COLUMBIA BASIN FISH & WILDLIFE COMPENSATION PROGRAM

BC hydro

BRITISH COLUMBIA

www.cbfishwildlife.org

COLUMBIA BASIN BIODIVERSITY ATLAS PROJECT PHASE ONE FINAL REPORT

PREPARED BY

Osprey Communications, Invermere, BC

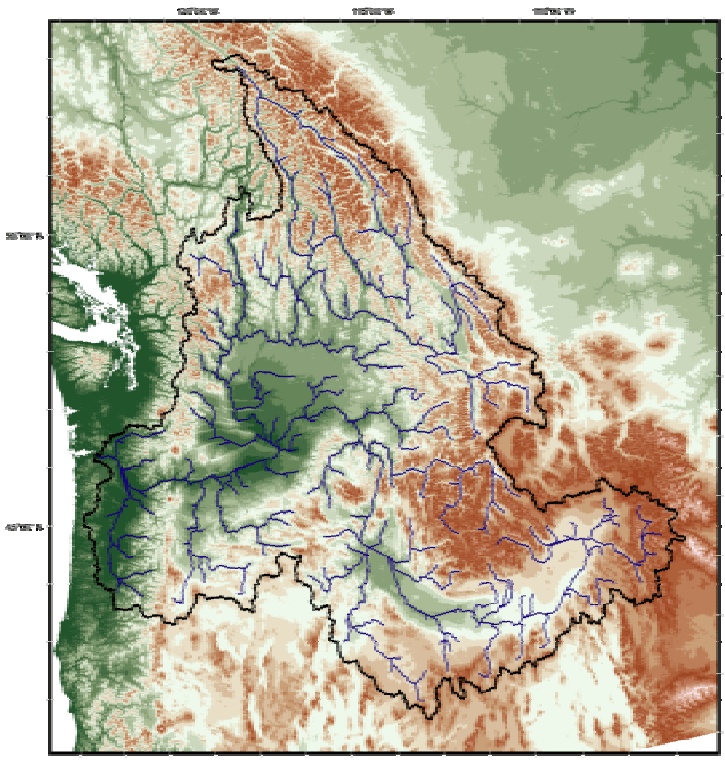
FOR

Columbia Basin Fish & Wildlife Compensation Program

June 2001

Columbia Basin Biodiversity Atlas Project

Phase One Final Report



Prepared for:

Columbia Basin Fish and Wildlife Compensation Program
Nelson, BC

Prepared by:

Osprey Communications
Invermere, BC
June 2001

Columbia Basin Biodiversity Atlas Project- Phase One Final Report
Executive Summary

The Columbia Basin Fish and Wildlife Compensation Program has embarked on an ambitious project to lead in the development of a Columbia Basin Biodiversity Atlas (CBB Atlas). This report documents the results of a scoping exercise commissioned by the CBFWCP to assess the need for and capacity to develop the CBB Atlas and provides recommendations for implementing the development of the CBB Atlas.

Strong Support and Endorsement for the development of a Columbia Basin Biodiversity Atlas by stakeholders and partners is the most significant outcome of the first phase of the project. In February 2001, the CBFWCP hosted the Columbia Basin Biodiversity Atlas Workshop that brought together a broad range of potential partners and stakeholders to discuss the concept and logistics of developing the CBB Atlas.

Four main objectives for the workshop provided the focus for group discussions. The outcomes under each of the following workshop objectives are discussed in the report.

Columbia Basin Biodiversity Atlas Development Workshop Objectives:

1. **Clarify the purpose of a Columbia Basin Biodiversity Atlas – what will the Atlas do for key stakeholders, their mandate, their clients and audiences?**

2. **What themes and content should the Atlas portray and in what form will it be expressed?**

3. **Provide workshop participants with examples of other Atlas projects – what are their experiences, the successes, the pitfalls and the opportunities for dovetailing with existing atlas models?**

4. **Who will the partners be in this ambitious undertaking?**

Five other existing atlas projects were presented at the workshops and the experiences and outcomes of these projects revealed several common attributes that are important to consider in the development of a Columbia Basin Biodiversity Atlas:

- **Make the Atlas an Action-Oriented Tool**
- **Partnerships are Critical to Success**
- **End User Focused – Know Your Audience Needs**
- **Involve the Public in Atlas Development**
- **Spatial & Metadata Coordination Yields Benefits**
- **Determine Geographic Scale of the Atlas from the Outset**
- **Adequate Funding is Needed**
- **Take Risks to Achieve Atlas**
- **High Technical Standards must be Incorporated**

CBB Atlas definition, goals and objectives clarified by workshop participants. The Columbia Basin Biodiversity Atlas is envisioned as a collection of maps that describe the biodiversity of the entire Columbia Basin watershed. The Atlas will be a tool that provides an entry point to a larger biodiversity database on the Columbia Basin. The Atlas will serve the needs of three broad audiences with the objective of improving our awareness and understanding of the Basin's biodiversity values and issues. The three broad audiences include but are not limited to the Public, the Research Community and Managers.

A primary objective of the Atlas will be to affect positive action for the conservation and restoration of biodiversity in the Columbia Basin. The Atlas is not a passive information source about biodiversity. Initially, a pilot project approach may provide an effective method to create biodiversity maps and compile data that become immediately useful tools in decision making to address the conservation of biodiversity on the ground at a variety of scales.

Employing the highest standards of technical detail the Atlas does not employ any one technique, but rather, serves as a clearing house for a broad collection of current and anticipated Columbia Basin biodiversity data generated by Atlas partners and others.

Columbia Basin Biodiversity Atlas Implementation. The report concludes with discussion of four primary recommendations for moving the CBB Atlas forward over the next year of the project with timelines and budgetary considerations assigned to each:

1. **Establish an organizational structure for the development of a Columbia Basin Biodiversity Atlas consisting of an Atlas Steering Committee.**

2. **Develop the Columbia Basin Biodiversity Atlas partnerships initiated at the workshop and with other potential partners.**

3. **Develop a CBB Atlas pilot project(s) that encapsulates the outcomes of the Columbia Basin Biodiversity Atlas Development Workshop and the recommendations of this Phase One Final Report.**

4. **Launch a Columbia Basin Biodiversity Atlas Website to establish a presence and communications tool as soon as possible.**

Three appendices in the report provide the workshop atlas presentations, summary results of the workshop break-out session, and contact information for workshop participants and other parties interested in the project.

The Columbia Basin Fish and Wildlife Compensation Program provided the funding for this first phase of developing a Columbia Basin Biodiversity Atlas. Osprey Communications facilitated the CBB Atlas Workshop and prepared this report. For additional information about the CBB Atlas project and to become a partner in its development please contact the project's Interim Coordinator, Mr. Ian Parfitt, GIS Coordinator, CBFWCP Office in Nelson, BC, phone (250) 352 6874 or by email at Ian.Parfitt@gems6.gov.bc.ca

TABLE OF CONTENTS

Columbia Basin Biodiversity Atlas Project

Phase One Final Report

1.0) Introduction

The Columbia Basin Fish and Wildlife Compensation Program (CBFWCP) initiated the Columbia Basin Biodiversity Atlas (CBB Atlas) Project in November 2000. The Atlas is envisioned as a map-based resource for promoting understanding of ecosystems and species diversity and improving access to spatial data for researchers managers and the general public within the CBFWCP area.

The initial phase of the project involved a scoping process to determine the need for an atlas and where it will fit in with other initiatives. In February of 2001, the CBFWCP hosted the ***Developing a Biodiversity Atlas for the Columbia Basin Workshop*** in Nelson, British Columbia. The workshop brought together forty key stakeholders from throughout the Basin region, along with expertise and experience from other Atlas projects. It is significant that considerable interest in the project was also expressed by other stakeholders and potential partners that were unable to attend the workshop.

Several significant atlas projects are underway in British Columbia and neighboring States in the U.S. Key representatives from five of these initiatives presented their projects and shared their experience related to developing and using their atlas with workshop participants. The diversity of purpose and products presented in these other Atlas projects proved very valuable in clarifying content and development options and partnership opportunities for a Columbia Basin Biodiversity Atlas.

The atlas presentations delivered at the workshop are summarized in section 2.3 of this report and provide the strengths and key points of each atlas project relevant to developing a biodiversity atlas for the Columbia Basin. Appendix 1: Summary of Workshop Presentations, provides more detail about each presentation.

