

**PROJECT NAME: BC Grasslands Mapping Project****TYPE OF REPORT:** Annual**FISCAL YEAR:** 2001 – 2002 / YEAR 2 OF 4 YEARS**LOCATION:** Kamloops, BC**1. PROJECT RATIONALE**

British Columbia does not currently have adequate information and a clear provincial picture on the abundance, distribution and status of its grasslands. The BC Grasslands Mapping Project is compiling existing information (inventories) from around the province to build a grasslands Geographical 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 agencies and range management interests can have confidence in.

The lack of baseline information that can assist the resource and range management community in achieving sustainable and economically viable 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, the invasion of weeds, subdivision of agricultural grazing lands, inappropriate grazing practices, abusive recreation and urban expansion.

An inventory of BC's grasslands is long overdue. 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.

**2. PROJECT OBJECTIVES**

The BC Grasslands Mapping Project aims to:

1. Use a Geographic Information System (GIS) to map the occurrence, distribution and abundance of BC's Native Grasslands, at a scale of 1:20,000.
2. Map overlapping land status and range tenure information, including private land, crown land, Indian reserves, Agricultural Land Reserve, grazing leases, grazing licenses and permits, parks and protected areas, regional districts, and municipal boundaries.
3. Describe and characterize the different grassland types found in each region of the province.
4. Compile and map known occurrences of grasslands considered sensitive or at risk.
5. Identify and prioritize specific grassland ecosystems which are most threatened by urbanization, cultivation, noxious weeds, inappropriate grazing management practices, abusive recreation uses, and subdivision of agricultural land (current and potential threats).
6. Develop recommendations for action on priority grassland areas (conservation and stewardship).

**3. PROGRESS TO MARCH 31, 2002: TASKS AND ACTIVITIES****Establishing the Project Team:**

- A Technical Review Committee was established to oversee the project, specifically to provide technical guidance and to review progress and products. The Technical Review Committee includes: the Ministry of Sustainable Resource Management; Ministry of Water, Land, and Air Protection; Ministry of Forests (district & regional levels); Grasslands Conservation Council (GCC); Conservation Data Centre; two contracting grassland ecologists; and First Nations.

- A partnership was formalized with the Ministry of Environment, Lands and Parks (MELP) to assist the GCC in effectively delivering the mapping project. The GCC will employ, administer and manage the project while MELP will provide the office space, computer, other hardware, software, GIS supervision and support, and other in-kind contributions for the project. The agreement will be revised on an annual basis.
- The GCC and the Technical Review Committee revised the project plan to reflect a more realistic time frame for the delivery of the project. As preliminary planning and co-ordination took longer than expected, the BC Grasslands Mapping Project was extended as a three-year project (2000 – 2003).
- With assistance from the Technical Review Committee, the GCC hired a GIS Analyst that began work with the project team on November 8<sup>th</sup>, 2000.
- The GCC has secured First Nations involvement, as well as other partnerships, including Ministry of Forests, Ministry of Agriculture, Food and Fisheries, Land Reserve Commission, the BC Cattlemen's Association, BC Parks, Conservation Data Centre, South Okanagan-Similkameen Conservation Program, and others.

#### **Completing the Kamloops Region Grasslands Base Map:**

- After regular Technical Review Committee meetings, continual revisions were made to the automated GIS Arc Macro Language (AML) to better select out grasslands in the South Okanagan, Kamloops, Ashcroft, and Tyaughtun pilot areas.
- The AML was revised and refined to reach a ~95% accuracy/confidence level for grasslands mapping in the Kamloops Region (based on different representative grassland ecosystems found within the pilot areas).
- Once the AML had been finalized for the Region, the Forest Cover/Biogeoclimatic merged data\* was queried for grasslands and compiled for the Clearwater, Kamloops, Lillooet, Merritt, Salmon Arm, Vernon, Penticton, Boundary, and Arrow Forest Districts.

