study of its kind, and the Ram Mountain sheep population had been subjected to heavy hunting pressure and a full-curl restriction for 30-years. In addition, bighorn sheep populations are typically isolated from one another. These factors make it more likely that an effect of hunting pressure on horn size would be expressed. As long as the elk population of the East Kootenay remains relatively large and continuous with other populations, and as long as un-hunted refugia remain (e.g., national parks, the Coal Block, private land), there will likely be sufficient genetic exchange to ensure the continued existence of 6-point or better bulls.

Objective 2: Improve effectiveness and timeliness of the provincial harvest data collection system.

No progress has been made on achieving this objective.

Objective 3: Implement appropriate harvest strategies to reduce elk numbers/distribution in chronic damage areas.

An early antlerless hunting season on private land was implemented in 1999, as was recommended by Bircher et al. (2001). According to some in the ranching community, the results of this hunt have been limited. The most common concern expressed is that the hunt is limited primarily by the size of the private land base and its ability to safely sustain sufficient hunting effort. Ranchers also reported that elk were being only temporarily harassed off of private land and onto adjacent areas where hunting was prohibited (e.g., Crown range, native reserves, across the international boundary). Some hunters expressed frustration that some ranchers who were complaining about elk depredation were unwilling to allow hunting on their property. Of course there are a number of legitimate reasons for landowners to not participate in the LEH programme because there is considerable time and effort involved in managing hunters on their land.

The effect of the current level of antlerless harvest on the overall population of non-migratory elk is questionable. The hunt was not designed to reduce significantly the elk population in the Trench, but rather to target and reduce a small segment of the population that was having an impact specifically on private land. Data do not yet suggest that the extent of private land is limiting the success of the antlerless hunt, because the success of hunters actually increased as more permits were issued and, presumably, as the population expanded between 1999 and 2002 (Figure 4).

Habitat Management

Objective 1: Manage habitat suitability to sustain 25,000 (±20%) elk, excluding privately owned and leased agricultural lands.

One of the fundamental problems related to managing habitat to sustain a target elk population is that different government ministries are responsible for different aspects of Crown land management; setting population objectives for wildlife is the responsibility of WLAP while managing Crown range is administered by the Ministry of Forests. The Ministry of Agriculture, Fisheries and Food does not have any legislative authority regarding Crown land.

The Range Program in MOF has multiple objectives, including managing habitat for wildlife. Current objectives in the Trench call for the allocation of Crown forage to 50% for conservation, 25% for livestock and 25% for wildlife (Gayton and Hanson 1998); however, calculations of carrying capacity in Bircher et al. (2001) either did not consider this allocation (based on broad-scale habitat capability-suitability mapping, although carrying capacity estimates per km were very conservative) or inferred a misallocation towards cattle (based on forage production estimated for the Trench only; Gayton 1997). In short, there was a clear disconnect between the setting of a sub-region-wide elk population target and the calculation of actual carrying capacity based on agree-upon allocation ratios and required data on range productivity. Widespread degradation of Crown ranges reported by all stakeholders strongly suggested that Crown ranges within the East Kootenay were most, if not all, currently over-allocated and that conditions were deteriorating. However, at a smaller scale both cattle and wild ungulates exhibit habitat preferences that result in over-utilization in some areas while other areas with ample forage are not used (J. Kekula, pers. comm.).

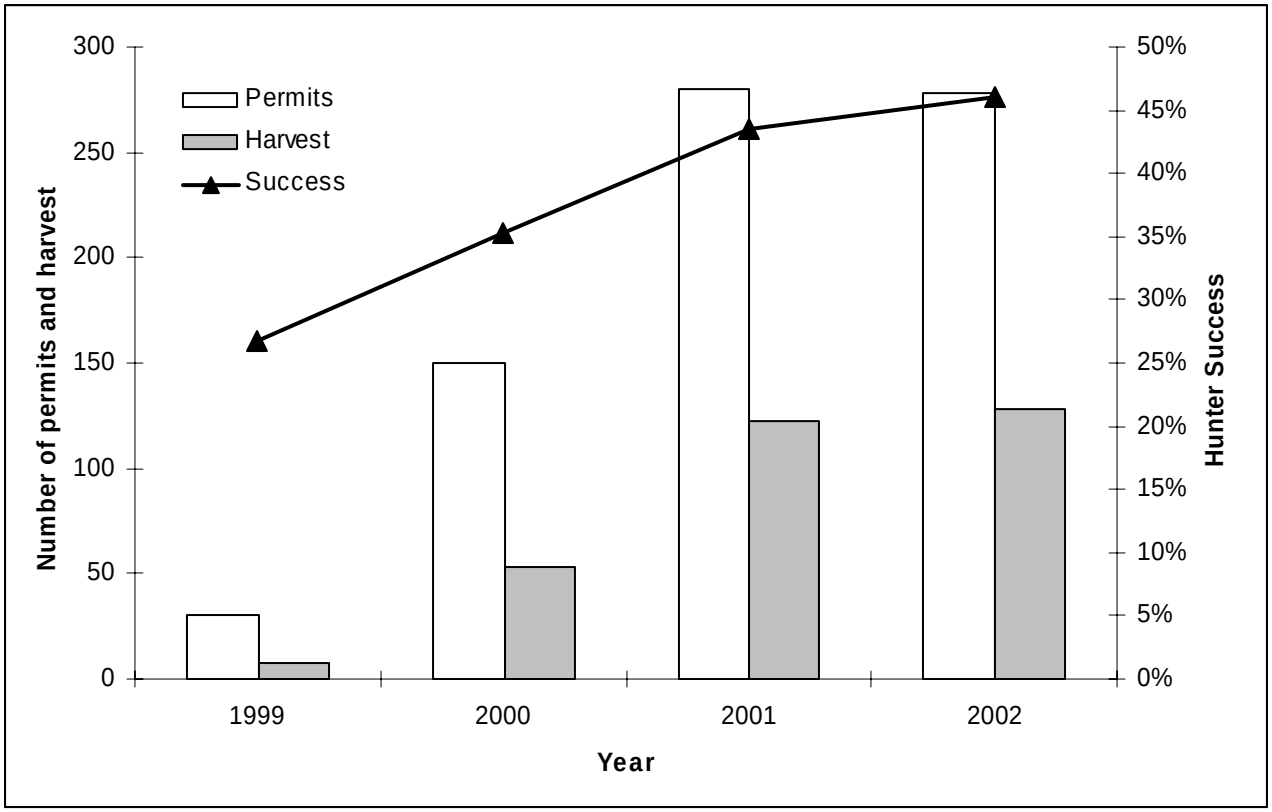

Figure 4. Number of permits, harvest, and hunter success (harvest/permits) resulting from private land depredation hunts (limited entry), 1999-2002.

Predictably, there was little agreement among stakeholders on the cause of the Crown range deterioration. Most hunters were adamant that there were too many cattle on Crown ranges, that grazing practices were poor (little or no rotation), that cows remained on ranges too late into the fall (reducing standing crops available for wintering ungulates), and that there was insufficient enforcement of grazing tenure privileges.

The agricultural community was equally convinced that expanding elk and deer populations were contributing to range deterioration. Some stated that cattle stocking rates and season grazing lengths were being reduced while elk numbers were increasing.

Professional agrologists and biologists familiar with the Crown range of the East Kootenay were concerned about the condition of ecosystems used by cattle and ungulates (S. Crowley, J. Kekula, R. McCuaig, D. Smith, pers. comm.). Several reported widespread deterioration of grassland habitats and, in particular, shrub communities.

Current range condition is a linked but a separate issue from forest in-growth, encroachment, and the consequent calls for ecosystem restoration. Gayton (1997) examined paired aerial photos from 1952 and 1990 in 3 representative areas of the Trench and inferred the loss of 3000 ha of grassland annually. This suggested that each year resulted in the loss of enough forage to support >800 cattle or >4000 elk (assuming an average loss of 575 kg of forage lost/ha of land shifting from grassland to forest and 360 kg/AUM).

We heard from many stakeholders in the hunting community that there was suitable, high elevation summer range in several drainages, but that elk use of these areas had not recovered. Possible factors suggested to us that could be contributing to the low use of suitable, historically used summer ranges included:

1. Heavy harvest in the late 1980s led to the loss of lead cows and the social memory of distant, suitable summer range;

2. Suitable habitat between summer and winter ranges had deteriorated due to forest in-growth associated with continuing fire suppression and/or reductions in forest harvesting and associated shrub or grass (including seeding) responses, disrupting habitat use patterns between distant ranges;
3. Conversely, use of the traditional natural openings in back basins, avalanche chutes, etc. was disrupted by creation of suitable habitat by logging at lower elevations closer to the winter ranges;
4. The natural range of elk contracted when the population was low, and the population had not increased sufficiently to push elk into more distant ranges;
5. The relative forage availability and safety from predators afforded by low elevation range had reduced the proportion of elk migrating into the backcountry; and,
6. Predator abundance in some areas was preventing the recovery of elk herds.

The observed distribution of elk could be due to one or more of these factors and their interactions.

Objective 2: Implement the recommendations contained in the final report of the East Kootenay Trench Agriculture Wildlife Committee (EKTAWC).

Gayton and Hansen's (1998) recommendations focused broadly on restoring range health and the extent of open forest and open grassland ecosystems in the East Kootenay. Although stepping through the current status of all of the Committee's recommendations was beyond the scope of this report, stakeholders agreed that the recommendations had not been implemented satisfactorily. This was a disappointment to many, in view of the cost and effort of producing the report and the associated recommendations.

There was widespread agreement amongst stakeholders that range health had deteriorated during 2000-2004, partly due to lower than average moisture conditions in the Trench, but also due to continued over utilization. Additionally, the area treated under ecosystem restoration initiatives was inadequate to reverse the estimated pace of forest in-growth of approximately 3000 hectares per year (Figure 5). The decrease in area burned during 2002 and 2003 was largely a function of spring weather conditions rather than declining funding; however, the decrease in mechanical treatments was largely due to the cancellation of the Grazing Enhancement Fund (J. Kekula, pers. comm.).

The effectiveness of ecosystem restoration treatments is a topic of much discussion, and forage productivity of "restored" ecosystems can take several years to recover after treatments (J. Kekula, pers. comm.). In addition, proper management is required while ecosystems are recovering; for example, it is important to rest recently treated areas from grazing.

Objective 3: Support designation of the NDT 4 Ecosystem Restoration objectives of the Kootenay-Boundary Land Use Plan as a higher level plan under the Forest Practices Code.

The Kootenay-Boundary Higher Level Plan was signed-off as a legal order in 2000. The restoration and maintenance of "Fire-maintained ecosystems" (NDT 4) are listed as legal objectives in the Order.

Objective 4: Undertake habitat enhancement projects on high capability sites in NDT 3 ecosystems in cooperation with forest licensees and Ministry of Forests.

Habitat enhancement in NDT 3 was limited.

Objective 5: Implement habitat management strategies designed to provide intercept habitat and attract wintering elk away from private agricultural lands.

We are unaware of any projects to create intercept ranges during 2000-04. There is some question regarding the usefulness of intercept ranges. There were anecdotal reports elk using the intercept range at Buck Lake near Newgate moved back and forth between agricultural fields and the intercept range. The project was abandoned in 2004.

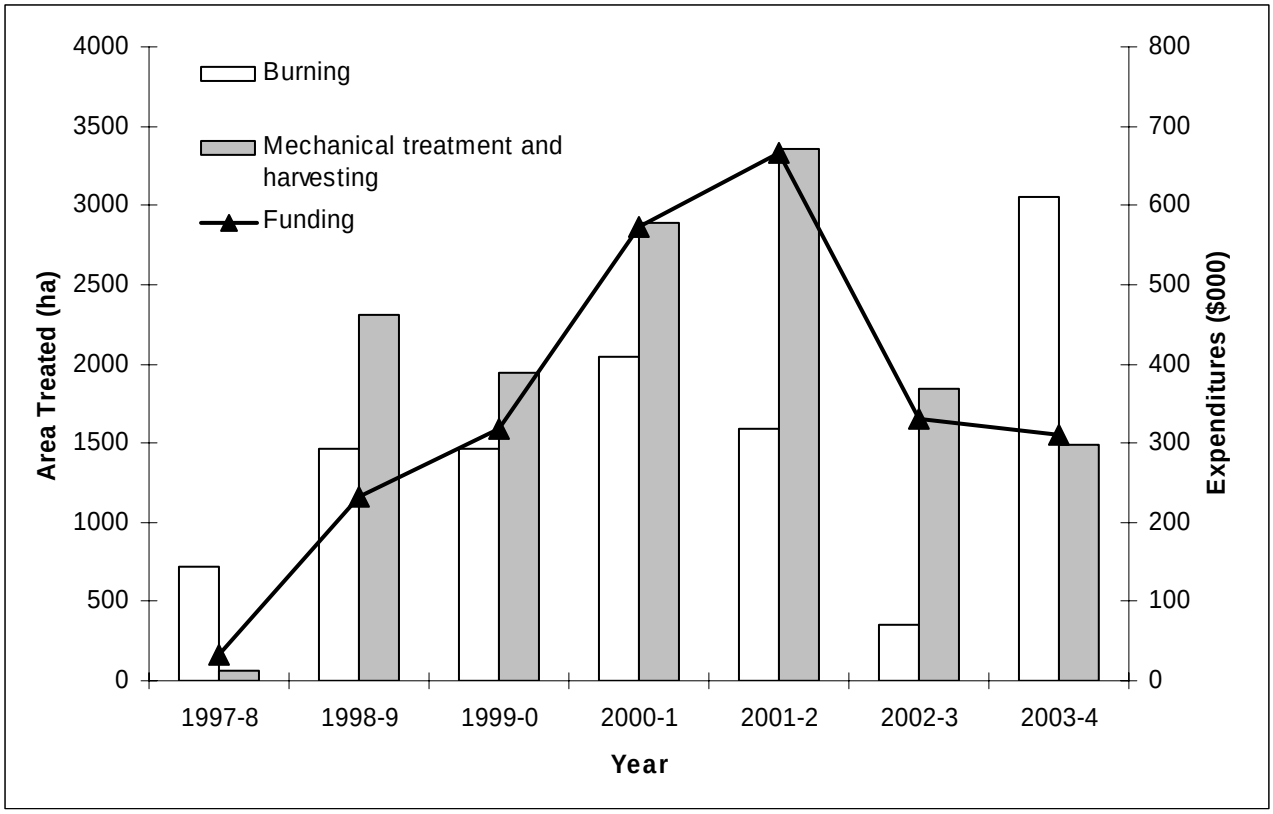

Figure 5. Summary of ecosystem restoration activities in the East Kootenay, 1997-2004. The pace of ecosystem restoration exceeded the estimated rate of forest in-growth (3000 ha, Gayton, *unpublished data*) during 1998-2002 but not during 2003-04 (data provided by BC Ministry of Forests).

