WATERTON-GLACIER INTERNATIONAL PEACE PARK

(Canada and USA)

REPORT OF THE REACTIVE MONITORING MISSION

20 to 27 SEPTEMBER 2009

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1 EXECUTIVE SUMMARY

1.1 Introduction

From 20 to 27 September 2009, a joint UNESCO[1]/IUCN[2] monitoring mission visited the Waterton-Glacier International Peace Park World Heritage Property, Canada and USA, in accordance with **Decision 33 COM 7B.22** (Annex 3) adopted by the World Heritage Committee at its 33rd session in Sevilla, Spain, 2009.

The mission team visited the property and key surrounding areas in the Provinces of British Columbia and Alberta and in the State of Montana, travelling primarily by vehicle and also by helicopter and fixed-wing aircraft (Annex 2). Attention focused in particular on the Flathead watershed which lies partly within the property in the US, but also outside its western boundary in British Columbia (BC). Two full days were spent in structured discussion sessions. The team was accompanied by Canada and US State Party representatives throughout the mission, and heard presentations or held discussions with representatives of: the two national parks in the property; federal, provincial and state governments; local authorities; First Nation and native American groups; environmental NGOs; conservation and land management organisations; UNESCO Biosphere Reserves; scientific institutions and mining and energy production companies; and also interacted with some North American members of IUCN's World Commission on Protected Areas.

In accordance with its terms of reference (Annex 1), the mission team assessed the state of conservation of the property and factors affecting its Outstanding Universal Value (OUV). It considered, in particular, the potential external threats to the property, including from mining and energy developments in the Canadian Flathead and Elk watersheds, and within the broader Crown of the Continent ecosystem, as well as the effects of climate change. These threats had prompted environmental NGOs in Canada and the US, among others, to request that the World Heritage Committee inscribe the property on the List of World Heritage in Danger.

1.2 State of conservation of the property and surrounding areas

Established in 1932, the Waterton-Glacier Peace Park was inscribed on the World Heritage List in 1995 and is listed under criteria (vii) and (ix) (originally numbered natural criteria (ii) and (iii) at the time of inscription). The Committee decision at that time noted the following points:

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[1] The World Heritage Centre (WHC) within the United National Educational, Scientific and Cultural Organisation (UNESCO) is the secretariat of the World Heritage Convention.

[2] The International Union for the Conservation of Nature (IUCN) is the advisory body to the World Heritage Committee on natural and mixed properties.

The Committee took note of the evaluation presented by IUCN and that the site meets criteria (ii) and (iii) because of its distinctive climate, physiographic setting, mountain/prairie interface and tri-ocean hydrographical divide as well as its scenic values and the cultural importance of its International Peace Park designation. IUCN further recommended that a single "Biosphere Reserve" should be created from the three Biosphere Reserves already existing in the area.

The Committee decided that the site be listed under criteria (ii) and (iii) and requested the World Heritage Centre to write to the States Parties with respect to the Biosphere Reserve proposal. In addition, the Committee recommended that the site be eventually expanded to include the adjacent protected area in the Akamina/ Kishinena.

Biogeographically, the property protects a giant ecotone at the narrowest point in the Rocky Mountain cordillera where four life zones merge – Arctic/ boreal, Alpine, Pacific temperate and Eastern grasslands. It is considered to be one of the most intact and biologically productive ecosystems in North (N.) America. There are reported to be more than 1,200 species of vascular plants, 70 species of mammals, including all N. America's native carnivores, 270 species of birds and 25 species of fish among an aquatic life richer than any place in the Rockies between the Yukon and Mexico.

On the western flank of the property is the so-called transboundary Flathead watershed, its lower reaches partly contained within the World Heritage property in Montana, but its headwaters mostly unprotected in British Columbia. Remote, uninhabited and pristine, it is regarded as one of the last of America's remaining wild rivers and of global ecological significance.[3] It provides critical habitat for 16 species of carnivores and has the highest concentration of grizzly bears in the interior of the N. American continent. The watershed is also the last intact wildlife corridor for grizzly bear, wolf and Canadian lynx along the Canada/US border.[4] The river, whose water is rated among the purest in the world[5], provides critical habitat for many native salmonid species, of which the endangered bull trout and genetically pure westslope cutthroat trout are of great importance.[6]

The World Heritage property and the Flathead watershed are at the heart of a 40,000 km² largely undeveloped area, known as the Crown of the Continent ecosystem because its waters

[3] Konstant, W.R. et al. 2005. The Waterton-Glacier Peace Park : the first of its kind. Pp. 71-82 in Transboundary Conservation: a new vision for protected areas. Mittermeier, R.A. et al. CEMEX, Mexico.

[4] Letter from Rebecca Wodder, President, American Rivers, Washington D.C to Director, UNESCO World Heritage Centre, Paris.

[5] Pers. comm. Bruce Hamilton, San Francisco, Deputy Executive Director, Sierra Club, in written submission to the mission team 26 September 2009.

[6] Muhlfeld, Clint C. & Deleray, Mark. Canadian energy development threats and native fish research and monitoring in the transboundary Flathead river system, Montana (USA) and British Columbia (Canada). Undated and unpublished ms. 5pp.

flow to all three oceans surrounding the continent. This is one of the largest, most pristine, intact and best protected expanses of natural terrain in North America. It provides the wide range of non-fragmented habitats and key ecological connections that are vital for the survival and security of wildlife and plants in the Waterton-Glacier property and the Flathead watershed.

