

# **CROWN OF THE CONTINENT MANAGERS PARTNERSHIP 2009 FORUM SUMMARY**

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**THEME: ECOLOGICAL HEALTH**

**24 - FEBRUARY 2009  
PINCHER CREEK, ALBERTA**

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**Section A**  
**Forum details**

**- AGENDA -**

**February 24, 2009 (open to public)**

- 4:00 p.m.                      Hotel room check-in
- 5:30 – 7:00                      Conference registration
- 7:00 p.m.                      **Keynote Speaker**  
   Ben Gadd  
   *Is the Crown slipping? Might it Fall? A clear-eyed look at the  
   Crown of the Continent area, past and future*

**February 25, 2009 (open to public)**

- 7:30 – 8:30                      Registration
- 7:30 – 8:30                      Breakfast (included with registration)
- 8:30 - 9:00                      Welcome and Introductions  
   Rick Blackwood - Alberta Sustainable Resource Development (Host)  
   Gary Mills – Mayor, Town of Pincher Creek  
   Rod Cyr – Reeve, MD of Pincher Creek  
   Margaret Plain Eagle – Elder, Piikani Nation
- 9:00 – 9:20                      CMP Overview Presentation  
   Mary Riddle, Glacier National Park
- 9:20 – 9:50                      Guest Presenter – Invertebrates  
   *Arthropod diversity in the Crown of the Continent Ecosystem*  
   Dave Langor, Canadian Forest Service
- 9:50 – 10:20                      Guest Presenter – Aquatic Micro Invertebrates  
   Ric Hauer, Flathead Biological Station
- 10:20 – 10:45                      **Break**
- 10:45 – 11:15                      Guest Presenter – Amphibians  
   *Amphibians in the Crown of the Continent Ecosystem*  
   Steve Corn, U.S. Geological Survey
- 11:15 – 11:45                      Guest Presenter – Vegetation  
   *Plant Diversity in the Crown of the Continent*

Peter Achuff, Parks Canada

11:45 – 12:15

Guest Presenter - Birds

*Bird Diversity in the Crown of the Continent*

Dick Cannings, Bird Studies Canada

12:15 – 1:15

**Lunch**

1:15 – 1:45

Guest Presenter – Fisheries

*Conservation of native fishes in the Crown of the Continent Ecosystem*

Clint Muhlfeld, U.S. Geological Survey

1:45 – 2:15

Guest Presenter – Species at Risk

*The Southern Headwaters At Risk Project (SHARP): Managing for Multiple Species at Risk in Southwestern Alberta*

François Blouin, Alberta Fish & Wildlife Division

2:15 - 3:30

Panel: Biodiversity and Resiliency

*Why Is Biodiversity Important in the Crown?*

Michael Quinn, University of Calgary

Panel Discussion (all presenters included in panel)

3:30 – 3:45

**Break**

3:45 - 5:00

Panel: Biodiversity Indicators for the Crown of the Continent

*Biodiversity in the Crown: Why Biodiversity?*

Ian Dyson, Alberta Environment

Panel Discussion (all presenters included in panel)

5:00 PM

**Adjourn Day 1**

6:00 PM

**Dinner** (included with registration)

7:00 PM

Keynote Presentation

*Climate trends and ecosystem impacts on Northern Rocky Mountain forests*

Steven Running, University of Montana

**February 26, 2009 CMP Business Meeting (CMP agencies)**

7:30 – 8:30

Breakfast (included with registration)

8:30 – 8:45

Welcome / Summary Day 1

Wayne Stetski, BC Ministry of Environment

8:45 – 10:00

Agency Updates

10:00 – 10:15	<b>Break</b>
10:15 – 11:00	<u>Agency Updates (cont)</u>
11:00 – 11:30	<u>Steering Committee Report to Forum / Workplan 2009/10</u> Bill Dolan (Chair, CMP Steering Committee), Alberta Parks Division
11:30 - 12:15	<u>Confirm direction from CMP to Steering Committee</u>
12:15	<b>Adjourn meeting</b>

## ***FOREWORD AND OBJECTIVES***

This document summarizes the ninth annual Crown Managers Partnership Forum held in Pincher Creek, Alberta, Feb 24 – 26, 2009. Agency participants gathered to discuss collaborative ecosystem management issues in the Crown of the Continent Ecosystem.

Political, financial and technical barriers impede landscape-level collection of information necessary for trans-jurisdictional ecosystem management and cumulative effects modeling. These barriers are magnified when political borders divide a landscape. No single agency has the mandate or the resources to focus upon the entire region. Recognizing the above, a group of resource agency managers launched a new partnership initiative.

In February 2001, government representatives from over twenty agencies gathered in Cranbrook, B.C. to explore ecosystem-based ways of collaborating on shared issues in the transboundary Crown of the Continent. Participation included federal, aboriginal, provincial and state agencies or organizations with a significant land or resource management responsibility within the Crown of the Continent Ecosystem (CCE). The aim was to involve a blend of senior and middle managers with technical and professional staff that have a role in management at the ecosystem scale (e.g. conservation biologists, land use planners, etc.). No attempt was made to put a firm boundary around the area of interest, but the region is generally defined by the Rocky Mountain ecoregion from the Bob Marshall wilderness complex (MT) to the Highwood River (AB) and Elk Valley (BC) and is known as the *Crown of the Continent* (see cover graphic).

The highly successful workshop, hosted by the Waterton-Glacier International Peace Park and facilitated by Miistakis Institute resulted in a commitment by all participants to move forward collaboratively on regional ecosystem management. In order to advance progress on the above priorities, the Forum struck a Steering Committee. The Steering Committee developed a work plan to address the priorities identified by the Forum.

The Cranbrook Workshop highlighted five issues that were deemed important to the participants and could best be addressed at the larger regional ecosystem scale. They were:

- Address cumulative effects of human activity across the ecosystem,
- Address increased public interest in how lands are managed and how decisions are reached,
- Address increased recreational demands and increased visitation,
- Collaborate in sharing data, standardizing assessment and monitoring methodologies,
- Address the maintenance and sustainability of shared wildlife populations.

At the Pincher Creek, AB Forum, two more issues were added to the list:

- Promote awareness of CMP and Issues
- Design and maintain an administrative framework in support of the CMP

In April of 2002, the second annual Forum was held in Whitefish, MT. This second Forum resulted in the formalization of the group to a Collaborative Partnership (*Crown of the Continent Ecosystem Management Partnership*) that is accountable to the membership through an Annual Forum, implements direction from the Partnership through an Annual Work Plan, includes an Interagency Steering Committee as well as a Secretariat (provided by the Miistakis Institute). The Secretariat provides both administrative and technical support, including fundraising and project management. This structure and direction has been confirmed at subsequent annual Forums.

The 2009 Pincher Creek Forum was centered on the theme of biodiversity. As well as providing the critical agency updates, CMP activity review, and networking opportunities, this Forum provided a number of presentations and discussion opportunities focused on biodiversity throughout the Crown region.

The objectives of the 2009 Crown of the Continent Managers Forum were:

- Validate and/or adjust the priorities, steering committee membership and overall approach of the CMP;
- Provide a practical opportunity to share information regarding biodiversity in the CCE;
- Confirm agency commitment and resourcing for Secretariat and workplan projects; and
- Provide a formal and informal networking opportunity for various jurisdictions in CCE

## *Section B Summary*

### **February 25, 2009 (open to public)**

*WELCOME AND INTRODUCTIONS*\_(Wayne- Moderator)

Travis Ripley - Alberta Sustainable Resource Development (Host)

Gary Mills – Mayor, Town of Pincher Creek

Rod Cyr – Reeve, MD of Pincher Creek

Margaret Plain Eagle – Elder, Piikani Nation

Edwin Small Legs – Piikani Nation

### *CMP OVERVIEW PRESENTATION*

Mary Riddle, Glacier National Park

The 'Crown of the Continent' extends from the Kananaskis, south to the Bob Marshall Wilderness complex, and west to the Rocky Mountain Trench.