***Objective 6*: Continue working toward the development of a multi-agency co-ordinated access management plan for the East Kootenay.**

Access management was reviewed throughout the East Kootenay, with an emphasis on the Golden area, Cranbrook-west, and the Elk Valley. Draft reports were prepared (*Golden Backcountry Recreation Access Plan* and *Southern Rocky Mountain Management Plan*) but have not been finalized. The issue remains extremely controversial.

The direct and indirect effects on elk populations of increasing road densities and subsequent human access are well-studied and universally negative, including increasing harvest, disturbance and habitat fragmentation and loss (see review Roland et al. 2004).

***Objective 7*: Undertake a review of the current strategy and individual plans for management of Wildlife Management Areas and private lands managed by the Wildlife Program.**

A review of current strategies and individual plans for Wildlife Management Areas is underway.

***Objective 8*: Protect critical private land wildlife ranges (versus Crown ranges used by livestock).**

The situation with winter ranges located on private land deteriorated during 2000-04 because of fencing by landowners. A total of 220 km of fencing by 93 landowners covering 4673 ha has occurred in the Trench (F. Street, pers. comm.). The subsequent loss of forage for elk in turn increased pressure on unfenced private land and on Crown range.

There was little progress on more innovative methods to deal with private land winter ranges, although WLAP is currently reviewing a number of incentive programs used in other jurisdictions and is planning to make recommendations (following extensive consultation with stakeholders) for possible pilot implementation in BC in 2005 (J. Morgan, pers. comm.).

<u>Objective 9</u>: Cooperate with a multi-agency strategy to combat the spread of noxious weeds on Crown and private land.

In winter 2004, a provincial inter-agency committee was struck, chaired by the Ministry of Agriculture, Fisheries and Food, and funding to control invasive plant species was increased. In June 2004 WLAP announced an Invasive Plant Advisory Panel and increased funding for noxious weed control. The Ministry of Forests is the agency responsible on Crown Land but delivery of their program was centralized in Kamloops, and staffing and resources were subsequently reduced (Val Miller, pers. comm.). Individual agencies have responded to the ongoing issue of noxious weeks and other aggressive alien invasive plant species. For example, WLAP has taken steps to control noxious weeds on some lands that they are responsible for managing, as has the Nature Conservancy.

There are efforts underway to pool available funding under the Regional District of East Kootenay inter-agency weed committee. This would coordinate efforts among government and other stakeholders, such as the Regional District of East Kootenay, Tembec Inc., Canadian Pacific Railways, BC Hydro and TransCanada Pipelines. Noxious weed control efforts would be directed towards both public and private land.

Predictably, the scale of the noxious weed problem outstripped funding available to deal with it during 2000-04. Continuing range deterioration also increased the susceptibility of grassland to invasive plants.

4. Management Plan 2005-09

The following proposed management plan is based on information available to August 2004. We recognize that circumstances can change substantially in a relatively short time, and we recommend that managers be given the freedom to modify the plan within the expected 5-year time horizon, based on monitoring results and unforeseen events that might influence the elk population. Such events could include periods of severe weather, disease outbreaks, abrupt changes in habitat conditions and indications of increased predation.

Population Management Analysis

Population Targets

Both we and some stakeholders questioned the logic of establishing a sub-regional elk population objective. The aerial survey inventory required to estimate the overall population with confidence (*e.g.,* ±20%) would require a substantial, on-going commitment. Although the first question asked by stakeholders was often, "how many elk are there?" the management value of knowing the actual answer is relatively low. Rather, the population target represents a surrogate for other, more relevant objectives related to population health and hunting opportunities. For example, hunters want to be assured that there are enough elk to meet their principle objective of good hunting opportunities, regardless of the actual population size (within the bounds of conservation).

Wherever possible, we have stressed the development of objectives that are directly related to desired outcomes. We contend that, if the elk population has a healthy age structure and is providing good hunting opportunities within the limits of available habitat, then whether the population is achieving a certain size matters very little. It was universally presented to us during the public consultation that stakeholders do not want to return to the days of large-scale control measures that affect the entire elk population when finer-scale interventions to address specific objectives would be more effective. We recommend de-emphasizing the management of the elk population to a specific number and instead recommend adopting objectives that are more closely related to the goals outlined in Bircher et al. (2001) and in this plan. Resources for data collection should be allocated first to addressing these objectives.

Although we recommend de-emphasizing a sub-regional population target, there are legitimate reasons for increasing resources dedicated to collecting specific population data; for example, to assist with setting hunting regulations and assessing range utilization. We strongly agree with both Raedeke (1998) and Bircher et al. (2001) that WLAP should explore the use of cohort reconstruction analysis (also known as sex-age-kill or SAK models; Bender and Spencer 1999) to address knowledge gaps regarding population status. Current population size can be estimated by:

$$N = \frac{K}{(1-(1-M)\lambda)\,p_H}(1 + R_{F/M} + R_{F/M} \bullet R_{J/F})$$

1. Estimated harvest of males (K): available from the summary statistics data base;
2. Estimated total mortality rate (M): usually the proportion of yearling bulls (from annual survey data) is substituted for this parameter (Raedeke 1998);
3. Estimated proportion of total mortality associated with harvest (p_H): this requires knowledge of natural versus hunting mortality rates; usually estimated from studies of radio-collared elk;
4. Estimated sex ratio of adult females to adult males ($R_{F/M}$): available from survey data conducted prior to the hunting season;
5. Estimated ratio of juveniles to adult females ($R_{J/F}$): also available from survey data; and,
6. Estimated finite rate of population change (λ): based on a derived index of year-to-year changes in elk abundance observed on survey flights.

As Raedeke (1998) notes, such an analysis could be conducted largely with existing data already being collected by WLAP, and the data demand of the analysis could guide future investments in data collection. For example, the analysis requires pre-hunting season assessments of bull-to-cow ratios. Resources could also be directed towards validating the assumptions made in the model. There is also a need to increase survey efforts outside the Trench, in order to better assess the status of elk in specific areas of the subregion. Of course, the more data collected, the smaller the confidence intervals associated with parameter estimates, which results in more accurate and timely management responses. Without adequate collection of reliable data, managers are forced to rely on anecdotal information from ranchers, wildlife clubs and others. This is a recipe for continuing conflict among user groups.

We recognize that elk populations have not increased evenly throughout the East Kootenay during 2000-04. North of Radium, in the Flathead and at higher elevations in many drainages, current management should continue until there is clear evidence that elk herds have recovered. Although there were many at the public consultations who called for wide-spread predator control or elk transplants in these areas, we recommend allowing elk population to return through continued restrictive harvest management. There is little evidence that predators are inhibiting the recovery of the elk population overall (although there might be predation "hot spots" that could be addressed). Transplanting has been a viable strategy in other parts of the province (Vancouver Island and the adjacent mainland) and could be attempted in the East Kootenay. Because of the large effort required, transplant trials would have to rely primarily on volunteers. Transplanting is not a practical strategy for reducing private land depredation because of the large number of animals that would need to be moved. Nor should animals be transplanted into areas already inhabited by elk or where natural recolonization is likely.

Sex-age Ratios

Clearly the ratio of branch-antlered bulls to cows is a critical ratio for management, both in terms of identifying the health of the elk population and for quantifying hunting opportunities. We believe that the previous target of >20 bulls (including 10 branch-antlered bulls) per 100 cows was achieved primarily through the continued application of the 6-point bull season. In fact, given the age-sex structure of elk populations, it is difficult to foresee how this objective could not be met under a 6-point bull season. As Raedeke (1998) noted, the 6-point season is largely "self-regulating" because the harvest strategy ensures continuous recruitment of bulls into the 6-point class. Conversely, but just as importantly, there is little chance that the population could sustain a 6-point general open season with *only* 20 bulls per 100 cows. That is, bull-to-cow ratios need to be high to ensure sufficient recruitment into the 6-point class to meet the expectations of hunters.

Based on this logic, the objective of >20 bulls per 100 cows is lower than would be expected under a 6-point only season and probably lower than would be required to sustain a 6-point general open season at the current absolute harvest level of >700 bulls/season. However, we do not suggest altering this objective unless further population modelling suggests that a higher objective is required to conservatively sustain the harvest of 6-point bulls at a certain absolute level. For example, cohort reconstruction analysis could be used to estimate the sex ratio of adult females to males required to sustain a certain absolute harvest of males in a population of a feasible size.

We expect that the 6-point bull season will continue to generate high bull-to-cow ratios, but that the >20 bulls per 100 cows ratio will again become an important objective if hunting opportunities are expanded in some way to allow the harvest of younger bulls (see below).

Calf-to-cow ratios are critical to the health of the elk population (Raedeke 1998). Unfortunately, they are also difficult to manage. As argued above, much of the year-to-year variation in calf-to-cow ratios can be explained by winter severity, rather than by habitat condition or predation rates (although all three factors can interact). Low calf-to-cow ratios during mild winters can be a reliable indicator of relative levels of predation (D. Janz, pers. comm.). Rather than actively managing to a calf-to-cow ratio, low ratios must trigger changes in harvest management; most notably, a reduction in any allowable antlerless harvest.

Population Management Recommendations

1. Use sex-age-kill analysis to address knowledge gaps regarding elk population status and structure and to explore the sustainability of the 6-point bull elk season under current management.
2. Expand the inventory program to address specific data gaps; specifically, data required for population modelling, to determine the age of harvested bulls, and to assess the status of the population outside the Trench.
3. Continue to manage for a post-hunting season observed ratio of >20 bulls (including >10 branch-antlered bulls) per 100 cows unless further population analyses suggest that the ratio should be increased.
4. Manage for a post-hunting season observed ratio of >25 calves per 100 cows. If observed ratios fall below this objective for 2 consecutive years, the antlerless harvest should be reduced and other possible causes for the low calf-to-cow ratio should be investigated.

Harvest Management Analysis

The 6-point Bull Elk Season

There was little public support for altering the 6-point general open season for bull elk. We recommend that this season remain the cornerstone of the harvest strategy for elk in the East Kootenay. As of 2003, both total harvest and hunter success were still increasing. This was a continuing result of a very conservative harvest strategy for bulls (leading to high rates of recruitment into the 6-point class) and several years of mild winters, high fecundity and successful recruitment.

Increasing harvest and increasing hunter success together is unlikely to continue over the long-term. Habitat abundance and quality ultimately set the upper limit on elk populations. We expect the absolute harvest of 6-point bulls to level off as the effects of density-dependent factors begin to affect the structure of the elk population in different areas of the East Kootenay. Hunter success might stabilize or decrease, depending on the response of hunters to the abundance of 6-point bulls.

There are three scenarios that could then emerge under a continuing 6-point harvest:

1. The absolute harvest of 6-point bulls continues to increase in the short term, because of an expanding population.
2. The absolute harvest of 6-point bulls stabilizes. There are several circumstances under which this may occur. First, because there are sufficient refugia to ensure adequate escapement as hunting pressure increases (and success decreases). Second, because hunter effort falls (as success decreases), resulting in harvest that balances recruitment into the 6-point class. Or third, because hunting effort and success increases but escapement of 6-point bulls declines.
3. The absolute harvest of 6-point bulls declines because sustained high hunter effort and success results in a continuing high harvest of 6-point bulls but with lower escapement, possibly leading to breeding disruption and demographic consequences that ultimately lead to population declines and lower harvest (note that this assumes that 6-point bulls that are currently escaping harvest contribute disproportionately to breeding in subsequent years).

Predicting which of these scenarios is likely to occur is difficult without knowing the current escapement of 6-point bulls, their disproportionate contribution to breeding, and the disruption that might occur if a larger component of this class were to be removed. However, there is evidence that serious breeding disruption has occurred only where essentially the entire branch-antlered class has been eliminated (Stalling et al. 2002).

There is also the complicating factor of anticipating hunter response. Of course all of this would be occurring within the context of other hunting regulations, interactions among factors and time lags.

In addition, the population is always vulnerable to stochastic events, such as severe winters. Mature bulls (weakened by the rut) and calves typically suffer disproportionately in severe winter conditions. This could result in lower harvests of 6-point bulls over many subsequent years.

As the harvest begins to level off, it will be important to have the resources available to look at other indicators of population health and status, such as calf-to-cow ratios, the timing of the rut, breeding synchrony and pregnancy rates. These indictors would provide evidence of any breeding disruption caused by possible over-harvest of 6-point bulls. With the exception of calf-to-cow ratios, collecting these data would require the harvest of at least 100 cows and collection of uteri during November (to ensure adequate foetal development for analysis). As a result, some migratory cows would be included in the harvest. Clearly the expense and potential population impact of collecting and analyzing these samples suggest that other, less invasive (but also less effective) indicators of herd health should be considered first.