Collaborative management occurs between Waterton Lakes and Glacier National Parks (NPs), and also between the parks and surrounding lands in the Crown of the Continent ecosystem through an array of partnerships with stakeholders, many of which are transboundary. Notable among these partnerships is the Crown Managers' Partnership linking some 20 government protection and resource management agencies in Canada and the US. Other important partnerships are: the Flathead Basin Commission with stewardship over water and resources in the Flathead watershed; the Waterton Biosphere Reserve focused on ranchlands east of Waterton Lakes NP; the Flathead National Forest west of the property, part of which is in the Flathead basin; the Flathead Reservation of the Confederated Salish and Kootenai Tribes, west of Glacier NP; and Akamina/Kishinena Provincial Park covering 10,000 ha west of Waterton Lakes NP, which is the traditional home of the native Ktunaxa-Kinbasket people. The International Joint Commission under the Boundary Waters Treaty (1909) is an important instrument for transboundary protection, and the way in which it could be invoked to settle the current issues over resource development is discussed later in the body of text within the report.

1.3 Threats to the World Heritage property

1.3.1 Mining and energy developments

Potential mining and energy developments in the Canadian sector of the Flathead watershed are considered to be significant threats to the World Heritage property. Under the Southern Rocky Mountains Management Plan (SRMMP), covering south-eastern British Columbia including the Canadian Flathead, most land outside protected areas is designated as available for mineral exploration and development. The B.C. provincial government maintains that mining is one allowable use subject to conditions and approval, while opponents of the plan claim that the SRMMP gives priority to mining over all other uses.

There are a number of current proposals that are under discussion and are the source of specific concern. The proposed Lodgepole coal mine producing an estimated 2 million tonnes of coal per year over a 20-year period, would remove a mountain and fill a 6 km section of river valley with an estimated 325 million tonnes of rock waste.[7] The proposed Mist Mountain coalbed methane gas production field, extending into the Flathead from the neighbouring Elk River Valley, would result in wholesale landscape change over an area of about 326 km², and the dewatering process involved in gas extraction would fundamentally

[7] Letter from Rebecca Wodder, President, American Rivers, op. cit.

alter the quantity and quality of groundwater aquifers and rivers.[8] The Lodgepole proposal is effectively on hold at the pre-application stage of environmental assessment, pending resolution of land tenure and permitting issues. The Mist Mountain project is also at the pre-application stage (anticipated to take 3-5 years) but exploratory drilling has been suspended by the company for three years to await the results of baseline environmental studies.

The mission heard from both the B.C. province and the federal environmental regulatory authorities who contend that comprehensive provincial and federal environmental impact assessment processes would ensure that no such mining or energy development projects would gain approval if assessed as having unacceptable environmental consequences. Mining interests suggested that they can employ production and restoration methods that minimise environmental damage. The mission also heard the views of other stakeholders, including in particular environmental NGOs and research institutions, who consider the assessment process to be ineffective, and maintain that no amount of mitigation of impacts could avoid unacceptable deterioration in water quality and losses to aquatic life, in particular, in the World Heritage property. They note that headwaters of the Flathead drainage near the proposed mine sites contain some of the most critical trout spawning and rearing habitats in British Columbia and Montana. They also point to the results of research and monitoring showing that, compared to the Flathead, some rivers draining nearby mined areas have levels of nitrates, sulphates and selenium that are 650, 18 and 60 times higher, respectively. Selenium pollution, which has only recently become recognised as a problem by the B.C. coal mining industry and is subject to current research by them, is considered to be of concern because at high levels it is toxic for fish, causing neurological damage, and for aquatic birds.

Other mining proposals or operations in the Flathead involving gold, phosphates and decorative stone, while individually having a small environmental footprint, have potential to add to the cumulative impacts of mining on natural values in the World Heritage property.

1.3.2 Barriers to wildlife migration and connectivity

Mining and other developments such as highways, railways, transmission lines and construction of associated infrastructure and settlement also impose barriers to migration and connectivity for wildlife in the World Heritage property. Many carnivores in the property rely for their growth and persistence not only on the healthy naturally functioning ecosystems of the property, but also on the freedom to move between it and surrounding areas during their life cycle. Individual male grizzlies, for example, may have a territory covering as much as 1,000 km², while wolves, elk and moose extend eastwards seasonally well beyond the national parks. Bull and cutthroat trout are migratory in lifestyle and use the entire extent of the interconnected transboundary Flathead stream system to complete their life history and survive. Grizzly and grey wolf, in particular, range from the Waterton-Glacier and Flathead areas as far north as Banff and Jasper NPs in Alberta. Developments, along the east/west

[8] ibid.

trending Crowsnest Pass Highway (Highway 3) north of the Waterton-Glacier and Flathead areas, constitute a significant connectivity barrier. Investigations of this problem have recommended that urgent consideration be given to maintenance of core natural areas with a high level of security, and the development of a pro-active conservation plan providing for connectivity across and around the Crowsnest Highway.[9]

1.3.3 Climate change impacts

Glacial landforms are one of the key aspects of the property that contribute to the scenic and aesthetic values recognised under criterion vii. Glacier recession and reduction in the extent of ice cover are the most conspicuous evidence of a changing climatic regime, which is having a profound impact on the property. The mission was informed that of an estimated 150 glaciers that existed in Glacier NP in 1850, only 25 remained in 2005, equivalent to a loss of 84%. Other evidence cited for changing climate includes: vegetation zones migrating northwards and upslope; restriction of the alpine tundra ecosystems with consequences for species such as mountain goat and pika; increased avalanche activity leading to increases to hazards for recreationists and property damage; increased frequency and intensity of droughts; increased frequency of large natural fires, especially since 2001; soot (black carbon) production leading to increased ablation of glaciers; changes in stream discharge and seasonal flows with earlier Spring runoff and late Summer low-flows; increased water temperatures affecting river-spawning native salmonids; increased numbers of non-native fish species, species in danger of local extinction; and increased invasion of the more resilient non-native plants and weed species.

