
Progress Report

1. PROJECT NAME: BC GRASSLANDS MAPPING PROJECT

2. DATE: SEPTEMBER 2002

3. FISCAL YEAR: 2002 – 2003 (YEAR THREE)

4. PROJECT RATIONALE:

Grasslands are rare, unique, life-sustaining ecosystems that house a great diversity of plants, animals and insects. More than 30% of British Columbia's threatened or endangered species depend on grasslands for their survival. BC's grasslands represent less than 1 percent of the provincial land base and are one of Canada's most endangered ecosystems.

The BC Grasslands Mapping Project is compiling existing information (inventories) from around British Columbia to build a grasslands Geographic Information System (GIS) and associated maps for the whole province. This project fills a critical need and will provide solid baseline information on a provincial scale that government, as well as wildlife, recreation and range management interests can have confidence in.

The lack of baseline information that can assist resource, wildlife and range managers, and industry in achieving sustainable land management practices puts into question the long-term sustainability of BC's grasslands. With ever increasing pressures on a relatively small land base, managers, decision makers and industry need to be able to strategically and effectively address key issues and threats to grasslands, such as forest encroachment, weed invasion, subdivision of agricultural lands, inappropriate grazing practices, abusive recreation and urban expansion. An inventory of BC's grasslands is long overdue and is supported by all interests including the ranching industry.

The BC Grasslands Mapping Project is an important step in compiling existing information to create a provincial database and will provide access to information that is currently not available. This process is fundamental to ensuring the conservation and sustainable management of BC's grasslands and the diversity of wildlife that depend on these endangered ecosystems.

5. PROJECT GOALS & OBJECTIVES:

Project Goals

The goal of the BC Grasslands Mapping Project is to provide information and a clear provincial picture on the abundance, distribution and status of British Columbia's grasslands. To this end, the immediate goal is to compile existing inventories & information from around the province to build a grasslands Geographic Information System (GIS) and the associated maps for the province of British Columbia. The following key questions are being addressed:

- How many hectares of native grasslands remain in British Columbia?
- What is the land status (privately owned, on crown and federal lands, on Indian reserve, within municipal boundaries, etc) and range tenure (under grazing lease, grazing licenses and permits) of BC's grasslands?
- How many hectares of grasslands have been lost to cultivation, urbanization, forest encroachment and in-growth?
- What types of grasslands occur in BC and where do they occur?

- What are the current and potential threats to grasslands?
- Which species at risk are associated with grasslands and where are they located?
- What are the priority areas for conservation, restoration and stewardship?

Project Objectives: April 2002 – March 2004

The objectives of the BC Grasslands Mapping Project are to:

- Map remaining grasslands, namely the East Kootenay Trench, Southeastern Skeena and Georgia Basin regions at a scale of 1:20 000 (this will complete the grassland base map for BC).
- Map overlapping land status and range tenure information, including: private land, provincial crown land, federal lands, Indian reserves, grazing leases, grazing licenses and permits, parks and protected areas, agricultural land reserve, regional districts and municipal boundaries.
- Map the historical distribution of grasslands for all regions.
- Describe and characterize the different grassland types found in each region of the province.
- Compile existing classification information from each region and develop recommendations for a provincial grasslands classification system.
- Incorporate available data and map species at risk locations, known occurrences of grasslands considered sensitive or at risk, noxious weed infestations and key recreational areas (i.e. ATV areas).
- Identify and prioritize specific grassland ecosystems which are most threatened by urbanization, cultivation, noxious weeds, inappropriate grazing management practices, abusive recreation and subdivision of agricultural land (current and potential threats).
- Develop recommendations for action on priority grassland areas (conservation and stewardship).
- Complete long-term maintenance strategy for the grassland database. The strategy will include: maintenance requirements, responsibilities for maintenance, ownership and long-term funding requirements.
- Produce a comprehensive extension plan for the BC Grasslands Mapping Project.

6. YEAR THREE ACTIVITIES/TECHNIQUE(S):

Completion of the East Kootenay (EK) Trench Grasslands Base Map:

- Worked with digital and hard copy orthophotos, Landsat satellite imagery, existing detailed spatial inventories (e.g. Terrestrial Ecosystem Mapping), local expertise and site specific information to produce accurate grassland ecosystem maps for the Invermere and Cranbrook Forest Districts.
- Developed a comprehensive Arc Macro Language (AML) to automate the mapping of grasslands in the EK Trench (Invermere and Cranbrook Districts).