In addition to calf-to-cow ratios, monitoring average age of harvested bulls might also be useful. This would require the collection and inspection of tooth samples. Because point class is a relatively poor predictor of bull age, monitoring any shifts in the harvest to younger-aged bulls via tooth analyses (and correlated to antler architecture) could provide an early detection of over-harvest of bulls. This, coupled with low calf-to-cow ratios in mild winters and low indices of 6-point bull escapement, could suggest breeding disruption.

Limited Entry Antlerless Hunts

The primary purpose of the LEH for antlerless elk on private land is to reduce that portion of the elk population that is depending primarily on private land for forage. Because elk are polygynous and breeding success among males is generally limited to older bulls, bull-only seasons usually have limited impact on population size (unless escapement is very low as outlined above). As a result, any attempt to reduce the number of elk living in and around domestic forage crops must involve the harvest of cows.

We received sufficient feedback to suggest that, from the perspective of private landowners, the private land hunt has failed to meet this objective. Three explanations were offered to explain this failure:

1. The hunt was simply too restrictive (i.e., not enough permits) to sufficiently affect the population,
2. Elk responded to the hunt by vacating private land or using it only under the cover of darkness; and,
3. The extent of private land and its capacity to accommodate hunters limited the success of the hunt (i.e., safety, tolerance of landowners, etc.).

To further complicate the issue, the use of private lands is likely influenced by short-term (e.g., moisture) and longer-term (e.g., utilization) influences on the quality of surrounding Crown range. Indications are that both these influences worsened during 2000-04, with the exception of late summer 2004 when moisture conditions improved and there were anecdotal reports that many elk remained at higher elevations and further from agriculture lands than in recent years.

As a result, we suggest that LEH hunts on private land alone are not going to be sufficient to address the private land depredation issue. Both population *and* Crown land habitat measures should be part of the effort to address private land depredation. Objectives for the hunt should be related to desired outcomes with respect to the magnitude of private land depredation as well as Crown range utilization and recovery (see Habitat Management below).

We recommend that the antlerless hunt be expanded to include Crown ranges <1100 m in areas of the Trench where:

1. Depredation is most severe;
2. Crown range conditions are degraded; *and*,
3. Utilization by elk exceeds their allocation (see Habitat Management below).

The goal of the antlerless hunt would then become twofold: to reduce private land depredation and to restore the Crown range allocation for elk. However, before the antlerless hunt is expanded, objectives related to

private land depredation, and methods to assess whether the hunt is meeting objectives, need to be negotiated and developed. Specifically, landowners need to be engaged in determining:

1. How depredation by elk should be measured and monitored (i.e., what are the indicators?); and,
2. How much elk use of private land is acceptable (i.e., what are the thresholds?).

In other words, the antlerless hunt should not be expanded until there is a system in place to evaluate its effectiveness in meeting the objective of reducing private land depredation. Note that the East Kootenay Wildlife Damage Pilot Project (administered by the Kootenay Livestock Association) has developed methods to assess damage due to wild ungulates.

This hunt should conclude by 15 October to minimize the impact to migratory elk returning to winter ranges. If calf-to-cow ratios again fall to <25 calves per 100 cows for 2 consecutive years (based on aerial survey data), the hunt should revert to a private land-only hunt.

The number of permits (and expected harvest) should change adaptively based on the indicators in relation to benchmarks. That is, there should be a clear link between the hunting allocation and the effectiveness of the hunt in meeting objectives.

We expect this recommendation to be controversial and there are uncertainties associated with the possible outcomes. We have a number of specific concerns:

1. Elk likely demonstrate some flexibility in their use of migratory and non-migratory strategies. Focussing harvest on the non-migratory population might lead to recruitment into that population of some migratory elk (something that is likely happening without the additional hunt). As a result, we cannot provide any assurance that the antlerless hunt will have no impact on migratory populations, although it should be minimized by the early closure date.
2. Expanding the hunt to include Crown ranges might lead to a primarily Crown range hunt, rather than a private land hunt, again failing to address the original motivation for the harvest. Clearly the continued cooperation of land owners to allow access to hunters is critical to the success of the hunt.
3. Because any harassment of elk on private land occurs after most of the damage has occurred (i.e., the spring and summer forage growth season), the strategy relies mostly on the long-term reduction of non-migratory populations to generate benefits to landowners. The result might be continued losses and frustration among landowners in the short-term.

A more radical approach to directly address private land depredation would be to authorize summer elk hunts on private (unfenced) land. This could be considered on a case-by-case basis, or could be more widely implemented if an expanded antlerless hunt does not meet objectives during the 5-year horizon of this plan. This hunt would be controversial with the non-hunting public because young elk calves would be shot or orphaned. As a result, the justification for these hunts should be cleared documented. There is a risk that the reaction of the general public would be so strong that it could damage support for both the position of landowners and for elk hunting in general.

It was suggested during the public consultation that fees could be associated with the LEH hunt that could be provide private landowners with an additional incentive to allow hunting on their land. At present such fees are not illegal in British Columbia but have been discouraged in the East Kootenay in order to ensure high hunter participation in the hunt.

Other Hunting Opportunities

There was a significant minority of hunters who felt that their hunting opportunities had not improved commensurately with the size of the elk population. In general, this group advocated <6-point bull general open seasons or additional late-season opportunities with combinations of 6-point and small bull restrictions. Hunting for meat was given as their main objective. We agree that bull-to-cow ratios have recovered to the point that the population (at least in the Trench and Elk Valley) could probably sustain some harvest of younger bulls. We recommended caution in implementing a hunt on <6-point bulls for the following reasons:

1. Harvest of younger bulls will impact directly on the quality and perhaps the sustainability of the 6-point general open season. Our discussions with stakeholders suggested that most were unwilling to make that trade-off.
2. Expansion of the antlerless hunt could have a significant impact on non-migratory elk herds in areas of the Trench. Any additional hunting opportunities should be considered only after the effects of the antlerless hunt can be assessed.

We recommend that a limited entry hunt for 3-point bulls not be considered until the following conditions are met:

1. After the impact of the expanded antlerless hunt is monitored and assessed for at least 3 years;
2. The antlerless hunt is meeting harvest objectives but private land depredation problems have not been satisfactorily reduced (see below);
3. Crown range utilization by non-migratory elk is higher than its 25% allocation (see below); and,
4. The hunt occurs only <1100 meter elevation to avoid targeting migratory elk.

There was some support for a short (i.e., 3-day), 3-point general open season in the Trench at the end of the current 6-point season. We are concerned that the high demand for elk hunting in the East Kootenay would result in an excessive harvest, even during a very short open season. There is evidence from past General Open Seasons on moose in the East Kootenay that short seasons do not necessarily lead to low harvest rates. Although we are well aware of the public opposition, LEH remains the best practical option for controlling harvests.

Many of our discussions with hunting stakeholders centred on the allocation of hunting opportunities among groups. Bow-hunters requested a bow-only season and also called for expanded opportunities to hunt <6-point bulls during the regular season. There were also requests for additional (or in some cases, reduced) opportunities for youth, senior and disabled hunters. We considered it beyond our mandate to reconcile these competing demands; however, there were some notable themes that emerged from our discussions:

1. Restricting hunting to certain groups is an acceptable way to expand opportunities to those hunters who might be prevented from enjoying opportunities during the regular seasons (e.g., seniors, disabled);
2. Bow seasons can provide expanded hunting opportunities without significantly increasing the harvest; and,
3. Opportunities for exclusive seasons are limited (without reducing opportunities currently enjoyed by others) as long as the length of the overall season is limited to the same period as it is now. We recommend that any expansion in the overall length of the season occur prior to 1 September, rather than extending the season later in the fall (to reduce pressure on migratory elk).

Harvest Management Recommendations

1. Continue the general open season on 6-point bulls unless data indicate a levelling off or decline in absolute harvest *and* indications of breeding disruption.
2. Expand private land antlerless LEH hunting opportunities to nearby Crown ranges below 1100 m, in areas of the Trench where depredation is most chronic and where Crown ranges are degraded as a result of over-utilization by elk.
3. Establish a monitoring program to assess the effectiveness of the hunt in meeting private and Crown land objectives.
4. Discontinue the expanded hunt if observed calf-to-cow ratios fall below 25 calves per 100 cows for 2 consecutive years.

5. Consider expanding the antlerless LEH after 3 years to include 3-point bulls if the antlerless hunt is meeting population and harvest objectives but is failing to meet habitat objectives (see below).
6. Consider authorizing summer elk hunts on private land on a case-by-case basis and consider expanding summer hunts after 5 years if objectives related to private land depredations are not being met.

Habitat Management Analysis

Crown Range Management

It cannot be overstated that the current deterioration of grassland ecosystems on Crown lands is an ecological tragedy. It is not just the economics of the local ranching industry and habitat for elk and deer that are affected by range deterioration. Grasslands are a rare ecosystem in BC and are home to over 30% of species considered at risk in the province (BC Conservation Data Centre, srmwww.gov.bc.ca/cdc). Gayton and Hanson (1998) made extensive recommendations to reverse the decline of range in the Trench; however, the majority of the recommendations have not been implemented.

The reasons for the continuing deterioration of Crown range are many and have a long history (Wikeem and Ross 2002). Equally complex is the challenge of removing barriers to improving range management and condition. We stratified threats to Crown range into 3 categories:

- Moisture: Range conditions are influenced by seasonal and annual moisture conditions, and well as longer climate trends. Moisture is a primary determinant of range productivity (Gayton and Hansen 1998) and, hence, of seasonal carrying capacity for both livestock and wildlife. Unfortunately, there is little that can be done to manage this primary influence of productivity.
- Allocation: Regional agrologists argue convincingly that poor range conditions are widespread and that the primary cause is over-utilization of preferred areas. They are also convinced that overgrazing is a result of over-utilization by livestock and/or elk and/or deer, depending on the site. Most of the problems and proposed solutions we heard in public meetings could aptly be called "finger-pointing." The primary barriers to instituting a rational approach to range management and allocation by Ministry of Forests are:
    1. Resources required to assess range conditions and to make defensible recommendations;
    2. Economic and cultural pressure to maintain unsustainable livestock allocations in the context of current range conditions;
    3. Government wildlife policies and targets that are not linked to habitat condition and range allocations; and,
    4. The inherent difficulty in managing wildlife populations in relation to site-specific range conditions (e.g., shifting habitat use patterns of elk herds in response to multiple factors).
- Available Forage: The problem of open range and open forest being lost to forest in-growth is well known and documented (Gayton and Hansen 1998). Attempts to reverse forest in-growth and encroachment have been only partly successful. If current ecosystem restoration efforts are not increased immediately and substantially (several times the current effort), we are likely to see continuing social and economic upheaval, as well as significantly worse ecological conditions for at least the next 2-3 decades.

Gayton (*unpublished data*) calculated that 3000 ha of grassland are converted to forest every year, based on interpretation of air photos taken in 1954 and 1990 in select areas of the Trench. Based on this calculation and the extent of NDT 4 ecosystems in the East Kootenay, 60% of grassland habitat has been lost as a result of forest in-growth during the past 50 years. There are a number of assumptions on which this estimate is based. For example, it assumes that the 3 study areas examined are representative of the Trench as a whole, that forest growth has been linear, and that the situation in 1954 represents the appropriate target for what ecosystem representation is attempting to achieve.

Of course there is no evidence that range conditions that existed in 1954 resembled historic (e.g., pre-contact) conditions. Some have questioned whether the ecological characteristics that are sought through widespread ecosystem restoration are "natural", or more importantly, achievable (e.g., Klenner and Arsenault, *in review*). Areas where forest in-growth is most pronounced could indicate areas that historically were forested. The effort required to "restore" these areas could be impractical. Therefore, barriers to ecosystem restoration might not only be socio-political, but also ecological.

Regardless of historic conditions, the pace of ecosystem restoration needs to be increased if public expectations are going to be met regarding exploitation of the land base. Steps and barriers to implement a comprehensive and coordinated ecosystem restoration effort have been documented elsewhere (e.g., Rocky Mountain Trench Ecosystem Restoration Steering Committee 2000).

Recent suggestions to increase the pace and coordination of restoration efforts include the creation of a joint-agency office of range health that, among other duties, would coordinate ecosystem restoration activities. Because the MOF administers the legislation necessary to facilitate ecosystem restoration work, it is essential that this Ministry take a central role. There was also the suggestion that range conditions need to be assessed every 5 years in a manner similar to a timbers supply review (TSR). Baseline information from a Range Supply Review (RSR) would reduce uncertainty regarding sub-region-wide range allocations.

The focus of our recommendations is related to the issue of allocation. Once again we recommend de-emphasizing broad-scale quasi-calculations of carrying capacity because we see them as largely indefensible and therefore a flashpoint for continuing conflict. Carrying capacities also tend to under-emphasize the link between behaviour and impact. That is, the impact an animal has on the range is dependent on its behaviour. Range management practices and elk migratory patterns can have significant effects on the ability of range to support animals. Properly managed, cattle can be used to condition forage for elk and actually increase the number of elk that can be supported, if that is the objective (Vavra and Sheehy 1996). We recommend tying objectives directly to the future desired conditions of Crown ranges.

Integral to recovering Crown range where it has deteriorated is to manage livestock and wildlife to agreed-upon allocations. As a general rule, allocations should be approximately 25% livestock and 25% wildlife, with 50% for conservation to ensure the sustainability of the resource. Of course these allocations should not be strictly applied everywhere; for example critical ungulate winter range (UWR) should receive less use by livestock, while other areas could receive more. We realize that, in practice, measuring utilization is difficult; however, without it there is no rational basis for range management.

