EXECUTIVE SUMMARY

Fire-maintained Ecosystem Restoration in
BC's Rocky Mountain Trench

Blueprint for Action 2006

Rocky Mountain Trench
Ecosystem Restoration Steering Committee

APRIL 2006

VISION

A restored Trench landscape functioning at its ecological potential and thereby supporting: the native and historical matrix of trees, plants and animals; a sustainable forage resource for wild and domestic grazing ungulates; and the social, economic and cultural needs of stakeholders as they relate to the open range and open forests of the Trench.

MISSION

(1) Progressively restore the designated 118,500 hectares of the Trench to an ecologically appropriate fire-maintenance condition by 2030, in accordance with tree stocking targets for open range and open forest sites.

(2) Maintain the restored 118,500 hectares in an open range or open forest condition in perpetuity.

A view across the Rocky Mountain Trench from Premier Ridge in the East Kootenay. This high quality ungulate winter range was one of the first areas treated under the ecosystem restoration program. Purcell Mountains in the background.

- Maggie Dickeson photo

This pamphlet is an abridged version of Blueprint for Action 2006, the Rocky Mountain Trench Ecosystem Restoration Steering Committee's strategy document and progress report for the years 1997–2005.

ECOSYSTEM RESTORATION PROGRAM FUNDING SOURCES 1997-2005

The Steering Committee acknowledges with thanks the following funding sources for their support of the ecosystem restoration program. Their contributions have paid for slashing and prescribed burning treatments, and other program activities such as research, monitoring, mapping, public outreach and communications.

Columbia Basin Fish & Wildlife Compensation Program	$ 824,592
Forest Renewal BC	259,020
FRBC Terrestrial Ecosystem Restoration Program	306,100
Grazing Enhancement Fund	417,735
BC Ministry of Forests and Range	363,023 *‡
MoFR Enhanced Forest Management Pilot Project	53,525
Habitat Conservation Trust Fund	402,166
Rocky Mountain Elk Foundation	237,474
Columbia Basin Trust	126,500
Premier's Special Sheep Permit Fund	94,765
Land Use Coordination Office	60,000
BC Ministry of Agriculture and Lands	50,000 ‡
BC Ministry of Environment	50,000 ‡
Beef Cattle Industry Development Fund	48,500
Total	**$ 3,293,400**

* Includes grants to the Rocky Mountain Trench Natural Resources Society and Kootenay Livestock Association designated for Steering Committee use.

‡ Ministry funds do not include in-kind support costs such as staff time for program planning, coordination, supervision and prescribed burning.

Ecosystem Restoration Treatments 1997-2005

Commercial timber harvesting	6,529 ha
Mechanical and hand slashing/spacing	9,371 ha
Prescribed burning	11,922 ha
Gross total	**27,822 ha** *

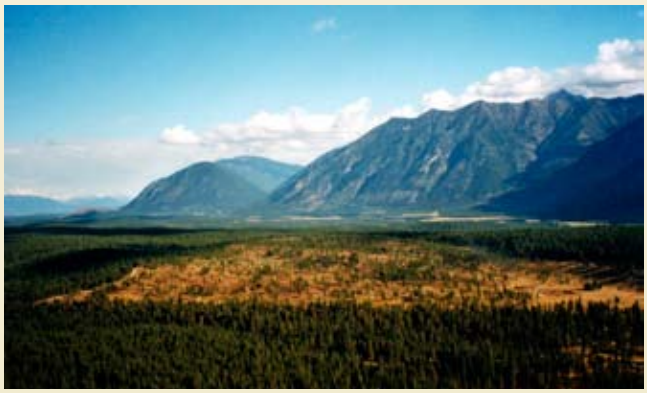
*Approximately 60% on open forest, 40% on open range sites.

Each time a hectare is treated, whether by harvesting, slashing or burning, it is included in the total for that treatment category. Thus, the sum of the three categories does not represent actual number of hectares treated.

THE PROBLEM Human action over the past century has fundamentally changed the nature of the Ponderosa Pine and Interior Douglas-fir ecological subzones of the Rocky Mountain Trench. These ecosystems, found along the bottom of the Trench from Golden to the US border, are defined as "fire-maintained" by BC's Biogeoclimatic Classification System. BC's Forest Practices Code Biodiversity Handbook defines them as Natural Disturbance Type 4, where the characteristic disturbance is "frequent stand-maintaining fires."