### **Jurisdictional Complexity in the Crown of the Continent**

The effectiveness of management agencies responding to these issues is complicated by jurisdictional fragmentation

- First Nation / Tribal Lands
- Parks Canada / U.S. National Parks Service
- B.C. Ministry of Environment
- Alberta Community Development
- B.C. Ministry of Forests
- United States Forest Service
- Alberta Sustainable Resource Development
- United States Fish and Wildlife
- Montana DNRC (State Forests)
- U.S. Bureau of Land Management
- Private Land
- Counties / MDs / Regional Districts
- Cities / Towns / Village

### **Issues and Challenges**

- Weeds and vegetation management
- Fire Management
- Wildlife and Habitat Management/Conservation
- Water Quality/quantity, fisheries, aquatics
- Urban and rural residential development
- Conflicting recreational use and resource impacts
- Resource use and extraction
- Increasing fragmentation and loss of wildlife habitat

- Degradation of important ecological and resource goods and services

### **Crown Managers Partnership**

#### **History**

- Cranbrook, BC – 2001
- 23 agencies, tribes, first nations
- Communication and connections
- Explore ways of collaborating on shared issues in the Crown of the Continent

### **Crown Managers Partnership**

#### **Vision**

“An ecologically healthy Crown of the Continent Ecosystem”

### **Crown Managers Partnership**

#### **Mission**

The Crown Managers Partnership (CMP) is a diverse group of resource management agencies who have agreed to work together to achieve the vision by:

- Building an understanding and awareness of the ecological health of the Crown of the Continent Ecosystem
- Building enduring relationships and collaborating across mandates and borders

### **Crown Managers Partnership**

#### **Structure**

- Cooperative group of resource management agencies; recognizing CMP does not manage, but agencies do
- Participants include federal, state/provincial agencies, tribes and first nations in charge of resource management, land, environment, parks, wildlife, agriculture, forestry and educational institutions
- Steering Committee and Secretariat

### **Crown Managers Partnership**

#### **Guidance**

- Strategic Plan
- Annual Forums based on themes
- Annual Work Plan
- Projects

### **Ecological Health Project**

- Long-term, multi-faceted project aimed at defining ecological health for land managers
- Strategic priority for CMP; will guide project activities for next 5 years
- Establish an indicators-based, environmental outcomes approach

### **Managing for Ecological Health**

#### **Why**

- The health of the Crown of the Continent has implications on the health of ecosystems downstream across North America
- Jurisdictional complexity has resulted in numerous independent initiatives and approaches to monitoring EH, yet many of the stresses and challenges facing the Crown are similar and likely will require coordination beyond boundaries
- The agencies within the Crown share a common desire for maintaining a healthy Crown of the Continent Ecosystem to achieve their mandates and missions
- Land managers would benefit from evaluating and understanding the condition and patterns of change at the scale of the Crown of the Continent
- Many challenges facing the Crown are happening at the scale of the Crown throughout and not just locally
- Reduce duplication of efforts among land managers
- Improve communications across jurisdictional boundaries

- Learn from others successes and failures
- Products derived contribute to other initiatives

### Themes

- Landscape (grizzly bear)
- Biodiversity or focal species
- Water quality and quantity
- Exotics
- Climate
- Air quality

### *GUEST PRESENTER – AQUATIC MICRO INVERTEBRATES*

#### *RIC HAUER, FLATHEAD BIOLOGICAL STATION*

- Important theme- CCE is biologically complex and aquatic insects (AI) are integrated weaved into this biocomplexity.
- CCE has highest diversity of AI in western Cordillera including many endemic species.
- Cumulation of three major hydrological regimes, creates a focal areas where species from different regions are mixing. Embedded in this are aquatic systems supporting three groups of AI mayflies, stoneflies and stoneflies.
- AI's respond to disturbance in predictable ways, excellent indicators of pollution and disturbance of systems.
- AI occupy habitat structure in a highly refined manner - resources on the landscape are divided up or stratified based on stream temperature, nitrogen levels exacta
- **Biodiversity and production hotspots - Alluvial floodplains** (ie. North Fork of Flathead)
- Floodplains are highly dynamic systems and the process of cut and fill alleviation leads to a high diversity of habitat.
- Subsurface microbial activity releases nitrogen and phosphorus into surface water creating production hotspots.
- Aquatic dynamic systems where **shift in habitat** is so important to diversity are impacted by human activities, such as developing on floodplains, lakes, streams, rivers and wetlands.
- Other activities impacting these systems are gravel mining, **coal mining** (one of most distinct threats to the CCE- ie proposed mine near Foisey Creek or existing mine on Michelle Creek in Flathead)
- Coal mining impacts on the aquatic system include binging heavy metals (sulfates, nitrates and selenium) to the surface.
- Paradox of Enrichment – organisms may become more abundant until a threshold is reached and biodiversity decreases.
- Biodiversity and Bio-complexity of the CCE stream and river systems: sustainability, vulnerability and resilience.
  - CCE is used as a touchstone as one of the most functioning systems in world- represents one of the most diverse AI hotspots.
  - Sustainability – long temporal scales important to maintain
  - Extremely vulnerable environment - humans moving more earth then river systems
  - Resilience – theoretically should be extremely resilience, don't know the threshold of changing the steady state.

### *Questions*

- Do Watersheds result in different compositions of AI?
  - Every watershed is different in AI composition, but when comparing headwaters of the Flathead vs headwaters of Michelle Creek that share a common divide with the same geological base it is a valid comparison.

- Plans for working in other areas within the CCE- In Alberta the Castle ecosystem

*GUEST PRESENTER – AMPHIBIANS*

*AMPHIBIANS IN THE CROWN OF THE CONTINENT ECOSYSTEM*

*STEVE CORN, U.S. GEOLOGICAL SURVEY*

- Global amphibian decline- hotspots for decline Australia, Central America, Western US
- Global Amphibian assessment (Stuart et al. 2004), 32% of species threatened, 7.6% rapid decline
- Western US: US Federal Listing – 9 species (in CCE), 6 candidate species
- Concern decline in wilderness areas and protected areas (i.e. boreal toad in rockies)
- Causes of amphibian declines:
  - Acid precipitation
  - Increasing UV radiation
  - **Contaminants**
  - **Introduced predators**
  - **Habitat destructions**
  - **Diseases (fungal disease)**
  - Climate change
- Response amphibian declines initiated Amphibian Research and Monitoring Initiative (ARMI).
- Amphibians diversity within the CCE are low, there are 9 species in the CCE are representative of amphibians for different habitat types and ecozones.
- Monitoring method- select small watersheds and sample all ponds and wetlands in watershed to identify if species is presence and if breeding.
- Within Montana-Wyoming, amphibians are doing better in the north than south along transect.
- Threats to amphibians diversity are not clearly understood, but
  - In CCE doing ok, some global threats apply including fungus disease, *Batrachochytrium dendrobatidis* (Bd) which is present throughout the Rockies mountains (Murth et al. 2008 Biol conserv 141:1484). The effects in northern Rockies (US) of Bd is less than southern populations.
  - Concerned about climate change as a future impacts such as impacts on phenology (timing of breeding). Effects may be positive and negative depending on species.
  - Breeding in snow-dominated landscape is determined by snow-melt, northern Rockies shows the biggest change in breeding period when comparing northern-southern US Rockies.
- Monitoring within the CCE
  - Columbia Spotted Frog (little rock creek basin and Bitterroot Mnts)
  - GNP amphibians and fire monitoring (long toed salamander and Columbia Spotted Frog there was no change before and after the fire while boreal toads increased after fire but then decreased a few years later).
  - Tail Frog- endemic species in CCE, fire effects include age class effects
  - Important to monitor outside of the Parks system