#### **Completing the Cariboo Region Grasslands Base Map:**

- Two meetings were held with Ministry of Forests (MOF) Cariboo Region staff (range representatives, agrologists, ecologists) to introduce the Grasslands Conservation Council (GCC) and the mapping project. Meetings also gathered expert opinion as to how to map grasslands in the Cariboo using the devised Kamloops Region AML as a template.
- Cariboo grasslands mapping was refined by way of AML revisions, pilot area tests (i.e. Churn Creek and Anahim Lake pilot areas), and verifications using detailed Terrestrial Ecosystem Mapping (TEM) polygons, Landsat satellite imagery, orthophotos, and air photos.
- Once the AML had been finalized for the Region, the Forest Cover/Biogeoclimatic merged data\* was queried for grasslands and compiled for the Chilcotin, Williams Lake, Quesnel, and 100 Mile House Forest Districts.

#### **Completing the Prince George Region Grasslands Base Map:**

- A meeting was held in Prince George with range staff, ecologists, agrologists, and other experts from the Ministry of Forests and the Ministry of Sustainable Resource Management to introduce the GCC and the mapping project. The meeting also served to gather expert opinion regarding possible strategies and procedures for accurately mapping the relatively sparse grasslands of the Region.
- Contact was made with experts from the University of Northern BC (UNBC), Ministry of Water, Land, and Air Protection, BC Parks, Predictive Ecosystem Mapping (PEM) contractors, and other organizations and individuals to gather all relevant data/information for the Region's grasslands.
- Numerous draft grassland maps and orthophoto overlays were created and distributed to regional experts to help verify grasslands mapping.

- A rigorous, comprehensive process was devised with the help of range staff to identify dry, open range grassland areas to serve as the foundation for the regional grasslands selection criteria. With local knowledge in mind, TRIM base information and orthophotos were used to 'interrogate' Open Range polygons to determine if they occupied a dry site dominated by a grassland community (essentially warm aspect, steep sloped sites along river breaks in this region).
- Once every Open Range polygon in the Region had been interrogated, the Forest Cover/Biogeoclimatic merged data\* was queried for grasslands and compiled for the Robson Valley, Prince George, Vanderhoof, Fort St James, Dawson Creek, Fort St John, and Fort Nelson Forest Districts.

\* Forest Cover/Biogeoclimatic merged data – a 'union' of two separate coverages combining Forest Cover and Biogeoclimatic data in order to select out and query certain combinations of attributes from the two data sources. This is the template from which grasslands coverages are created.

#### **Developing the East Kootenay Region Grasslands Base Map:**

- A meeting was held in Cranbrook with range staff, ecologists, agrologists, and other experts from the Ministry of Forests, Ministry of Sustainable Resource Management, Ministry of Water, Land and Air Protection, First Nations groups, and non-government organizations to introduce the GCC and the mapping project. The meeting also served to gather expert opinion on possible strategies and procedures for mapping the grasslands of the East Kootenay Trench.
- Draft grassland maps in the Trench as well as orthophoto, Terrestrial Ecosystem Mapping, and Landsat overlays were created for assistance with grasslands mapping verification.

#### **Developing a Process for Historical Grasslands Mapping:**

- A review of recognized historical and predictive mapping methods was undertaken to determine how these procedures could be used for historical grasslands mapping (e.g. old air photo interpretation, old range survey map digitizing, use of biogeoclimatic zone, slope/aspect, and forest cover data to predict historical grassland extent).
- The predictive mapping algorithm for ecosystem restoration purposes in the East Kootenay Trench was investigated for its input into a potential grasslands mapping algorithm.
- Expert opinion from the Nelson Region was gathered regarding the use of biogeoclimatic zone, slope/aspect, and forest cover data to predict the historical extent of grasslands.
- A pilot study was created in the Hat Creek area of the Kamloops Forest District to test a draft potential grasslands algorithm.
- With guidance from the Technical Review Committee, an action plan for the first stage of historical mapping was developed. The first stage will concentrate on those native grasslands that have been cleared for agricultural or urban development purposes within the traditional grasslands realm {essentially Natural Disturbance Type 4 (NDT4) valley bottoms}.