Because mountains have pronounced altitudinal gradients and a great diversity of microclimates and biota over small geographic areas, they are much more sensitive to climate change than lower altitude areas. It is anticipated that climate change will push species distribution of plants and animals northwards and to higher altitudes, requiring the maintenance of biological connectivity. Clearly, changing atmospheric conditions are producing rapid cascading ecological effects in the Waterton-Glacier property, including a transition from a snow-dominated to a rain dominated environment. At the same time, the parks and the huge area of intact nature in the Crown of the Continent ecosystem provide the best available environment to allow resilience and adaptation for plants and animals faced with climate-induced challenges to their survival. For this reason, the Flathead watershed, retained in its natural state, can be expected to play a vital role in climate change responses in this part of the continent.

1.4 Conclusions

With respect to the situation regarding coal mining an energy development in the Canadian Flathead watershed, the mission team acknowledges that the proposed development projects

[9] Apps, Clayton D. et al., 2007. Carnivores in the Southern Canadian Rockies: core areas and connectivity across the Crowsnest Highway. Wildlife Conservation Society (Canada), Toronto, Conservation Report No. 3.

are external to the existing WH property; they are currently on hold in the Pre-Application Stage of a comprehensive environmental assessment process; there is a current moratorium on petroleum and natural gas production in the watershed; coal exploration and production is excluded from a coal land reserve covering almost half of the watershed; extensive areas of the watershed are subject to a widely consulted, multiple use management plan and currently managed primarily for sustainable forestry and recreation; and a small part of the watershed adjacent to the WH property is protected in a provincial park.

Notwithstanding this situation, it is the considered view of the mission team that should open-pit coal mining and coal bed methane gas production proceed in the upper Canadian Flathead watershed, this would present a serious threat, incompatible with the Outstanding Universal Value of the Waterton-Glacier International Peace Park World Heritage property. Of particular concern are the likely degradation and irretrievable losses that would occur in: water quality that ranks among the highest anywhere in the world; rich aquatic ecosystems providing breeding and feeding habitats critical for the growth and survival of endangered migratory native salmonids; corridors of natural terrain and vegetation providing key migration routes for important wide-ranging populations of carnivores, ungulates, cats and mustelids; an abundance of plants in communities comprising unique assemblages of plants from four life zones, some of which are at the extremes of their biogeographical range; and one of the largest expanses of intact natural ecosystems anywhere on the N. American continent of vital importance for adaptation of biota in the face of changing climatic regimes.

There is, in the view of the mission, no possibility of proceeding with mining in the Flathead watershed without creating an unacceptable direct impact on the Outstanding Universal Value of the property, and there does not appear to be a compromise position in this regard.

If a mining proposal in the Flathead region does reach the Application Review Stage, both the USA and Canadian Governments should request the International Joint Commission to undertake a detailed technical assessment of the proposal under Article IX of the Boundary Waters Treaty (1909). The mission team notes that the IJC examined a previous mining proposal in the Cabin and Howell Creeks of the Canadian Flathead, concluding that the potential risk of failure of waste dumps and settling ponds represented an unacceptable risk to the drainage basin. As a consequence of the IJC's recommendation, this mining proposal was declined.

Retention of the large expanse of natural landscape in the Crown of the Continent ecosystem is of vital importance for avoiding habitat fragmentation and providing the ecosystem connectivity essential for the growth and survival of native plants and animals in the region. The Waterton-Glacier World Heritage property forms the core protected area in this regional ecosystem, and its natural integrity is inextricably linked with the neighbouring transboundary Flathead watershed.

Wide-spread and rapid environmental and ecological changes are occurring in the Waterton-Glacier property, and throughout the Crown of the Continent ecosystem, as a result of changing atmospheric conditions and climatic regimes. These accentuate the need to retain a

large intact natural landscape to allow plants and animals to adapt to the changes. They also present difficult challenges for management of the property, and will require increased cross-border collaboration, and co-operative management with landowners and key stakeholders in surrounding lands.

In the spirit of the International Peace Park initiative, there needs to be open dialogue and discussion to find mutually acceptable solutions to the issues currently confronting the World Heritage property. Established almost 80 years ago, the Waterton-Glacier International Peace Park was the first of its kind, and it has occupied a special place in the global network of World Heritage properties for more than a decade. The Park was designated in order to "permanently commemorate the relationship of peace and goodwill between the peoples and governments of Canada and the US." The present circumstances provide an ideal opportunity to give prominence to the values and aspirations underpinning this initiative. They call for the State Parties to demonstrate mutual respect, understanding and co-operation in resolving the resource development and other problems that threaten the integrity of a shared World Heritage.

1.5 Recommendations

These recommendations relate to maintenance of the Outstanding Universal Value, integrity and management of the Waterton-Glacier International Peace Park World Heritage property,

<u>Mining and energy development in the Flathead watershed</u>

1. Although environmental assessment mechanisms are available, in the view of the mission mining in the transboundary Flathead watershed would not be compatible with the protection of the Outstanding Universal Value of the Waterton-Glacier International Peace Park. Given the importance of the Flathead watershed in maintaining the OUV of the World Heritage property, mining and energy development should be prohibited throughout the watershed. Accordingly, the Southern Rocky Mountains Management Plan (SRMMP), which guides the B.C. Government's land use decisions in the Canadian Flathead, should be revised to provide for permanent prohibition of mining and energy development in the Canadian Flathead. The revised SRMMP should establish a new multiple-use management regime, excluding mining but including forestry and other uses, for the Canadian Flathead that gives priority to natural ecological values and wildlife conservation.