Prior to the meeting, participants were presented with the four main objectives for the workshop:

Columbia Basin Biodiversity Atlas Development Workshop Objectives:

- **Clarify the purpose of a Columbia Basin Biodiversity Atlas – what will the Atlas do for key stakeholders, their mandate, their clients and audiences?**

- **What themes and content should the Atlas portray and in what form will it be expressed?**

- **Provide workshop participants with examples of other Atlas projects – what are their experiences, the successes, the pitfalls and the opportunities for dovetailing with existing atlas models?**

- **Who will the partners be in this ambitious undertaking?**

A workshop break out session also tasked participants with addressing questions relevant to a particular atlas audience. These objectives and a summary of key outcomes from each are presented in section 2.1 through 2.4 of this report. The break out session results were summarized and used to compile the purpose, objective and geographic coverage lists in section 2.1 of this report. The break out session questions and results are provided in Appendix 2.

This phase one final report presents the key outcomes of the workshop, discussions with potential atlas partners and provides four recommendations in an implementation strategy for the Columbia Basin Fish and Wildlife Compensation Program to consider in its leadership role in developing a Columbia Basin Biodiversity Atlas.

Four Recommendations Presented in this Report:

1. **Establish an organizational structure for the development of a Columbia Basin Biodiversity Atlas comprised of an Atlas Steering Committee.**

2. **Develop the Columbia Basin Biodiversity Atlas partnerships initiated at the workshop and with other potential partners.**

3. **Develop a CBB Atlas pilot project(s) that encapsulates the outcomes of the Columbia Basin Biodiversity Atlas Development Workshop and the recommendations of this Phase One Final Report.**

4. **Launch a Columbia Basin Biodiversity Atlas Website to establish a presence and communications tool as soon as possible.**

2.0) Workshop Objectives and Outcomes

2.1) Workshop Objective One:

Clarify the purpose of a Columbia Basin Biodiversity Atlas – what will the Atlas do for key stakeholders, their mandate, their clients and audiences?

Participants agreed on several broad purposes of a CB Biodiversity Atlas:

- A tool for graphic depiction of data
- An entry point to a larger database
- A useful tool for serving public, researchers and managers
- Based on the highest standard of technical detail
- A communications tool within a larger information network in the Columbia Basin

The group also identified some primary objectives for a CB Biodiversity Atlas:

- To affect positive ***action*** for conservation and restoration of biodiversity in the Basin
- To identify gaps in research
- Provide tools for improved planning decisions
- Increase efficiency in planning & decision-making processes
- Inform the public about the biodiversity crisis
- To create a sense of regional place
- To empower local people to get interested in the ecosystems they live in

Geographic coverage of the Atlas:

- The entire Columbia Basin watershed in Canada and the U.S.
- Canadian Columbian Basin
- Biodiversity Hot Spots
- Multi-scale – e.g., whole basin, watershed level, 1:5000 municipal level planning

2.2) Workshop Objective Two:

What themes and content should the Atlas portray and in what form will it be expressed?

Priority Themes to Portray in the Atlas:

- Rare and endangered species and habitats of the entire Columbia Basin (CDC/ SARA/COSEWIC/U.S. lists)
- Range maps – vertebrates, invertebrates, plants, lichens, fungi with images & data
- TRIM, PEM, TEM, Forest Cover & ecological classification data
- Active Research Projects in the Basin – create a project registry
- Land ownership and tenures
- Links to larger database – reports, imagery
- Links to existing atlas projects in the Basin
- Watercourse classification data
- Basin at a variety of scales – whole basin, watershed level, 1:5000 municipal level
- Cultural data
- Historical to present – portray changes over time
- Multi-layer entry points – driven by audience needs
- Establish standards – high level of technical detail

How to Express the Atlas

- World Wide Web – dynamic and adaptive
- CD's – increases distribution options
- Occasional (every 3 – 5 years) production of a hardcopy atlas – increases distribution options and user friendly, especially for non-computer audiences
- Posters and map sheets
- Community Workshops
- Conferences, professional gatherings

2.3) Workshop Objective Three:

Provide workshop participants with examples of other Atlas projects – what are their experiences, the successes, the pitfalls and the opportunities for dovetailing with existing atlas models?

Workshop Presentations

The diversity of purpose and products presented in these presentations proved very valuable in clarifying content and development options and partnership opportunities for a Columbia Basin Biodiversity Atlas. This section provides only a summary of each presentation with the salient points and strengths of each workshop presentation relevant to developing a biodiversity atlas for the Columbia Basin provided in highlight boxes.

For more details of each presentation refer to Appendix 1: Summary of Workshop Presentations. Complete electronic versions of each presentation and coverage of the group discussion that followed along with minutes from the workshop have been archived. Contact Ian Parfitt, CBB Atlas Project Interim Coordinator.

2.3.1) Introductory Presentation:

A Vision for a Biodiversity Atlas for the Columbia Basin
***Ian Parfitt** CBFWCP, GIS Coordinator*

A Biodiversity Atlas for the Columbia Basin: Biodiversity At Last?
Or *Maps and Dreams"*

What is a Biodiversity Atlas?

- A set of maps displaying information about the biological diversity of an area.

Why an Atlas?

- Maps communicate distribution and abundance information
- Maps show what information is available for a given area
- Maps help make abstract concepts concrete

Why Now?

- A considerable amount of spatial data has been collected over the past 10 years
- Need to manage, distribute and access this data
- Need for coordination of research effort
- Need for synthesis of research findings
- Need to communicate results to stakeholders

Challenges

- Ownership
- Sensitive data
- Keeping data current
- Potential for misinterpretation
- Coordination and standards
- Cost

Ian Parfitt then focused the group toward the specific workshop objectives by elaborating his thoughts on specific questions related to atlas audience, scale, data to portray, study area, medium for expressing the atlas and logistics associated with coordination, funding and maintenance.

2.3.2) Atlas Presentation:

Wildlife-Habitat Relationships in the Columbia Basin.
David Johnson, Maureen Ketcheson, Andy MacKinnon, Brian Nyberg, Tom O'Neil and Chris Steeger.

Salient Points and Strengths of the WHR Project Relevant to Columbia Basin Biodiversity Atlas Development

- High Technical standards, consistency, rigorous technical and expert review panels
- Strong partnerships with existing and ongoing efforts
- Provides a model for seamless integration of British Columbian data
- Integrates species, habitats and key ecological function
- Data analysis linked to decision-making and ecological interpretation
- Provides a model of spatial and metadata coordination
- Illustrates the need for adequate funding levels
- Emphasizes developing an atlas on a whole basin scale using ecological boundaries
- Ease of access to information – US model demonstrates unencumbered data sharing, public access emphasized

2.3.3) Atlas Presentation:

Illecillewaet River Watershed Resource Atlas
Karen Bray, *Columbia Basin Fish Wildlife Compensation Program*
John Woods, *Parks Canada*

Salient Points and Strengths of the IRWR Atlas Project Relevant to Columbia Basin Biodiversity Atlas Development

- Utilizes atlas map data as an entry to larger database about the IR Watershed – atlas as a starting point
- Partnerships and in-kind agreements kept atlas development costs low
- Get started right away! - initiate an atlas with known data, fill gaps later
- Commitment to data accuracy, consistency and accessibility
- Emphasis on serving research community audience
- Provides a watershed level model approach to whole basin atlas development
- IRW Atlas is an immediately available source of data for larger basin atlas effort

2.3.4) Atlas Presentation:

Sensitive Habitat Atlases in the Georgia Basin: Resource Information to Protect Environmentally Sensitive Areas.
Brad Mason, *Fisheries and Oceans Canada, Habitat Inventory Coordinator, Pacific Region*

Salient Points and Strengths of the GBSE Atlas Project Relevant to Columbia Basin Biodiversity Atlas Development

- Partnerships with existing and ongoing efforts
- Strong consultation with local governments and community groups
- Integrates sensitive species and habitats with the community planning process
- Employs 1:5000 scale mapping and ground-truthing at community planning level
- Engages and empowers citizens in resource inventories and planning cycles
- Inventory and mapping model applicable at a regional scale
- Strong end-user focus
- Spatial and metadata coordination
- Emphasizes the need for adequate funding levels
- Recognizes the need to take risks to achieve program goals

2.3.5) Atlas Presentation:

A New View of Atlas

Wayne Campbell, *Wild Bird Trust of BC*
Fred Bunnell, *University of British Columbia Centre for Applied Conservation Biology*

Salient Points and Strengths of the WBT Project Relevant to Columbia Basin Biodiversity Atlas Development