#### **Developing a Process for Incorporating Land Status and Range Tenure Data:**

- Land status and tenure data from the Ministry of Forests (MOF), Crown Land Registry Service (CLRS), BC Assets and Land (BCAL), Land Reserve Commission (LRC), Ministry of Aboriginal Affairs (MAA), BC Parks, Ministry of Agriculture, Food and Fisheries (MAFF), LRMPs datasets, Integrated Cadastral Initiative (ICI), and regional/district land status initiatives have been examined for input into the grasslands GIS.
- Currency and metadata information relating to MOF Ownership data in different regions was gathered from MOF Inventory staff.
- MOF Ownership has been used as a display theme on several maps to determine how current and accurate its land status depiction is in different areas of the province.
- With guidance from the Technical Review Committee, a process for incorporating land status and range tenure data was devised. The Project will integrate MOF Ownership data, Agricultural

Land Reserve, and Protected Areas for its land status; range tenure data will be gathered from individual Forest Districts.

**Investigating and Using Existing Spatial Inventories:**

- Detailed ecosystem inventories that overlap with grassland areas, such as the South Okanagan, Itcha Ilgachuz, and Premier/Diorite TEM projects, were used to further verify grasslands mapping within overlap regions.
- The Sensitive Ecosystems Inventory (SEI) was thoroughly examined for its use in mapping grasslands in the South Vancouver Island/Gulf Islands region.
- The Broad Ecosystems Inventory (BEI) was thoroughly examined for its use in mapping high elevation grasslands primarily in Northern BC.
- The Bulkley Valley Rare and Endangered Plant Communities Inventory was examined for its use in mapping grasslands in the Southeastern Skeena Region.
- The use of numerous other spatial inventories have been examined for their input into the process of grasslands mapping {e.g. PEM, VRI, satellite imagery classifications, Forest District level mapping (Ecosystem Restoration mapping in Cranbrook), etc}.
- Roughly 40 existing inventories have been investigated for their input into the grasslands mapping process (see attached *Existing Inventories Assessed*).

**Adding Additional GIS Layers:**

- Sources of rare and endangered species locations, noxious weed distribution, grassland characterizations, and other grassland associated spatial data (in addition to those identified in Year 1) were compiled.
- An action plan is being developed for the incorporation of appropriate spatial data to serve as additional layers in the grasslands GIS.

**Review of Similar Projects in British Columbia**

Essentially, the mapping and inventory of grasslands in BC has been a low priority in the past. No grasslands inventory has been completed for British Columbia. There are, however, several existing inventories containing grasslands related data. They include:

- 1) Forest Cover with the 'Open Range' category
- 2) The Broad Ecosystems Inventory (BEI) with broad classes such as Subalpine Grassland, Alpine Grassland, and Antelope Brush/Shrub Grassland
- 3) Natural Disturbance Type (NDT) 4 maps with Interior Douglas Fir, Ponderosa Pine and Bunchgrass Biogeoclimatic Zones (these zones very roughly correspond to the general distribution of grasslands in the southern half of the province)
- 4) Terrestrial Ecosystems Mapping (TEM) projects with detailed line work of existing ecosystem types
- 5) Predictive Ecosystems Mapping (PEM) projects with detailed line work of predicted ecosystem types
- 6) Vegetation Resources Inventory (VRI) projects with similar detailed line work as TEM of plant communities.

Although the above inventory initiatives tend to be regionally based and are not coordinated or consistent in their approach, the BC Grasslands Mapping Project is finding them particularly useful as grasslands mapping base data sources or for mapping verification. Forest Cover and Biogeoclimatic Zone data are being used as the template from which grasslands maps are developed while TEM, PEM, and VRI projects are being used for mapping verification.

**Review of Other Programs/Projects in Canada and the USA**

As this project is intended to compile existing information, use existing provincial government

infrastructure and information, and conform to current provincial Resources Inventory Committee (RIC) and GIS data standards, looking to other provinces or states did not provide significant information at this stage of the project. The BC Grasslands Mapping Project will, however, link to other grassland programs across the country and in the USA to assist in clarifying the status of grasslands on a continental scale.