Completion of Land Status and Range Tenure Overlays for BC's Grasslands:

- Completed land status overlays for all grassland coverages in the Kamloops, Cariboo, Prince George and Nelson Forest Regions. Land status overlays include: private, crown and federal lands; Indian Reserves, parks and protected areas; agricultural land reserve; lands acquired by conservancy groups (e.g. TNT, TLC, NCC); regional districts; and municipal boundaries.
- Completed range tenure overlays for all grassland coverages in the Kamloops, Cariboo, Prince George and Nelson Forest Regions. Range tenure overlays include grazing licenses, permits and leases.

Completion of Broad Scale Grasslands Mapping and Land Status/Range Tenure overlays in the Muskwa Foothills:

- Developed 1:250 000 scale maps for grasslands in the Muskwa Foothills (Fort St. John & Fort Nelson Districts) using the Muskwa Foothills detailed Broad Ecosystem Unit (BEU) Inventory as source data.
- Completed land status and range tenure overlays for grassland coverages in the Muskwa Foothills. Land status overlays include private & crown lands, parks & protected areas and regional districts. Range tenure overlays include grazing licenses and permits (primarily guide-outfitter tenures).
- Developed a comprehensive Arc Macro Language (AML) to automate the mapping of grasslands in the Muskwa Foothills.
- Integrated the broad scale Muskwa Foothills mapping into the existing 1:20 000 scale mapping for the Fort St. John and Fort Nelson Districts. Finalized grassland coverages and workspaces, and attached detailed metadata and documentation.

Finalization of Grassland Coverages, Metadata and Documentation:

- Made final edits and standardized all grassland coverages in the Kamloops, Cariboo, Prince George and Nelson Forest Regions. Also standardized all project workspaces.
- Developed and attached detailed metadata to all grassland coverages, including source data description, updates, comments and other information.
- Developed and attached detailed documentation on the mapping process for all grassland coverages. This documentation is in Microsoft Word format and includes mapping rationale, AMLs and other procedures, coverage attribute definitions and values, and other information.

Initialization of Historical Grasslands Mapping:

- With guidance from the Technical Review Committee at the September 25 semi-annual meeting, developed an appropriate procedure for Phase One of historical grasslands mapping (Phase One will focus on those native grasslands that have been lost to cultivation and urbanization within the traditional, NDT4 valley bottoms).
- Began work on the pilot projects for Phase One mapping, located in the Kamloops District and the South Okanagan.

GIS Modeling of Grasslands Considered Threatened or at Risk:

- Prepared for and held a GCC workshop: *Identifying Grasslands at Risk for GIS Modeling of Priority Areas*. The goal of this workshop was to identify criteria that would enable the modeling of grasslands considered threatened or at risk. This modeling would generate a map that government and other organizations could use to focus their efforts on priority grassland areas and develop appropriate management strategies.
- Based on data currently available in the grasslands GIS, began preliminary modeling work on the priority areas and threats identified during the workshop. Priority threats identified include urbanization, invasive species, cultivation and forest encroachment.

Communication and Extension of Grasslands Mapping:

- Presented the BC Grasslands Mapping Project to the Ministry of Water, Land & Air Protection, Wildlife Habitat Canada and Livestock Associations. Also presented the Project at the University of Northern BC GIS Conference in Prince George.

- Sent hard copy maps, grassland statistics and mapping information to individuals and organizations involved in grasslands education, communications, research, monitoring, conservation and stewardship (e.g. East Kootenay Conservation Program, Canadian Intermountain Joint Venture, Canadian Wildlife Service, etc).
- Sent grasslands data to the Columbia Basin Fish and Wildlife Compensation Program (CBFWCP) for integration into their Biodiversity Atlas pilot project.
- Developed updated grassland maps for display on the GCC's website (www.bcgrasslands.org) and also for the GCC's Sustaining Healthy Grasslands Symposium in Cranbrook.
- Prepared a comprehensive statistical report for Year 3 midterm reporting on the Project. This 37 page report features detailed statistics on the land status and range tenure of BC's grasslands.