- Strong support for private citizen and community-based data sources
- Public education and involvement are critical – make information relevant to citizens
- Emphasizes importance of non-government partnerships & diversifying data access
- Beware of process-driven academic and government bureaucracies – seek alternatives
- Emphasis on serving researchers through metadata coordination
- Creative, adaptive fund raising strategies
- WBT is an immediately available source of data for larger Basin atlas effort

2.3.6) Atlas Presentation:

Wildlife Habitat Atlas for Wildlife at Risk for the South Okanagan
Tom Either
Senior Wildlife Biologist, MELP, South Okanagan

Salient Points and Strengths of the WHAWRSO Project Relevant to Columbia Basin Biodiversity Atlas Development

- Integrates sensitive species and habitats with the community planning process
- Priority on species and habitats at risk
- Atlas development focused from the outset on generating conservation/stewardship action by individuals and decision-makers on behalf of biodiversity values
- Spatial and metadata coordination
- Emphasizes the need for adequate funding levels
- Strong end-user focus - Atlas products driven by audience needs
- Demonstrates benefits of expressing Atlas in a diversity of ways
- Project provides perspective – don't wait until an area/species needs an atlas
- SO Atlas is an immediately available source of data for larger basin atlas effort

2.3.7) Common Strengths of the Workshop Atlas Presentations

Further analysis of the salient points and strengths boxes at the end of each presentation summary reveals several common attributes of these atlas projects that are important to consider in the development of a Columbia Basin Biodiversity Atlas:

- **Make the Atlas an Action-Oriented Tool**
- **Partnerships are Critical to Success**
- **End User Focused – Know Your Audience Needs**
- **Involve the Public in Atlas Development**
- **Spatial & Metadata Coordination Yields Benefits**
- **Determine Geographic Scale of the Atlas from the Outset**
- **Adequate Funding is Needed**
- **Take Risks to Achieve Atlas**
- **High Technical Standards must be Incorporated**

2.4) Workshop Objective Four

Who will the partners be in this ambitious undertaking?

Refer to section 3.2.2 and to archived workshop minutes for discussion of specific partnership interests and commitments by the CBB Atlas Workshop participants.

3.0) Implementation Strategy for the Columbia Basin Biodiversity Atlas

3.1) The Columbia Basin Biodiversity Atlas – Structure and Objectives

Based on the workshop outcomes, the following description of a Columbia Basin Biodiversity Atlas and objectives is offered as a starting point from which to develop and implement the project. This description might also serve in developing a Project Prospectus identified as a priority task for a CBB Atlas Steering Committee in section 3.2.1 below.

The Columbia Basin Biodiversity Atlas is a collection of maps that describe the biodiversity of the entire Columbia Basin watershed. The Atlas is a tool that provides an entry point to a larger biodiversity database on the Columbia Basin. The Atlas serves the needs of three broad audiences with the objective of improving our awareness and understanding of the Basin's biodiversity values and issues. The three broad audiences include but are not limited to the Public, the Research Community and Managers.

A primary objective of the Atlas will be to affect positive action for the conservation and restoration of biodiversity in the Columbia Basin. The Atlas is not a passive information source about biodiversity. Initially, a pilot project approach may provide an effective method to create biodiversity maps and compile data that become immediately useful tools in decision making to address the conservation of biodiversity on the ground at a variety of scales.

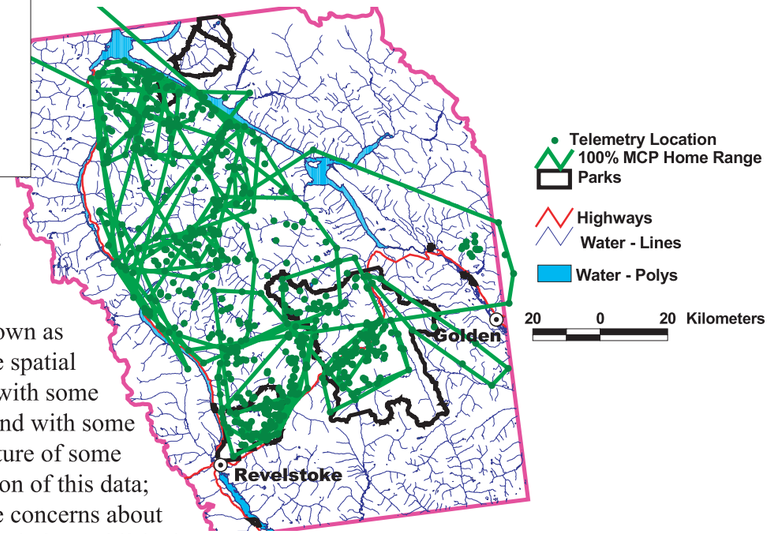
The Atlas employs the highest standards of technical detail. The Atlas does not rely on any single software or format, but rather serves as a clearing house for a broad collection of current and anticipated Columbia Basin biodiversity data generated by Atlas partners and others.

Biodiversity Atlas: Maps and Links

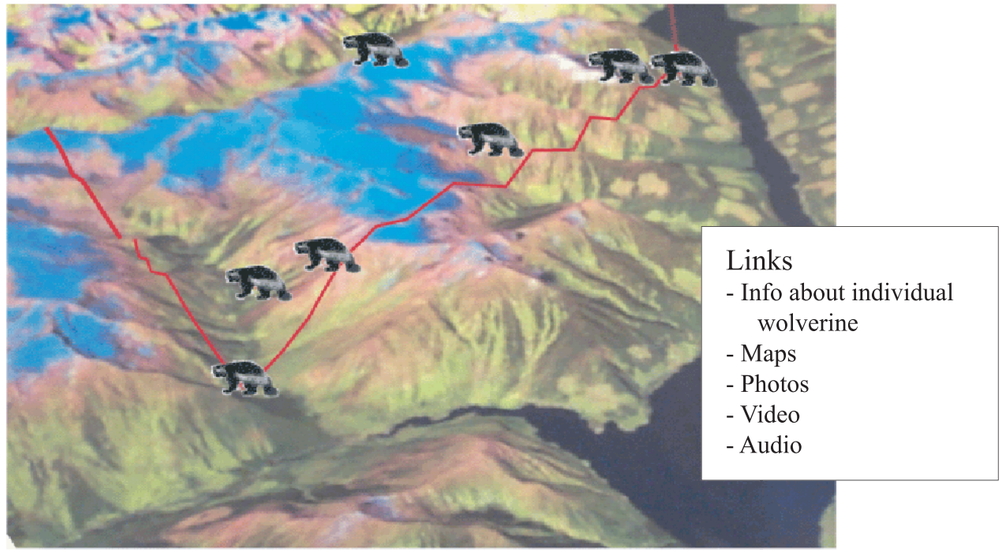
This set of maps and associated data from CBFWCP's archive are presented here to illustrate the Biodiversity Atlas concept visually. In this case we use the wolverine as an example. The first map, above, shows information at the scale of the entire Columbia Basin. Wolverine range and study locations are shown. A small pop-up box is attached to the map listing some associated information: links to life history, ecology, other research sites or reports, photos, videos, or even audio clips of wolverine growls are all possible if the Atlas is on the Internet or hyper-linked and distributed on CD-ROM. A hard-copy (ie paper) Atlas could have photos and text associated with the maps. A web-based or CD format would enable the development of interactive maps where the user could click on one of the study areas to access maps and associated information specific to that study.

Links
- Project Objectives
- Project Results
- Reports
- Maps
- Photos
- Video
- Audio

Male Telemetry and Home Ranges



The map on the right shows telemetry data and home ranges for all male wolverine in the CBFWCP / Krebs and Lewis project north of Revelstoke (shown as study 1 on map on left). Some spatial analysis functions are possible with some Internet mapping applications and with some CD solutions. The sensitive nature of some datasets may limit the distribution of this data; some researchers may also have concerns about mis-interpretation of data or data being published without permission. Linked information could include: reports, photos, video clips, audio tracks from the project, and a brief summary of project objectives and results.



The map above shows telemetry data for a single wolverine in a perspective landscape view. Putting the data in this form makes it accessible to a non-technical audience such as the public at large. Sharing information about species, fo example the wide-ranging nature of this elusive wolverine, encourages public interest in consservatiosn. This image could be linked to information about the specific individual wolverine.

3.2) Recommendations

Four recommendations for moving the CBB Atlas project forward are discussed in the following sections of the report. A Budget of $60,000 is identified with timelines of three months to one year assigned to the identified tasks.

3.2.1) Recommendation #1

Establish an Atlas Steering Committee that provides the organizational structure for the development of a Columbia Basin Biodiversity Atlas.