*GUEST PRESENTER - EIRDS*

*BIRD DIVERSITY IN THE CROWN OF THE CONTINENT*

*DICK CANNINGS, BIRD STUDIES CANADA*

- Statistics
  - 266 regularly occurring species (normal when compared with other ecosystems)

- 218 breeding species (hard pressed to find an area that would have this number of breeding species)
- 34 migration
- 14 winter
- **One of the most diverse areas for breeding birds in NA.**
- Factors influencing diversity
  - Two major ecozones, plains and prairies and mountain cordillera
  - Rockies act as a migration corridor
  - A suture zone for sibling species and subspecies groups (flickers, junco, sapsuckers, orioles, western flycatcher)
  - Provide a diversity of habitats
- Species at risk
  - 0 bird species on ESA in region
  - 12 species on COSEWIC list (some important habitat guilds: old growth, **grassland prairie species**, riparian woodland, aerial insectivores)
  - 9 species on MT partners in Flight Priority list
- Monitoring Birds
  - Easy to monitor, identify and occupy a diversity of habitat.
  - Many enthusiastic birds that will count birds (breeding bird surveys, Christmas bird count, BC owl surveys, focal species (parents in flight protocols), [www.ebird.org](http://www.ebird.org))
  - Best to monitor 30 year trends in birds
  - An ideal group to monitor ecosystem health
  - Clarkes Nutcracker would be a good focal species for the CCE, due to white bark pine threats.

*GUEST PRESENTER – SPECIES AT RISK*

*THE SOUTHERN HEADWATERS AT RISK PROJECT (SHARP): MANAGING FOR MULTIPLE SPECIES AT RISK IN SOUTHWESTERN ALBERTA*

*FRANÇOIS BLOUIN, ALBERTA FISH & WILDLIFE DIVISION*

- Southern Alberta study area includes the CCE Alberta portion
- An ecologically diverse landscape with many ecozones represented with a complexity of land uses (crops, feedlots, ranching, grazing, recreational activities, rural residential development, industrial and forestry)
- One of the highest areas for biological diversity in Alberta, for example plant diversity (castle hotspot for Alberta).
- Area represents a conservation challenge to ASRD due to limited resources, data deficiencies, species occurrence knowledge, multiple administrative authorities and pressure for action.
- Multi-species landscape approach to identify areas of high value for multiple species at risk. Objectives:
  - Develop list of focal species (criteria and weighting rational developed)
  - Habitat associations for the focal species
  - Produce a map of relative habitat suitability for species (25 m resolution), example of Clarke Nutcracker.
  - Identify priority areas important for multiple species (forest and grassland modeling)
  - Report results to communities

*GUEST PRESENTER – VEGETATION*

*PLANT DIVERSITY IN THE CROWN OF THE CONTINENT*

*PETER ACHUFF, PARKS CANADA*

- Vascular plants (flowering plants, grasses and trees)
- Non-vascular plants (mosses, liverworts, lichens)- very limited information within CCE
- Fungi important role (i.e. mycorrhizae) very limited information within CCE
- Biodiversity Levels- all need to be considered
  - Landscape (ecoregion, natural regions, habitat-type series)
    - Unique to CCE Montane (East Slopes, Limber Pine) and Foothills Parkland
    - Limber Pine- system unique to NA
  - Communities (vegetation)
    - ANHIC data and BC Data Consortium (The numbers: AB 25, BC 10 and MT 20), there are 250 distinct community types, 25% are special.
    - Examples of special vegetation communities include mountain avens, alpine bistort, white bark pine bear grass, spruce-fir/devils club, big sagebrush, aspen cow-parnsnip, western red cedar-western hemlock.
  - Species populations (flora)
    - The Numbers (AB 1025 in CCE of 1800 species in Alberta, BC 1000 and MT 1150). 1200 species within the CCE, 265 considered special
    - CCE richer than most placed on continent, because a function of habitat diversity, topographic elevation range, contemporary climate, historical factors (glacial refugia, floristic regions)
    - Endemic species examples: Dawsons angelica, pygmy poppy, mountain gentian, beargrass, alpine townsendia, douglasia (WLNP), Alberta penstemon, barratte willow, mount lady's-slipper, meadow thistle, Blanders quillwort (WLNP), paradoxical moonwarts, lance leaved moonwarts, limber pine (only in CCE in Canada)
  - Genetic (important to consider when setting up monitoring program)
    - Very little known
    - Geographical pattern of genetic diversity (history, adaptation, breeding systems)
    - Locally adapted to environmental difference
    - Range edge populations, often different due to climate change, other environmental factors (pollinators, disease, competitors and herbivores).
- Language, letters, words, sentences, paragraphs vs Biodiversity, genes, species, communities, ecoregions)
- Biodiversity attributes
  - Composition
  - Structure
  - Functional/ processes (pollination, seed dispersal, nutrient cycling, competition, disturbance, recovery)
  - ANHIC data and BC Data Consortium
- Plant Biodiversity Monitoring
  - Large, multifaceted diversity (genes, species, communities, landscapes)
  - Priorities most at risk on
  - Species Level: regional endemics, fragmented distributions and small populations (ie limber pine and whitebark pine- keystone species, sensitive to climate change).
  - Community level, grasslands/grassy forests because they have been reduced in area and quality due to conversion, poor grazing practices, non-native plants and loss of fire.
  - Landscape level, changes in amounts, age structure and distribution patterns. Changes in connectivity (connecting habitat, seed dispersal and pollination).
  - Plant variable monitoring in WLNP, spring flowering phenology (late week of May- fixed point count the number of flowering plants). Trend appears to be that spring has moved earlier by about a week from 1995-2008.

*GUEST PRESENTER – FISHERIES*

*CONSERVATION OF NATIVE FISHES IN THE CROWN OF THE CONTINENT ECOSYSTEM*

*CLINT MUHLFELD, U.S. GEOLOGICAL SURVEY*

- The CCE is a native species stronghold including bull trout, west cutthroat trout, sculpin spp. Lake trout and northern pike.
- Native salmonoids (Bull trout and Westslope Cutthroat trout) are excellent indicators of aquatic biodiversity
  - Abundant
  - Widely distributed
  - Diversity of habitat
  - Genetically diverse
  - Locally adapted
  - Ecologically diverse
  - Ectotherms (rely on external temp of environment to regulate internal temp.
  - Life history variation (residents and migratory)
- Threats to fish include invasive species, habitat destruction, road construction
- **Westslope Cutthroat trout-** hybridization is the greatest threat, less than 10% remain native in US and 20% remaining in Canada. Recently invaded system in the Flathead, research shows rainbow trout are displacing the native trout. Hybridization causes a rapid reduction in fitness of survival in the wild and behavioral characteristics (time of spawning changes). Hybridization alters local adaptations that have been around for thousands of years.
- Conservation implications:
  - Suppress source populations
- **Bull Trout** – large migratory distances seasonally and local microhabitat scale (diel movements) great movement between river gradients. Information important for reducing impacts of flood control.
  - Threats include flooding regimes, habitat loss and degradation and exotic species invasions (Northern Pike)
- Conservation measures: Maintaining diversity of natural habitat, improve stream and lake habitat, remove migration barriers, restoring flow regimes.
- Greatest threat, coalbed methane and coal mine in the Flathead Drainage due to impacts on water quality.
- Are in the headwaters is critical infiltration zone, critical area for Redds; 36% of Redds in the headwaters, right below proposed CBM and open-pit mining.
- Headwaters in BC indicate that trout species are all genetically pure populations. At the proposed mine site (Foisey Creek) there are native species.
- Climate change impacts on aquatic ecosystems, invasives, increase temp and wildfires.
- Monitoring fish communities, demographic and genetic fish characteristics, genetic diversity within and among populations, life histories and ...
- Requires a CCE level scale of analysis.

