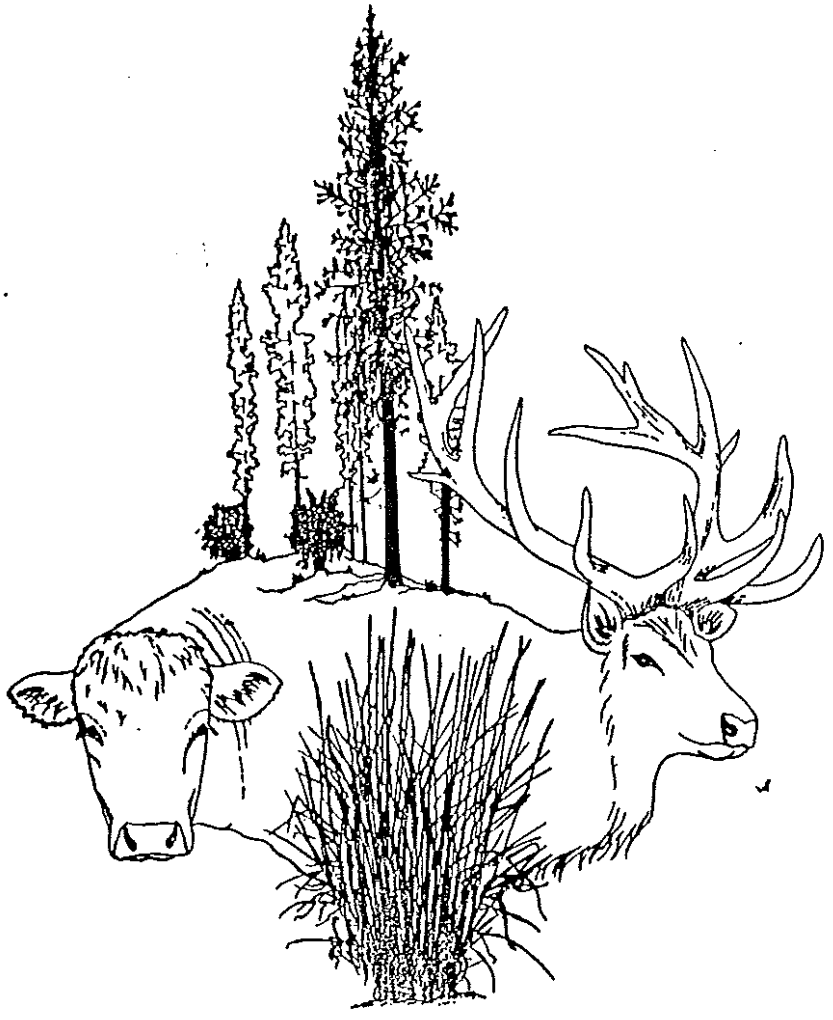
EXECUTIVE SUMMARY



EAST KOOTENAY TRENCH AGRICULTURE/WILDLIFE PROJECT

FINAL REPORT

May, 1997

1. COMMITTEE MANDATE AND STRUCTURE

On July 30, 1990, the Government of British Columbia, acting through the Ministries of Agriculture, Environment, and Forests, created an agriculture/wildlife project in the East Kootenays, with a mandate to "work with local interest groups to implement a strategy for reducing wildlife and livestock conflicts." Further, the project was to "develop an action plan to protect property and agricultural values, maintain wildlife and habitat, and manage Crown rangelands for the benefit of all users."

From this mandate the East Kootenay Trench Agriculture/Wildlife Committee (EKTAWC) was formed, composed of representatives of the following organizations:

* East Kootenay Wildlife Association (Representing B.C. Wildlife Federation)
* East Kootenay Hunter's Association
* Rocky Mountain Naturalists Society
* Independent Ranching Representative
* Regional District of East Kootenay
* Ministry of Agric., Fisheries and Food
* Ministry of Environment, Lands and Parks
* East Kootenay Livestock Association
* Southern Guide Outfitters Association
* Windermere Farmer's Institute
* Ministry of Forests
* Ministry of Economic Development
* Representative from public at large
* Ktunaxa/Kinbasket Tribal Council