2. If a mining proposal in the Flathead region does reach the Application Review Stage, both the USA and Canadian Governments should request the International Joint Commission to undertake a detailed technical assessment of the proposal under Article IX of the Boundary Waters Treaty (1909).

3. If the Lodgepole coal mine proposal should move into the application review stage of environmental assessment, the mission considers that this would constitute a basis for inscribing the Waterton-Glacier property on the list of World Heritage in Danger[10].

Barriers to connectivity

4. Steps should also be taken to minimise the barrier to wildlife connectivity due to mining, transportation and communication lines and associated developments in the Crowsnest Pass of B.C., and where such barriers exist, appropriate mitigation measures should be planned and implemented. In particular, there should be a long-term moratorium placed on any further mining developments in south eastern British Columbia, immediately west of the Alberta border, in the corridor of natural terrain that creates vital habitat connectivity and allows the unimpeded movement of carnivores and ungulates between the Waterton-Glacier property and Banff/Jasper NPs of the Rocky Mountains WH property in Alberta. Other measures should include minimising future infrastructure development and removal of unnecessary structures, maintenance of core natural areas and rehabilitation of degraded areas, and development of a pro-active plan for enhancing connectivity in the area.

Co-operative conservation management in the WH property and the Crown of the Continent ecosystem

5. Recognising that although there are two park jurisdictions in the WH property it should be managed holistically as one property, there should be a review and strengthening of institutional arrangements related to management of the property. Further initiatives should also be taken for co-operative planning, management and research between Waterton Lakes and Glacier NPs, possibly supported by a shared project funding resource, to make more effective use of resources in solving common management problems and to strengthen the functioning of a single WH property.

6. Recognising that the entire Flathead basin, including both the US part in the WH property and the largely unprotected part in Canada, is important for protecting, maintaining and buffering the OUV of the World Heritage property, a single conservation and wildlife management plan should be developed for the transboundary Flathead. This should encourage the various managers of lands and resources to adopt common objectives, management approaches, and monitoring and research methods to improve consistency and effectiveness in achieving management goals.

7. Further co-operation should be fostered between the Parks and land and resource managers and key stakeholders in the Crown of the Continent ecosystem, and

[10] On the concluding day of the mission, this view of the mission team was made explicitly clear to the Heads of Delegation of both countries, who were in agreement, considering the fact that the World Heritage Committee had taken such a decision several times in the past in similar cases.

supervised by the Crown Managers' Partnership. In particular this should encourage greater synergies with the Biosphere Reserves, First Nations and indigenous tribal groups, and environmental NGOs. These could focus on issues of mutual interest such as: water resources and fisheries protection and management; fire management; invasive species control; wildlife connectivity on farmlands; multiple-use land and resource management; and socio-economic benefits.

8. Increased efforts should be made to harmonise the management of the Akamina-Kishinena Provincial Park area with the WH property and to incorporate it into the property, as was recommended at the time of its inscription on the WH List. This process should be undertaken in close consultation with indigenous peoples. This would strengthen the protection management over a small but significant portion of the Canadian Flathead watershed immediately adjacent to the western boundary of the WH property. Together with the recommended change to a conservation and wildlife management regime for the remainder of the Canadian Flathead under a revised SRRMP, this would also enhance the maintenance of a continuous, unfragmented landscape of conservation lands with unimpeded corridors essential for migrating animals and birds.

Climate change

9. Recognising the clear evidence for ecological and environmental stress under changing climatic regimes, specific programs of management and associated monitoring and research should be developed to combat climate change impacts. Adaptive management strategies should give emphasis to enhancing the resilience and capacity of wildlife and plants in adjusting to changing environmental conditions.

10. Further promotion of trans-border co-operation in monitoring and research should be undertaken such that consistent techniques and measurements can allow for comparability across the region and development of regional adaptation strategies; establishment of greater synergies with the applied research and education programs conducted in the context of the associated Biosphere Reserves; and establishment of ecological monitoring and research programs on a Crown-of- the-Continent scale, possibly under the guidance of the Crown Manager's Partnership.

2 ACKNOWLEGEMENTS

The mission was very well organised and conducted. The mission team thanks in particular Stephen Morris, Chief, of the Office of International Affairs and Jonathan Putnam, International Cooperation Specialist of the U.S. National Park Service, and Larry Ostola, Director General of National Historic Sites and John Pinkerton International Programs Manager of Parks Canada, who accompanied the team throughout its mission. Thanks also to senior managers and staff of Glacier and Waterton Lakes National Parks for hosting the mission so well and providing expert and informative guidance, particularly Chas Cartwright, Superintendent of Glacier NP and Jack Potter, Chief of the Division of Science and Resources Management Glacier NP, Dave McDonough Superintendent of Waterton Lakes NP and Dennis Madsen, Resource Conservation Manager Waterton Lakes NP. Thanks to Cyril Kormos, Vice President for Policy of the The Wild Foundation and Regional Vice-Chair of IUCN's World Commission on National Parks for North America and the Caribbean, for arranging valuable input to the mission from Commission members and organising a meeting with Commission members including himself, Harvey Locke of the Wild Foundation and Dave Mihalic, former Superintendent of Glacier NP. Thanks are also due to the representatives of the Confederated Salish Kootenai Tribe and First Nations for meeting with the mission and sharing their perspectives. General thanks to those who made presentations to the team and/or provided information from many institutions and organisations of both Canada and the USA, including Federal, Provincial and State Governments, NGO environmental groups, land and resource management agencies, universities, science institutions, mining and energy companies and private individuals – the information and insights they provided were invaluable to the work of the mission team. Finally, special thanks to Rick Hauer, limnologist at the University of Montana Flathead Lake Biological Station, for piloting and expertly guiding the team on an aerial tour of the transboundary Flathead watershed.