*GUEST PRESENTER – ENVERTEBRATES*

*ARTHROPOD DIVERSITY IN THE CROWN OF THE CONTINENT ECOSYSTEM*

*DAVE LANGOR, CANADIAN FOREST SERVICE*

- Biology Survey of Canada initiated with WLNP a BioBLITZ on going since 2005.
- What are arthropods? Insects, arachnids, millipedes and centipedes.
- Constitute mega-diverse groups (ie, there are 150 spp of carabid beetles of which there are >400 in Alberta).
- Estimate there are 4500-6000 arthropods in WLNP
- Important Roles of arthropods: nutrient cycling, pollination, food for vertebrates, control of pests
- What characterizes the Arthropod fauna of the CCE
  - High elevations,
  - short climate
  - long life cycles,
  - limited dispersal abilities
  - endemic
  - most taxa are poorly surveyed,
- Threats:
  - climate change (receding glaciers, warming, interrupted water supplies),
  - invasions (native and alien spp., destroys arthropod habitat, new competitive interactions).
- CCE significant to Arthropod diversity at a regional scale:
  - Endemic populations
- Biodiversity Monitoring challenges:
  - poorly understood,
  - not many monitoring initiatives,
  - shortage of basic knowledge on what is out there,
  - Spatially disjunct populations,
  - Temporally insect populations are highly variable and
  - Expensive to monitor, collection to species level identification
- Biodiversity Monitoring recommendations
  - Monitor habitats
  - Habitat classifications
  - Ecological surrogates for arthropods needed that are tested once in a while.
  - Ecosites developed and classified on soil nutrients and soil moisture may be a good surrogate for arthropod. Each ecosite does not have a unique assemblage of arthropods but there are groupings associated with nutrient regimes. Using a system developed for forest management that can also be a useful tool for monitoring arthropod diversity at the landscape level.

**Questions for afternoon presentations**

- Can citizens be used to monitor arthropod diversity (BioBlitz)?
  - No active involvement in insect collecting; however there is a butterfly count that included the public.
- For non-native species, how do you get rid of them?
  - The tools to suppress non-native fish species are toxins (worse case) to removing through mechanical means.
- Westslope cutthroat trout listed in the middle of recovery plan, can you talk about the level of genetic analysis to determine if pure?
  - DNA genetic markers (8 diagnostic loci- 25-30 fish in each population). Concerning that some consultants are finding different results than your study.

- 250 special plant communities in CCE, how does this compare to other places in NA?
  - Compared to Jasper and Banff don't have the same level of biodiversity, not sure to areas in the US
- Comparison between elk and flathead, is there a thumbnail of biodiversity value of the region
  - There is limited information on the Elk river, so planning to use a similar approach to Rick, where we surveys in the Elk.
- Comments on westslope cutthroat and hybridization resulting in less fitness overall
  - Hybrid vigor is not always positive, in the Flathead negative effective on the populations health. When hybrid first spawn there is equal level fitness and then less fitness. A few males had high level of fitnesses that where spawning.

*PANEL: BIODIVERSITY AND RESILIENCY*

*BIODIVERSITY: A CRITICAL ELEMENT OF A RESILIENT CROWN ECOSYSTEM*

*MICHAEL QUINN, UNIVERSITY OF CALGARY*

- Genesis of Resilience thinking, Holling et al. based on the many puzzling, paradoxical failures of natural resource management.
- Failure of command and control management, assumptions based on command and control management.
  - Works for well bounded problems, clearly defined
  - Solutions are direct
  - Problems, we face wicked problems- bounding is difficult, problem definition is unclear, cause and effect relationships are not clear, social values are critical and engaging the problem changes it.

Pathology of NR Management

- Human-imposed external control
- Loss of system resilience when the range of natural variations
- Institutional changes to focus on the control
- Growing isolation of mgrs from resource and public

Complex adaptive systems

- Complex linear dynamics and capacity for learning
- Simple rules of cause and effect don't apply
- Social ecological system represents the CCE

System

- System- collection of things perceived
- Connections determine the structure of the system and what they do is the process or function
- Most of these systems are open, embedded in an environment (source and sinks)
- Change can happen internally and adapt, but still a system that we can recognize
- Emergence where one plus one does not equal 2. The pieced are more than the sum of parts.
- Systems persist even when environment changes

Resilience

- Social and ecological systems and the interactions between them.
- Resilience is the ability of system post release for us to recognize it.
- Multiple scales are important, higher level systems regulate lower scale systems.

- During release phase, creative things can happen (opportunities can occur).
- Adaptive Cycle, as the potential increases so does vulnerability, innovation occurs in pulses. The faster lower level innovations are tested in the larger context.

Connections between social and ecological systems

- Ecological goods and services
- Social system and ecological systems influence each other

People are a part of nature

Understanding the component pieces does not mean we understand the system as a whole, need to know how they function as a whole.

Respecting the knowledge of different individuals

How to make this a valuable management tool, where are the thresholds?

*BIODIVERSITY IN THE CROWN: WHY BIODIVERSITY?*

*IAN DYSON, ALBERTA ENVIRONMENT*

- Biodiversity is the variety of life in all its forms. It is the lifeblood of ecosystems. And it is the ecosystem functionality.
- Provides resiliency, ecological services (prevents erosion), and stability
- Lands with most intact landscapes provide greatest levels of biodiversity, there is a biodiversity gradient as we move from protected areas through land uses to urban centers.
- Trade-off intensity of human use and of our footprint.
- Challenges: increased human activity, recreational, resource extractions, rural residential development, jurisdictional complexity
- Consequences, increasing habitat fragmentation, decrease water quality and quality of life
- Why manage EH?
  - Societal expectations
  - Downstream implications
  - Trans boundary commonalities
  - Agency mandates
- Managing for EH, benefits
  - Threats occurring regionally not locally

CMP EH Project

- Long-term,

Potential Indicators

- Cover: % natural
- Forests: % old growth
- Wildlife Populations # (GB, Elk)

*PANEL DISCUSSION (ALL PRESENTERS INCLUDED IN PANEL)*

- Open to panel on general discussions on presentations
- What do we track from an overall health standpoint