The Committee conducted a problem analysis. Based on the results of that analysis, the following objectives were established:

* Collect data on populations of both wild and domestic ungulates, and their impact on Crown rangeland vegetation
* Recommend an equitable forage allocation process between livestock and wildlife
* Document the nature and extent of wildlife damage on private ranches and recommend solutions
* Investigate impacts of uncontrolled forest ingrowth on rangeland forage resources
* Investigate and implement methods of enhancing forage availability for livestock and wildlife
* Encourage integrated resource management planning
* Provide an independent forum for dialogue and conflict resolution
* Provide biological and management information to user groups

2. PROJECT EXPENDITURES

A wide range of projects and activities were undertaken or commissioned by the Committee in reaching its objectives and fulfilling its mandate. Funding for the first three and one-half years was provided by the Sustainable Environment Fund; an additional two years' funding was received from the Federal/Provincial Forest Resources Development Agreement, which extended the term to March 31, 1996. Total expenditures over the entire period were 1.4 million dollars, broken down as follows:

COMPONENT PROJECT	DOLLAR AMOUNT EXPENDED
Grazing Exclosure Construction	$108,000
Dietary Overlap/Fecal Analysis	68,000
Vegetation Monitoring/Data Analysis, 1991-1995	569,000
Elk Census and Radiocollaring, 1991-1993	256,000
Administration, Office, Travel and Salary	210,000
Private Land Damage Survey	30,000
Buck Lake/Marcer Ranch Damage Mitigation Projects	34,000
Crown land Pasture Enhancement Projects	113,000
Extension/Public Relations	10,000
Miscellaneous	2,000
Total Expenditures, 1990-1996	$1,400,000

3. PRIORITY RECOMMENDATIONS OF THE COMMITTEE

The following recommendations are pursuant to the Committee's **Vision Statement:**

Wildlife and ranching interests flourishing and fully integrated with forestry and other resource sectors. Forage is planned for, managed and enhanced in a manner that perpetuates the resource and provides the quality and quantity of forage and ecosystem diversity the landbase is capable of. Systems of administration and management, together with the interactions between user groups and Government agencies, are organized to produce these outcomes.

Recommendation 1: Establish a binding Memorandum of Understanding between the Regional Offices of Ministry of Environment, Lands and Parks, and the Ministry of Forests, agreeing to:

A) Maintain wild and domestic ungulate population sizes within the limits of the sustainable carrying capacity of the Crown forage resource in the Trench,
B) Match ungulate numbers to the supply of available forage,
C) Develop a forage management strategy for existing forage and any additional forage generated by enhancements or ecosystem restoration projects.
D) Recognize wildlife forage requirements and protect those requirements legislatively.

Recommendation 2: Early implementation of fire-maintained ecosystem restoration work, similar to the program outlined in the Kootenay-Boundary Land Use Plan. Ecosystem restoration will involve combinations of commercial and pre-commercial thinning, underburning and timber harvesting to achieve a healthier balance of trees, shrubs and grasses.

Recommendation 3: Modify current planning systems for the dry, low elevation range and open forest areas of the Trench (the "overlap ranges") so that wildlife, livestock, timber, recreational and ecological interests have parity and no single resource dominates the planning process.

Recommendation 4: Government must acknowledge its mandate to manage the overlap ranges within their long-term sustainable carrying capacity.[1] In order to do so, resources must be dedicated to periodic vegetation monitoring on representative overlap range sites in the Trench, to a practical level of replication, that yields the following: total seasonal forage production, combined total forage consumption, livestock consumption and wildlife consumption. These data should be integrated with ongoing plant community inventory and cover estimates required for Existing, Desired and Potential Natural Community determinations.

[1]See Forest Practices Code Act Preamble, plus Sects. 45 & 52; Biodiversity Guidebook, pp. 41-42; Range Management Guidebook pp. 6-7, plus Appendices 3&4; Riparian Management Area Guidebook pp. 61-65.