The Nature Conservancy of Canada (NCC) is initiating an Ecoregional Conservation Planning process in British Columbia. This process will assist in determining how well government and NGOs are performing to protect biodiversity in each of BC's Ecoregions. The GCC and NCC are coordinating their efforts and are in the process of establishing a partnership. NCC will use the inventory information produced through the BC Grasslands Mapping Project in their Ecoregional Planning process.

The GCC has been in touch with groups in Alberta such as the Alberta Prairie Conservation Forum (involved in grasslands mapping and inventory) to start to build key inter-provincial linkages among groups involved in native grasslands conservation. The GCC has also been in touch with groups in the USA, such as the Yellowstone to Yukon (Y2Y) Conservation Initiative, to begin to build a network with organizations dealing with native grasslands conservation south of the border.

The GCC will continue to communicate with other provincial and national organizations to ensure that the BC Grasslands Mapping Project is well coordinated with all relevant programs and projects.

**Communication and Extension:**

- Numerous meetings took place with the Nature Conservancy of Canada (NCC); Ducks Unlimited Canada; Ministry of Forests; Ministry of Water, Land, and Air Protection (WLAP); Ministry of Sustainable Resource Management (MSRM), Agriculture Canada, as well as other organizations to inform and involve key people and organizations in the mapping project.
- First Nation groups, Tribal Councils, and the Aboriginal Mapping Network have been informed of the GCC, the *BC Grasslands Mapping Project*, and the grasslands mapping products available.
- The GCC has increased Project awareness and initiated the involvement of livestock associations in the southern half of the province. The GCC has communicated to 53 associations towards the goals of extension of mapping products and the support of the ranching industry. Presentations will be made at livestock association meetings to inform members of the significance of the GCC's grasslands mapping to the industry.
- Organized grasslands GIS workshop in Penticton on August 16, 2001.
- Maps and statistics have been supplied to numerous individuals involved in grasslands education, communications, research, monitoring, conservation, restoration, and stewardship. {e.g. grassland maps for BC Parks in the Thompson Regional District, grassland maps with draft land status layers for National Park candidate areas, statistics and reference maps for species at risk reporting, draft maps of the East Kootenay Trench for the Nature Conservancy of Canada's (NCC) Ecoregional Planning, etc}.
- Published articles for the *BC Grasslands Newsletter*.
- Designed the first phase of the BC Grasslands Mapping Project Web-Page and developed a plan for the second phase of development.
- Two formal legends were created for grasslands maps—one tailored for MOF interpretation and one tailored to the general public.
- Formal terms of release and standard base features were developed for all grassland maps.
- Produced an Annual Statistics Report— March 2002.
- Produced sample maps for representative regions of BC.

### Establishing Partnerships

The GCC had partnership meetings and discussions with Columbia Basin Trust (CBT), the Columbia Basin Fish and Wildlife Compensation Program (CBFWCP), the Nature Conservancy of Canada (NCC), Ducks Unlimited Canada, Environment Canada, the Canadian Intermountain Joint Venture (CIJV), the Intermountain Wetland Conservation Program (IWCP), as well as other interested parties.

### Challenges

There are some significant challenges that have been encountered during Year Two of the BC Grasslands Mapping Project. They include:

- Working with Forest Cover data (which generally has a lack of grassland-associated attributes) to derive a provincial basemap for BC's grasslands ('Open Range' is the Forest Cover category that most closely parallels the distribution of native grasslands).
- Working around original air photo misclassifications and other limitations of the Forest Cover in some regions to arrive at an accurate and consistent mapping product.
- Standardizing Forest Cover and other data from different Ministry of Forests Districts and Regions so that broad regional queries can be executed on the data.
- Developing an Arc Macro Language (AML) that accurately captures the different grassland ecosystems in each region of the province.
- With the absence of guidance from a provincial grasslands classification system, establishing a working definition of "grassland" that satisfies the key resource agencies and partners involved in this project and allows consistent mapping across regions.
- Working with limited resources and timelines to complete this comprehensive provincial mapping project.
- Dealing with a lack of information on the distribution of alpine grasslands in the province (e.g. lack of a definition for alpine grasslands, lack of accurate mapping for distinct alpine grassland communities).
- Recognizing the large amount of work and resources needed to accurately define the historical distribution of BC's grasslands.
- Determining the future ownership and maintenance of the grasslands GIS and all associated information as well as its re-integration back into the Forest Cover (Forest Cover being the primary input data source for the creation of base grassland ecosystems).