3 BACKGROUND TO THE MISSION

3.1 INSCRIPTION HISTORY

The Waterton-Glacier International Peace Park was inscribed on the World Heritage List in 1995 under natural criteria (ii) and (iii) [under the revised Operational Guidelines these are criteria (vii) and (ix)]. The inscription recognised the property's distinctive climate, physiographic setting, mountain/prairie interface and the tri-ocean hydrographic divide as well as its scenic values and the cultural importance of its International Peace Park designation. Under criterion (ii) it was noted that the property provided a continental-level meeting ground of major biota, where the mixing of biota in an area of steep environmental gradients and microclimatic complexity resulted in the development of biological communities that occur nowhere else in North America. Under criterion (iii) it was noted

that the natural beauty of the parks is exceptional as are the opportunities for solitude, which take on increased aesthetic importance when the values inherent in the International Peace Park are added to the whole.

At the time of inscription the World Heritage Committee adopted IUCN's recommendations that a single Biosphere Reserve should be created from the three already existing. Also the Committee recommended that the property be eventually expanded to include the adjacent protected area in the Akamina/ Kishinena. To date no progress has been made in implementing these recommendations.

At its 30th session in 2006, the Committee adopted the following Statement of Significance for the property, providing an agreed basis for the definition of its Outstanding Universal Value.

> *Waterton-Glacier International Peace Park has a distinctive climate, physiographic setting, mountain-prairie interface, and tri-ocean hydrographical divide. It is an area of significant scenic values with abundant and diverse flora and fauna.*
>
> *Criteria*
>
> *(vii) Both national parks were originally designated by their respective nations because of their superlative mountain scenery, their high topographic relief, glacial landforms, and abundant diversity of wildlife and wildflowers.*
>
> *(ix) The property occupies a pivotal position in the Western Cordillera of North America resulting in the evolution of plant communities and ecological complexes that occur nowhere else in the world. Maritime weather systems unimpeded by mountain ranges to the north and south allow plants and animals characteristic of the Pacific Northwest to extend to and across the continental divide in the park. To the east, prairie communities nestle against the mountains with no intervening foothills, producing an interface of prairie, montane and alpine communities. The international peace park includes the headwaters of three major watersheds draining through significantly different biomes to different oceans. The biogeographical significance of this tri-ocean divide is increased by the many vegetated connections between the headwaters. The net effect is to create a unique assemblage and high diversity of flora and fauna concentrated in a small area.*

3.2 COMMITTEE CONSIDERATION OF INTEGRITY ISSUES AND THREATS TO WORLD HERITAGE VALUES

At its 33rd session in 2009 (WHC-09/33.COM/7B), the Committee considered a state of conservation report for the property presented by the UNESCO World Heritage Centre and IUCN following receipt of extensive correspondence relating to the potential impact of proposed mining development in the Elk and Flathead valleys of south-east British Columbia, Canada. Concerns about the impact of mining were already identified in the periodic report jointly prepared by the two State Parties in 2004.

In a letter to the WH Centre in April 2009 the US State Party noted *inter alia* that risks to the Outstanding Universal Value and integrity of the property from the potential for mining, gas or oil production in the Canadian portion of the Flathead Valley would continue to exist permanently unless these lands are protected from resource development. Expected impacts included loss of fisheries, water quality, biodiversity, wildlife habitat and species connectivity. Attention was drawn to a 1988 report of the International Joint Commission (IJC), under Article IX of the Boundary Waters Treaty (1909) between Canada and USA, which examined a previous mining proposal in the Cabin and Howell Creeks of the Canadian Flathead, concluding that the potential risk of failure of waste dumps and settling ponds represented an unacceptable risk to bull trout population downstream and to the drainage basin. Consequently, that mining proposal was declined. This recommendation of the IJC provides an important precedent in relation to future consideration of mining proposals, and is discussed at length later in this report.

The letter of 8 May 2009 from the State Party of Canada to the WH Centre highlighted the points that there is currently no mining or oil and gas production in the Canadian Flathead; British Columbia has world-class environmental standards and a proven track record of excellent environmental management in the area; the Lodgepole coal mining project is effectively on hold pending resolution of land tenure and exploration permitting issues; and BP Canada has been awarded natural gas rights only to parts of the Elk River watershed, which, like the proposed Mist Mountain coal bed methane project, does not include any land in the Flathead watershed.

On 26 June 2008 a coalition of 13 non-governmental environmental groups in Canada and the US petitioned the WH Committee, requesting that the property be added to the List of World Heritage in Danger. They raised concerns over proposed open-pit coal mining and coal bed methane extraction, and described potential impacts including reduced air quality, increased noise pollution affecting the behaviour of migratory wildlife, and reduced water quality from possible leaching and spillage of mine tailings and from settling ponds, which would pose particular risks for threatened and endangered fish.

On 26 January 2009 the Flathead Basin Commission, supported by the Montana Chapter of the American Fisheries Society, submitted a petition to the WH Centre to add the WH property to the List of World Heritage in Danger. The petition noted the potential serious adverse impacts to the property and adjacent ecosystems from industrial energy development and mining proposals in the headwaters of the Flathead River. The petition also expressed concerns over explorations for gold, copper and phosphate in 2008 and proposed for 2009.

Apart from mining and energy development, the other major threat to the property is that from climate change, which was the subject of a petition to the WH Committee in 2006 calling for the property to be listed as in danger. The petition noted, among other things, the marked increase in average summer temperatures and the loss of 73% of the area of the Park covered by glaciers between 1850 and 2006. The WH Centre and IUCN noted the evidence

for ecosystem responses to climate change and recommended that adaptive management measures be taken.