Setting these desired conditions with respect to wildlife values has been delegated to WLAP by the Forest and Range Practices Act. Range Use Plans will have to accommodate these future desired conditions when the subregional UWR plan is approved. This has the potential to improve range conditions in many areas throughout the East Kootenay.

The extent and condition of ungulate winter range in relation to the size of the elk population determines the population effect of severe winter conditions. The effect of the last severe winter (1996-97) was dramatic. Since then, both the extent and condition of winter range has declined and the elk population has increased. As a result, the effect of similar severe conditions occurring in the near future can be expected to have a more dramatic effect on the elk population than that observed in 1996-97.

Private Land

Depredation of private land crops by elk and other wild ungulates was one of the principal themes of our public consultation. There was almost universal agreement that steps must be taken to address the issue. The increased use of fences to reduce private land depredation problems could have long-term consequences for wildlife, if additional areas are fenced and existing fences maintained. These problems include:

1. Loss of winter forage;
2. Disruption of migration and movement corridors; and,
3. Reduced access to adjoining Crown ranges.

The best solution to these problems is to reduce the incentive for private landowners to fence by reducing agricultural damage. There is anecdotal evidence that the poor condition of Crown range has lead to higher use of agricultural valley bottom lands by elk and other wild ungulates (although optimal range conditions could not compete with cultivated alfalfa). The link between rational Crown range management and private land damage control should be recognized in management.

The principal approach to reducing agricultural crop depredation problems should first be to improve the success of the LEH antlerless hunt. Secondly, recommendations from WLAP are expected regarding possible incentive programs related to private land stewardship. Incentive programs are likely to placate some landowners who continue to suffer damage and wish to avoid fencing their properties. Unfortunately, the benefits of these initiatives are unlikely to result in immediate reductions in damage. We make harvest recommendations above that could be implemented in 3 years if the expanded antlerless hunt fails to meet habitat objectives.

Habitat Management Recommendations

1. Improve the condition of Crown ranges by managing grazing allocations to approximately 25% livestock and 25% wildlife utilization (with 50% for conservation to ensure the sustainability of the resource). If this allocation objective is impractical to monitor, then related surrogate objectives should be developed and sufficient resources allocated to collect required information.
2. Conduct detailed forage assessments and assess ecosystem health of Crown range in priority (i.e., high-conflict and degraded) areas to support recommended changes to forage utilization.
3. Develop an inter-agency procedure for responding to, and implementing the recommendations designed to restore and manage Crown range ecosystems. This procedure should include: a) range supply reviews (RSR) at 5-year intervals; b) strategies with which WLAP responds to recommendations for reduced use by wildlife (e.g., harvest and access management); c) a dispute resolution mechanism to minimize interference in local Crown management and livestock allocation decisions; and) clear accountability for management successes and failures.
4. Focus ecosystem restoration efforts on removing barriers to substantial increases in effort, including: a) Convincing government(s) to make a political commitment to a multiyear, secure program of range restoration; and, b) improving inter-agency cooperation in range restoration efforts.

Outstanding Issues

As would be expected, a number of issues arose during the public consultation and our analysis that were beyond our mandate to analyze and to provide specific recommendations. These issues need to be explored more thoroughly in cooperation with other line ministries and a broader group of stakeholders:

Access management: This issue was important to many if not most of those participating in the public consultation. Clearly controlling access is a legitimate wildlife management tool that can be used to influence both the size of the absolute elk harvest and well as its distribution. Access management can also improve the quality of the hunting experience. Addressing access management was largely beyond the scope of this report because it requires broader public consultation as well as the involvement of other agencies (e.g., Ministry of Sustainable Resource Management).

Hunting methods: Many submissions were received regarding specific hunting methods, such as archery and black powder hunting, junior hunting, disabled person seasons, etc. Harvest methods can be used to promote safety, to increase the harassment of elk, to prolong season openings, to reduce harvest rates and to increase hunter participation; however, allocating opportunities among user groups is not principally a technical issue and is best addressed through groups such as the East Kootenay Hunter Opportunity Committee.

Mountain caribou recovery efforts: The Province's commitment to the recovery of mountain caribou might generate consequences for elk population management in areas of the east Kootenay that are adjacent to mountain caribou habitat (i.e., south Purcell Mountains and north of Golden). Recommendations for caribou

recovery are being addressed in Provincial and regional (i.e., South Kootenay and North Kootenay Recovery Implementation Groups) processes.

5. Literature Cited

Bender, L. C., and Spencer, R. D. 1999. Estimating elk population size by reconstruction from harvest data and herd ratios. Wildlife Society Bulletin 27:636-645.

Bergerud, A. T., and J. P. Elliot. 1986. Dynamics of caribou and wolves in northern British Columbia. Canadian Journal of Zoology 64:1515-1529.

Beswick, S. M., and A. J. Fontana. 2003. East Kootenay elk population inventory, 2003. Prepared for: BC Ministry of Water, Land and Air Protection, Cranbrook.

Beswick, S. M., and A. J. Fontana. 2004. East Kootenay trench winter range elk population technical report. Prepared for: BC Ministry of Water, Land and Air Protection, Cranbrook.

Bircher, N., D. Janz, I. Hatter, and R. Forbes. 2001. East Kootenay elk management plan 2000-2004. BC Ministry of Environment, Lands and Parks, Wildlife Branch.

Carpenter, L. H., and R. B. Gill. 1987. Antler point regulations the good, the bad, and the ugly. Proceedings of the Western Association of Fish and Wildlife Agencies 6:794-107.

Coltman, D. W., P. O'Donoghue, J. T. Jorgenson, J. T. Hogg, C. Strobeck, and M. Festa-Bianchet. 2003. Undesirable evolutionary consequences of trophy hunting. Nature 426:655-658.

Gayton, D. 1997. Calculation of forest ingrowth and resulting forage impact in BC's Rocky Mountain Trench. Forest Research Extension Partnership, Nelson, BC.

Gayton, D. Calculation of forest ingrowth and resulting forage impact in BC's Rocky Mountain Trench. Forest Extension Research Partnership, Nelson.

Gayton, D., and M. Hansen. 1998. Final report of the East Kootenay Agriculture/Wildlife Committee. BC Ministry of Forests, Nelson.

Halko, R. J., and K. Hebert. 1997. 1997 elk inventory – East Kootenay Trench. Prepared for: BC Environment, Cranbrook.

Halko, R. J., and K. Hebert. 1998. 1998 elk inventory – East Kootenay Trench. Prepared for: BC Environment, Cranbrook.

Halko, R. J., and K. Hebert. 1999. 1999 elk inventory – East Kootenay Trench. Prepared for: BC Environment, Cranbrook.

Halko, R. J., and K. Hebert. 2001. 2001 elk inventory – East Kootenay Trench. Prepared for: BC Environment, Cranbrook.

Kinley, T. 2004. 2004 population survey for the South Purcell Subpopulation of mountain caribou. Prepared for: Columbia Basin Fish and Wildlife Compensation Program, Invermere, BC.

Klenner, W., and A. Arsenault. Grassland and dry-forests in BC: the role of fire in present and future management. BC Grasslands. *In review.*

Kunkel, K., and D. H. Pletscher. 1999. Species-specific population dynamics of cervids in a multipredator ecosystem. Journal of Wildlife Management 63:1082-1093.

MCTAC (Mountain Caribou Technical Advisory Committee). 2002. A strategy for the recovery of mountain caribou in British Columbia. BC Ministry of Water, Land and Air Protection, Victoria.

Mech, L. D., D. W. Smith, K. M. Murphy, and D. R. MacNulty. 2001. Winter severity and wolf predation on a formerly wolf-free elk herd. Journal of Wildlife Management 65:998-1003.

Morley, R. L., and S. F. Wilson. 2004. East Kootenay elk management plan 2005-09: public consultation. Prepared for: BC Ministry of Water, Land and Air Protection, Cranbrook.

Noyes, J. H., B. K. Johnson, L. D. Bryant, S. L. Findholt, and J. W. Thomas. 1996. Effects of bull age on conception dates and pregnancy rates of cows. Journal of Wildlife Management 60:508-517.

Peek, J. M., K. T. Schmidt, M. J. Dorrance, and B. L. Smith. 2002. Supplemental feeding and farming of elk. Pages 617-647 *In:* D. E. Toweill and J. W. Thomas [editors]. North American elk: ecology and management. Smithsonian Institution Press, Washington, DC.

Rocky Mountain Trench Ecosystem Restoration Steering Committee. 2000. Fire-maintained ecosystem restoration in the Rocky Mountain Trench. A blueprint for action. Rocky Mountain Trench Ecosystem Restoration Steering Committee, Cranbrook.

Raedeke Associates, Inc. 1998. Assessment of harvest strategies for Rocky Mountain elk. Prepared for: BC Ministry of Environment, Lands and Parks.

Roland, M. M., M. J. Wisdom, B. K. Johnson, and M. A. Penninger. 2004. Effects of roads on elk: implications for management in forested ecosystems. Transactions of the North American Wildlife and Natural Resources Conference 69. *In press*.

Sandell, M. 1989. The mating tactics and spacing patterns of solitary carnivores. Pages 164-182 *In* Carnivore behaviour: ecology and evolution. Edited by J.L. Gittleman. Chapman and Hall, London.

Seip, D. R. 1992. Factors limiting woodland caribou populations and their interrelationship with wolves and moose in southeastern British Columbia. Canadian Journal of Zoology 70:1494-1503.

Simpson, K. 1992. Elk inventory in the East Kootenay Trench. Prepared for: BC Environment, Cranbrook.

Singer, F. J., A. Harting, K. K. Symonds, and M. B. Coughenour. Density dependence, compensation, and environmental effects on elk calf mortality in Yellowstone National Park. Journal of Wildlife Management 61:12-25.

Smith, B. L. 2001. Winter feeding of elk in western North America. Journal of Wildlife Management 65:173-190.

Smith, B. L., R. L. Robbins, and S. H. Anderson. 1997. Early development of supplementally fed, free-ranging elk. Journal of Wildlife Management 61:26-38.

Stalling, D. H., G. J. Wolfe, and D. K. Crockett. 2002. Regulating the hunt: balancing the complexities of elk vulnerability. Pages 749-791 *In:* D. E. Toweill and J. W. Thomas [editors]. North American elk: ecology and management. Smithsonian Institution Press, Washington, DC.

Stewart, K. M., R. T. Bowyer, and J. G. Kie, N. J. Cimon and B. K. Johnson. 2002. Temporospatial distributions of elk, mule deer, and cattle: resource partitioning and competitive displacement. Journal of Mammalogy 83:229-244.

Vavra, M., and D. P. Sheehy. 1996. Improving elk habitat characteristics with livestock grazing. Rangelands 18:1-4.

Wikeem, B. M., and T. J. Ross. 2002. Plant succession in the Rocky Mountain Trench: influences of historical factors. Rangelands 24:17-20.

Wittmer, H. U., B. N. McLellan, D. R. Seip, J. A. Young, T. A. Kinley, G. S. Watts, and D. Hamilton. 2004. Population dynamics of the endangered mountain ecotype of woodland caribou in British Columbia, Canada. Journal of Wildlife Management. *In review*.

East Kootenay Elk Management Plan 2005-9: Public Consultation

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15 October 2004

Executive Summary

Declining elk populations in the East Kootenay, characterized by distorted bull to cow ratios and low calf recruitment, led to intense public controversy during the mid 1990's. In response, the BC Ministry of Environment, Land and Parks initiated various hunting restrictions to limit the harvest of elk. Public concern continued and in 1998 a professional wildlife biologist with extensive elk management experience was contracted to conduct an independent assessment of the elk harvest management in the region and province (Raedeke 1998). The resulting report provided short- and long-term recommendations for managing elk hunting as well as a list of recommendations to promote recovery of the Kootenay elk herds.

A high priority recommendation of the consultant's report was to develop a formal elk management plan for the East Kootenay. A plan with clearly defined management objectives was required to allow evaluation of harvest management options to meet objectives, provide a greater level of certainty for hunters and commercial users of the elk resource and to direct government and public efforts in the areas of population, habitat, elk/agriculture conflict and land management.

The 2000-2004 East Kootenay Elk Management Plan was prepared in-house by Ministry Staff released as the East Kootenay Elk Management Plan 2000-2004 (Bircher et al. 2001). The report contained 22 key management recommendations. The Ministry of Water, Land and Air Protection (WLAP) determined that the elk management program for the East Kootenay required formal review and revision of the 2000-2004 plan for application to the period 2005-2009.

This report summarizes the first phase of the building of the new plan; namely, the public consultation phase which began on August 31, 2004 with a workshop in Invermere followed by two others in Cranbrook on September 1st and Fernie on September 2nd. An additional workshop was held on October 5, 2004 in Cranbrook.

Throughout the public consultation process, comments, recommendations and information was requested from the public and from stakeholders who were invited to comment via email, fax, post and a WLAP web site.

The results of the public consultation yielded some useful and reasonably consistent ideas and comments from those who attended the open houses and/or provided written submissions. The following themes emerged:

- There was no criticism of the 2000-2004 East Kootenay Elk Management Plan and many expressed support for its recommendations.
- There was widespread support for the six-point bull elk season. Many hunters said the bull elk hunting was better than it had ever been and many said the hunting experience was much improved, citing the frequency of bugling in numerous bulls (although not all were legal to shoot). This sentiment was tempered with concern by some hunters regarding the long-term implications that the season might have on the age structure of bulls in the population.
- There was general concern by the ranching community that the elk population is increasing and that impacts on their industry are also increasing. The hunting stakeholders, in general, recognized this concern and many suggested ways to ameliorate the impacts. It was clear that both stakeholder groups would like the issue resolved.
- Some in the agricultural community expressed a willingness to support elk on private lands but also made it clear that there must be some economic return for the forage consumed by elk. Some suggested that access fees would be a method of dealing with this issue.
- A prominent issue was that of non-migratory versus migratory elk herds. Many suggestions were received regarding potential ways to deal with the issue. There was wide acceptance in the hunting community to the concept of an increased harvest on "homesteader" elk as long as "migratory" elk are not impacted.