- Peter: What do you mean by long term – 100 years or greater. I have been through about 10 other monitoring projects and one of the issue is an understanding of what is available. If the information exists boundaries can be set.
- EH Committee: wanted to use existing information with the understanding that we might need to be broader and direct resources toward something.
- Rick: Don't limit your questions by what you think you can do or the tools that are available, ask the questions first then determine the possibility. Otherwise we can't make advances or get desired outcomes.
- EH Committee: What is it about biodiversity that we should be concerned about? What is expected vs what we see?
- One of the thing is using the term health because of association with humans, but we are talking about Ecological Integrity- all the parts are present, the function is occurring in a normative rate.
- Ian: regional endemics are important, if we select 2-3 for each group is that a good approach.
- Dick: Do you work on the rare or endangered or the common stuff. The common stuff that is providing EGS we need to keep track of those things.
- AI: Identify any element of native biodiversity that is not important.
- Peter: There is some species redundancy, but we don't understand the system well enough to know them all.
- Rick: If one of the AI disappeared the overall functionality of the system would not change. We know what the strong interactions are. In order the maintain B we have to maintain the physical system.
- Dave: ABBMP had similar discussions, to start off the CMP may find some common ground and reports of interest on their website. On an arthropod approach they focused on most common species in a few groups- not sure that this will indicate that. But how do you deal with rare species, can't monitor. Suggest going toward habitat. What is most valuable can change over time, keep all the parts.
- Len: Time frame 50-100 years, unique thing about CCE and it's scale you might be better off looking at the state of systems. Foothills parkland- health, pick some representative systems and then measure the state of those systems.
- Clint: supports understanding the systems approach but broader time frame required. Select some species that might be indicators of these systems.
- Ian: backup when knowledge deficient and consider the major components of the system as surrogate.
- Casey: Forces we don't have control over (human pressure) and google earth (landscape changes over time), is there anyone that would not agree the most pressing question is how quickly are we losing habitat and changes in the rate. How do we break out of the box of the first two stairs on the Eh rung and include social....
- Rick: We know a lot about these systems, problem is the fundamentally lack the political will to make the right decisions. The notion that we know thresholds once we passed them is true.
- EH Committee: switch away from biodiversity to habitat and landscape. What is it about biodiversity- maybe we need to broaden landscape change.
- Dick: Habitat is critical, questions about how much we need and in what form and format.
- Dave: Think that you need some of each, some species are relatively inexpensive to monitor so why not. No choice but to use Ecological indicators
- Rick: you are selecting indicators of biological diversity
- Wayne: did we ask the wrong questions, frame differently, assume 25 years, if you had to come back in 25 years what would you look at?
- Clint: Fish are in the water, migratory forms (life history) still using the entire spatial scale or restricted to the head waters.
- Rick: Ecosystem users: Big Bull trout, GB, wolverine and cottonwoods (are they regenerating)
- Dick: Focal species that are common in the CCE that are acting as a source.
- Dave: aquatic ecosystems are in tact and there is the full range of types. Full complement of plant communities monitored.
- Peter: Landscape pattern of community types is a good way to monitor change. Maintaining habitat maintains species, if the landscape pattern is different then we know there is big change.
- Steve: Amphibians most threats are external to park management, what is important is if they habitat is still there.
- Wayne: We are raising leopard frogs to reintroduce, but need habitat to be there to put them back.

- Steve: Should be easy to reintroduce, in placed where you can transplant egg masses result in them staying around, but most translocation programs fail to address what made them disappear in the first place.
- Mary: No end point in our mission, so time frame not significant. Alberta Environment has done air, land and water as systems to manage and monitor. It would be helpful on how to do a paradigm shift to this approach.
- Clint: now is the time to be proactive, GNP intact habitat but underwater indicates that the threats are real. We need new innovative strategies now to address these issues.
- Rick:
- Dave: habitat specie relationship- need to check to make sure they are still there over time.
- Nivea: lots of areas where we have data, but how do we have it at the scale we need. Maybe we need to take a habitat suitability approach?
- Rich: Spectrum of indicators- hit biodiversity sensitive species or fragmentation
- Rick: remote sensing tools could be used (select certain locations across the CCE) at a scale where the entire CCE sampled. Repeat every five years to sample the change.
- Judy: threshold- Klien mine would pass this threshold- how do we stop that? May have acquired all this knowledge but it may not stop them.
- Erin: biodiversity theme, habitat surrogates and species is the best approach, what are those systems and species? We have left mammals out of this, but what are the surrogates for large and mid sized carnivores.
- Chris: some of the sensitive species are GB, wolverine, human activity on the landscape important to monitor (site development and motorized access).
- John: Advocacy organizations need verifiable information to fight the impacts of human activity.
- Casey: encourage everyone to check out Flathead.ca. Tend to launch
- Ian: Summary: What are the questions we need to answer, what is the critical stuff? Identify 4 questions, Are their habitats still there? Are the specie still there? Are the agents of change been identified and are they being actively addressed? Do we have data all the time or the capacity to sustain over time.
- Mike: Connection hydrological dynamics is very important, tie into water quantity and quality is the next forum topic.

## **Adjourn Day 1**

### **February 26, 2009 CMP Business Meeting (CMP agencies)**

#### *SUMMARY DAY 1*

Wayne Stetski, BC Ministry of Environment

- Theme was biodiversity and where we go next, there are many elements to consider.
- Some of the successes were the involvement of first nations, Margaret talked about importance of eagles and Edwin talked about sacred sites and cultural values of the region.
- Rick: Micro aquatic invertebrates and suggested they were good indicators of pollution and the health of water bodies. Alluvial floodplains are the hotspots in the CCE. Identified the chemical difference between river systems where mining occurs and not occurs
- Dick: suggested that the number of breeding species within the CCE is significant in NA. CCE is a hybrids zone which leads to its unique state. Talked about grasslands, riparian, old growth and aerial insect eaters. Clarke
- Steve: amphibians and mentioned that there were 9 species, the boreal toad and the northern leopard frog are in decline. Talked about the impact of fires.
- Francois: species at risk, Castle area contained about 50% of Alberta's plant species.
- Peter talked about vascular plants; priority should be to regional endemics.
- Clint fish- bull trout and westslope cutthroat trout and the threat of hybridization.
- Dave: arthropods and their role in the CCE and their threats to these species, focus on endemic species and difficulty in monitoring species mega fauna and to use habitat as a surrogate.

- Important to understand the current state and then track changes to habitat may be able to do this with satellite imagery.
- Steve: Climate change presentation
- Importance of changing own behaviors to address climate change issues.

#### Comments

- Very valuable information provided yesterday
- PowerPoint presentation will be available on the website ([www.rockies.ca/cmp](http://www.rockies.ca/cmp))
- Issue, public access vision quest sites, needs to education on the importance of these sites to their culture and avoid damaging these areas.

#### *AGENCY UPDATES*

#### Steve Corn, US Geological Survey

#### Len Broberg, University of Montana

The University of Montana has a broad range of activities going on in the Crown of the Continent region. The Transboundary Policy Planning and Management Initiative of the UM Environmental Studies Program partnered with the University of Calgary Faculty of Environmental Design has continued its annual field course and the engagement of graduate students in COC research including the granting of research awards to students in wildlife biology, geosciences and environmental studies. TPPMI is looking at convening another research meeting in the next year to update and further develop definition of research needs and questions in the region.

The Crown of the Continent Initiative of Rick Graetz in Geography and former Dean Jerry Fetz has developed new outreach tools and offerings on the US side of the Crown. A COC Symposium was held in Kalispell at Flathead Valley Community College in February 2009 that was well attended. A new Crown of the Continent e-magazine will be out this spring from this effort.

The UM Public Policy Research Institute, partnered with the Lincoln Institute, has begun a Crown Roundtable. This is a broad-based group with representatives from industry/ business, non-profit and government participants. Government participants include local to state/provincial to federal government and it is seeking to integrate tribal government participation as well. Local landowners are also included in the group. This forum has potential to serve as an outreach conduit for the CMP and its member agencies.

#### Bill Dolan, AB Tourism, Parks & Recreation - Parks Division

**Organization** – Portions of the SW and SE Areas will be collapsed into one Area called the Southern Management Area on April 1, 2009. The Area includes all parks and sites in southern Alberta from a line just south of Calgary and includes Cypress Hills, Dinosaur, Writing-on-Stone, Little Bow, Beehive and Whaleback. There are three operational Districts (Cypress, Dinosaur and Lethbridge/Pincher Creek) and three Area functions (Facility/Asset Management, Land & Resource Management and Education/Outreach) reporting to the Area Manager. The Land & Resource Management function is a new work unit and has responsibility for the following program areas: science, planning, active resource management, land use referrals/dispositions, interagency relations and community engagement.

**Plan for Parks** – This Plan was mandated by the Premier to "*develop a plan to ensure our parks are protected yet accessible to Alberta's growing population*". The Plan is a stand alone document and is aligned with the GOA Land Use Framework. It includes three desired outcomes:

1. Livable communities and recreational opportunities.
2. Healthy ecosystems and environment
3. Sustainable prosperity supported by our land and natural resources.