Timeline: Immediately Upon Funding Approval

CBB Atlas Steering Committee

Sustaining the enthusiasm for the CBB Atlas that was expressed at the Workshop will require a more formalized structure for carrying the project forward. The size and scope of developing the CBB Atlas will require a Steering Committee that is senior level influential and effective in several functional areas including:

- **Atlas coordination, leadership and strategic vision**
- **Forging partnerships, raising funds and in-kind contributions**
- **Communications and extension with atlas user groups and development partners**
- **Technical expertise in atlas data content and expression media (GIS, Internet Technology)**
- **Striking Information Sharing Agreements at senior levels**

In addition to an overall project Coordinator, the Atlas Steering Committee should be comprised of 6 to 10 representatives considered from the following agencies/affiliations/ expertise:

- **British Columbia Ministry of Environment, Lands and Parks**
- **British Columbia Ministry of Forests**
- **Columbia Basin Fish and Wildlife Compensation Program**
- **Columbia Basin Trust**
- **Corporate Sector Representative, e.g. BC Hydro, Forest Industry, Real Estate Industry**
- **Research Sector Representatives, e.g. Conservation Biologist, Conservation Planner associated with an Institute, University or Conservation Coalition etc.**
- **Extension, Communications & Consultation Specialist(s)**
- **Representatives/Expertise from First Nations, Municipal and Regional Government**
- **Other major partners that join the CBB Atlas project**

Several individuals during the CBB Atlas Workshop indicated a willingness to serve on a proposed Steering Committee. Selecting Committee members to reflect regional representation in the Basin was

also suggested during the workshop. The Interim Coordinator is advised to consider the Final Comments/Partnership Interest section at the end of the Workshop Minutes, for compiling a list of potential Steering Committee members.

The CBB Atlas Steering Committee is envisioned as a creative and adaptive group of task-oriented individuals who are strategic in thought and action. These individuals recognize the 'big picture' objectives of the CBB Atlas, are constantly involved in planning its development and will be with the project from start to finish.

In developing the CBB Atlas, the Steering Committee should form a bridge between government & non-government bodies by forging partnerships and building on mutual goals. Avoiding 'turf' struggles and bureaucratic entanglement will facilitate this catalytic approach. Several of the Atlas projects presented during the workshop spoke to the topic of being willing to take some risks to achieve Atlas development goals – lead by example.

The Columbia Basin Fish and Wildlife Compensation Program is ideally positioned to perform this role. Ian Parfitt, GIS Specialist with the CBFWCP, is the current Interim Coordinator of the CBB Atlas Project. Workshop participants endorsed both Ian Parfitt's role as Interim Coordinator and the CBFWCP for initiating the workshop and the CBB Atlas project.

The CBFWCP is advised to now confirm or decline it's leadership position in the CBB Atlas Project. It is recognized that a project of this scope is too large for any one organization to undertake alone, however, in accepting a leadership role the CBFWCP is advised to consider the provision of significant staffing resources for a permanent project coordinator internally, through secondment or through partnership with another funding partner(s). As most of the workshop presenters stressed, it is important to be prepared to stay with projects of this size and scope from start to finish.

Priority Tasks for the CBB Atlas Steering Committee

During a discussion of future directions, CBB Atlas workshop participants identified the following priority items for a Steering Committee to consider once it has been formed:

- **Develop Information Sharing Agreements with Atlas Partners**
- **Draw up a long term workplan that builds on this initial implementation strategy**
- **Develop a realistic timetable for the project**
- **Budget – identify base funding and additional sources**
- **Generate a prospectus for funding to take to other organizations:**

  e.g.

  Columbia Basin Trust

  Northwest Power Planning Council

  BC Real Estate Foundation

  Vancouver Foundation

  ESRI and other GIS software producers

3.2.2) Recommendation # 2

Develop the CBB Atlas partnerships initiated at the workshop and with other potential partners.

Timeline: within three months

Seventy-five individuals were contacted and informed of the CBB Atlas Development Workshop (See Appendix 3). Although not everyone was able to attend, strong interest in the project was expressed by the majority of those contacted. A primary task of the CBB Atlas Steering Committee will be to culture these contacts and partnerships and develop others. Project submissions and background information received from workshop participants and those unable to attend, are held by the CBB Atlas Interim Coordinator, contact Ian Parfitt, CBFWCP.

The Columbia Basin Fish and Wildlife Compensation Program has taken the initiative in its current CBB Atlas leadership role. CBFWCP will be continuing in this leadership capacity for the fiscal year 2001-02.

Agencies and Affiliations Represented at the CBB Atlas Workshop

- BC Ministry of Environment Lands and Parks *(including South Okanagan Habitat Atlas)
- BC Ministry of Forests *(including Wildlife Habitat Relationships Atlas)
- BC Hydro
- CBFWCP – Workshop Hosts and *(Illecillewaet R. Watershed Resource Atlas)
- Columbia Basin Trust
- Columbia Mountains Institute *(Illecillewaet River Watershed Resource Atlas)
- Cominco
- Conservation Biology Centre
- Creston Valley Wildlife Management Area
- Department of Fisheries and Oceans Canada *(Georgia Basin Sensitive Ecosystems Atlas)
- East Kootenay Environmental Society
- JMJ Consulting *(including Wildlife Habitat Relationships Atlas)
- Ktunaxa-Kinbasket Treaty Council
- Nature Conservancy of Canada, British Columbia
- Northwest Habitat Institute, Oregon *(including Wildlife Habitat Relationships Atlas)
- Osprey Communications
- Pandion Ecological Research *(including Wildlife Habitat Relationships Atlas)
- Parks Canada
- Science and Technology Alliance of the Rockies
- Southern Interior Forest Extension and Research Partnership
- University of British Columbia, Conservation Biology *(WBT Atlas/Database Project)
- Washington Dept. of Fish and Wildlife *(including Wildlife Habitat Relationships Atlas)
- Wild Bird Trust *(WBT Atlas/Database Project)
- Yellowstone to Yukon Conservation Initiative

Agencies and Affiliations Unable to Attend but Requested to be Kept Informed

- British Columbia Conservation Data Centre (Andrew Harcombe and Leah Ramsay)
- Columbia Kootenay Fisheries Renewal Partnership (Chris Beers)
- District of Invermere (Chris Prosser)
- Northwest Power Planning Council (Peter Paquet)
- Royal British Columbia Museum (Doug Sage)
- Selkirk College (Donna Delparte)
- Simon Fraser University (Kenneth Lertzman)
- The Land Conservancy (Bill Turner)
- University of Victoria, Dept. of Geography (Phil Dearden & Peter Keller)

It was recommended by workshop participants that a substantial amount of Basin relevant data exists and that data sharing agreements could provide an efficient and cost effective method for immediate launching of the CBB Atlas. All of the above participants and contacts should be queried by the CBB Atlas Steering Committee to confirm and initiate their interest in data sharing. The Illecillewaet River Watershed Resource Atlas, the South Okanagan Habitat Atlas, the Wild Bird Trust Project and the Wildlife Habitat Relationships Project have all indicated an immediate interest in Basin-relevant data sharing for the purposes of creating links through the CBB Atlas portal. The CBFWCP is also committed to providing access to all but the most sensitive of its data for the CBB Atlas. Recommendation #4, below, discusses the creation of a CBB Atlas Website to establish an immediate presence for the project.

The Columbia Basin Trust's Basin Information Network (BIN) initiative, the Yellowstone to Yukon Conservation Initiative and the Nature Conservancy of Canada Conservation Planning Strategy have also expressed a strong interest in partnership and data sharing. The expertise and organizational capacity associated with these initiatives is very important for assisting with the CBB Atlas project. A CBT BIN initiative backgrounder and an NCC backgrounder were submitted to CBFWCP.

Following the CBB Atlas Development Workshop two exciting announcements came out of the academic community. Selkirk College has applied to the Canadian Foundation for Innovation for $1.2 million in funding to develop a Centre of Excellence for Geo-Spatial Research in Castlegar, BC. The project vision foresees the development of a multi-disciplinary research center utilizing state of the art mapping and image processing technologies to facilitate innovative research, technology application, training and collaborative investigative opportunities unique to the Basin region. Selkirk's project prospectus was submitted to CBFWCP.

In March 2001, more than 300 scientists, biotech industry representatives, conservationists and Internet representatives gathered in Ottawa at the Canadian Biodiversity Network Conference

to discuss among many topics, Canada's contribution to the Global Biodiversity Information Facility. Following the CBN Conference the Miistakis Institute, based at the University of Calgary, announced its involvement in the Global Biodiversity Information Facility (GBIF). They hope the next federal budget will include a $15-million commitment over the next three years to begin pilot projects, one of which will be run at the U of C. CBB Atlas Partnership agreements with these institutions and their programs could produce valuable mutual benefits. A one page backgrounder on the Miistakis Institute's goals was submitted to CBFWCP.