- Many hunters made it clear that they wanted increased opportunities to hunt. The archery community provided strong recommendations for increased opportunities for their members to hunt during exclusive bow-hunting seasons.
- Many hunters expressed concern that increased fencing of private land will negatively impact wintering elk populations and many questioned crown grazing rights that may impact wintering wildlife.
- There was almost universal agreement that Crown range condition had worsened over the past 5 years and that there had been little done to improve the situation. Many expressed the need for a government commitment to reduce forest in-growth in the Trench and to conduct widespread range improvements using various techniques.
- Many in the hunting community stated that, although elk populations had increased, they had not increased everywhere in the East Kootenay. They stated that there were few elk in many suitable, high-elevation summer ranges that were commonly occupied in the past.
- There was general agreement that elk population had not increased in the northern part of the Trench (from Invermere north). In these areas there was little support for additional hunting opportunities.

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Background

Declining elk populations in the East Kootenay, characterized by distorted bull to cow ratios and low calf recruitment, led to intense public controversy during the mid 1990's. In response, the BC Ministry of Environment, Land and Parks initiated various hunting restrictions to limit the harvest of elk. Public concern continued and in 1998 a professional wildlife biologist with extensive elk management experience was contracted to conduct an independent assessment of the elk harvest management in the region and province. The resulting report provided short- and long-term recommendations for managing elk hunting as well as a list of recommendations to promote recovery of the Kootenay elk herds (Raedeke, 1998).

A high priority recommendation of the consultant's report was to develop a formal elk management plan for the East Kootenay. A plan with clearly defined management objectives was required to allow evaluation of harvest management options to meet objectives, provide a greater level of certainty for hunters and commercial users of the elk resource and to direct government and public efforts in the areas of population, habitat, elk/agriculture conflict and land management.

The 2000-2004 East Kootenay Elk Management Plan was prepared in-house by Ministry Staff and was released as the East Kootenay Elk Management Plan 2000-2004 (Bircher et al. 2001). The report contained 22 key management recommendations and was approved by the Ministry of Environment, Lands and Parks in 2000.

The Ministry of Water, Land and Air Protection (WLAP) determined that the elk management program for the East Kootenay required formal review and revision of the 2000-2004 plan for application to the period 2005-2009. WLAP awarded a contract to prepare a new elk management plan to EcoLogic Research (with Twin Spruce Resource Management Consulting as a subcontractor) in late July, 2004.

Methods

The contract for the development of the management plan specified short timelines to complete various components. As a result, the public consultation phase occurred largely during the hunting season. We received a number of complaints regarding this scheduling and, as a result, the Ministry agreed to extend the planning process to January 1, 2005 from December 1, 2004, and to hold an additional open house to provide additional opportunity for the public to participate.

In designing the consultation process, we attempted to focus the public's comments on the following questions related to the 2000-2004 plan:

1. Are the vision and goals articulated in the 2000-4 elk management plan still appropriate?
2. What have been the successes and failures of elk management in the East Kootenay since the original plan was implemented?
3. What additional issues regarding elk management are of concern?
4. To what extent were management objectives and strategies identified in the 2000-4 elk management plan implemented?
5. What data and assumptions that led to the 2000-4 objectives and strategies need to be reconsidered?
6. What objectives and strategies from the 2000-2004 plan need to be revised?
7. What options are available to deal with any new and revised objectives and strategies?

The public were notified of the open houses in early August through a notice in the East Kootenay Advertiser and by announcements on local radio. An e-mail list was assembled from a variety of sources and was used to notify stakeholder groups. A WLAP webpage dedicated to the 2005-2009 East Kootenay elk management planning process was also used to notify the public of the consultation and to provide updates.

Three open houses were held; the first on August 31, 2004 in the Community Hall in Invermere, the second on September 1 in the Heritage Inn, Cranbrook and the third on September 2 in the Legion Hall in Fernie. An additional and forth open house was held in Cranbrook on October 5, 2004.

Open houses consisted first of a drop-in session from 4-7 pm. The attending public were asked to sign in and to provide a contact address. We used the drop-in sessions to talk with individuals about their views and to provide information to them regarding development of the plan. Following the drop-in session we made a formal presentation that outlined:

- The main issues identified and the recommendations made in the 2000-2004 East Kootenay Elk Management Plan
- The process being used to develop the 2005-2009 Elk Management Plan
- Some of the data collected since the first plan regarding elk populations and hunter harvests
- Questions we were requesting the public to consider in providing their input to the new plan
- Various methods available for the public to provide their input to the development of the new plan

Following the presentation, attendees were encouraged to provide their comments and recommendations. A recorder was present during the open houses to capture comments, recommendations and answers to questions.

Public input was submitted to us in a number of formats:

- Verbally at the open houses
- Written answers to the questions provided at the open houses
- Other written submissions
- E-mails submitted either directly or via the link on the WLAP web site

We summarized input both by key questions and by the following themes:

- Elk population management
- Habitat Management
- Harvest Management
- Elk/Agriculture Conflict Management
- Land Management
- Non-Consumptive Use

Input received that did not fall into these categories is presented separately. Comments are paraphrased except where quoted directly.

Results

General Input from Open Houses

Appendix I presents input recorded at the initial open houses in Invermere, Cranbrook and Fernie, as well as the additional open house held in Cranbrook on October 5, 2004.

Written Submissions in Response to Key Questions

Were you satisfied with the rationale and recommendations of the previous elk management plan (2000-2004)? How could it have been improved?

All answers to this question were positive with the following comments being added in one or more submissions:

- Believes that 6 consecutive winters and closing antlerless LEH seasons had more to do with elk recovery than the 6-point season.
- A general open bull season to be maintained (no LEH).
- The conservative harvest plan had visions and goals for restoring a previous variety of hunting opportunity and these need to be incorporated in the new plan at a progressive level.
- Should have an archery season.
- Agreed with restrictions on bull harvest to increase elk population but increasing it to 6-point was too much. This reduced opportunity for the average person to the point where it isn't worth bothering any more.
- "I think the last plan is fairly solid and well thought out. However, the harvesting of 6-point bulls exclusively has caused some imbalances within the herd structure."
- "Yes very satisfied. The bull to cow ratio is now where it should be…….the 6-point season works and must be continued."
- 'We should harvest smaller bulls. Many local hunters would prefer tender meat, rather than be forced to kill a prime 6 pointer."

Is it your impression that elk populations in the E.K. are stable, increasing or decreasing? Do you think that current range conditions would allow for a larger population? Why or why not?

Most of the respondents agreed that elk populations have been increasing over the past 5 years and one or more added the following comments:

- "Please give the recommendations of the 2000 plan strong consideration, especially on range management and predator management."
- Logging had created more suitable habitat.
- Elk Valley has seen a dramatic increase (in elk) over the past 4 years but not in all areas like the Flathead. Winter range in the Elk Valley has reached maximum carrying capacity.
- Range conditions have supported larger populations in the past; with ongoing enhancements it should still be capable of this.
- Continue with general 6-point season.
- "We could have a larger population, as the backcountry (summer) range is in excellent shape."
- "We need to get some real (elk) numbers."
- We need to look at the Elk Valley as a separate area for elk management.
- Elk populations are stable with increases in the valley bottoms and decreases in the higher elevations. There is not enough feed at lower elevations due to overgrazing, competition with cattle, and lack of suitable feed.
- Do not feel the elk population in the northern part of the E.K. has recovered. Would like to see the 6-point season remain for a few more years.
- Noxious weeds are a problem in the north and are spreading.
- Cattle are being allowed into the backcountry and claiming more wildlife habitat.
- Ranchers neglect to bring in their cattle in the fall and there is no enforcement.

- Ranges are being continually reduced by forest in growth.
- Exclusion fencing should not be paid for by government and any ranchers fencing private property should not have Crown leases.
- "In the Elk Valley they are increasing."

What is your impression of the current state of elk range/habitat? Base on your experience, where should the limited funds available for habitat restoration activities be directed?

Opinion varied on the state of elk habitat/ranges. There was universal agreement that habitat should be enhanced. The following comments were provided:

- "There is too much range land being grazed by cattle."
- Requires work (range land)…….deal with forest in growth.
- Habitat is in need of ongoing management and enhancement through burns, managing forest in growth, enhancing grasslands, weed control and compatible logging practices.
- All funds should be directed to winter range enhancement and forest in growth on winter ranges.
- "The Forest Practices Code (needs to be changed) to allow Tembec to grass seed instead of trees, on south facing slopes, improving habitat in the Elk Valley."
- More funds and cooperation with the MOF should be directed towards habitat restoration.
- "In the Elk Valley (the habitat) is still fair. Winter range habitat degrading. Habitat restoration to be directed to winter ranges."

What do you see as the main issues with respect to elk-agriculture conflicts, and what specific suggestions do you have for resolving the issues?

There was general recognition of this issue with the following comments offered:

- "The elk/agriculture conflicts won't end until this is adequate feed for both cattle and elk. Transplanting some elk [out of the trench] in the spring might help."
- "I fully support a captive elk relocation plan. Many homesteader elk are prime candidates for capture and many areas could handle more elk."
- Elk depredation on private lands needs to be addressed. Target specific problem areas through LEH first and depredation permits where necessary.
- Deal with specific problems. "The ranching community has overstated the problem and wildlife fences have/are going to have a significant negative impact on elk populations."
- "Implement early season cow/calf hunt to keep land owners happy and not harm migrating elk."
- We need to limit the number of cattle summering on wildlife winter range.
- "If there is government money for fencing then there should be money for range enhancement and elk transplants."
- "High subsidized fences are hurting our elk population. Cattle devour three times as much forage as wild game on a per animal basis. I support paying ranchers who have no fences for sharing their crops in spring with ungulates."
- "I personally do not like them [fences]." They are unnatural barriers to migration.

Have you been satisfied with the hunting opportunities provided by the Province over the past five years? Do you have specific suggestions for providing additional opportunities?

- "Yes, I would like to see later archery seasons for elk."

- "The 6-point season was a good idea. We need more opportunity."
- Hunting opportunities have been reduced to allow for the expansion of wildlife populations. We need to manage for increased populations and restore a variety of hunting opportunities.
- "Don't support any LEH hunting on bull elk. I do support low level LEH numbers on cows/calves on private land to help reduce the homesteader problem in the trench."
- "Implement a late black powder season to help elk/rancher problems."
- "We are the only areas that have sustainable hunting during the rut. There are no better opportunities than that available."
- "I have always supported the 6-point season. It's a very successful strategy to recruit elk. I wanted to continue to have the privilege of hunting elk during the rut."
- Suggest making the area north of Radium a trophy elk area with permits for cows and even small bulls.
- "Road closures are getting out of hand and there are far too many of them." Old closures need to be reviewed and some removed.
- "I am completely unsatisfied with my hunting opportunities in the last 5 years. Most hunters do not care to shoot a 6-point bull and there is not much incentive to hunt anymore. I would like to see harvest size for elk reduced to include 5-point.bulls."
- "I grudgingly acknowledge that there was some wisdom in imposing the 6-point only season when elk were in trouble…….but that scene has now passed."
- Six point seasons allows good hunting opportunity.
- In favour of the 6-point season but has concerns regarding the long term health of the population because there are more dominant 5-point bulls now doing the breeding.
- Not in favour of a 3-point hunt.
- Not in favour of trespass fees for hunting on private land.
- Promote primitive weapons seasons and as early as August 20th to deal with non-migratory elk.
- "Please do not put bull elk on LEH, but rather use a short open season. Hunting animals, not a lottery, is the game we want to be involved in."
- "It is past time to remove a lot of V.A.C.'s, because habitat has changed, and many seem only designed to provide privacy for guides."
- "Yes, continue with the 6-point.season (no smaller bulls 3-point – 5-point.)."
- A cow/calf season could be used to deal with the agriculture issue but it would have to be small and short. Additional opportunities should be given to bow hunters.

Would you support an expanded LEH hunting season to assist in addressing the elk/agriculture issue?

There was general support for this concept with the following comments:

- "Support but with strong controls. Target homesteader elk."
- "Yes, if it was done properly." Advocates an early season beginning in September and leave bulls on 6-point.regulation. If more elk need to be taken hold a late season archery hunt.
- "No antlerless season unless population density is such that a conservative harvest would not cause a decrease in overall elk numbers."

- "An expanded LEH hunt will not help the problem as most tags presently being issued are going unfilled."
- Support for the LEH season if it occurred in agricultural areas and took place in September to target the homesteader elk.
- "Yes, only if used to gain information if such a season is affective in addressing the problem."

Additional Written Submissions

Five briefs from individuals and three briefs from organizations were received. In general, they didn't directly address the questions posed by the consultants but did provide extensive information, much of which related to the questions being asked.