Fire events historically occurred on average every 20 years in the Trench. These frequent fires acted as a stand-thinning tool and resulted in a landscape mosaic of grassland and open forest. When fire is removed from a fire-maintained landscape, two processes occur: forest ingrowth in open forests and forest encroachment onto grasslands. Beginning in about 1890, and particularly after the 1940s when organized fire suppression became highly effective, the historic fire regime was disrupted in the Trench. The forest ingrowth and encroachment that followed produced critical, region-wide problems over time:

- loss of natural forage for domestic and wild ungulates,
- overgrazing on Crown range,
- increased opportunity for invasive plant establishment,
- loss of habitat and biodiversity,
- increased incidence of species at risk,
- forests more susceptible to insect and disease attack,
- conflict between ranchers and hunters,
- threatened viability of the ranching industry,
- loss of commercial timber value, and
- heightened risk of catastrophic wildfire.



Norbury Pasture, south of Fort Steele: an island of restored open forest in a sea of forest ingrowth.
— Rocky Mountain Forest District photo

THE SOLUTION The need for recovery of the rangeland ecosystems of the Rocky Mountain Trench has been well documented since the 1950s. It was a series of developments in the 1990s, however, that lead to establishment of a fire-maintained ecosystem restoration program: the East Kootenay Trench Agriculture/Wildlife Committee (1990-97), the Commission on Resources and Environment (1992-94), and the Kootenay/Boundary Land Use Plan Implementation Strategy (1997). In 1998 the BC Government established the Rocky Mountain Trench Ecosystem Restoration Steering Committee with responsibility for planning and delivering a restoration program. Committee members represent government ministries, the local ranching industry and timber licencees, restoration program funders, and citizen stakeholder organizations. In 2000 the Steering Committee published a strategic 30-year restoration plan.

THE STRATEGIC PLAN The plan encompasses 250,000 hectares (ha) of fire-maintained Crown land within the Rocky Mountain Forest District (RMFD). By 2030, an estimated 118,500 ha of this area will be restored to open range or open forest condition, and maintained in that condition in perpetuity.

The plan calls for a minimum treatment target of 4,500 ha per year. During the first eight years of operation, the restoration program has treated some 20,000 hectares with a combination of harvesting, slashing and/or prescribed burning. These treated sites are now considered to be in a maintenance state. Once sites are brought to open range or open forest condition, they will be maintained primarily through prescribed burning. The first maintenance burns are expected to begin in 2006.

RESTORATION OPERATIONS Planning and delivery of site-specific restoration activities are the responsibility of the Operations Committee, a sub-committee of the Steering Committee. Broadly defined restoration plans have been developed for each of the 48 range units in the RMFD. When a pasture within a range unit is scheduled for treatment, a detailed stand management prescription provides site-specific objectives. To date, at least one restoration treatment has been applied to about 90 of the 300 pastures in the 48 range units. An estimated 30 pastures are now in a maintenance cycle. About 200 pastures still require significant restoration treatment.

Long-term operational planning is essential to the success of the restoration program. Treatments must be applied in the right sequence and in a timely manner if they are to be effective in restoring ecological function. The program has relied on timber licencees to initiate harvesting, the usual first step in the restoration cycle, but many open range and open forest sites contain limited amounts of merchantable timber, thus have low or no priority for commercial logging.

The restoration program will benefit appreciably from the Chief Forester's recent allowable annual cut (AAC) allocation of 28,000 cubic metres to fire-maintained ecosystem restoration objectives in the Trench. The first allocation of its kind in the province, the five-year quota will give the program greater assurance in scheduling and allow more directed harvesting.

RESTORATION RESULTS The restoration program uses four objectives to monitor and measure results:
1) stand structure and overstory vegetation,
2) understory structure and composition,
3) forage production, and
4) status of invasive plant species.

Four post-treatment measurements taken over a 10-year period are considered adequate to measure response. Short-term monitoring results are available for eight sites. All monitored sites were overstocked with conifers and had suppressed understory vegetation. Prescriptions for desired post-treatment stand densities were mainly within the open forest stocking range. Forage production increases ranged widely from no significant increase to very substantial increases. Considerable variation in growing-season precipitation influenced treatment effects. Species composition generally remained unchanged at all sites post-treatment. This is not unexpected as changes in composition may require 10 years or more. Shrubs were consistently reduced by treatment and slow recovery was apparent. Invasive plants were observed to increase on some sites.

The program's monitored results to date demonstrate that positive vegetation response is not certain and is dependent largely on remnant vegetation species, extent of overstory cover, and moisture.

Additionally, extreme weather variability, increasing populations of wild ungulates, and livestock grazing have interacted to affect restoration results in the Trench.

The restoration program is built on the premise that if sufficient sites are treated, positive results will accrue over time. Despite the substantial number of hectares treated to date, current range conditions are being described in deficit terms. In the context of the agriculture-wildlife forage conflict, restoration activities in the Trench must be escalated to achieve sufficient ecosystem improvements to meet demands.