4. ADDITIONAL RECOMMENDATIONS, IN ORDER OF PRIORITY

5. Increase available forage to match or exceed safe level of combined livestock and wildlife use.

6. Conduct periodic surveys to provide elk population trend and density data.

7. Develop strategically-located intercept range enhancements, similar to the Buck Lake project, that work in conjunction with broad-scale ecosystem restoration enhancements (see below) to improve ungulate distribution, provide additional forage and reduce private land damage User group and non-government organization involvement in the planning, financing and maintenance of these enhancements is essential.

8. Address wildlife damage to private haylands primarily by providing high quality, well-managed Crown forage resources in areas adjacent to damage-prone private lands. Crown forage may be enhanced by a combination of: restoration of fire maintained ecosystems; intercept range enhancements, and the renovation and judicious development of cultivated pastures.

9. Forest ingrowth control and the development of effective intercept ranges should provide the bulk of forage enhancement. However, existing cultivated pastures do supply substantial forage to both livestock and wildlife, and should be renovated periodically to stay productive.

10. Create a collaborative extension effort directed at agency personnel, user groups and the interested public, that provides opportunities for these groups to learn the technical and biological aspects of resource management in the Trench, as well as current land management "best practices."

5. IMPLEMENTATION STRATEGY FOR PRIORITY RECOMMENDATIONS

Stage One: Prompt review of Priority Recommendations by Cranbrook and Invermere Forest Districts, Cranbrook District Fish & Wildlife Branch, Ministry of Agriculture, Regional and District Office; Nelson Forest Region, Nelson Region Fish & Wildlife Branch, Rocky Mountain Trench Natural Resources Society, Tenure holders, Forest Industry. Stakeholders then identify executive approvals required, resources required, sourcing of additional resources, as well as task assignments and timelines for the implementation of Priority Recommendations.

Stage Two: Priority Recommendations to be implemented as follows:

PRIORITY	COMPONENTS	STAKEHOLDERS	TIMELINE
1. Memorandum of Understanding	Draft, negotiate, sign and implement.	**MOF[2], MOELP**	1997: Draft, negotiate & sign 1998: Implement
2. Fire Maintained Ecosystem Restoration Program implementation	Executive approval Site selection Pre-operational planning Operational planning Execute	**MOF**, MOELP, MOAFF, FRBC, GEF, CBT, CBFWCP, RMTNRS, Forest Industry, Resource User Groups	1997: Executive approval, pre-op planning, operational planning[3] 1998: implementation
3. IRM Planning	Modify overlap range planning systems. Determine appropriate boundaries for modified planning systems.	**MOF,** MOELP, Tenure holders, Resource User Groups	1997 Plan 1998 Implement on trial basis in pilot area. 2000: re-evaluate, and expand to all overlap range areas.
4. Vegetation Monitoring	Select sites. Choose monitoring methodology. Dedicate resources. Implement.	**MOF**, MOELP	1997: Plan 1998: implement pilot 1999: expand to Trench on 3-year rotating basis

[2]MOF: Ministry of Forests. MOELP: Ministry of Environment, Lands and Parks. MOAFF: Ministry of Agriculture, Fisheries and Food. FRBC: Forest Renewal BC. GEF: Grazing Enhancement Fund. CBT: Columbia Basin Trust. CBFWCP: Columbia Basin Fish and Wildlife Compensation Program. RMTNRS: Rocky Mountain Trench Natural Resources Society.

[3]This timeline is not intended to impede any current restoration initiatives, and should proceed even if the Kootenay-Boundary Land Use Plan is not finalized.

6. DESCRIPTION OF COMMITTEE ACHIEVEMENTS: VEGETATION MONITORING PROJECTS

The purpose of this project was to provide vegetation data for range management that would dovetail with elk population and distribution data collection. Accordingly, four project sites were chosen and the data collection methodology, based on "The Effects of Wildlife-Livestock Forage Use on Crown Range in the East Kootenay, Proposed Working Plan" (Pitt and Simpson, 1989) and "Vegetation Monitoring Working Plan" (Ross and Wikeem, 1991) was approved by the Technical Advisory Subcommittee. The four sites chosen for the project, Skookumchuck Prairie, Premier Ridge, Peckhams Lake and Pickering Hills, are critical areas, characterized by their wildlife winter and spring range importance while supporting permitted cattle grazing.