The 2009 petition, citing studies by Parks Canada and the US Parks Service, identified the following other threats to the property: proposed highway expansion; conversion of ranch and forest lands to recreation; commercial and residential developments; clear-cut logging; low-level sightseeing tours; and invasion of non-native species. Impacts from these threats include: fragmented, degraded and destroyed habitat with severe limitation on movement of wide-ranging species such as deer, elk, bears and wolves, and adverse effects for aquatic ecosystems from degraded water quality.

Having considered the State of Conservation Report for the property the Committee's decision noted with concern the potential threat to the Outstanding Universal Value of the property from potential mining and energy development within the Flathead valley and, in particular, to the continued quantity and quality of water supplies and ecosystem connectivity between the property and important habitats outside its boundaries. It also noted the high level of public concern about the potential threat and any effects of climate change on the property. It requested that the States Parties invite a joint WH Centre/IUCN monitoring mission to evaluate and provide recommendations on the requirements for ensuring the protection of the property's Outstanding Universal Values. The full decision (33 COM 7B.22) is copied in Annex 3.

3.3 THE MISSION TEAM AND ITINERARY

The monitoring mission team comprised Kishore Rao, of the World Heritage Centre, and Paul Dingwall, who was the IUCN representative. Both began the mission in Kalispell, Montana on 20 September 2009 and concluded it in Calgary, Alberta on 27 September 2009. The detailed itinerary and program is in Annex 2. The team visited both national parks in the WH property and adjacent areas in the Flathead and Elk watersheds, conducting its work by vehicle and aircraft (note that the Flathead River is known as the North Fork of the Flathead in the US, distinguishing it from the Middle and South Forks of the same river). Two full days were spent in discussion sessions, one in West Glacier in Glacier NP and the other in Fernie, British Columbia. The other days were spent touring and inspecting sites in the field, including areas in both Glacier and Waterton Lakes NPs. In the Canadian Flathead inspections were made of forest management areas and the gold prospecting site in Howell Creek. There was a 2 hr flight by fixed-wing aircraft from Whitefish Montana and a 1.5 hr helicopter flight from Fernie, providing aerial coverage of the entire Flathead watershed, part of the Elk watershed, a section of the Crowsnest Pass corridor area and part of Glacier NP.

While in Montana the team heard presentations from, or had discussions with, representatives of: U.S. National Park Service; Glacier NP; Crown of the Continent Learning Centre; Flathead Basin Commission; University of Montana Flathead Lake Biological Station; U.S Geological Survey; U.S. Fish and Wildlife Service; U.S. Forest Service; Montana Fish, Wildlife and Parks; Confederated Salish and Kootenai Tribes of the Flathead Nation; Earthjustice and National Parks Conservation Association, on behalf of the U.S.-based NGO

environmental group petitioners; B.C. Ministry of Forests and Range; and Wildlife Conservation Society of Canada. In the Canadian sector the team heard from and held discussions with representatives of: Parks Canada; Waterton Lakes NP; Waterton Biosphere Reserve; Ktunaxa Nation Council; Crown Managers Partnership; Alberta Sustainable Resource Development Group; Alberta Environment; B.C. Environment; Southern Rocky Mountain Management Committee; B.C. Ministry of Energy, Mines and Petroleum Resources; BP Canada; Association for Mineral Exploration British Columbia; Max Resources (gold mining); Tembec Forest Resource Management Company; Canadian Environmental Assessment Agency; B.C. Environmental Assessment Office; B.C. Ministry of Environment Fish and Wildlife, and Environmental Protection Departments; Nature Conservancy of Canada; and on behalf of the Canada-based NGO environmental group petitioners - Canadian Parks and Wilderness Society B.C. Chapter; Wildsight; and the Sierra Club of B.C. The team also met with some North American members of IUCN's World Commission on Protected Areas (WCPA), receiving written submissions from them and several others.

4 LEGAL AND INSTITUTIONAL FRAMEWORK

The Waterton-Glacier International Peace Park comprises Waterton Lakes National Park, Alberta, Canada and Glacier National Park, Montana, USA, both of which are ranked as IUCN Category II Protected Areas. Waterton Lakes National Park was set aside as a Forest Reserve in 1895 and reclassified as a Dominion Park in 1911 and a National Park under the National Parks Act in 1930. It is Crown Land administered by Parks Canada, Gatineau, Quebec and managed from a parks headquarters in Waterton, Alberta. Glacier National Park was originally established as a National Park under its own legislation in 1911. It is Federal Land administered by the US Department of the Interior National Park Service, Washington, D.C., and managed from a parks headquarters in West Glacier, Montana. Parts of both parks have additional protection status under national legislation, a matter discussed in more detail in the body of the report.

On 30 June 1932 the citizens and governing bodies of Canada and USA, by act of Royal Assent and Presidential Proclamation, respectively, commemorated the friendship and goodwill of Canada and the USA through the joint establishment of the Waterton-Glacier International Peace Park – the first such park in the world. At the time it was recorded that the mutual co-ordination and consultation between the two national parks was essential for continued protection of the rich diversity of their natural and cultural resources. Further it was noted that the unique balance of natural resources constitutes an international ecological unit which is vital to the integrity of the two parks as a whole. In the 1970s Waterton and Glacier National Parks were designated as Biosphere Reserves under the UNESCO Man and the Biosphere Program. The Waterton-Glacier International Peace Park was inscribed on the World Heritage List in 1995.