The Plan underwent public consultation in fall, 2008 and is currently awaiting approval.

**Visitor Centers** – As part of the Province of Alberta centennial, Alberta Parks constructed three new Visitor Centers in the South Management Area. The Centers were built to the LEED silver standard and are located at Cypress Hills, Dinosaur and Writing-on-Stone Provincial Parks.

**Science & Resource Management** – Alberta Parks is working with a number of cooperators in various research and management projects in southern Alberta. Some examples include:

1. Cougar research at Cypress Hills Provincial Park (University of Alberta)
2. Wolf research and Cattle depredation management in SW Alberta (University of Alberta, AB SRD, MD of Ranchlands, Landowners).
3. Montane Research Project – includes elk, grizzly bear and wolves noted above (AB SRD, Shell Global, Waterton Lakes National Park and Universities of Calgary, Alberta and Oregon)
4. Management of Mountain Pine Beetle (AB SRD)
5. Re-introduction of Northern Leopard Frog (AB SRD and ACA)
6. Establishment of a SW Alberta Weed Management Cooperative (MD Pincher Creek, County of Cardston, NCC, Waterton Lakes National Park and Waterton Biosphere Association)

**Education & Outreach (Invasive Plants)** – Alberta Parks has designed and is delivering an education program as part of an integrated invasive species management program. Funding has been secured from the Federal invasive species partnership program, the local Alberta Wind Energy Corporation and the MD Pincher Creek Agricultural Service Board. The education program is known as "Parks in the Classroom" and consists of a three part learning package:

1. Visit elementary schools and provide theatre presentation (*Wicked Weed of the West*) to all elementary school students, teachers and some parents.
2. Provide more detailed class room presentations for grades 4 and 5 classes.
3. Grades 4 and 5 classes travel to Beauvais Lake Provincial Park in May/June to conduct field studies in wetland and grassland ecosystems.

The interest in the program has exceeded expectations and has made direct contact with approximately 5000 students in southern Alberta.

#### Wayne Stetski, BC Ministry of Environment,

Parkland Protected Areas and Environmental Stewardship Division-Kootenay

#### **Wildlife**

- Grizzly bear monitoring expanded to include Flathead with new research partner Scott Neilson from University of Alberta. Modeling and mapping habitats like avalanche chutes and huckleberry patches.
- Bruce McClelland retiring soon, so we will keep his collaring study going which has 30 years of data.
- Starting a large sheep collaring study in Elk valley that focuses on winter range preference and collect population data on female survival and juvenile recruitment.
- New elk management plan being done in fiscal 09/10 including elk valley.
- Clayton Apps and Bruce McClelland collared 2 GB near Fernie last year. Bruce and Kyran are live trapping wolverines. Both projects being funded by US government and Chris Servheen is the main contact.

#### **Fish**

- Developing a Westslope Cutthroat Trout Management Plan. Concerned about hybridization with rainbow trout. 2 day technical workshop held with biologists from Alberta and Parks Canada.

#### **Parks**

- Ranger based in Akamina Kishinena Provincial Park, 750 blow down trees on trails in the park and constructed 100m of boardwalk in Forum lake meadows with assistance of Parks Canada Fire Suppression Crews.

## **Ecosystems**

- Wind turbine projects active in Fernie area (proposed)
- Coal Mountain Mine – new pit being planned for Wheeler Creek areas east of the Dominion Coal Block.
- Expansions planned for virtually all coal mines in Elk valley
- 29 Mile Creek- gold exploration continuing but nothing new.

## **General**

- Continuing our work with the Ktunaxa, Shuswap and Okanogan First Nations on regular referrals and special projects.

## **09-10 Budget Expansion**

- Budget cut coming but implications not yet known. Will be staff rich (no layoffs) but operating dollars challenged.

## Cyndi Smith, Waterton Lakes National Park

- Major 5-year funding proposal (Action on the Ground) submitted for Terrestrial Ecosystem Restoration, focussing on the Foothills Parkland and Montane ecoregions; prescribed burns, additional resources for non-native plant control, limber pine restoration, species at risk, connecting visitors with restoration opportunities, engage and education residents and visitors on restoration initiatives
- National initiatives on re-organisation of visitor relations and law enforcement:
  - visitor experience manager who oversees facilities, programs, services, tourism relations, interpretive services, pricing/promotion, advertising, product development and marketing
  - external relations manager who oversees partnering engagement, consultation, collaboration, public outreach education, communications and media relations
  - two dedicated law enforcement officers; new emphasis on prevention strategies involving all park staff
- Bill Dolan has left Parks Canada and taken on a new challenge with Alberta Parks. The new Resource Conservation Manager, Dennis Madsen, will start his new duties in May 2009.
- Superintendent Rod Blair is retiring at the end of March, 2009. His replacement has not yet been announced.
- Resource Conservation Program renewal is underway nationally in fall of 2009. Challenge to maintain operational and portfolio coverage locally because need to take resources from within to staff the law enforcement positions and visitor relations initiatives.
- Park management plan review for all seven mountain national parks is underway simultaneously. Consultation is to be completed by fall, 2009.
- The park has participated in in the Chief Mountain Study, which investigated the cumulative effects of projected land use in southwestern Alberta. The study area included the park, the southern part of the MD of Pincher Creek, Cardston County and the Blood Reserve. Results can be found at: <http://www.cardstoncounty.com>
- Ecological integrity monitoring indicators and measures finalised, and now working on establishing thresholds and targets. Challenge to maintain program as new annual funding limited to \$15k per park.
- Parks Canada, in association with the CMP, is finalising analyses of changes in anthropogenic land use, road density and traffic volume in the northern Crown of the Continent Ecosystem.
- Major species at risk actions include:
  - Recovery strategy for Bolander's Quillwort, listed as Threatened under SARA. Found in Canada only in three populations in WLNP.
  - Recovery strategy for Half-moon Hairstreak Butterfly, listed as Endangered under SARA. WLNP population disjunct from populations in southern Okanagan.
  - Whitebark pine and limber pine recently approved for listing as Endangered in Alberta; recovery planning has begun. Status report on whitebark pine submitted to COSEWIC for federal assessment. Major restoration efforts planned in WLNP
  - Westslope cutthroat trout are listed in Alberta and recovery planning is underway. COSEWIC assessed the Alberta population as Threatened, but it is not yet SARA-listed.

- We have completed two years of reintroduction of northern leopard frog, which were extirpated from the park, and monitoring is continuing.

### Jack Potter, Glacier National Park

Work will continue on the big project rehabilitating the Going to the Sun Road. This year's work will be similar to last and closure will be early and late in the season, sometimes at night, and a maximum of 30 minutes delay. The US Economic Stimulus Act provided additional funds for future years but what that will mean for upcoming schedules has not been determined. Other projects include money for deferred facility maintenance, trail maintenance, and abandoned mine restoration/safety mitigation.

Next year is Glacier's 100th anniversary and a number of activities are planned, mostly outside the park. We may be hosting a climate change adaptive strategy workshop for managers, a historical symposium, as well as developing traveling and static exhibits.

We will be initiating a parkwide fishery plan, with the main intent of preserving native fish. Toward that end we are beginning a project to depress the population of recently discovered lake trout in Quartz Lake, which formerly had only bull trout and westslope cutthroat trout.

We will hopefully begin the long awaited renewal of our concession agreement for the major hotels which has been delayed by differences related to the value of possessory interest the current concessioner has in the hotels, dorms, and stores. If a new bidder is successful, these possessory interests must be purchased.

The Biological Resources Division of the US Geological Survey under Kate Kendall is beginning a new project to test the use of rub tree to determine status and trend of grizzly bear populations. This non-invasive method follows her large baseline study that use rub trees and wire enclosures with scent lure.