The objectives for the project were:

- At all sites determine deer, elk, and cattle diets during all respective grazing periods.
- At Skookumchuk Prairie determine the long term differential impact of cattle, wildlife and the two combined on range plant communities
- At all sites, document actual forage and browse use by cattle and wildlife
- At Premier Ridge, Peckhams Lake and Pickering Hills, document the relative temporal forage demands of cattle and wildlife

To meet these objectives the following data were collected at the four sites.

1) Monthly elk, deer and cattle diets when animals present
2) Percent plant species cover and frequency
3) Annual production, seasonal production, and percent use of herbaceous forage by cattle and wildlife
4) Annual production, seasonal production and percent use of the key shrubs Saskatoon and bitterbrush

Plant cover information was collected from 1991 to 1994. Dietary, production and use data was collected in 1992, 1993 and 1994 and analyzed with respect to the objectives.[4]

[4]Ross, T. (1997) **Vegetation Monitoring Program Final Report**, Ministry of Forests Research Br., Kamloops

7. COMMITTEE ACHIEVEMENTS: ELK CENSUS AND RADIOCOLLARING PROJECTS

Five projects were funded, to provide data on wildlife populations and their distribution:

1) **Simpson, K.** 1991. Elk Winter Range Census in MU 420, 421 and 422.
2) **Simpson, K.** 1992. Elk Inventory in the East Kootenay Trench,
3) **Simpson, K.** 1993. Elk Inventory in the East Kootenay Trench MU 403, 1993.
4) **Jamieson, B. and K. Hebert.** 1993. Elk Capture and Monitoring in the East Kootenay Trench: 1991-1993.
5) **Jalkotzy, M.** 1994 Elk in the East Kootenay Trench: an Analysis of Radio Telemetry Data, 1986-1993.

Winter range censuses were completed for 1991, 1992 and 1993 employing methods developed in Idaho. Elk sightability was measured by recording sightings and misses of radio collared elk known to be present in the survey area. Large variations in repeat counts of the same area suggest that elk move unpredictably between adjacent blocks and that large areas should be sampled to provide accurate estimates. 11,038 elk were estimated to occupy the survey area. This census method was deemed not economically feasible for the entire Trench.

In the winter of 1991-92, 42 elk were trapped and collared. In conjunction with 7 elk collared in previous years, these elk were utilized in the census project and their movements tracked for over two years (April 1991 to June 1993). Data collected during this study should be useful for determining locations for development of future mid-elevation spring transition ranges, to reduce grazing impacts by elk on winter ranges.

8. COMMITTEE ACHIEVEMENTS: PRIVATE LAND DAMAGE MITIGATION PROJECTS

Wildlife, particularly the elk herds that overwinter in the Trench, are attracted to stored hay in winter and private cropland in spring and fall, causing varying amounts of economic loss and annoyance to land owners. Conflict centers on responsibility for damages and the nature and extent of the problem. Furthermore, the utilization of Crown range by cattle has been claimed to be detrimental to elk winter feed prospects. A multi-sectoral subcommittee, the Resource User's Group (RUG), was given responsibility for this issue. The RUG undertook the following projects:

* A detailed contract survey (the Gaube Report) to estimate nature and extent of private land damage, and to propose solutions
* A fenced 96 ha multi-purpose "intercept range" (the Buck Lake seeding) designed to attract wildlife and reduce the amount of time spent on private land and to reduce elk grazing pressure on adjacent rangeland.
* Assisting in the completion of an elk-proof fence already partially constructed by a rancher (Marcer Ranch mitigation fence).
* Dilts ranch mitigation logging: timber harvesting to create an open buffer strip to discourage elk movement from forested Crown land onto private hayland.