5 STATE OF CONSERVATION OF THE PROPERTY AND SURROUNDING LANDS

5.1 OUTSTANDING UNIVERSAL VALUE OF WATERTON-GLACIER INTERNATIONAL PEACE PARK

The Waterton-Glacier International peace park was inscribed as a natural property on the World Heritage List especially for its rich biodiversity and outstanding ecosystems.[11] The Statement of Significance for the property notes that it occupies a pivotal position in the Western Cordillera of North America, resulting in the evolution of plant and animal communities and ecological complexes that occur nowhere else on earth. Located within the N. Central Rockies forest ecoregion, at the narrowest point in the entire Rocky Mountain chain, it is a giant ecotone in which four life zones merge: 1) arctic and boreal forest plants reach their southern limits here; 2) alpine plants of the southern Rockies are at their northern limits; 3) Pacific temperate plants extend to their eastern limits; and 4) grasslands from the Great Plains penetrate westwards into mountain valleys (the so-called peak to prairie transition[12]). It is, thus, one of the most intact and biologically productive ecosystems in North America, with a rich biota and many endemic and rare or endangered species. Conservation International has ranked the park as one of 37 wilderness regions of global significance.

The array of plants and animals is quite remarkable. The more than 1,200 species of vascular plants matches the plant diversity of Botswana's Okavango Delta.[13] The great variety of terrestrial vertebrates is equally impressive. There are more than 70 species of mammals, with all of North America's native carnivores present, including some threatened and endangered species listed under the U.S. Endangered Species Act: black and grizzly bear, grey wolf, coyote and red fox; large numbers of ungulates such as elk, white-tailed and mule deer, moose, bighorn sheep and mountain goat; many cats such as lynx, cougar and bobcat; and many mustelids – wolverine, fisher, pine marten, badger, river otter, mink, weasel and skunk. It is a major North American migratory flyway and there are around 270 species of birds. Aquatic life is richer here than anywhere in the Rockies from the Yukon to Mexico[14], with 25 species of native fish including bull trout, westslope cutthroat trout, mountain whitefish, sculpin and the primitive tailed frog, Canada's only stream-dwelling frog.

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[11] An excellent summary of the natural values of the property, with a map, in pamphlet form was published jointly by Parks Canada and the US National Park Service in 2008.

[12] Pers. comm. Harvey Locke, Member of IUCN World Commission on Protected Areas, in discussion with the mission team, 22 September 2009.

[13] Konstant, W.R. et al. 2005. The Waterton-Glacier Peace Park : the first of its kind. Pp. 71-82 in Transboundary Conservation: a new vision for protected areas. Mittermeier, R.A. et al. CEMEX, Mexico.

[14] Pers. comm. Richard Hauer, Flathead Lake Biological Station, University of Montana, in presentation to mission team 21 September 2009.

5.2 THE FLATHEAD WATERSHED

The Flathead watershed, located with a north-south orientation along the western flank of the Waterton - Glacier Park, is one of the most inland parts of the huge Columbia River Basin (see Annex 5, Figure 1). Remote, uninhabited and pristine, it is regarded as one of the last of North America's remaining wild rivers and of global ecological significance.[15] Often referred to as the transboundary Flathead because it spans the Canada/USA border, it is called the Canadian Flathead in British Columbia and the North Fork of the Flathead in Montana to distinguish it from the Middle and South Forks of the same river. The Flathead lies outside the boundaries of protected areas in British Columbia, while in the United States it forms the western boundary of Glacier National Park, and in 1975 the U.S. sector of the river including its riparian zones, was declared a Wild and Scenic River. It is further protected by a special U.S. law preventing withdrawal of water volumes that would detrimentally affect the natural floodplain.

The Flathead River basin is considered to contain the greatest diversity of plants and animals in the Rocky Mountains[16] It provides critical habitat for 16 species of carnivores – a community unmatched in North America for its variety, completeness and species diversity, including at-risk species such as lynx, grey wolf and wolverine. It is reported to harbour the highest concentration of grizzly bears in the interior of the continent[17]. The watershed is the last intact wildlife corridor for grizzly bear, wolf and Canadian lynx along the Canada/US border. Its riparian floodplain is a natural corridor for migrating wildlife and birds. The river has one of the highest levels of water quality in North America, and is used as a benchmark to measure water quality in rivers elsewhere in the world.[18] It is regarded as ranking among the rivers with the richest aquatic biodiversity between Mexico and the Yukon.[19] The cold, clean waters, silt-free streambeds and diverse inter-connected habitats, including complex interactions between ground and surface waters, are critical to the growth and persistence of native salmonid species. Of these, the endangered bull trout and genetically pure westslope cutthroat trout are of great importance. As with other wildlife, many fish species have migrations in their life history that are transboundary between the USA and Canada.[20]

5.3 THE CROWN OF THE CONTINENT ECOSYSTEM

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[15] Konstant, W.R. et al. 2005, op. cit.

[16] American Rivers, written submission to the UNESCO World Heritage Centre, Paris , sent 7 May 2009.

[17] Pers. Comm.. John Weaver, Carnivore Specialist, Wildlife Conservation Society, in presentation to mission team 21 September 2009.

[18] Pers. comm. Bruce Hamilton, San Francisco, Deputy Executive Director, Sierra Club, in written submission to the mission team 26 September 2009.

[19] Pers. comm. Richard Hauer, 21 September 2009, op. cit.

[20] Pers. comm. Clint Muhlfeld, Research Aquatic Biologist, USGS N. Rocky Mountain Science Centre, Glacier NP, Montana, in presentation to mission team 21 September 2009.