Written information provide from individuals is summarized as follows:

- Decrease the number of elk identified as homesteader elk.
- Manage non-migratory and migratory elk using different strategies.
- There is a need to up date these five years annually.
- Reduce non-migratory elk populations through transplants.
- There should be separate cow, calf and bull LEH permits targeting non-migratory elk with a target of removing 3500 elk by hunting and transplants.
- Disabled hunters should be given special consideration for these permits.
- Some ranchers would be supportive of continuing with the LEH program (on private land) especially if there were economic incentives such as access fees.
- Opposed to any change in the 6-point season. Since its inception we have seen bull/cow ratios increase, the cow/calf ration increase as well as the number of harvestable bulls. There are now more and better 6-point bulls than in any previous time.
- Suggest a special any-sex low-elevation hunt.
- Need to move cattle out of the watersheds and ranges earlier than late October.
- Most hunters thought that increased elk numbers would mean more hunting opportunities and this has not happened. Last year's elk cull is an example of a plan gone wrong.
- Bow hunting can be a management tool if given a chance. Most jurisdictions accept this fact.
- Hunters want more opportunity.
- Rifle hunting for 3-point bulls is a recipe for another slaughter and depletion of stock.
- Adding a weapons restriction in interface areas will address the safety issue.
- Recommend any-sex bow season below 1100 m aimed at homesteader elk.
- Cow/calf LEH's need to be closely scrutinized to prevent over-harvest. They should only be issued for the Trench and no later than October 10th.
- 6-point season should be continued.
- Recommend an age restriction on LEH bull permits.
- "A part of the new plan has to be means to increase the forage available for wintering elk in the Trench. Money needs to be made available for this."

Written briefs received from associations/clubs are summarized as follows:

An extensive brief was received from the East Kootenay Wildlife Association (representing 8 clubs in the East Kootenay). This brief recommends the following:

Management Objectives:

1. Manage habitat suitability to expand the sub-regional elk population to 30,000 elk (+ or- 10%) without allowing elk populations to exceed forage availability, or to come into serious conflict with agricultural interests.
2. Undertake habitat enhancement, range unit enhancement, and grassland eco-system restoration to facilitate reaching objective # 1.
3. Implement and enforce recently developed and currently developing access management plans in all regions of the East Kootenay.
4. Optimize and diversify harvesting opportunities where possible. Manage elk to increase harvest potential and move away from management for trophy potential. Harvest allocations must be based on live data and actual inventory.
5. Manage towards post-hunting season bull/cow ratios of 25 bulls per 100 cows, and cow/calf ratios of 40 calves per hundred cows as minimums.
6. Develop a plan to implement supplemental feeding of elk during very severe winters.
7. Reduce agricultural damage caused by elk by implementing harvest strategies directing the maximum possible amount of the annual elk harvest towards non-migratory elk populations. Reduce non-migratory populations to acceptable levels.
8. Develop maximum population density target levels for the core agricultural areas between Skookumchuck and Wardner and implement harvest strategies that will keep elk populations at or slightly below predetermined population densities in these specific areas. These harvest strategies should target mainly the non-migratory populations.

Elk harvest strategy:

1. In recognition of the fact that increased hunter-days of recreation can be provided without significant increases in harvest numbers, we would support increased archery hunting opportunities for elk in the sub-region.
2. We would support the introduction of a youth elk hunt, but only if this can be done in such a way as not to impact archery hunting opportunities. We believe the introduction of a youth hunt should be developed in conjunction with archery season modifications and in consultation with bow hunters.
3. We would support the introduction of a muzzle loading rifle hunting season, or alternatively, the introduction of a short 3 point bull GOS if and when this is considered sustainable. Otherwise we feel the GOS should primarily continue to be a 6-point season.
4. We will support antlerless LEH for population density control when and if required. We feel at this time that any antlerless LEH should apply only to the main Kootenay Valley area where agriculture activities exist.
5. We will support private land depredation hunts where required, but feel that official qualifying guidelines must be developed that clearly outline when agricultural properties would qualify for these hunts. We support the introduction of private land archery depredation hunts in any areas that qualify under the above-mentioned guidelines, but where it is deemed unsafe to discharge firearms. Our members also feel that to protect migratory elk populations from harvesting of antlerless elk, that all antlerless LEH hunts targeting non-migratory elk should end by October 10$^{th.}$
6. To facilitate continued growth of elk populations in non-agricultural areas we will not support any antlerless LEH in any portion of the Columbia Valley, the Upper Kootenay Valley north of Canal Flats or any of their tributaries, or in the Lower Kootenay Valley above 1100 meters, or in any

tributaries of the Lower Kootenay Valley including the Elk, Wigwam and Flathead River systems. These areas must, in our opinion, remain on a population recovery strategy, and we would recommend the GOS in these areas remain as a 6-point bull season.

Elk habitat management:

It is also our position that the EKWA will not support any harvest of antlerless elk outside of the previously established private land depredation hunts until the commitment made by government in June 2003 regarding eco-system restoration is met.

We believe that grassland eco-system restoration in or near agricultural areas should immediately address the overlap areas between cattle grazing units and elk winter range. We believe these overlap ranges should have the highest restoration priority.

In areas with no agricultural activity, habitat enhancement should be conducted with express goal of maximizing elk populations where competition with bighorn sheep or other species will not become an issue. Elk populations in agricultural areas will need to be maintained at a density that would prevent reaching a regional population goal of 30,000 elk and to reach that goal, habitat management and enhancement for elk production in all non-agricultural areas including the northern MUs must be maximized.

In conclusion we recommend a goal should be established to restore and enhance elk habitat over the next five years to a point that a population of 30,000 elk can be maintained and that economic impacts to the agricultural industry shall be minimal.

Crown Rangeland Allocation:

1. Leaving 50% forage for conservation on ranges with the remainder being split equally between cattle and wildlife.
2. Development of temporary pastures utilizing quick-establishing species.
3. Long term/large scale development of a grasslands ecosystem restoration program utilizing native grass species.
4. Implementation of deferred grazing rotations for cattle on all ranges with monitoring
5. Establishing a special elk management unit for the lower elevation areas in the Trench, extending from Skookumchuck to Wardner, encompassing the areas where agricultural activities, migratory elk winter range and cattle grazing permits are being compromised by non-migratory elk populations. Special range management plans for these areas should be established so elk density can be linked to forage availability.

Habitat, Range Maintenance, and Forage Allocation:

1. Adopt a long-term habitat restoration strategy with timelines based on “A Blueprint for Action” released by the Rocky Mountain Trench Ecosystem Restoration Steering Committee in February 2000.
2. Immediately begin clearing, soil preparation, and seeding of selected sites with a suitable domestic grass species for the purpose of providing forage on an allocated basis of 50/50 for elk and cattle. These sites to be maintained until natural species forage is adequately provided by restoration activities.
3. Maximize the use of enhanced range management strategies on all cattle/elk overlap range. (i.e.: aerial fertilization, invasive weed control, develops natural irrigation opportunities, etc.) In an attempt to manage the Crown range at a higher forage production potential.
4. Range use plans, AUM numbers for cattle, turnout and bring-home dates, etc. (all relevant data) on range used by cattle should be available to other stakeholders. The terms of Range Use Plans must be closely monitored and strictly enforced.

5. Implement and enforce a Deferred Rotational Grazing system for cattle on Crown range.
6. Retain and manage the areas burned by wildfires in NDT4 eco-systems as rangeland.
7. Establish a special elk management zone to facilitate elk management and harvest strategies in low elevation agricultural areas.

Additional recommendations:

1. Work needs to be done regarding access management similar to that done in the Golden area.
2. Increase predator hunting and trapping opportunities.
3. Increase opportunities to hunt grizzly bears based on a conservative and scientific approach.
4. Support liberal harvesting regimes for black bears, cougar and wolves.
5. Encourage Aboriginal hunting of non-migratory elk and the EKWA would welcome participating with Aboriginal peoples in issues related to elk management.

The homesteader elk issue:

- We strongly recommend creation of a special elk management unit, or units. To be more specific regarding this recommendation, we feel that the low elevation portions of MUs 4-21 and 4-20 below 1100 meters elevation and south of Skookumchuck, the low elevation area of MU 4-22 below 1100 meters, and the low elevation area of 4-03 below 1100 meters north of Wardner are the areas of concern. This area may have to be further divided into special management sub-units that would allow specific harvesting regimes, specific to conditions in these areas which can vary significantly.
- This special elk management unit would encompass nearly all of the ranching activity in the Trench as well as the major range of the most damaging homesteader elk herds.
- In order to bring the homesteader elk situation under control, we visualize the special unit as having liberal early season (pre-migration) three-point bull seasons and LEH antlerless seasons as long as is required to bring the homesteader elk problem under control. We feel also that there should be summer and winter maximum elk population densities established by scientific methods for this area to prevent future agricultural issues with elk, keeping in mind that winter population will by necessity be much higher due to the fact that these areas contain a considerable amount of winter range used by migratory elk.
- Following the removal of sufficient homesteader elk that these are no longer considered a problem, these special units can then be utilized using post-migration harvest regimes that will maintain the newly developed population densities with the goal of preventing excessive depredation in the agricultural areas and to take some of the pressure off key grazing permit areas. There also may well be a need to maintain modest early seasons indefinitely to prevent re-expansion of the homesteader elk populations. We would welcome and expect ranching community input into establishing the special unit boundaries and population densities, but we would insist that these be developed by proven scientific methods and not by lobby pressures.
- A single region wide elk management strategy designed to reduce elk/agricultural conflict to acceptable limits is not workable. Micro-management strategies for the agricultural areas such as developing the special management unit must be utilized. In actual fact a very small percentage of the sub-region is used for agricultural purposes and managing the entire sub-region to meet goals for this small portion of the land base is unacceptable to our members. To this end our members are in agreement that two fundamentally different elk management strategies are required in this sub-region, one of which will be specific to the main centers of agricultural activities.

The Kootenay Livestock Association submitted a five page brief. This brief is summarized below:

"The need for the wild ungulate damage project on private agricultural lands was demonstrated after an assessment of forage crop losses due to wild ungulate damage was carried out in 2000-2001. From

information gained in this assessment, as well as data collected on lost forage crops during the nearly-three years the pilot has been running, it is safe to say that there is an average of thirty to forty percent of forage crops lost to wild ungulate damage per year, per producer. Such a loss in any industry year after year would result in its being severely compromised, as it has ours."

"It is the homesteader segment of the wild ungulate populations we ask that management/reduction of numbers be focused on, and not those wild ungulates who do not rely and/or utilize out private land forage crops which is intended for our own livestock."

……."We do not want to negatively affect our relationship with the Guide Outfitting industry. Like them, we have a capital investment at stake. As such, we would rather work with Guide Outfitters not only within the scope of this forthcoming East Kootenay Elk Management Plan, but also toward measures to increase forage on Crown land for both wild ungulates and livestock."

The Problem:

- Is not new.
- With fire reduction starting 70 years ago forest encroachment and loss of native grasslands has continued at a rate that is greater than treatment can occur.
- Government has managed elk numbers as well as cattle numbers, but has not aggressively addressed the issue of in growth…….thus the Agriculture-elk conflict……which has continued for decades.
- The label of 'Agriculture-Elk conflict' has furthered the misunderstanding between groups.
- KLA wants to work with government, guide outfitters, hunters and wildlife groups to improve native grasslands and a step toward this is to manage the growing numbers of homesteader elk and deer.

The LEH Hunt:

- The program as currently being run is not achieving required results.
- The number of harvested elk does not come any where near the recruitment rate.
- Its not worthwhile assisting the hunt if the number of elk harvested does not lead to reduction of forage damage.
- There is a problem with the lack of coordination between MWLAP and the state of Montana regarding elk movement across the border.
- A more effective program would:
    - Allow land owners to recover an access fee.
    - Must involve hunting on adjacent Crown land
    - Could involve private land permits that land owners could use or sell.
    - The hunting period could be increased and open to elk below 1100 meters in the trench.
    - Hunts should be focused on areas where elk numbers are highest.

KLA suggests these points be considered in writing the Elk Management Plan:

- The plan must be flexible.
- There must be annual input into implementation of the plan regarding the state of the ranges.
- A reduction of homesteader elk is needed immediately.
- KLA requests representation on the EKHOC.
- The plan must be based on scientific information regarding elk numbers and forage availability.

- Elk management must be site specific.
- The new plan should make reference to action being taken to improve the health of our native grasslands.
- The plan is an opportunity for MWLAP to work with the MOF to open up ingrown grasslands
- The new plan is an opportunity for MWLAP to work with the MOF and the MAFF to address livestock utilization on Crown ranges.
- The 6-point bull elk season does not promote herd balance or numbers.
- Consideration must be given to the fact that homesteader cow elk are more productive than those not utilizing domestic forage.
- The new plan is an opportunity to put measures in place to focus on restoring the ranges below 1100 m. for the benefit of livestock and wildlife.
- The plan should make reference to the fact that there is money available to improve habitat and forage quantity and quality.

In summary, the elk management plan must be to manage elk populations in balance with habitat availability and to control elk depredation on private agricultural lands. New and modified hunting techniques and decisions based on science are absolutely essential to meet goals.

The Traditional Bow Hunters of B.C. provide these recommendations:

- Bow only any elk season from Sept 1-9
- Bow only any elk special area hunt below 1100 meters in the Rocky Mountain Trench along with the present GOS (6-point.) and LEH.
- Bow only any elk Sept 1 – Oct 20, Dec.1-20 in conjunction with the proposed "interface fire management areas" near city limits of Cranbrook, Kimberley and other East Kootenay cities.
- Muzzle loader/bow, 3-point bulls, September 10 -15 (present units).
- Expansion of the present habitat restoration to double initiatives.

The United Bow Hunters of B.C. provide a brief summarized as follows:

- Dissatisfied bow hunters within the Province are requesting improved opportunity and parity with other elk producing jurisdictions.
- Considers conservation of our wildlife resource a priority.
- Expanded archery seasons should be considered as a management a tool and recreation opportunities within the framework of the revised management plan.
- Suggest seasons: Sept 1-15, bow only any sex, Sept 1 – Oct 20 bow only any sex in special management area below 1100 meters in the Trench (Radium to U.S. border)., Sept 1 – Oct 20, bow only any sex, special management area – interface fire safety areas with specified distances from rural habitation, Dec 1-20 bow only for cows in specified area(s).
- Support for all range enhancement efforts and enhancement of transitional habitats to improve holding potential for ungulates.
- Support for regulations limited the use of ATV's for game retrieval only with an operating restriction from 0900 to 1500 during legal hunting season.
- Support liberal harvest regulations on wolves, bears, coyotes and cougar.