9. COMMITTEE ACHIEVEMENTS: PASTURE ENHANCEMENT PROJECTS

A number of cultivated pastures had been established by Forest District staff in key Crown overlap range areas, to provide additional forage for livestock and wildlife, and to reduce wildlife damage on adjacent farmlands. The vegetation monitoring project confirmed the heavy use made of these pastures by both livestock and wildlife. The Committee funded a series of projects designed to create new cultivated pastures, and to rejuvenate existing pastures by fencing, fertilization, reseeding and water development.

10. COMMITTEE ACHIEVEMENTS: FOREST INGROWTH AND RESTORATION HARVESTING PROJECTS

The dry, low-elevation open forest and grassland stands of the Trench are defined by the Forest Practices Code Biodiversity Guidebook as "characterized by frequent stand-maintaining fires." These stands include the Biogeoclimatic zones Interior Douglas-fir (IDF) and Ponderosa pine (PP) and are referred to in the Guidebook as "Natural Disturbance Type 4" (NDT4). Low-intensity surface fires, occurring roughly every 5 to 20 years, are part of the natural function of these ecosystems, maintaining a mosaic of grassland and open forest, while at the same time favoring the regeneration of the fire-tolerant Ponderosa pine and Western larch. The Crown forest portion of the Trench, from the Montana border to Golden, contains approximately 250,000 hectares of land deemed to be fire-maintained.

Several decades of active fire suppression in the NDT4 has resulted in excessive tree regeneration ("ingrowth"). A consequence of this is poor forest health and degraded rangeland values. The impact of forest ingrowth on forage production was investigated, and found to be substantial: over 2000 hectares per year were being converted from grassland to forest, with a consequent loss of some 7500 AUMs of forage per year.

In collaboration with both Forest Districts and Crestbrook Forest Industries, the Committee initiated two pilot projects to test methods of reversing forest ingrowth:

* Pump Pasture (Invermere District): 121 ha stand of Douglas-fir, lodgepole and Ponderosa pine, which had experienced substantial ingrowth, was targetted for an experimental thinning project, aimed at enhancing forage values. An innovative prescription was developed, to remove most of the juvenile understory, plus selected overstory trees that were malformed, too close together, or off-type.

* Rat Lakes (Cranbrook District): semi-open156 ha stand of larch, Ponderosa pine and Douglas-fir. Again, harvesting was specifically targetted to removal of juvenile understory plus occasional sawlogs.

11. COMMITTEE ACHIEVEMENTS: CHARLESWORTH GRAZING PERMIT INCREASE CONFLICT RESOLUTION PROJECT

The ultimate goal of the steering committee was to resolve conflict between wildlife and agricultural interests. This conflict was exemplified in 1991 by the application of Newgate rancher, Brader Charlesworth, for the addition of 180 animal unit months to his existing Crown grazing permit. The increase was favored by the approval authority, Ministry of Forests, but rejected on referral by the Ministry of Environment, Fish and Wildlife Branch. With the approval of the Charlesworth Ranch and the two Ministries, the Resource Users Group launched a negotiation process with the assistance of a mediator and outside technical advice. The Resource Users had successfully negotiated the Private Land Mitigation proposal using principled negotiation guidelines and believed the method could be successful in other conflicts.

Once underway, the use of a negotiation process was disliked by participants on either side of the issue. However since agreement was gridlocked in the existing referral system, there seemed to be merit in trying a different approach. The primary purpose of the process was to identify conflict issues contributing to the original gridlock.

An agreement to grant the increase was achieved conditional upon establishing a forage monitoring system, completion of fencing and agreement on a new grazing plan. The latter agreement was not achieved. The Ministry of Forests granted the increase in accord with the other conditions but with the existing grazing plan.

The Resource Users Group subsequently analyzed the process and provided recommendations to the Ministry of Forests. The recommendations have not been acted on to date.

12. COMMITTEE ACHIEVEMENTS: PUBLIC OUTREACH PROJECTS

In keeping with its strategy to extend information to user groups and the interested public, the Committee undertook a number of extension events and participated in others. The activities consisted of open houses, field tours, presentations and participation in conferences. Three information bulletins were published.