Partnership with a large GIS software company such as ESRI is also worth investigating, particularly in the development of the CBB Atlas Pilot Projects discussed in the following section.

3.2.3) Recommendation # 3

Develop a CBB Atlas pilot project(s) that encapsulates the outcomes of the Columbia Basin Biodiversity Atlas Development Workshop and the recommendations of this Phase One Final Report.

Timelines: First Year of CBB Atlas Project

Workshop participants brainstormed the approach of developing CBB Atlas products based on a **pilot project(s) approach** to make the project manageable and to demonstrate Atlas content and services. The following points came out of this workshop discussion.

Choose an area(s):

- Where there is an impending threat to biodiversity from development, resource extraction etc
- Possessing high biodiversity and high conservation value
- Lacking in information - to demonstrate how useful the CBB Atlas tool can be
- Includes threatened species, threatened habitats
- Pilot within a planning exercise like an Municipal OCP (Official Community Plan), Regional Growth Strategy (Regional Districts)
- That we have the most and easiest access to information for - so that a product can get out there to quickly demonstrate the CBB Atlas
- Pilot project should contain data useful to three primary audience groups (public, managers, research community) and provide an evaluation feedback mechanism for these users.

Planning several pilot projects, delineated by scale, to demonstrate the CBB Atlas and its potential would facilitate the incorporation of the above recommendations of the workshop participants.

A 1:5000 scale pilot project has proved very effective in both the Georgia Basin Sensitive Ecosystems Project and the South Okanagan Habitat Atlas project. Inventory and planning tools at this scale are not readily available within the Columbia Basin at the municipal planning
and development level. Not surprisingly, serious impacts to regional and provincial biodiversity occurs at the municipal development level in the absence of adequate resources for conserving biodiversity. Several regions of the Basin including the South Okanagan,
the Upper Columbia River Valley and the Robson Valley were forwarded by workshop participants as candidate areas to be considered for the 1:5000 scale CBB Atlas pilot project.

A 1:20,000 scale pilot project would dovetail with several provincial level mapping data sources like TRIM, PEM and TEM and be useful at larger planning levels like Forest Districts. A very large scale pilot at the scale of the whole Columbia Basin would provide the Atlas user with a sense of the biodiversity of the Columbia Basin and the trans-boundary challenges inherent to the conservation of biodiversity in the Basin.

A large scale pilot of map products covering the whole Columbia Basin would serve well as an entry point to the CBB Atlas project as a whole. Text in conjunction with this pilot would provide the user with a Basin-scale overview and provide an introduction to the CBB Atlas project and the biodiversity values of the Columbia Basin. This pilot component could also form an important component of the CBB Atlas prospectus.

Designing each of these scaled pilots in a cohesive and integrated way that leads and encourages Atlas users to explore the Columbia Basin's biodiversity from a variety of perspectives would increase the effectiveness of the pilot projects.

3.2.4) Recommendation #4

Launch a Columbia Basin Biodiversity Atlas Website to establish a presence and communications tool as soon as possible.

Timeline: Immediately connected to CBFWCP website, substantially develop CBB Atlas content over first three months

Content to Consider for Launching the Website:

- Columbia Basin Biodiversity Atlas project description and prospectus.
- Results from the CBB Atlas Development Workshop including internet links to the Atlas Websites, presentations and projects delivered by workshop presenters (Powerpoint and pdf files).
- List the CBB Atlas Steering Committee members with links to their affiliations.
- Develop a CBB Atlas Partnership section profiling partners with links, invite participation of other potential partners and provide examples/benefits/opportunities for how they can get involved in the CBB Atlas project.
- Provide CBFWCP and other partner's mapping products directed at specific audience interests as examples of what the CBB Atlas can portray.
- Provide links to Basin related metadata sources.
- Profile the CBB Atlas Pilot Project(s).
- Produce CD Versions of the Website and other CBB Atlas products for use an 'electronic business card' along with a full-colour poster map of the Columbia Basin – In combination the CD and Poster provide an atlas promotion and partnership garnering tool for use at professional gatherings, meetings, conferences, funding proposals etc..
- Introduction to the Columbia Basin, species accounts, ecosystem profiles.
- Image files of Basin biodiversity
- Resources for facilitating media coverage of the project – press releases, images, media file of previous coverage

Appendix 1

Atlas Presentations

Atlas Presentation 1:

Wildlife-Habitat Relationships in the Columbia Basin.

David Johnson, Maureen Ketcheson, Andy MacKinnon, Brian Nyberg, Tom O'Neil and Chris Steeger.

Andy Mackinnon submitted the group's complete Powerpoint presentation.
David Johnson and Tom O'Neil also submitted a Project Briefing Paper from Wildlife-Habitat Relationships in Oregon and Washington. Contact, Ian Parfitt, Columbia Basin Biodiversity Atlas Interim Coordinator.

Project Outline

- *Introduction to the project*
- *Overview of the Washington-Oregon Species-Habitat Project*
- *Work in BC this winter*
- *Applications to resource management and other applications*

Project Goals

- *Extend US species-habitat work into BC*
- *Compile a comprehensive database on wildlife and fish for the whole Columbia River basin*
- *Provide a standard information base for ecological interpretations in BC*
- *Apply the data to strategies for enhancing wildlife and fish habitat through silviculture*

What needs to be done?

- *Identify BC-only habitat types*
- *Map habitat types and species ranges*
- *Update US databases to confirm existing information and add relations for "new" BC species and habitat types*
- *Ensure type lines are seamless at the 49th parallel*

Silviculture strategy questions

- Which species, habitats, functions have declined compared to historic times?
- Which have increased?
- What will the trend be under various timber harvesting and silviculture scenarios?
- How can silviculture investments help to enhance desired species, habitats, and functions?

Other applications?

- Basin-wide trends in species and habitat
- Species at risk in BC or US versus the other jurisdiction
- Salmon influences on ecological functions and other species pre- and post-dams
- Water management implications for species throughout the Columbia system

Salient Points and Strengths of the WHR Project Relevant to Columbia Basin Biodiversity Atlas Development

- High Technical standards, consistency, rigorous technical and expert review panels
- Strong partnerships with existing and ongoing efforts
- Provides a model for seamless integration of British Columbian data
- Integrates species, habitats and key ecological function
- Data analysis linked to decision-making and ecological interpretation
- Provides a model of spatial and metadata coordination
- Illustrates the need for adequate funding levels
- Emphasizes developing an atlas on a whole basin scale using ecological boundaries
- Ease of access to information – US model demonstrates unencumbered data sharing, public access emphasized

Atlas Presentation Two:

Sensitive Habitat Atlases in the Georgia Basin: Resource Information to Protect Environmentally Sensitive Areas.

Brad Mason
Fisheries and Oceans Canada, Habitat Inventory Coordinator, Pacific Region

Brad Mason forwarded a pdf file of Sensitive Habitat Inventory and Mapping (SHIM) for Communities in British Columbia that can be viewed at

Georgia Basin Sensitive Habitat Atlas (GBSE) Project Initiation

The GBSE was initiated due to a Coho salmon crisis. Project began with a top down approach which failed as Fisheries and Oceans had no proactive input into Provincial and Federal planning.

Initiated an Atlas to document where the fish and sensitive fish resources where located to provide to planning authorities to protect resources associated with the Coho salmon.

Rapid growth has overwhelmed the ability of planners to manage land and preserve sensitive habitats. Development proposals are often received too late in the planning process to effectively mitigate environmental impacts. Development proposals are often reviewed with inadequate knowledge of the location or value of sensitive resources. This has resulted in loss or degradation of habitats that once supported fisheries, wildlife, sensitive ecosystems and many other habitats are threatened.

The Atlas is a land-planning, computer-generated tool that identifies sensitive aquatic and terrestrial habitats and is a model that may be followed throughout the Georgia Basin. It is intended to be useful to long-term resource stewardship.

Main components of the atlas are orthophotography with a TRIM map base. Data from 1:50,000 maps was transcribed onto 1:20,000 maps then displayed at 1:5,000 resolution. This method of transcribing the data revealed high inaccuracies, such as, in TRIM, streams were missing completely or were shown to be draining incorrectly.