Recommendations of the East Kootenay Hunter Opportunity Committee:

- Continue the 6-point. GOS for bull elk.
- Issue limited cow/calf permits on private land.
- Could have an earlier cow/calf season on private land.
- Some support for a short open season on 3-point.or larger bull elk.
- Some support for 6-point season plus a LEH for any bull.
- Suggestion for 3-point.or larger bulls for seniors and junior hunters.
- Golden hunters want 6-point season to remain.
- Generally, hunters are happy with the present season and don't want any change to adversely affect elk numbers.
- Most hunters are opposed to LEH for cow/calves except on private land.

Conclusions

Following are the most prominent, high-level themes that we have inferred from the input to date:

- There was no criticism of the 2000-2004 East Kootenay Elk Management Plan and many expressed support for its recommendations.
- There was widespread support for the six-point bull elk season. Many hunters said the bull elk hunting was better than it had ever been and many said the hunting experience was much improved, citing the frequency of bugling in numerous bulls (although not all were legal to shoot). This sentiment was tempered with concern by some hunters regarding the long-term implications that the season might have on the age structure of bulls in the population.
- There was general concern by the ranching community that the elk population is increasing and that impacts on their industry are also increasing. The hunting stakeholders, in general, recognized this concern and many suggested ways to ameliorate the impacts. It was clear that both stakeholder groups would like the issue resolved.
- Some in the agricultural community expressed a willingness to support elk on private lands but also made it clear that there must be some economic return for the forage consumed by elk. Some suggested that access fees would be a method of dealing with this issue.
- A prominent issue was that of non-migratory versus migratory elk herds. Many suggestions were received regarding potential ways to deal with the issue. There was wide acceptance in the hunting community to the concept of an increased harvest on "homesteader" elk as long as "migratory" elk are not impacted.
- Many hunters made it clear that they wanted increased opportunities to hunt. The archery community provided strong recommendations for increased opportunities for their members to hunt during exclusive bow-hunting seasons.
- Many hunters expressed concern that increased fencing of private land will negatively impact wintering elk populations and many questioned crown grazing rights that may impact wintering wildlife.
- There was almost universal agreement that Crown range condition had worsened over the past 5 years and that there had been little done to improve the situation. Many expressed the need for a government commitment to reduce forest in-growth in the Trench and to conduct widespread range improvements using various techniques.

- Many in the hunting community stated that, although elk populations had increased, they had not increased everywhere in the East Kootenay. They stated that there were few elk in many suitable, high-elevation summer ranges that were commonly occupied in the past.
- There was general agreement that elk population had not increased in the northern part of the Trench (from Invermere north). In these areas there was little support for additional hunting opportunities.

Literature Cited

Bircher, N., D. Janz, I. Hatter, and R. Forbes. 2001. East Kootenay elk management plan 2000-2004. BC Ministry of Environment, Lands and Parks, Wildlife Branch.

Raedeke Associates, Inc. 1998. Assessment of harvest strategies for Rocky Mountain elk. Prepared for: BC Ministry of Environment, Lands and Parks.

Appendix I. Notes and Discussion from Open Houses

Table 1. Notes and discussion recorded at the Invermere open house, August 31, 2004.

Theme	Comment
Population management	• elk are not appearing in their traditional habitats
	• concern that migratory elk being killed and not 'homesteaders'
	• cow/calf elk populations appear to be stable
	• we are in a lot better position than five years ago
	• we should set a target of 30,000 elk in the new plan
Habitat management	• forest in-growth is resulting in shrinking habitat for ungulates
	• forest tenures should also be managed for range
	• we have more elk than five years ago and less range available to them
	• need to implement ecosystem restoration plans
	• there is a big problem with forest tenure management - can't manage for range
	• there was better wintering habitat for elk five years ago
Harvest management	• Continue with the 6-point bull season
	• Need special season for cow/calf
	• Need to get back to more traditional hunts- more family oriented hunts
	• some suggested special hunts for juniors and seniors for homestead elk
	• 95 to 98 % of all elk hunters are hunting for meat and should have more opportunity to hunt
	• need to convince Victoria that a summer hunt for homesteaders is needed
	• LEH tags in a special zone would help deal with homesteader elk
	• meat hunters need an opportunity to shoot smaller bulls i.e. 3 and 5-point bulls
	• a range of dates were mentioned for homesteader hunts: July to Oct.
Elk-agriculture conflicts	• need cow/calf permits prior to Oct.15th
	• ranchers aren't allowing hunters to hunt their lands to assist elk issue
	• July and August is when the ranchers experience severe elk problems
	• cattle are left out too long on the ranges and no forage left for elk
	• range condition has deteriorated
	• should provide the ranchers with incentives to feed elk
	• ranchers have been supporting elk for too long
	• we may need to go to 'Z' zones for homestead elk, a hunt for seniors and juniors
	• homesteader elk will always be present; have to put up with some of them
	• ranchers putting up fences is an issue for elk populations
Land management	• changing access management is a way to increase homesteader harvest
	• the forest tenure system needs to change to allow for range management
	• implement ecosystem restoration
	• manage for elk in NDT 4 ecosystem
Non-consumptive use	• no recorded input regarding non-consumptive use

Table 2. Notes and discussion recorded at the Cranbrook open house, September 1, 2004.

Theme	Comments
Population management	• elk are on Crown ranges and private lands year round now

Theme	Comments
	• we need a five year rolling plan so adjustments can take place during the five years
	• we need a plan covering below 1100 m and one for above 1100 m
	• we should target to remove 3500 elk a year below 1100 m
	• we need a more flexible plan for next 5 years
	• we need to 'checker board' bottom land winter ranges and have decent feed to entice elk
	• more predators in the back country could be the reason for lack of elk there
	• concern expressed that here may be as many as 32,000 elk present in the E.K.
	• there was general discussion regarding elk numbers and inventory accuracy
	• Why isn't government providing more money for a more accurate elk inventory?
	• your plan can't be accurate if your inventory numbers are not accurate
	• there was discussion regarding how much a cow versus an elk eats in one day
	• the idea to move elk to the backcountry is a good one
Habitat management	• concern expressed regarding government money not being spent on noxious weed control
	• we need to keep encouraging government to work on ecosystem restoration
	• need to insure there is enough forage - need a balance between wildlife, industry and agriculture
	• can we be assured of a 5-year budget for restoration (directed to MLA Bill Bennett); answer: we have 3 years of funding now and money from other sources like CBT, CBFWCP,WLAP and MOF....need to find a way for someone to remove trees in the trench and make money at it
	• the mines are planting alfalfa and they have plenty of elk.....why don't we plant alfalfa?
Harvest management	• will more permits be issued for cow/calf elk?
	• agreement with LEH system but it should be done as it is in Alberta with reduced odds
	• keep the six point season for elk bulls above 1100 m (some spoke against this suggestion)
	• habitat enhancement needs to be a top priority
	• what about ecosystem maintenance not just enhancement?
	• not in favour of more LEH hunts.....recommends a short general open season
	• LEH doesn't work on private land.....one elk shot and others disappear only for a short time
	• we need to have a 2 week 3 point bull season
	• about half the elk populations live in the trench so we should have a spike season below 1100 m
	• need a separate LEH for cows and calves
	• no general open season in the trench
	• we need to keep the 6-point season above 1100 m
Elk/Agriculture conflicts	• farmers should be spending money on Crown range improvement
	• Agriculture Canada spends money on range improvement
	• cattle need to be completely removed from Crown ranges
	• need to set criteria for elk vs. cattle on Crown ranges.....need to consider more than 1 industry
	• use of Crown ranges has to be fair to all industries

Theme	Comments
	• can't solve the problem by killing off all the elk
	• need to look at the impact of all ungulates on ranges; not just elk
	• one individual explained the value of the agriculture to the E.K. and country in general
Land management	• need to look at capability mapping more closely
	• we need to log the trench and we should be getting on with it
	• Sand Creek needs to be selectively burned to bring the range back
	• MOF has more impact than any other Ministry or group on ranch conditions
	• recommendation that the consultants consult professional agrologists regarding range condition
	• if everyone builds fences in the next 5 years you have to take that into account
	• need to establish the availability of feed before setting population targets
	• noxious weeds have got worse in the past 5 years
Non-consumptive use	• no comments were recorded regarding non-consumptive use of elk

Table 3. Notes and discussion recorded at the Fernie open house, September 2, 2004.

Theme	Comments
Population management	• what is the average age of bulls harvested i.e. from tooth returns
	• it is important to know the age class of bulls being harvested
	• concern expressed regarding lack of recent inventory
	• suggest a stocking program to move elk to unused habitats
	• predation is a big factor, especially in the Flathead - grizzlies and wolves
	• we've radio collared hundreds of elk over the years; we should be able to
	• determine which are homesteader elk
	• suggestion that migratory cows were largely shot in the 1980's and
	• this has altered migratory patterns
	• need a program to identify just which elk are homesteaders
Habitat management	• some believe there is not enough forage because of cattle
	• need a review of what habitat is available for additional elk
	• farmers and ranchers need to form a partnership to restore ranges and
	• the Ministry of Agriculture needs to be part of this
Harvest management	• have a LEH season for cows/calves at the end of season for juniors/seniors /disabled
	• have a late archery season for bulls
	• have and LEH season for spike bulls
	• general support for the 6-point season
	• Archery season works well with the 6-point. season
	• don't like the archery season over lapping with the junior/senior hunts
	• suggest an archery hunt at the end of the 6-point season
	• some supported LEH hunt for antlerless on private lands
	• general support for special hunts for juniors/seniors and disabled persons
	• seniors need more opportunity to hunt antlerless and smaller bulls
	• a short 14 day season for antlerless may be acceptable
	• Sparwood Club opposes antlerless hunts; suggest a range enhancement program before we start killing antlerless elk
	• suggested some sort of general hunt with a quota to end the season

Theme	Comments
	• Sparwood Club would not support a seniors/juniors hunt for bull elk
	• many expressed lack of support for a 3-point. season
	• need to get unused habitat back into use
	• general support to not have bull elk on LEH
Elk/Agriculture conflicts	• there may be an elk problem in the trench but not in the backcountry
	• special management hunts should target only problem areas
	• elk fencing is a problem
	• most ranchers in the Elk Valley have second job so not as much pressure as in the trench
	• hunters have to pay into the HCTF Fund so ranchers should contribute as well based on the number of head they are grazing on Crown ranges
	• are ranchers lobbying for a major elk culling program?
	• concern expressed regarding all the new elk fencing
	• fencing should not be allowed on public rights of way or on easements
	• bulk of the grazing is being done by cattle not elk
Land management	• concerned expressed regarding forest in-growth
	• who is checking grazing leases?
	• concern expressed that the Ministry responsible for elk is not responsible for range management
	• based on the rate of in growth there won't be any elk left in 40 years
	• Victoria needs to get the message that more money and commitment is needed to get something done about the range problem
Non-consumptive use	• no comments were recorded regarding the non-consumptive use

Table 4. Notes and discussion recorded at the Cranbrook open house, October 5, 2004.

Theme	Comments
Population management	• discussion regarding the estimate of 25,000 elk, value of the estimate in achieving goals of all stakeholders
	• general agreement to move aware from a total population estimate and move toward using harvest numbers and goals and objectives estimating if they are being met
	• discussion regarding cow/bull ratios
	• discussion regarding current predator numbers and their impact on elk populations
	• questions regarding why more inventory has not been done when this was a objective of the earlier plan
	• we need to know age of bulls harvested
	• when will we know if we have over harvested older bulls?
	• we need to look at the telemetry work that was done in the 1980's.
	• we need more 'micro' management of some MU's to deal with problems specific to those areas
	• more elk inventory is needed
Habitat management	• general discussion regarding range management, the ability of the range to support 25,000 elk as well as cattle grazing
	• general discussion regarding the ability of crown ranges to support elk numbers during a hard winter
	• it was pointed out that spring and fall range are very important for elk; probably as important as winter range
	• general discussion regarding elk populations in U.S. States, their habitat

Theme	Comments
	value, etc.
	• habitat needs more funding; hunters can't pay for it all; need some federal money too
	• roads have had a big impact on elk and that's why they don't migrate out of the trench
Harvest management	• suggested having mandatory reporting of all killed elk with corresponding tooth returns – clubs could volunteer to assist
	• suggestion that hunting seasons should be closed when it is obvious that harsh winter conditions will impact elk populations
	• there was considerable discussion regarding the use of archery seasons to control 'homesteader' elk populations
	• bow hunters should be able to hunt elk in the month of August and hunt antlerless elk.
	• bow hunters do not want their season rolled in with special seasons for young rifle hunters
	• bow hunters agree with the 6-point bull GOS for rifle hunters but not for bow hunters; bow hunters should be allowed to harvest any bull
	• suggestion of a spring bow hunt to drive elk out of the trench
	• we have good bull populations now so why not liberalize the season for bow hunters
	• nine days is not a significant season for bow hunters
	• suggested designating a couple of MU's as bow hunting only
	• suggested a late season bow hunt
	• suggested moving the junior hunt into August instead of when school is in
	• it would be better to harvest out of all age classes – 6-point season and later 3-point season
	• bow hunters are trying to get exclusive hunting opportunities – not right
	• 6-point season is great for trophy hunters but not those that want elk meat
Elk/Agriculture conflicts	• ranchers who don't put up fences should be compensated
	• fencing private ranch lands will have a negative impact on elk
	• grazing fees for those ranchers that fence should be tripled
	• hunters work and pay to enhance range values and then the ranchers are given more grazing rights
	• hunters do the majority of enhancement on Crown land
Land management	• general discussion regarding access management and its impact on elk behaviour and populations – no general consensus
	• Crown ranges are in terrible shape
	• if we assume a 50/50 split in grazing between elk and cattle there isn't enough range out there to support both
Non-consumptive use	• there were no comments regarding non-consumptive use of elk

Appendix II. List of Briefs Submitted During Consultation

Table 5. Briefs from individuals and organizations received in response to calls for comments during the public consultation phase of the development of an elk management plan for 2005-9. Other written comments to specific questions were received at open houses or on the web site.