We are extending a cooperative project with the Blackfoot Tribe to determine range and group affiliation of bighorn sheep along our shared eastern boundary.

Finally Glacier is working on a number of initiatives and informational efforts related to climate change. the goal is to inform visitors, determine research needs, and develop adaptive strategies to increase the resilience of the Glacier ecosystem in the face of changing climate.

### Stacey Burke, University of Calgary – Faculty of Environmental Design

- The Faculty of Environmental Design (EVDS) launched a revised offering of the Master of Environmental Design degree beginning in fall 2009. The new program represents a renewed commitment to interdisciplinarity and a more integrated program of courses. See the faculty Web site for more information <http://www.ucalgary.ca/evds/>
- We continue to offer the annual Transboundary Environmental Policy, Planning and Management Field Course jointly with the University of Montana (Environmental Studies). In 2008 we were in the field for one week in October. The course theme was ecological health in the Crown. Our travels were limited to the eastern side of the Rockies for this iteration of the course. Guest speakers and presenters are drawn largely from CMP partners.
- Stacey Burke (who presented this update) is a student in the new MEDes program with an interest in developing a graduate research project focusing on resilience and ecological health in the Crown.
- Mike Quinn is conducting a research project with Julia McCuaig, a Post Doctoral Fellow at the UofC, to explore the Waterton Front Project (Nature Conservancy of Canada project to provide conservation of private lands outside of WLNP). In particular, the program will examine the potential of this project to provide regional collaborative governance.
- There are two projects being conducted as a follow-up to the successful Peace, Parks and Partnerships conference held in Waterton in September 2007. The first is a book of selected conference papers to be

published by UofC Press. The volume is currently in review and is expected to be published in approximately 18 months. The second is a graduate project by Sarah Pasemko at EVDS to explore the feasibility of a formal International Peace Park designation. Sarah is currently conducting a survey of international transboundary park managers.

- Neil Darlow has recently joined the staff of the Miistakis Institute and will be spending 1/3 of his time on work related to the joint transboundary initiative between UofC and UofM.
- Mike Quinn and Shelley Alexander from the UofC and Tracy Lee from the Miistakis Institute are just starting a new project to assess attitudes, values and experience of landowners with carnivores in the Waterton Biosphere Reserve and surrounding area. The work will begin with a comprehensive survey of landowners in the spring of 2009 and will then move towards management recommendations and a further research plan that includes spatial modeling of livestock depredation.

### Rod Cyr, MD of Pincher Creek

### Ian Dyson, Alberta Environment

- Providing assurance of environmental quality in a way that addresses cumulative effects is considered the top priority within AENV. A new implementation framework is being established that will see dedicated teams working on supporting the Land Use Framework, Implementing the Transition to a Cumulative Effects Management System (CEMS) within the department and developing CEMS supports, such as the proposed Environmental Cumulative Effects Management Act which is part of AENV's response to the LUF Alberta Land Stewardship Act and will fold in relevant provisions of the Water Act and the Alberta Environmental Protection and Enhancement Act.
- The GoA will experience fiscal belt tightening in 09/10. There is a strong commitment to our staff. Current priorities in the departmental Corporate Operational Plan are being rigorously pared. The priority focus on CEMS will exacerbate drawing on resources. Accordingly, things will be 'tight' in 08/09 and grant and contract monies will be under pressure in.
- Supporting the imminent South Saskatchewan Regional Plan is a priority in the Southern Region. AENV has named Heather Sinton as our designate to the Regional Planning Team that will support the soon-to-be-announced Regional Advisory Committee that will oversee development of the SSRP plan. Heather's counterpoint in Sustainable Resource Development is Daryll Johnson. There was an interim inter-agency steering group and a dedicated support team leading preparatory work to support the plan. Key players include Louella Cronkite (AENV - education and awareness) Farrah McFadden (planning and policy) and Jocelyn Leger (SRD – resource information management and modelling). The regional plans link the CEMS and planning worlds. They will apply to Crown and deeded lands, use a CEMS approach and are the GOA's primary means for establishing regional outcomes as government policy.
- The Calgary Regional Airshed Zone has completed a plan for particulate matter and ozone which is being reviewed by the department and will move into implementation phase in 09/10. Website: <http://www.craz.ca/> AENV contacts: Alan Pryor and Erin Evans.
- The Bow River Basin Council has completed the first phase of its watershed management plan, identifying reach-based water quality objectives for the Bow and is currently undertaking a SWAT analysis to identify key priorities for the Board to tackle next. Website: <http://www.brbc.ab.ca/> AENV contact: Rob Wolfe
- The Oldman Watershed Council's State of the Basin report will be completed in September. They are currently undertaking visioning and community engagement to prepare for the launch of an integrated

watershed management planning. The Milk has released their State of the Watershed report and the Oldman report is in final stages of preparation. Website: <http://www.oldmanbasin.org/> AENV contact: Cheryl Dash

- The Milk River Watershed Council Canada has released their state of the basin report and is in the process of prioritizing issues and themes for an integrated watershed management planning. Website: <http://www.milkriverwatershedcouncil.ca/> AENV contact: Terrence Lazarus
- There is policy work underway in the Southern Region on riparian setbacks. AENV contact: Jan Simonson.
- The Elbow River Watershed Partnership has completed a watershed management plan and is looking to implement a groundwater monitoring program for the alluvial aquifer. Website: <http://www.erwp.org/> AENV contact: Monique Dietrich.
- The Highwood and Sheep watershed groups are working together to develop a vision for a watershed plan. AENV contact: Andrea Czarnecki.
- Several reports on Ecosystem Goods and Services have been produced. This work was initiated for the regional plan and has moved to provincial scope. Discussions are underway with the Alberta Biodiversity Monitoring Program regarding potential liaison. ABMI provides spatially explicit information regarding species and ecosystem composition while the EGS work provides ecosystem function and structure information. Both are powerful decision support mechanisms for outcomes based regional plans. AENV staff: Megan Ellis and Karen Hughes-Field.
- The Southern Region has a two person Environmental Performance team charged with supporting development and delivery of an outcomes based environmental performance system. The team provides information products that establish the context and trends of the environment (air, land, water and biodiversity) at the regional and sub-regional level. They collaborate with our partners to identify the appropriate indicators and related targets/thresholds to be used to assess whether the desired outcomes are being met and then conducting ongoing evaluations and reporting on the indicator status and trends. AENV contacts: Nivea de Olivera, Brian Hills.

#### Erin Sexton, Flathead Biological Station

- The Flathead Lake Biological Station conducts basic and applied research in ecology with an emphasis on freshwater systems
- The Flathead Lake Biological Station is conducting a multi-year study on water quality and benthos in the transboundary Flathead and Elk drainages of southeast B.C. and northwest Montana
- The research was initiated on a small scale in the B.C. portion of the Flathead in 2005 and has expanded over the last few years to include a multi-agency, collaborative effort involving fisheries research, select wildlife species and continued water quality, sediment and lower trophic communities
- The research also includes a comparative analysis between the Elk and Flathead drainages with respect to water quality, fisheries and wildlife
- The data collection effort is funded by state and federal appropriations and involves the UM Flathead Lake Biological Station, Flathead Basin Commission, US Fish and Wildlife Service, National Park Service, US Geologic Survey, Montana Department of Fish, Wildlife and Parks, and the Canadian Columbia River Intertribal Fisheries Commission, and B.C. Ministry of Forests

## Caryn Miske, Flathead Basin Commission

Two Highlights from the FBC that relate directly to the CMP

- **Restructuring of the Transboundary Committee** – the Committee will now be chaired jointly by James Steele and Clayton Matt from the CSKT, and the Committee will be restructured to better address transboundary issues of mutual interest to foster and build a long term cooperative working relationship with the Province of B.C. Currently, the FBC’s Strategic Plan and Action Plan are being rewritten to reflect this policy shift.
- **Focus on invasive species (milfoil, zebra mussels and quagga mussels)** – the FBC participated on the Governor’s Task Force this past summer to draft invasive species legislation which will provide for check stations, the establishment of management areas, a dedicated invasive species fund, enhanced enforcement abilities for responsible agencies, etc. Once the bill was drafted the FBC coordinated with other stakeholder groups to garner support for, and provide testimony, to support the bill. Currently, the bill is pending in the Senate, and the bill passed 47 to 3 in favor of the bill on the second reading. So it appears likely that the bill will clear the house relatively easily. Simultaneously, the FBC is working with the CSKT, local governments and other stakeholder groups to develop a basinwide invasives plan. Given the restructuring of the Transboundary Committee as discussed above, it is our hope that we can engage B.C. in working with us on this invasives plan in the near future.