The Sensitive Habitat Inventory and Mapping Project (SHIM) is a community-based approach to mapping aquatic habitats and their riparian areas, primarily for settlement areas of British Columbia. SHIM provides reliable, current, and spatially accurate information about local fish and wildlife habitats. SHIM is a 1:5,000 scale inventory and mapping project that is watershed based, building on existing local and senior government
Information.

The Primary Functions of the GBSE Atlas are:

- Establish partnerships with provincial and municipal governments, stakeholders, and the public to protect and manage fish habitat;
- Identify sensitive habitats including fisheries and coastal resources, and sensitive ecosystems;
- Integrate property boundaries, land parcels, and road networks with locations of sensitive resources to facilitate official community plans and development permit applications;
- Delineate conservative planning boundaries as a flag or warning for the presence of sensitive areas and to facilitate subsequent field assessments to verify and refine their location;
- Provide essential information for defining setbacks and best management practices as specified in the Land Development and Stream Stewardship Guidelines;
- Facilitate updating and exchange of information;
- Work within a Geographical Information System that provides useful map products for analysis and effective communication.

Key issues to consider when making an Atlas

- Realize the limitations of the atlas.
- Build a database, rather than an atlas. End users can then obtain any information they require from within the database and overlay it with more current information. Needs to be dynamic.
- Community involvement in the collection of data gives them a sense of 'ownership' over data, they are then interested in the results. Give communities the power/skills to conduct inventories – e.g. SHIM (2 large community based workshops in 1999)
- Partnerships are crucial – GBSE Atlas/SHIM identifies 40+ partners cultured over five years
- Importance of ground-truthing – eg. GPS of streams rather than relying on TRIM data
- Input into the local government GIS program is important: they are making the local land use planning decisions and need the information to take into consideration sensitive areas.
- Adopting one standardized inventory and mapping method is key to successful land use planning by community groups and local/senior governments and it is essential for restoration and monitoring of British Columbia's urban fish and wildlife habitats.

- CRITICAL element in the Atlas development requiring time, input and perspective
- Take risks. "Go ahead and do the right thing"

Salient Points and Strengths of the GBSE Atlas Project Relevant to Columbia Basin Biodiversity Atlas Development

- Partnerships with existing and ongoing efforts
- Strong consultation with local governments and community groups
- Integrates sensitive species and habitats with the community planning process
- Employs 1:5000 scale mapping and ground-truthing at community planning level
- Engages and empowers citizens in resource inventories and planning cycles
- Inventory and mapping model applicable at a regional scale
- Strong end-user focus
- Spatial and metadata coordination
- Emphasizes the need for adequate funding levels
- Recognizes the need to take risks to achieve program goals

Atlas Presentation 3

Illecillewaet River Watershed Resource Atlas

Karen Bray, *Columbia Basin Fish Wildlife Compensation Program*
John Woods, *Parks Canada*

Powerpoint presentation – copy requested

Background to the Illecillewaet River Atlas

The Illecillewaet watershed runs from Revelstoke to Roger's pass. Included is the Beaver River system. It is an interesting watershed, rugged glacial river with issues including the Trans-Canada Highway, Railway, commercial tourism White water rafting, it is the source of water for Revelstoke, the outlet for the treated sewage of Revelstoke with the main feature being the presence of the national parks (Mt Revelstoke and Glacier).

The map is considered the first step rather than the final product. If provides the access points for people to get the information behind the data on map so they can make their own decisions. Resource/map themes on website based upon the data that they had available.

Motivation behind creating Columbia Mountains Institute and the IRWR Atlas was a need for a mechanism where people either from inside or outside the basin can obtain information on the Columbia basin. Those living in the Columbia basin found it difficult to communicate to others within the basin or provide information to outside the basin.

Purpose of the IRWR Atlas:

- House Basin information - no university within basin, research information leaves with the students and researchers
- Reduce workload
- Central place to refer consultants, university students, the public and the media to get information
- Improve accessibility to information
- Provide consistent information
- Gap analysis – identify what information exist and doesn't exist about the IR watershed which saves time of researchers and helps identify future project areas

Issues/Problems/Obstacles in Developing IRWR Atlas

- Base map preparation - TRIM data ownership – agency status allowed for no cost use
- Watershed base map not as simple to develop as first thought. For instance a section of the Trans Canada was missing, indicating a 20km hike! Data missing from data layers, watershed boundary was different from the provincial government perspective.
- Design elements of maps - colours, which data to include (eg. names), legend format and style, boundaries, etc.
- Website host - who to do it, issue of space on the site/server (and costs involved), long term hosting, everytime you change a map sheet or post a new one it costs you

- Costs - *short term* - preparing the atlas, gathering info and preparing map sheets; *long term* - maintaining web site space and keeping information up to date

- IRW Resource Atlas achieved on a low budget, but relies on great agency cooperation and in-kind contributions.
- GIS service - cost would have been too high had we not been able to do the GIS in-house

IRWR Atlas Spatial Data Linked with Larger Database

Wildlife roadkill maps example: Highway development is an important issue in area. The website provides a map which indicates roadkill locations. Further information is then provided on how the information was collected, references are available online to research the topic or species, contacts are provided if the user needs to obtain the original data, links to other websites and data sources, links to other reports, databases and contacts.

Sensitive data has been withheld to protect site, visitors to the site are told in the narrative that this is so, then if you are serious about knowing locations of historical resources you need to talk to the historian in charge of the databases.

Product is on the internet at www.cmiae.org Click on Illecillewaet and Beaver Watershed Resource Atlas.

Salient Points and Strengths of the IRWR Atlas Project Relevant to Columbia Basin Biodiversity Atlas Development

- Utilizes atlas map data as an entry to larger database about the IR Watershed – atlas as a starting point
- Partnerships and in-kind agreements kept atlas development costs low
- Get started right away! - initiate an atlas with known data, fill gaps later
- Commitment to data accuracy, consistency and accessibility
- Emphasis on serving research community audience
- Provides a watershed level model approach to whole basin atlas development
- IRW Atlas is an immediately available source of data for larger basin atlas effort

Atlas Presentation 4

Wildlife Habitat Atlas for Wildlife at Risk for the South Okanagan

Tom Either
Senior Wildlife Biologist, MELP, South Okanagan

Powerpoint presentation – copy requested

Rationale for a South Okanagan Atlas

South Okanagan Biological Backdrop

- small area, 150,000 ha
- contains 64% of BC's breeding birds
- 75% of BC's reptiles
- high concentration of species at risk (as currently defined as red and blue),
- high degree of biodiversity at the vertebrate scale and a high degree of risk.

Other features of this area includes low elevation, complicated tenure system, limited application on the crown base, and off the crown base, little legislation that applies on private land and until lately, little for Federal land.

WHAWRSO Atlas Goals

- Identify core areas to protect, increase parks and protected areas
- Utilize land use planning and zoning to enhance and preserve corridors and buffers around core protected areas
- Integrate wildlife habitat concerns into community planning processes - improve the referral system
- Encourage land stewardship to maintain and enhance wildlife habitat on private land and Indian reserves
- establish priority on species at risk = raise awareness = change attitudes = change behavior
- create final map products at 1:20,000 scale
- create a website as a planning and education tool – particularly for private land

***** Big purpose: to achieve better integration with the local planning system, OCP's.**

Purpose of WHAWRSO Atlas Website:

- Giving people a sense of place form an ecological point of view, describing the South Okanagan ecologically
- Maps of species identified at risk
- Species profiles illustrate habitats that species at risk are associated with in the SO
- Planning tool – Note: atlas website seems to be educational but not the planning tool first envisioned.

Maps

- Maps broken down by tenure: show who is responsible for the protection of habitat for species at risk in four tenure categories - conservation land, private land, crown land, and Indian reserves
- Maps illustrate documented current threats and species at risk in these ecosystems
- Raises the profile of species at risk and presents the threats – visual impact
- A snap shot of habitat trends and impacts of different land uses on species at risk
- Red Species Map: Planners at a regional level wanted one map rather than a roll - selected to represent the 75% benchmark habitat for the red species list to highlight the high priority habitat map for official community plans and other land use planning initiatives.
- Have had one local plan since the Atlas has been developed, which has used the Red Species map to designate environmentally sensitive areas within the municipality so that development in the area would require a permit and a list of other conditions can be applied through referral.

What would you do differently?