7. REMAINING ACTIVITIES IN THE YEAR:

1. Establish a plan for the completion of grasslands mapping in the Southeastern Skeena and Georgia Basin regions.
2. Complete Phase One of historical mapping, which is focused on native grasslands lost to cultivation and urbanization within the traditional, NDT4 valley bottoms.
3. Initiate Phase Two of historical mapping, which will focus on native grasslands lost to forest encroachment and in-growth.
4. Develop GIS modeling criteria and procedures to map grasslands considered threatened or at risk.
5. Describe and characterize the different grassland types found in each region of the province.
6. Compile existing classification information from each region and develop recommendations for a provincial grasslands classification system.
7. Develop a long-term maintenance strategy for the grassland database. The strategy will include: maintenance requirements, responsibilities for maintenance, ownership and long-term funding requirements.
8. Complete the BC Grasslands Mapping Project Year 3 Statistical Report.
9. Complete the BC Grasslands Mapping Project Year 3 Report & Action Plan: 2003-2004

8. MEASURES OF RESULTS:

There has been much progress to date as the BC Grasslands Mapping Project continues through its third year of the four year project plan. The measurable results are as follows:

- Base grassland ecosystems mapping at the 1:20 000 scale is complete for over 95% of BC's grasslands (Nelson, Kamloops, Cariboo and Prince George Forest Regions).
- Land status and range tenure overlays are complete for over 95% of BC grasslands (this includes ALR, private land, crown land, Indian Reserves, protected areas, NGO acquired lands, regional districts, municipal boundaries, grazing licenses and permits, and grazing leases).
- Comprehensive statistical analyses on grassland ecosystems and land status/range tenure have been produced. This has allowed the GCC to create a provincial picture on the abundance, distribution and status of BC's grasslands.
- Countless hard copy maps, statistics and information have been supplied to government, non-government organizations and individuals involved in grassland education, communications, research, monitoring, conservation and stewardship.

9. EVALUATION PLAN:

The success of the BC Grasslands Mapping Project will be measured by:

- Successfully completing key deliverables, namely the GIS and the associated maps of British Columbia's grasslands. This will include all of the key information layers and a final report that outlines the status of British Columbia's grasslands with all associated statistics.
- Producing a useful product for government, non-government organizations and individuals that are involved in grassland education, communications, research, monitoring, conservation and stewardship. The Grasslands Conservation Council, through its Communication and Extension Program, will ensure the accessibility and the dissemination of information produced from this project. Other organizations that will benefit from this project:
 - Provincial Agencies: Ministry of Forests, Ministry of Agriculture, Food and Fisheries; Ministry of Sustainable Resource Management; Ministry of Water, Land & Air Protection; Ministry of Energy & Mines
 - Federal Government: Environment Canada,
 - Non-government Organizations: BC Cattle men's Association, Canadian Parks and Wilderness Society, Society for Range Management, Southern Interior Forest Extension & Research Partnership, The Land Conservancy of BC, The Nature Trust, Federation of BC Naturalist, Ducks Unlimited Canada, Wildlife Habitat Canada.
 - BC Hydro, BC Gas, and many others.
- Incorporating key information and utilizing tools, such as GIS, for resource management and planning and decision-making processes around the province.
- Establishing partnerships and sharing information among a very diverse group of government and non-government organizations.

10. BENEFITS:

This project will provide an effective tool and the most comprehensive source of quantitative data and spatial information available in BC. This information will improve all aspects of land use management, planning and decision-making, as well as providing key information to the Real Estate industry.

- ✓ **Natural Resource Management**
The BC Grasslands Mapping Project addresses *Natural Resource Management* needs in BC by:
 - Producing and making available critical information about the abundance, distribution and status of grasslands around the province to the agricultural industry;
 - Increasing awareness and understanding about grasslands and related land use/management issues among industry, government and non-government organizations;
 - Providing a useful tool for government, non-government organizations (such as the BC Cattlemen's Association) and industry to achieve effective and sustainable management of grasslands and to ensure the conservation of BC's range resources;
 - Improving ability to define, target and effectively address priority grassland issues;
 - Increasing ability to identify priority areas for conservation, stewardship, research, communication and extension;
 - Forging new partnerships and developing new opportunities for stewardship, education and applied research;

- Enabling the GCC to work co-operatively and in partnership with the Society for Range Management, the BC Cattlemen's Association and ranchers to address concerns over wildlife habitat and the long-term sustainability of BC's grasslands.