All of the above challenges have been handled in stride. The BC Grasslands Mapping Project continues to forge ahead by working around limitations with effective action plans and processes.

## 4. YEAR TWO DELIVERABLES

### 1. Draft statistics:

- Total hectares of grasslands for the province are available:
  - By forest region and forest district,
  - By Ecosection & Biogeoclimatic Zone,
  - By broad grassland type, namely open grassland, open dry forest adjacent to open grassland, open dry forest in NDT4, and open burned forest stand in Ponderosa Pine or Bunchgrass Biogeoclimatic Zones (see the *Year End Statistical Report March 2002* for additional information on these categories).
- Land status information is available:
  - For the province - Agricultural Land Reserve (ALR) and Protected Areas.
  - For the Kamloops region - Agricultural Land Reserve (ALR), Protected Areas, Indian reserves, private lands and crown lands.

\* Land status and tenure statistics for the whole province will be available in draft form in March 2003.

2. Grassland maps for regions completed in British Columbia (digital and hardcopy maps).
3. *BC Grasslands Mapping Project* Year-end Report 2001 – 2002.

## 5. METHODS

1. Ministry of Forests (MOF) Biogeoclimatic Zones at the 1:250 000 scale are being used as an input data source in the development of the base grassland ecosystems layer of the Geographic Information System (GIS).
2. MOF Forest Cover data at the 1:20 000 scale are being used as an input data source in the development of the base grassland ecosystems layer of the GIS.
3. Ministry of Sustainable Resource Management (MSRM) Ecoregions data at the 1:250 000 scale are being incorporated into the base grassland ecosystems layer of the GIS.
4. 1:20 000 scale base grassland ecosystem layers that have been created are being maintained by Forest District (e.g. Kamloops Forest District grasslands coverage, Lillooet Forest District grasslands coverage, etc.)
5. The Project team has consulted with key agencies and experts to define and select criteria that will assist in the delineation of grasslands in different regions of the province. The Project is using current Ministry of Forests (MOF) and Ministry of Sustainable Resource Management (MSRM) standards for mapping and analysis.
6. Introductory presentations on the GCC and the Mapping Project are being made as the Council enters into a new region to continue its mapping work. Presentations are made to government officials, non-government organizations, First Nations groups, and other individuals/groups involved with grasslands. Presentations serve to increase Project awareness and gather local expertise for accurate grasslands mapping in each region.
7. Query and selection criteria are being developed to select out grasslands and grassland associated ecological features from the input data source template\* (this is a comprehensive and critical process, and is the foundation for the creation of the base grassland ecosystems layer of the GIS).
8. An Arc/Info Arc Macro Language (AML) has been developed to automate the process of grasslands mapping.
9. Numerous pilot projects are being used to initially test the query and selection criteria (i.e. AML) in different grassland regions of the province. Pilots have been conducted in such areas as: South Okanagan/Similkameen, Kamloops/Lac du Bois, Ashcroft/Hat Creek, Invermere, Premier Lake, Tyaughtun, Churn Creek, Peace River, Kechika Valley, Vancouver Island/Gulf Islands, and Anahim Lake.
10. Orthophotos, satellite imagery, air photos, detailed inventories {e.g. Terrestrial Ecosystem Mapping (TEM), Vegetation Resources Inventory (VRI)} and local expertise are being used to help verify the mapping of grassland ecosystems.
11. A local team of experts is established in each region to assist the GCC and its partners in the mapping verification process.
12. Once the “grasslands” selection criteria have proven effective in pilot areas and the resultant mapping has reached a 90-95% confidence level through verification, the Project team is querying the input data source template for grasslands and grassland associated ecological features (i.e. “running” the AML).
13. For those areas missed by the AML, the Project team is developing a plan for further assessment using available TEM, VRI, satellite imagery, orthophotos, other detailed spatial inventories, and local expertise. Through the use of this supplemental data/information, areas in question will be interrogated to further delineate grassland ecosystems.
14. An AML is being developed in each Forest Region to accurately select out the different grasslands ecosystems occurring in the different areas of the province.
15. Regional characterizations for the different grassland types in the province are being developed.