- Have a workshop at the beginning and at the end
- Make sure you are there to deliver the final product
- Have the people available for the life of the atlas
- Would have liked orthophotos
- When working with private land and along private land boundaries, polygons transcends property lines which makes it confusing
- An interactive cadastral map where you can click on a property and find a habitat/species occurrence report for that property
- Promote the value of the wildlife resource from a dollar value point of view, especially on private land with so many marginal economies that are killing wildlife

On the topic of Hardcopy and Electronic Atlas Products

- Made the decision in 1996 for hardcopy atlas product for practicality - it goes to meetings, you can take it in the field – Atlas is on Penticton's best seller list!
- For the planning process, information put on the web - two products have different purposes that are **audience driven**.

Salient Points and Strengths of the WHAWRSO Project Relevant to Columbia Basin Biodiversity Atlas Development

- Integrates sensitive species and habitats with the community planning process
- Priority on species and habitats at risk
- Atlas development focused from the outset on generating conservation/stewardship action by individuals and decision-makers on behalf of biodiversity values
- Spatial and metadata coordination
- Emphasizes the need for adequate funding levels
- Strong end-user focus - Atlas products driven by audience needs
- Demonstrates benefits of expressing Atlas in a diversity of ways
- Project provides perspective – don't wait until an area/species needs an atlas
- SO Atlas is an immediately available source of data for larger basin atlas effort

Atlas Presentation 5

A New View of Atlas

Wayne Campbell, *Wild Bird Trust of BC*
Fred Bunnell, *University of British Columbia Centre for Applied Conservation Biology*

Where is wildlife management going in the province?
What are we doing for wildlife?

What we are doing now is not working!

Wild Bird Trust of BC has a vision and mission outside of government and academia:

- Habitat acquisition
- Research
- Education/extension

Salient Points and Strengths of the WBT Project Relevant to Columbia Basin Biodiversity Atlas Development

- Strong support for private citizen and community-based data sources
- Public education and involvement are critical – make information relevant to citizens
- Emphasizes importance of non-government partnerships and diversifying data access
- Beware of process-driven academic and government bureaucracies – seek alternatives
- Emphasis on serving researchers through metadata coordination
- Creative, adaptive fund raising strategies
- WBT is an immediately available source of data for larger Basin atlas effort

Common Strengths of the Workshop Atlas Presentations

Further analysis of the salient points and strengths boxes at the end of each presentation summary reveals several common attributes of these atlas projects that are important to consider in the development of a Columbia Basin Biodiversity Atlas:

- **Make the Atlas an Action-Oriented Tool**
- **Partnerships are Critical to Success**
- **End User Focused – Know Your Audience Needs**
- **Involve the Public in Atlas Development**
- **Spatial & Metadata Coordination Yields Benefits**
- **Determine Geographic Scale of the Atlas from the Outset**
- **Adequate Funding is Needed**
- **Take Risks to Achieve Atlas**
- **High Technical Standards must be Incorporated**

Appendix 2

Workshop Break Out Sessions – Summary of Results

Appendix Two: Columbia Basin Biodiversity Atlas Workshop Break-out Session

Questions Presented for Group Break-out:

1.) Why-Why do we need this Atlas…present the purpose and the function of your atlas.

2.) What-Identify your Atlas major content elements, geographic area, level of technical detail

3.) When-When would the world see your Atlas-provide an outline of realistic timelines for developing the atlas in a work plan format.

4.) Who-Intended Audiences-Brainstorm strategies, techniques for reaching the specific audience you have been assigned. Intended audiences:

- ***Public-***resource and environmental NGOs, formal and informal education sector, business community, general public
- ***Research***-government and non government researchers, academic researchers
- ***Managers***-government and non government environment and resource sector managers and planners from 1st nations, federal provincial municipal corporate and private sector

5.) How-How will your Atlas be delivered-online, hardcopy, CD, other Identify costs, major partners, organizational structure for atlas development, roadblocks to succeed.

Break-out Session Results

1.) *Why*-Why do we need this Atlas…present the purpose and the function of your atlas.

Research/Researchers Audience

Access to people, literature and data
Provide free access to base layers
Linkages
Educational tool
Identify gaps in information

Managers/Decision Makers Audience

Many Management Sectors/Types were identified:

- Corporate
- First Nations
- Private
- Government:
- Municipal
- Regional
- Provincial
- Federal

To make informed decisions
Increase efficiency
State of the Nation Reporting (Ktunaxa-Kinbasket First Nation)
Assist legal management and enforcement of land use and rights
Input to environmental impact assessments/risk analysis
Gap analysis
Restoration, enhancement, fire
Protected areas
Landscape level planning/tenure allocations
Treaty process
Involve the public in planning process/decisions
Regional growth strategies
Zoning, OCPs

Public Audience

Raise awareness of biodiversity for public
Venue where people can confirm or refute assumptions
A common sense decision-assisting tool
To alert them to the fact they live in the Columbia basin (a sense of place)
Let people know how rich in biodiversity the Columbia Basin is
Emphasize connectedness (?) within Basin and threats/impacts to biodiversity
Generate behavioral change
Stimulate thinking, provide guidance to questioning
Provide a gap analysis function (highlight data gaps)
Links for more information-spur dialogue and conversation
Resource for educational tools (including highlighting unanswered questions)
Provide information on how to access the basin e.g. for research, education etc
An active-not passive-tool
Approachable by different groups-friendly☺
Is biodiversity atlas the right title? Columbia Basin Atlas rather than biodiversity atlas? Biodiversity Atlas too intimidating, Columbia Basin atlas more appropriate

2.) ***What***-Identify your Atlas major content elements, geographic area, level of technical detail

Research/Researchers Audience
High standards for technical detail
Transboundary information
Columbia basin perspective
Database
Transboundary Pilot project

Managers/Decision Makers Audience
Land ownership/title
TRIM data
BEC data (ecological classification, habitat types)
Rare & endangered species, (SARA, Prov CDC)
Loss of function
Watercourse classification (based on impacts – biophysical, presence of fish – predictive)
Method of updating (dynamic
Establish standards
Link to report data biblio and electronic if possible
Range maps for all species
Noralized land capability
Imagery
Multi-scale
Cultural elements
Interpretive products/analysis/synthesis
Historical to present data

Public Audience
Geographic area: whole basin (40 million hectares)
Content elements:
Base maps (TRIM type)
Range maps –vertebrates, invertebrates, plants, lichens, fungi with images and data
Water use patterns (e.g. community use) and features
Forest cover maps & Ecosystem maps (TEM, PEM, habitat types etc)
1:5000 maps for communities
3 levels: basin overview, watershed, stand or community
should be able to sort various ways
how well will it interfere with the general public?
Level of Technical detail:
Written as simply as possible, with glossary, Multiple levels

3.) ***When***-When would the world see your Atlas-provide an outline of realistic timelines for developing the atlas in a work plan format.

Research/Researchers Audience
ASAP
Never Completed

Managers/Decision Makers Audience
simple product out soon - online
every 5 years hardcopy atlas

Public Audience
ASAP
Need mechanisms for continual update
Phased approach-different date for different past of the database
March 31st 2002 fist release: data dump e.g. our base maps, their base maps
Contrast areas with lots of info/areas with little info

4.) ***Who*** -Intended Audiences-Brainstorm strategies, techniques for reaching the specific audience you have been assigned. Intended audiences:

- ***Public-***resource and environmental NGOs, formal and informal education sector, business community, general public
- ***Research***-government and non government researchers, academic researchers
- ***Managers***-government and non government environment and resource sector managers and planners from 1st nations, federal provincial municipal corporate and private sector

Research/Researchers Audience

Reach researchers with web based products

Managers/Decision Makers Audience

constituents/shareholders/citizens/US
politicians
-planning exercises
-how does it fit into big pictures
-trade-offs
developers
-roads/land developers
water users + water use plans + watershed plans
standardized at all levels
Americans
Globally
Foundation funds/Partner funds
Public up to politicians

Public Audience

Supplying communities with data course, and allow them to design portals into it
Community visits to naturalist groups, chambers of commerce, etc. Ask them what they want, how will they use it, what can then contribute?
Generate a feeling of ownership for the Atlas-"our" atlas not "their" atlas
Curriculum-matching is important

5.) ***How***-How will your Atlas be delivered-online, hardcopy, CD, other Identify costs, major partners, organizational structure for atlas development, roadblocks to succeed.

Research/Researchers Audience

Entire area vs Pilot
Scale: Basin wide analysis and Local Projects
Pilot: area of high of biodiversity, address area requiring immediate conservation that are potentially at risk, assess data quality

How can researchers identify projects being undertaken in the area? Project registry? Program associated with atlas location or click on map sheet and list of projects being undertaken?