✓ **Land Use Planning and Decision Making**

The BC Grasslands Mapping Project addresses *Land use Planning and Decision-Making* by:

- Allowing for more informed planning and decision-making, as well as more informed policy and management initiatives.
- Providing baseline information to assist planning and policy initiatives, and decision-making processes:
 - Land status (ownership and range tenure) of BC's grasslands.
 - Spatial distribution of grasslands; types of grassland and where they occur.
 - Spatial distribution of grasslands that are privately owned, on Indian reserve or within First Nations traditional territories, in Agricultural Land Reserve (ALR) and within regional districts and municipal boundaries (size, shape, connectivity of parcel; and density of settlement). The spatial distribution of grasslands will determine how their landscape context affects conservation and planning initiatives.
 - Spatial distribution of rare and unique grasslands.
 - Species at risk locations and their habitats, wetlands, aspen copses, riparian areas, cottonwood stands and noxious weed infestations.
 - Historical extent of grasslands and how much has been lost to cultivation, urbanization, forest encroachment and in-growth, and weed infestation.
 - Current and potential threats to grasslands and identification of priority areas for conservation, restoration and stewardship.
- Contributing to meeting the goals and objectives of LRMP processes and other land use planning initiatives.

✓ **Communication & Partnerships**

- The BC Grasslands Mapping Project will improve communication, access and exchange of grassland related information between industry, government organizations (federal, provincial, municipal & regional districts), environmental organizations, First Nations, academic institutions and other groups.
- The Project will assist in establishing new partnerships and developing opportunities for discussion on important grassland management, conservation and stewardship issues. Only through partnerships will we effectively achieve sustainability and the conservation of grasslands.

✓ **Environmental Sustainability**

The BC Grasslands Mapping Project is an essential step in obtaining a provincial picture and accurately determining the status of British Columbia's grasslands. A lack of baseline information to assist industry, municipal governments and resource managers to work with conservation interests on achieving sustainable and economically viable land management practices puts into question the long-term sustainability of BC's grasslands. With increasing pressures on a relatively small land base, managers, planners, decision-makers and industry need to be able to strategically and effectively address key issues and threats to grasslands, such as forest encroachment the invasion of weeds, subdivision of agricultural lands, urban encroachment, and other land use and development issues. The inventory of BC's grasslands is long overdue and is key to the complex process of ensuring sustainability over the long term.

11. COMMUNICATION & EXTENSION PLAN:

All information and products will be available through the BC Grasslands website, the GCC office and the Ministry of Sustainable Resource Management. The GCC will extend the information to the following organizations: Ministry of Forests – Range, BC Cattlemen’s Association, Wildlife Federation, Canadian Parks & Wilderness Society, BC Parks, The Land Conservancy of BC, Ducks Unlimited Canada, Federation of BC Naturalists, Nature Conservancy of Canada, The Real Estate Foundation, Wildlife Habitat Canada, The Nature Trust of BC, Environment Canada, South Okanagan-Similkameen Conservation Program, Union of BC Municipalities, and various Municipalities (Vernon, Princeton, and others).

Information-sharing agreements have been developed with organizations that would like to use information produced by this project (prior to the information being formally released). The need and demand for this information is becoming very apparent. Agreements currently in place include: Lower Similkameen Indian Band, Vernon Naturalists, Allan Brooks Centre and Columbia Basin Fish and Wildlife Compensation Program (Biodiversity Atlas for the Columbia Basin). Pending and future agreements may include Nature Conservancy of Canada, Ducks Unlimited Canada (Intermountain Joint Venture) and Environment Canada. A comprehensive extension plan is currently being developed.

12. BUDGET DETAILS:

Not included.

13. RECOMMENDATION AND SUGGESTIONS:

Most of the applicable information is covered in the above points. See ‘Benefits’ section for the significance of this Project.

The GCC recommends that organizations and groups continue funding this very important Project. The Project team and the Technical Review Committee agree that the GCC is using an effective and efficient approach to completing the BC Grasslands Mapping Project.