13. ANALYSIS OF THE COMMITTEE'S RESPONSE TO THE CONFLICT

The work of the Committee can be analyzed based on a theoretical framework used by several contemporary experts in management as it applies to natural resources.[5]

The East Kootenay Agriculture/Wildlife conflict is a classic "Tragedy of the Commons" type of conflict, which has two main conditions:

(1) A "commons," that is, a natural resource shared among a group of people.
(2) Individual users of the commons who are intent on achieving short-term individual gains.

The commons seems unlimited at first but is either nonrenewable or else takes a great deal of time and effort to replenish. Eventually the benefit to each individual user begins to decline and the effort required for each to sustain a diminishing share escalates, and conflicts arise. The problems causing the decline in benefits cannot be solved individually, in isolation from fellow competitors. If, however, antagonists *can* be persuaded to seek solutions collectively, disputes over process and equity are very likely to occur. The suspicion is that by agreeing on common goals, the individual competitor is being snared into consent for unpleasant realities which lurk out of sight. Most would support a decision which might produce a public good, with some value to each party, but there may not be enough value to warrant the risk of being put at a disadvantage by one's adversaries. Political gamesmanship, strategizing, lobbying, personal attacks and attempts to capture favorable public opinion are familiar tactics when commons conflicts are at their worst.

Amazingly, this kind of behaviour from the individual commons user is rational because he or she will receive no benefit from voluntarily and unilaterally giving up a use. The space vacated will be captured by a competing user resulting in a loss of privilege with no guarantee of offsetting gain (i.e. improvement to the long term prospects of the common resource). The typical and familiar outcome of a commons dispute is chronic conflict, sustained by the hope of a preemptive win. One user or sectoral group of users may be dominate the field, maintaining an imperial relationship with the less dominant users.

Government often contributes to commons conflicts. Its mandate to act in the public interest is contradicted when one or more governmental agencies are in competition. Often there are accusations of "primary client" favoritism by agencies. When contending parties in polarized conflicts make all alternatives politically punishing, a government agency can be paralyzed because none of the management alternatives is preferable to continued delay and inaction.

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[5]The material for this analysis is from: **Compass and Gyroscope: Integrating Science and Politics for the Environment**, K. Lee (Island Press, 1993); **The Fifth Discipline: The Art and Practice of the Learning Organization**, P. Senge; (Doubleday, 1990) and **The Fifth Discipline Fieldbook**, Senge, Kliener, Ross, Roberts, Smith (Doubleday, 1994)

Solutions to the Tragedy of the Commons

The tragedy of the commons can be avoided by changing the relationships among people, government, and natural resources, so that what becomes rational for an individual is also sensible for the natural system and the human community. This change is possible by improving the methods and conditions of debate, discussion and persuasion. However, a major obstacle to this improvement is the established order of competing resource management agencies, their existing systems of operation and their "client" groups. In the absence of a suitable social structure, inquiry foreshortens into intelligence gathering and decisions are simply the residue of conflict. Knowledge degenerates into advocacy and any learning is accidental. Hard-won lessons cannot become the shared property of disputants.

A shift in the functioning of the established order is required, and that is a framework for continuing negotiation between competing interests. The framework shift is an assembly of information and analytic skills that can describe the world shared by the parties and that can predict consequences. Within this framework would also be embedded the social mechanisms for exploring common objectives and the means to reach joint commitments.

Comparison and Conclusion

In Recommendation #2 (implementing programs to control forest ingrowth), the Committee has identified a key process that is eroding the supply of forage resource, but they also recognized that simply providing an enhanced resource alone will not eliminate the conflict. In Recommendations 1 (creating an MOU between the Ministry of Forests and Fish and Wildlife) and Recommendation 3 (a modified resource planning system), the Committee has proposed an appropriate social framework for exploring common interests and developing joint commitments. Recommendation 4 (enhanced collection of resource information) provides the basis for informed management decisions and for feedback on the results of those decisions.

The Priority Recommendations contain a range of initiatives that, if implemented, have the potential to significantly reduce this chronic and destructive conflict, over the long term.