16. A combination of MOF “Ownership” data, Ministry of Water, Land, and Air Protection (MoWALP) Parks and Protected Area data, and Land Reserve Commission (LRC) Agricultural Land Reserve data will be used for the land status layer of the GIS (i.e. layer two).
17. Range tenure data (including grazing licenses, permits, and leases) will be compiled from MOF Forest Districts and the LRC and integrated into the GIS.
18. Historical grasslands mapping, representing the third layer of the GIS, will entail three distinct processes to be completed in the following order: 1) the mapping of native grasslands lost to agricultural or urban development within Natural Disturbance Type (NDT) 4 dry valley bottoms 2) the mapping of grasslands encroached upon from the surrounding forest fringe and 3) the mapping of “pocket” grasslands that have disappeared primarily within the Interior Douglas Fir (IDF) biogeoclimatic zone.
19. Historical grasslands mapping will require the use of several input data/information sources, namely: Biogeoclimatic Zones; Forest Cover; slope, aspect, and elevation data; Bioterrain data; soils data; satellite imagery; orthophotos; old air photos; past historical and forest encroachment/in-growth projects; site descriptions; and local expertise.
20. Noxious weed infestations in spatial form will be compiled from agencies such as MOF, the Ministry of Agriculture, Food, and Fisheries (MAFF), and the LRC. Noxious weed distribution will represent an additional layer of the GIS.
21. Rare and endangered species locations from the Conservation Data Centre will be integrated into the GIS as an additional layer.
22. Other grasslands related spatial data, such as ATV areas, will be incorporated as additional layers if the Project team believes they are worthwhile to include.
23. Regular meetings of the Technical Review Committee are being held to review progress, discuss and resolve technical issues, assist in guiding the project, and ensure that the project produces an accurate and usable product for government and other partners.
24. Deficiencies and gaps in mapping will be documented and recommendations will be developed on how to address these deficiencies.
25. The GIS will be built within the Ministry of Sustainable Resource Management, Kamloops Southern Interior Region Office (built on an Arc/Info GIS—Unix Operating System platform).
26. Formal agreements will be developed both with MSRM and MOF for the development of the Geographic Information System (GIS) database and for access to all required grasslands data and information (these are currently in place).

\* Input data source template—Forest Cover/Biogeoclimatic Zone merged data; a ‘union’ of two separate coverages combining the Forest Cover and Biogeoclimatic Zone data in order to select out and query certain combinations of attributes from the two data sources. This is the template from which base grasslands ecosystems are created.

## 6. MEASURES OF RESULTS

The BC Grasslands Mapping Project is making significant progress. The measurable results are as follows:

- Agreements have been secured with MSRM, WLAP and MOF for the delivery of the Project.
- All existing inventories and related information have been compiled and assessed on a regional basis.
- Mapping and verification work for the Kamloops, Cariboo, and Prince George Forest Regions is complete. Together these three regions represent roughly 80% of the total grasslands in BC and include distinct grassland landscapes in the following areas: Boundary, Okanagan, Similkameen, Nicola Valley, Thompson Basin, Fraser/Chilcotin, Cariboo Plateau, Francois Lake/Nechako, Peace, Muskwa, and Liard Plateau.

- Mapping output and data is achieving a level of ~95% confidence with regional and district ecologists and other experts.
- Articles have been published in the *BC Grasslands* Newsletter.