Managers/Decision Makers Audience

simple product out soon
prospectus-sign on partners
catalogue of stuff
online
every 5 years hardcopy atlas

Public Audience

Online, hardcopy, cd other – yes
All of the above plus posters and workshops
Ask users how they would like to see it delivered
Perhaps we need 'information officers'-people who will collect and distribute
information to communities
Must be fun, humorous
Partners: CBT, Northwest Power Planning Council, community groups, government and NGO's, Science and Technology Association of Rockies……
Need an Atlas steering committee
Costs-important to define who will do what and invite the people you need to do their parts
Atlas steering committee focus on developing database and standards and soliciting involvement from people who will contribute to Atlas

Appendix 3

Contact List

First Name	Surname	Title	Organisation	Email	Address	City	Province	Zip code	Phone
Albert	Chirico	Fish Habitat Inventory Specialist	BC Ministry of Environment, Land & Parks	achirico@nelson.env.gov.ba.ca	401-33 Victoria St	Nelson	BC	V1L 4K3	250-354-6905
Andy	MacKinnon	Technical Advisor, Old Growth	BC Forest Service, Research Branch	Andy.MacKinnon@gems1.gov.bc.ca	3rd Floor, 712 Yates	Victoria	BC	V8W 9C2	250-387-6536
Barry	Bartlett	Communications Coordinator	Columbia Basin Fish & Wildlife Compensation Program	Barry.Bartlett@bchydro.bc.ca	#103-333 Victoria Street	Nelson	BC	V1L 4K3	250-352-6874
Bill	Swan	Consultant	Osprey Communications	osprey@rockies.net	RR#5-3941 Holgrave Road	Invermere	BC	V0A 1K5	250-342-3357
Brad	Mason	Habitat Inventory Coordinator	Fisheries and Oceans Canada	masonb@dfo-mpo.gc.ca	Stn 360 555 West Hastings St	Vancouver	BC	V6B 5G3	604-666-7015
Brian	Nyberg	Manager, Adaptive Forest	Forest Practices Branch, BC Forest Service	Brian.Nyberg@gems6.gov.bc.ca	PO Box 9513	Victoria	BC	V8W 9C2	250-387-3144
Brian	Stushnoff	Area Manager	Creston Valley Wildlife Management Area	stushnoff@crestonwildlife.ca	Box 640	Creston	BC	V0B 1G0	250-428-3260
Bruce	Enns	Ecologist/GIS Specialist	Cominco	bruce.enns@trail.cominco.com		Trail	BC	V1R 4L8	250-364-4373
Chuck	Rumsey	Conservation Planning Coordinator	Nature Conservancy Canada	chuck.rumsey@natureconservancy.ca	202-26 Boston Square	Victoria	BC	V8W 1H9	250-479-3191
Chris	Steeger	Consultant	Pandion Ecological Research	csteeger@netidea.com	705 Stanley St	Nelson	BC	V1L 1N6	250-354-0150
David	Johnson	Fish & Wildlife Habitat Scientist	Washington Dept. Fish and Wildlife	johnsdhj@dfw.wa.gov	600 Capitol Way	Olympia	WA	98501-1091	360-902-2603
Denise	English		East Kootenay Environmental Society	denglish@redshift.bc.ca	Site 6, Comp 16, RR#1	Golden	BC	V0A 1H0	250-344-2698
Dennis	Hamilton	Consultant	Nanuq Environmental Consultants	dehamilt@direct.ca					
Don	Gayton	Extension Specialist, Eco. Mgt. and For. Practices	Southern Interior Forest Extension and Research Partnership	don.gayton@siferp.org	518 Lake Street	Nelson	BC	V1L 4C6	250-354-6244
Doug	Adama	Project Biologist	Columbia Basin Fish & Wildlife Compensation Program	doug.adama@bchyro.bc.ca	#2-108 Industrial Rd	Athalmer	BC	V0A 1K3	250-348-2366
Elise	Jeffery	Flora and Fauna Officer	Dept. Natural Resources and Environment	elise.jeffery@nre.vic.gov.au	PO Box 103	Geelong	Vic	3216	Australia
Fred	Bunnell	Director, Centre for App. Conservation Biology	University of British Columbia	fbunnell@interchange.ubc.ca					
Gary	Price	Resource Officer	Ministry of Environment, Land & Parks	Gary.Price@gems3.gov.bc.ca	RR3-S8-C5	Nelson	BC	V1L 5P6	250-825-3509
Gillian	Cooper	Education and Programs Manager	Creston Valley Wildlife Management Area	gcooper@crestonwildlife.ca	Box 640	Creston	BC	V0B 1G0	250-428-3260
Guy	Woods	Wildlife Biologist	Ministry of Environment, Land & Parks	guy.woods@gems4.gov.bc.ca	#401-333 Victoria Street	Nelson	BC	V1L 4K3	250-354-6341
Harold	Manson	Senior Fish Biologist	Columbia Basin Fish & Wildlife Compensation Program	harold.mason@bchydro.bc.ca	#103-333 Victoria Street	Nelson	BC	V1L 4K3	250-352-6874
Ian	Parfitt	GIS Coordinator	Columbia Basin Fish & Wildlife Compensation Program	ian.parfitt@gems6.gov.bc.ca	#103-333 Victoria Street	Nelson	BC	V1L 4K3	250-352-6874
Jakob	Dulisse	Biologist	Pandion Ecological Research	jdulisse@netidea.com	705 Stanley St	Nelson	BC	V1L 1N6	250-354-0150
James	Bergdahl	Conservation Biologist	Conservation Biology Centre	bergdahl@icehouse.net	PO Box 8317	Spokane	WA	99203	509-835-5233
John	Woods	Wildlife Biologist	Parks Canada	john_woods@pch.gc.ca	Box 350	Revelstoke	BC	V0E 2S0	250-837-7527
Karen	Bray	Fisheries Biologist	Columbia Basin Fish & Wildlife Compensation Program	karen.bray@bchydro.bc.ca	PO Box 500	Revelstoke	BC	V0E 2S0	250-837-2538
Kindy	Gosal	Spending Officer	Columbia Basin Trust	kgosal@cbt.org	445-13th Avenue	Castlegar	BC	V1N 1G1	250 365 6633
Marcy	Mahr	Conservation Science Coordinator	Yellowstone To Yukon Conservation Initative	marcy@y2y.net	PO Box 423	Kila	Montana	59920	406-752-6847
Matt	Craig	GIS Coordinator	Ministry of Environment, Land & Parks	Matthew.craig@gems3.gov.bc.ca	#401-333 Victoria Street	Nelson	BC	V1L 4K3	250-354-6852
Matt	Wenger	Director, Information Technology	Columbia Basin Trust	mwenger@cbt.org	PO Box 220	Nakusp	BC	V0G 1R0	250-265-4822
Maureen	Ketcheson	Vegetation Ecologist/Director of Operations	JMJ Holdings Inc	jmj@netidea.com	Suite 208-507 Baker Street	Nelson	BC	V1L 4J2	250-354-4913
Paul	Galbraith	Manager, Intergovernmental & Industrial Relations	Parks Canada	paul_galbraith@pch.gc.ca	PO Box 220	Radium Hot Springs	BC	V0A 1M0	250-347-2222
Pat	Field	Manager, Resource Planning	Ministry of Forests	pat.field@gems8.gov.bc.ca	845 Columbia Ave	Castlegar	BC	V1N 1H3	250-365-8605
Per Magnus	Wallenius	GIS Analyst	BC Ministry of Environment, Land & Parks	Per.wallenius@gems9.gov.bc.ca	#401-333 Victoria Street	Nelson	BC	V1L 4K3	250-354-6850
Thomas	Munson	Treaty Lands Coordinator	Ktunaxa-Kinbasket Treaty Council	tmunson@kktc.bc.ca	7468 Mission Road	Cranbrook	BC	V1C 7E5	250-489-2438
Tom	Ethier	Wildlife Biologist	BC Ministry of Environment, Land & Parks	tom.ethier@gems9.gov.bc.ca	201-3547 Skaha Lake Road	Pentiction	BC	V2A 7K2	250-490-8245
Tom	Oneil		North West Habitat Institute	habitat@nwhi.org	PO Box 855	Corvallis	OR	97339	541-753-2199
Tom	Phillips	Information Manger	Ktunaxa-Kinbasket Treaty Council	tphillips@kktc.bc.ca	7468 Mission Road	Cranbrook	BC	V1C 7E5	250-489-2438
Wayne	Campbell		Wild Bird Trust	rwc_bc@hotmail.com	PO Box 6218	Victoria	BC	V8N 1J6	250-477-0465