THE WAY AHEAD The need for fire-maintained ecosystem restoration in the Trench has been identified by government, industry and the public, and continues to be embraced in all quarters. The collective effort to date of the many agencies, groups and individuals passionate about restoration of the Trench has resulted in success that is unparalleled in British Columbia or Canada. That said, the successes are admittedly not sufficient for all; there is much work to be done to further improve and expand on the current process and results. Over the next five years the Steering Committee will actively pursue the following initiatives.

1. Program Participation

The Steering Committee will broaden its mandate and scope by encouraging and accommodating active participation by additional government, non-government and First Nations agencies.

BENEFITS OF FIRE-MAINTAINED ECOSYSTEM RESTORATION

- **Enhances biodiversity and improves ecological balance by restoring species-rich savanna ecosystems.**
- **Restores habitat for species at risk in the Trench, including: American badger, Rocky Mountain bighorn sheep, Columbian sharp-tailed grouse, Lewis's woodpecker, flammulated owl, long-billed curlew, arrowhead blue butterfly, scarlet gaura and Spalding's campion.**
- **Enhances the longevity of veteran, large-diameter wildlife trees which provide valuable nesting and perching sites for a variety of birds and bats.**
- **Improves forest health by thinning overdense, stagnated stands that are prone to insect and disease attack.**
- **Improves long-term timber harvest values by concentrating site growth potential in fewer, larger-diameter trees.**
- **Safeguards residential and other developments by reducing excessive fuel loads and fuel continuity that heighten the probability of catastrophic wildfire.**
- **Provides more natural forage, thus contributing to sustainability of wild and domestic ungulate populations essential to the economic viability of the ranching, guide-outfitting and resident hunting industries.**
- **Improves the aesthetics of savanna areas for outdoor recreation.**

2. Planning, Monitoring & Reporting

The Operations Committee will be directed to:

- complete a rolling Five-Year Treatment Plan that identifies strategic project priorities and manages treatment regimens to ensure optimum results and timely follow-through.
- complete the program's database project by the fall of 2006 in order to document and track restoration projects undertaken by all agencies in the Trench.
- complete a rolling Ten-Year Maintenance Plan to identify sites in a maintenance state and schedule re-treatments that will maintain those sites in their desired condition.
- install long-term monitoring sites to adopted standards, report out on results, and modify/refine restoration treatment practices in response to results.

3. Treatment Targets

The Chief Forester's AAC allocation provides a mechanism for applying treatments on a larger scale than previously. The Steering Committee will recommend to RMFD staff ways to use this allocation most effectively to enhance the restoration program.

While the current treatment target of 4,500 ha per year will be maintained as a minimum goal, treatment targets will be expanded if the Steering Committee is successful in securing dedicated staffing and stable long-term funding for the program.

4. Public Education & Communication

Public education and awareness initiatives coordinated by the Rocky Mountain Trench Natural Resources Society (the Trench Society) will continue and be expanded as resources permit.

5. Forage Production & Allocation

The Steering Committee will commence allocating funding to initiate forage productivity assessments to confirm and document the extent of forage production. Assessment data will be provided to the RMFD, which will devise and adjudicate a process to fairly allocate future forage increases to wildlife use and range tenure holders.

6. Adaptive Management

Under the auspices of the Steering Committee, the Trench Society's Waldo North Demonstration Project will be completed, and the learnings from this project will be applied in other appropriate locations in the Trench.

Rocky Mountain Trench Ecosystem Restoration Steering Committee

Chair: Greg Anderson, Operations Manager, Rocky Mountain Forest District

Members: Edward Abbott, Manager of Resource Conservation, Lake Louise, Yoho and Kootenay Field Unit, Parks Canada
Maurice Hansen, Coordinator, Rocky Mountain Trench Natural Resources Society
Lonnie Jones, Chair, Range Advisory Committee, Rocky Mountain Forest District
John Krebs, Senior Wildlife Biologist, Columbia Basin Fish & Wildlife Compensation Program
Mike Malmberg, Agrologist, Kootenay Livestock Association
Denis Petryshen, Stewardship Supervisor, Rocky Mountain Forest District
Andy Pezderic, Past President, East Kootenay Wildlife Association/Chair, Land Use/Forestry Committee, BC Wildlife Federation
Chris Stagg, Chief Forester, Western Canada Operations, Tembec Industries Inc.
Greg Tegart, Regional Manager, Central BC, Ministry of Agriculture & Lands
Irene Teske, Wildlife Biologist, Ministry of Environment

Blueprint for Action 2006 is available online at www.for.gov.bc.ca/drm/ or by contacting:

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A Blueprint for Action (2000) is available at www.trenchsociety.com