Although timelines have shifted, the project team is confident that the original objectives for the project will be achieved by March 2004. The Project team has set some very high goals. It is important at this juncture to temper confidence with the fact that this is a very complex project with many unforeseen circumstances and challenges, some of which we have yet to encounter. This is particularly true with the manipulation of existing data and other information that needs to be integrated into a consistent platform and format. The second year of the BC Grasslands Mapping Project has been very productive and the response to the project is very positive and encouraging. See attached Proposal & Workplan 2002-2004.

## 7. DESCRIPTION OF COMMUNITY INVOLVEMENT AND COLLABORATION WITH OTHER AGENCIES

The BC Grasslands Mapping Project has been very successful in establishing partnerships and communicating with communities, agencies and non-government organizations.

- Initiating Regional Processes: The GCC has organized regional introductory presentations in Kamloops, Williams Lake, Prince George, Cranbrook, and Penticton. As the GCC enters into a new region, a presentation is made to local government officials and other local experts.
- Establishing Verification Committees: A local team of experts is established in each region to assist the GCC and its partners in the mapping and verification process.
- Building General Awareness: The GCC has made at least six presentations this past year to special interest groups on the *BC Grasslands Mapping Project*. In addition, articles are published through the *BC Grasslands* Newsletter, GCC news updates and on our website [www.bcgrasslands.org](http://www.bcgrasslands.org)
- Maintaining Broad Representation & Participation From Key Provincial Experts: Regular meetings of the Technical Review Committee are held to review progress, discuss and resolve technical issues, assist in guiding the project and ensure that the project produces an accurate and usable product for government and other partners. ✓ *Technical Review Committee List attached*
- Ensuring Effective Delivery: A partnership was formalized with the Ministry of Sustainable Resource Management (MSRM) to assist the GCC in effectively delivering the mapping project. MSRM is providing office space, computer, other hardware, software, GIS supervision and support and other in-kind contributions for the project. A similar agreement exists with MOF to provide access to ministry databases and other information required to complete this project.

## 8. STRATEGIC SIGNIFICANCE OF THE BC GRASSLANDS MAPPING PROJECT

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.

## 9. EXTENSION & PUBLIC INFORMATION

The following products have been produced (due to the sheer volume of information and reporting, only key reports and samples have been provided):

1. Representative base grassland ecosystems maps for Forest Regions completed (provided: *Kamloops Region--Nicola Valley Grasslands; Cariboo Region--Fraser/Chilcotin Region Grasslands; Prince George Region--Peace Country Grasslands*) (other grassland maps for areas in the Kamloops, Cariboo, and Prince George Regions are available upon request).
2. Draft base grassland ecosystems map for grasslands in the East Kootenay (provided: *Nelson Region--East Kootenay Trench Grasslands*).
3. Statistical reports for Forest Regions completed (provided: *Year Two Statistical Report*).
4. Minutes to BC Grasslands Mapping Project meetings (e.g. Technical Review Committee Semi-Annual meetings, grasslands GIS workshops, etc) (available upon request).
5. Grasslands Mapping Project monthly reports (available upon request).
6. List of existing spatial inventories assessed for the BC Grasslands Mapping Project (provided: *Existing Inventories Assessed*).
7. Sample articles published (available upon request).

The results of the Project have been communicated and extended to numerous organizations and individuals involved in grasslands education, communications, research, monitoring, conservation, restoration, and stewardship. Please see 'Communication and Extension' in the Activities/Techniques section.

## 10. FUNDING

The BC Grasslands Mapping Project is funded by:

- Ministry of Forests
- Ministry of Sustainable Resource Management
- Ministry of Water, Land and Air Protection
- BC Parks
- Habitat Conservation Trust Fund
- Terrestrial Ecosystem Restoration Program
- Vancouver Foundation
- The Real Estate Foundation
- Wildlife Habitat Canada

**11. RECOMMENDATIONS AND SUGGESTIONS**

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

The results of the Project are being communicated and extended to project partners and other organizations through maps, reports, statistical records, updates, and minutes to meetings. The Project also continues to expand its breadth of extension.