Name	Title
Alan Gordon	Individual brief
Bill Dubois	Individual brief
East Kootenay Hunter Opportunity Committee	Elk Management Strategy 2005-2009
East Kootenay Wildlfie Association	Elk Management Plan 2004
G.Guimont	Individual brief
Glen Todd	Individual brief
Henry Forstbaurer	East Kootenay Elk Management Plan Recommendations
Jeff Pryhitko	Individual brief
Jim Turner	Individual brief
John A. Huryn	East Kootenay Elk Management Plan for 2005-2009
Ken Sumanik	EKHOC Committee Recommendations
Kootenay Livestock Association	Individual brief
Larry Hall	Individual brief
Mike Bradford	Individual brief
Phyllis Pighin	East Kootenay Elk Management Plan 2005-2009
Roger Watson	Comments on the EK Elk Mgt.Plan 2005-2009
Southern Guides and Outfitters (D.Beranek)	The 2005-2009 East Kootenay Elk Management Plan
Traditional Bowhunters of B.C.	Individual brief
United Bowhunters of B.C.	Individual brief
Mike Bradford	Individual brief
John A. Huryn	Individual brief
David Beranek	Southern Guides and Outfitters
Ken Sumanik	Individual review of the Public Consultation Report
George Guimont	Individual brief
East Kootenay Wildlife Association	Comments on the Public Consultation Report
Bob Forbes	Individual brief
Roger Watson	Individual brief
Henry Forsbauer	Individual brief
Jeff Pryhitko	Individual brief

Appendix III. Open House Attendees

Table 6. Names of individuals who attended open houses in Fernie, Cranbrook and Invermere in order to provide input to the development of an elk management plan for 2005-9.

Al Ray	Harvey Bombardier
Alan Johnson	Henry Forstbauer
Andy Balcom	Ian Johnson
Andy McDonald	Jeff Arrowsmith
Andy Pezderic	Jeffrey Szots
Bill Bennett, MLA	Keith Plummer
Bill McNeil	Ken Petovello
Bob Kahl	Kevin Podrasky
Brian Watson	Larry Hall
Cam McDonald	Len Richard
Dale Webber	Lyla Collinson
Dalton Coleman	Michael Davis
Dan Blackwell	Monty Evin
Dave Banner	Noreen Thielen
Dave Reeves	Peter Davidson
Dave Szots	Rex Holley
David Beranek	Rick Lowe
David Paul	Rick Olson
Debra Szots	Rob Welsh
Don Patterson	Rod Savage
Don Uphill	Jacque Savage
Doreen Johnson	Ron Evans
Doug Turner	Scott Pitt
Faye Street	Sean Beswick
Fil Coy	Shieldon Reed
Frank Maag	Simon Genyez
Fred Jensen	Stacy Coleman
G. Bonnell	Tim Flanagan
Gary Holmes	Todd Kniert
George Guimont	Vee Toffolo
George Wilson	Vince Cocciolo
Gerry Ray	W. McLeod
Gordon Hogg	Wade Boardman
Harry Leuenberger	William Szots

Appendix IV. Comments in Response to the Public Consultation Report

The draft *East Kootenay 2005-2009 Elk Management Public Consultation Report* was released for stakeholder review and comment on October 15, 2004. The following is a synthesis of new input received from the public. In some cases it was necessary to paraphrase the information provided and in other cases direct quotes have been included (in italics).

General Comments

The Southern Guides and Outfitters (SGO's) suggested two elk management plans be developed; one for the homesteader elk and another for the back country elk populations. The plan for the homesteader elk would depend upon agreement by the stakeholder groups regarding the boundaries of this plan. For the backcountry elk, SGO recommends they be managed as they are presently (i.e., 6 pt season). They also suggested the possibility of separate licenses for homesteader and migratory elk but recognized much discussion would be needed to implement this idea.

The SGO's emphasized the importance of dealing with habitat and particularly the issue of in-growth in the Trench. Their strong suggestion is the in-growth trend needs to be reversed in the short term. They believe there is room for cattle and elk if the habitat issue is addressed, and if it is not addressed they believe the economics of elk far out-weigh the benefits of cattle. The management plan should identify a population objective for elk, based on habitat and economics, and managed accordingly.

We received considerable input from the East Kootenay Wildlife Association and have reported it substantially in the draft report. Additional comments are included here as well as under the headings below.

The EKWA has concerns regarding the intent of the KLA to suggest flexibility in the Plan. We are not opposed to flexibility, but if this means annual input into the AAH of non-migratory or other elk we would have to oppose this as we believe that wildlife management strategies need time frames longer than one year to evaluate their success. Implementing a variable annual harvest into the strategy will introduce a large element of potential over-harvest and could also result in lobbying pressures by hunters and ranchers to impact the AAH. The AAH must be established using scientific methods, not lobby pressures.

The EKWA cannot agree or disagree with the concept of landowner access fees without extensive discussion within the BCWF because this issue has provincial implications if a precedent is established.

The EKHOC mandate is to make recommendations on hunting methods, seasons, season dates, hunting opportunities, and to identify potential conservation issues, etc., thus we see no benefit to the KLA having a seat on this committee and oppose this request. This is not meant to imply that the livestock producers are not stakeholders and should have no input on wildlife management strategies, but we feel that the EKHOC is not the appropriate avenue for this input. This committee was designed as a consumptive user forum and opening the door to other interests may destroy the intended functions of this committee.

In reference to the KLA's request for a seat on the EKHOC on page ten we (EKWA) suggests that a permanent inter-agency government facilitated Range Management Advisory Committee be established including stakeholder participation for the express purpose of dealing with wildlife/agriculture conflicts and related range and forage management issues with the long-term goal of providing input into and assisting with development of a "Rocky Mountain Trench Range Management Strategy and Plan". Participation should include: MoF (range management), MWLAP (wildlife management), MAFF, cattle producer representation, and wildlife organization representation. This would serve to bring all interests and regulating agencies to the same table to mutually discuss solutions to long-standing and reoccurring problems. This committee would have a different mandate that the Eco-System Restoration Committee as range management rather than eco-system restoration would be it's primary mandate.

A number of ranchers noted that they cannot continue to feed elk that are destroying the profitability of their ranches. There were suggestions that boundaries for the LEH hunts should be extended to include Crown land to include one mile adjacent to the private lands.

Population Management

- *There should be more commitment to collection and analysis of scientific data on elk population structure, habitat utilization, habitat condition and opportunities to expand carrying capacity, etc. All of this needs to be built into the new plan.*
- *Predator management must continue including both bear species and the requirement to remove black bear meat must be removed.*
- *Concern expressed regarding disease such as Chronic Wasting Disease (CWD) and WLAP should be monitoring and be pro-active in this regard.*
- *The final bullet in the consultants report states that elk populations have not recovered in the area north of Radium. This statement should be expanded to include the entire Flathead Valley, The upper Elk Valley north of Sparwood, the Upper Kootenay Valley immediately south of Kootenay National Park (Settlers Road area), and the Beaverfoot/Kootenay Trench area north of Kootenay National Park (Boyce Meadows area). These areas traditionally supported elk populations that wintered in these locations and did not need to migrate to the main Trench to access winter habitat. These were not Trench dependent elk populations. These populations did not respond to the recovery strategy utilized in the 2000 to 2004 EMP, thus these areas must all remain on the population recovery strategy. Care must be taken that Trench elk hunting strategies do not adversely impact these herds.*
- *Since the target (and current) elk population of the outgoing EMP was established at 25,000 elk using the only habitat data that was available, and since no better data is available today, EKWA members feel quite strongly that in order to maintain 50/50 allocation of forage between wildlife and cattle, that any overall elk population reductions caused by any further loss of habitat must also result in an equal reduction of cattle grazing AUMs on the Crown grazing permits. This must be done on an equal forage consumption basis, or one head of domestic livestock to three head of elk. We also feel that any overall population reductions that become apparent due to non-migratory elk control measures must also result in equal reductions of domestic livestock pastured on the Crown range units using the same ratio as above. Our members feel very strongly that maintaining equality in forage consumption between cattle and wildlife is fair to both ranchers and wildlife interests and would hope that this point is stated in the new EMP. The alternative is that if habitat continues to be lost and cattle numbers remain static, there will be an escalated decline in elk populations. The baseline for reduction or increases in either cattle or elk should maintain the current ratio of 8000 head of cattle (40,000 to 45,000 AUMs) to 25,000 (elk) and should be based on forage availability. Some members were not sure that the above allocation was completely fair stating that the elk population of 25,000 was regional while the cattle population was site specific to the central Trench NDT4 area and they want assurance that increases in elk populations due to potential expansion of elk populations that do not winter in the Trench do not result in a demand for higher cattle AUMs.*
- *it may be a useful to determine more precisely how many elk actually winter on the grazing tenures and to then use this number as a baseline for allocation of forage on the NDT4 land base.*
- *Some EKWA members have pointed out that non-migratory elk are not a completely unnatural phenomenon, and that these are elk that are merely utilizing the best available forage by natural instinct, and that the terminology "homesteader elk" does not represent any scientific term and implies an unnatural condition. These members suggest that the Plan should categorize the elk in the East Kootenay sub-region as "Resident" populations or "Migratory" populations, based on where the specific populations spend the summer.*
- *One individual commented that he could not understand how we can continue to hunt 6 pt. bull elk only; our prime breeding stock. He was of the understanding only B.C. allows hunting bull elk during the rut and suggested hunting them in mid October after the rut.*
- *I do not believe your latest survey about cow/calf ratios.*

- *There are too many 4 and 5 spike bulls running around that will never become 6 spike bulls…this is a very serious condition in the Bull River, South Country, Flathead and Princeton areas.*

Harvest Management

- *Eliminate the age restrictions on private property hunts.*
- *Have a five day, cow calf hunt one week after the bull hunt closes.*
- *Have a five day any elk hunt in the first week of September to target resident elk.*
- *Do not support any LEH hunt on bull elk and do not support any cow/calf LEH permits in the Elk Valley.*
- *Bow hunting areas should be open throughout the elk season for any bull.*
- *The EKWA will not agree to the suggestion made that the area north of Radium be managed as a trophy area with LEH for cows, calves and small bulls. The EKWA will not support any LEH of cows, calves, or small bulls north of Radium and would like to see this area remain on the 6 point bull season to facilitate further elk population expansion. The EKWA may however support site-specific private agricultural land depredation hunts north of Radium pending further discussion and analysis of requests made by specific landowners.*
- *The EKWA will not likely support non-migratory elk removal at the suggested rate of 3500 elk per year through hunting*
- *The TBBC suggestion for bow only hunts in interface areas needs site specific evaluation since many of the interface zones are safe for firearm use and discharge. Considering locations of human population nearly the entire Trench bottom could be called interface area.*
- *Pending discussion with members, the EKWA may not be able to support the UBHBC suggestion for early bow season of Sept. 1st to 15th if this means the opening of the rifle season will be delayed until the 16th. Additionally the EKWA will not support a bow only special management area in the entire Trench below 1100 meters if this excludes rifle hunting from this zone. We would support both these initiatives if they are a antler/sex regulations for bow-hunters only, that overlaps the general rifle season, and are not exclusive "bow-only" hunting zones.*
- *Ranchers with elk problems should receive a tag for a cow or calf.*

Habitat Management

- *There is an opportunity to take advantage of the mountain pine beetle logging that is going on in the Trench. The areas logged should be reseeded to forage species and thus enhance habitat.*
- Various groups agreed to range enhancement commitments when the homesteader elk cull was agreed to and these need to be followed through upon.
- *Ranchers that have put up exclusion fencing now have better crops so they now should not have as much Crown grazing allocated to them.*
- Many (EKWA) members commented on range management and it was suggested that newly logged off areas in the NDT4 ecosystem zone that have the correct aspect and location to become potential elk winter range should be made exempt from reforestation regulations and managed as winter elk habitat.
- Many (EKWA) members felt that implementing a deferred rotation or rest rotation grazing system would have great benefits towards range condition and provide a more efficient use of the available forage. Since range and range management will be integral to the future of elk in this region it was felt that recommendations to improve, increase or enhance range and elk winter habitat, as well as recommendations to improve range management strategies should be part of the final report.

- It was suggested that cattle grazing in some locations has extended into much higher elevations than has been traditional, where it impacts elk spring and fall transition ranges and may create a potential forage shortage in these areas, and that this may in turn result in a delayed spring migration of elk out of the Trench winter range areas, increased depredation on private land, and possibly contributing to non-migratory elk recruitment. It was commented that preventing cattle grazing in these areas along with habitat enhancement could reduce the time that elk are dependent on the low elevation overlap ranges
- It was suggested utilizing cut-block grazing for cattle in suitable areas where competition with wildlife would not be a problem, thus reducing the current over-utilization of the grazing tenures and possibly in this way create an opportunity to rest some of the grazing units allowing for a recovery period.
- *It may be a useful exercise to determine more precisely how many elk actually winter on the grazing tenures and to then use this number as a baseline for allocation of forage on the NDT4 land base.*
- *The EKWA supports the suggestion that a 5 to 10 year forage supply analysis should be conducted on the range units and cattle and elk numbers should be then manipulated according to accurate and current forage availability data. We feel that current information on forage availability is badly outdated and needs immediate evaluation.*