### **Project of interest:**

- The FBC will be working on a shallow aquifer study to document the impacts of septic systems and stormwater on such aquifer resources. The study will map septic systems located in the shallow aquifer and will monitor for VOCs, SVOCs, PPCPs, PCBs and coliform. The outcome of the study will be used to (1) develop a program to properly dispose of pharmaceuticals (2) identify areas appropriate only for low density (or in some cases no density) development; and (3) to educate local decision makers, assist governmental entities in designing adequate stormwater systems and to develop a management strategy for better managing stormwater impacts on the shallow aquifer.

## Jimmy DeHerrera, Flathead National Forest

- 25 million dollars worth of projects have been submitted for funding consideration under the American Recovery and Investment Act – we anticipate a large workload increase over the next two years associated with whatever level of additional funding we receive
- Forest Plan Revision continues to be on hold as the USDA Forest Service decides how to approach Forest Plan Revisions on a National scale
- Over the next three years the Flathead National Forest will be receiving approximately 40,000 acres of land in the Swan Valley – The lands are part of the Montana Legacy Project which authorized these former Plum Creek Timber Company lands to be purchased by The Nature Conservancy and then conveyed to the USDA Forest Service
- The Flathead National Forest Supervisors Office and the Hungry Horse/Glacier View and Spotted Bear Ranger Districts are now comfortably settled into the new offices they moved into a little over a year ago
- New river regulations were implemented on the three forks of the Flathead Wild and Scenic River System. These new regulations are primarily designed to reduce impacts associated with human waste disposal and use of fires.
- The Forest is in the process of completing new travel plan regulations. By the end of the year, motorized vehicles, year-round, will be allowed only in designated areas.

- Fuels reduction in the Wildland Urban Interface continues to be an emphasis area for the Flathead National Forest. Implementation of current projects continues as the Forest completes planning for new projects.
- A new fire management policy will be put into place this year under which we will have only two categories of fire – human caused fire and wildland fire – we will no longer differentiate between undesirable wildland fire and fire with resource benefits.
- Westslope cutthroat restoration continues to be an emphasis for the Forest. Poisoning by Montana Fish, Wildlife, and Parks of high elevation lakes in the South Fork Flathead drainage which contain non-pure westslope strains will be continuing for several years. The Flathead National Forest is also cooperating with MFWP on Sekokini Springs, a hatchery which will be the source of pure westslope cutthroat strains in the future for replanting into these high mountain lakes.

### Kansie Fox, Blood Tribe

### Steering Committee Report to Forum / Workplan 2009/10

Bill Dolan (Chair, CMP Steering Committee), Alberta Parks Division

#### **Outline**

- Steering Committee
- Summary of activity since 2008 Forum
- Financial Commitments
- Looking Forward: Work plan 2009/2010
- Confirming direction from the Partnership

#### **Steering Committee**

- Bill Dolan (Chair)– Parks Division-Alberta Tourism, Parks & Recreation
- Rick Blackwood – Alberta Sustainable Resource Development
- Len Broberg - University of Montana
- Jimmy DeHerrera - Flathead National Forest
- Ian Dyson - Alberta Environment
- Caryn Miske - Flathead Basin Commission
- Mike Quinn - University of Calgary
- Mary Riddle – Glacier National Park
- Erin Sexton – Flathead Biological Station
- Wayne Stetski - BC Ministry of Environment
- Guy Greenaway - Miistakis Institute (Secretariat)

#### **Activity Since 2008 Forum**

- Crown Boundary project
- Metadata Framework
- Web Site
- Human Use in the Northern Crown
- 2009 Forum planning
- Communications Strategy
- Managing for Ecological Health project

#### **Crown Boundary Project**

- Ecological justification
- BC – biogeoclimatic zones; AB – Natural subregions; MT - Ecoregions
- Expanded to include eastern foothills

### **Metadata Framework**

- Web based search service designed to query GIS and Literature databases relevant to the Crown of the Continent Ecosystem
- Database currently searches ~11,000 records, in four different databases
- All data included in the framework searchable spatially where feasible, as well as via keyword

### **CMP Web Site**

- Updated web site
- More project information
- More resources
- Launched January 2009

### **Human Use in the Northern Crown**

- Document changes to the anthropogenic land-use pattern in the Northern (Canadian) Crown of the Continent Ecosystem since the 1993
- Includes:
  - Traffic volume analysis
  - Satellite imagery analysis
  - Road density analysis

### **2009 Forum Planning**

- Flagship CMP project
- Focus on supporting ecological health project
- Biodiversity theme

### **Communications Strategy**

- Refine and expand communications component to CMP mandate
- Builds on Strategic Plan and previous communications research
- Internal and external communications

### **Managing for Ecological Health**

- Researched approaches to how 'ecological health' currently defined in the COCE and beyond
- Reviewed various indicator-based approaches currently being used in the COCE to measure ecosystem health
- EH workshop determined approach and EH themes
- Landscape Theme workshop – Fernie, Oct 08

### **Financial Commitments**

- B.C. Ministry of Environment \$3,000
- Crown Managers Forum registration \$5,000
- Glacier National Park (Centennial Fund) \$50,000
- Government of Alberta (Alberta Environment) \$20,000
- State of Montana (DNRC) \$20,000
- Parks Canada Agency \$40,000

### **Work plan 2009/2010**

- Managing for Ecological Health project
  - Data collection for 'landscape' theme
  - 'Biodiversity' theme workshop
  - Planning for 'Water quality/quantity' theme
- 2010 Forum planning
  - Theme: Water Quality and Quantity
- Communications Strategy
  - Finalize and implement
  - Web site

- Metadata Framework
  - Promote on-going use of the portal
  - Refine based on user input
  - Add major databases and improve functionality

### Confirm direction from CMP to Steering Committee

- Public groups getting access to people and to their work, it was referenced in relation to motorized use. Land managers are also facing the same issue of communicating good science. Worthwhile to explore the idea of getting this information out- through a series of papers, publications from forum or synthesis document on some key issues.
- Could the CMP do more to facilitate getting the information out there.
- A possible mechanism is to strengthen the role with University of Montana and University of Calgary through transboundary program, engage students to undertake some of this work.
- CMP needs to package the information for a theme, so that the public and us have access.
- Mechanism through the EH project, use the website to enable people to post research on themes or topics of interest.
- Mechanism CMP Metadata framework – but maybe need step in-between to synthesis information
- Position paper synthesizing information on key topics, check out the COCEEC website
- Who is your audience? Maybe need to engage the educators into this process. May be an opportunity to engage COCEEC.
- Issue- concerned about themes- better to take the EH approach, what are the things that impact outcomes we desire, what tools do we have to regulate. Need to collect information relevant to the CMP goals.
- Audiences bump up against the issue of all the different Crown initiatives in the region, for the CMP what is important is science as it supports of management activity.
- Support for suggestion, needs to be connected to goals, approach needs to be carefully considered.

### **Adjourn meeting**