The Waterton-Glacier International Peace Park and the transboundary Flathead are at the heart of one of the largest, most pristine, intact and best protected expanses of natural terrain in North America. Named in 1908 by the renowned explorer and park advocate George Bird Grinnell, the Crown of the Continent ecosystem derives its title from the fact that it is the hydrographic apex of the North American continent, with rivers originating here flowing to the three surrounding oceans – the Arctic, Atlantic and Pacific.[21] This continental ecosystem covers some 40,000 km² of undeveloped lands, of which about 35% is included in legally protected areas of several types, such as national park, wilderness, wildlife management area and recreational area. Outside the protected areas the lands are in many tenures under sustainable resource management regimes, including five US National Forests with multiple management for timber, fish and wildlife conservation, water quality, fire, recreation and access including to private lands. The natural areas here also provide the wide range of non-fragmented habitats and key ecological connections that are vital for the survival and security of wildlife and plants in the Waterton-Glacier Park and the Flathead watershed.

5.4 CO-OPERATIVE MANAGEMENT OF WATERTON-GLACIER PARK AND SURROUNDING LANDS

Collaborative management occurs between Waterton Lakes and Glacier NPs, and also between the parks and surrounding lands in the Crown of the Continent ecosystem through an array of partnerships with stakeholders. These arrangements are designed to reach across traditional jurisdictional boundaries in the interest of rational approaches to management. Many reflect transboundary relationships intended to address common issues. The main co-operative arrangements are covered here, while the case of forest management west of Glacier NP is discussed in Section 6 of this report.

Waterton and Glacier National Parks

There is long-standing and wide-ranging collaboration between the two parks in the World Heritage property. Currently the emphasis of joint programs is on fire management, public safety and rescue operations, management of shared wildlife populations, control or eradication of non-native weeds and pest animals, maintenance and restoration of biodiversity and ecological processes, and impacts of habitat fragmentation.

Crown Managers' Partnership

Established in 2001, this is a partnership of some 20 government agencies in Montana, Alberta and British Columbia, which have broad mandates for resource protection and conservation throughout the Crown of the Continent ecosystem. The focus of its current management projects includes invasive species, wide-roaming carnivores and ungulates, water quality, ecological monitoring and biodiversity. More recently this Partnership has initiated projects on metadata, communications and networking, human uses and ecological

[21] Waldt, Ralph 2004. Crown of the Continent: the last great wilderness of the Rocky Mountains. Riverbend, Helena, Montana, 164pp.

health. There is also interaction with a series of other regional plans on subjects such as land and water uses, energy, forests and parks. The Partnership is regarded as having a mixed record of success[22] and has been criticised for so far not considering mining and energy development proposals in the Flathead watershed, which many regard as the key development issue in the region.[23]

Flathead Basin Commission

The Commission was established through the Flathead Basin Commission Act of 1983 by the State Government of Montana for the purpose of protecting the existing high quality of the Flathead Lake aquatic environment; the waters that flow into, out of, or are tributary to the lake; and the natural resources and environment of the Flathead basin. The Commission is made up of 23 members representing federal, state, tribal and local government agencies with responsibilities or interests in land and resources of the Flathead watershed. The Commission *inter alia* coordinates monitoring efforts to track the trends in condition of surface waters in the basin through a cooperative strategy among all land and management agencies within the Flathead basin; commissions studies to monitor the status of other natural resources; encourages close cooperation and coordination between the state of Montana and the Province of British Columbia concerning the undertaking of natural resource monitoring and use of consistent standards for management of resource development activities throughout the North Fork Flathead River drainage portion of the Flathead basin; and identifies land use and land development trends in the Flathead basin.

Waterton Biosphere Reserve

Established in 1979 and led by a management committee since 1982, the biosphere reserve programme is focused on agriculture and farming issues in the ranch lands of Alberta east of Waterton Lakes NP. It gives emphasis to education and research; with current studies on minimising the impacts of wolf incursions and elk damage to farming, growing grizzly populations, wildlife connectivity on farmlands, weed control and multiple-use management including recreation. Although termed a biosphere reserve, the initiative is not tied to a fixed boundary and does not have legal authority. This flexibility allows the extent of influence to be defined by the issue concerned, rather than by the fixed boundary.

Akamina-Kishinena Provincial Park

Established as a Class A Provincial Park in 1995, this park covers 10,000 ha in British Columbia, immediately west of Waterton Lakes NP. It has strong cultural associations, the traditional Ktunaxa-Kinbasket people having used it for travel, fishing, hunting and gathering. The park is generally undeveloped and managed primarily for conservation values.

[22] Sax, J.L & Keiter, R.B. 2007. Glacier National Park and its neighbours: a twenty-year assessment of regional resource management. The George Wright Forum 24(1): 23-40.

[23] ibid.

Mining, damming of waters and permanent settlements are prohibited, but hunting, fishing and access roading are permitted. There is no strong co-operative management with the adjoining national park.

NGO environmental groups

Many environmental NGOs focus on advocacy, but some also have land ownership and management roles, of which there are two notable examples in the Crown of the Continent area. In the U.S., the Nature Conservancy (TNC) is one of two groups collaborating with the U.S. Government in the purchase of 320,000 acres (129,500 ha) in the Swan Valley area of Flathead from a timber company, at a cost of $510 million during the period 2008-2010.[24] This so-called "Mountain Legacy Project" will provide lands dedicated to conservation of wildlife and natural resources and for public recreation. North of the border, the Nature Conservancy of Canada, a non-profit, non-advocacy and science-based group begun in 1922, owns 2 million acres (8,094 km²) of land east of Waterton Lakes NP. Among these lands is the so-called Front Country Property, which is 100 km² in area (or one fifth the size of Waterton Lakes NP) and is intended to be developed over the next 20 years as a working landscape with emphasis on wildlife management, especially the impacts and adaptations of grizzly bears. The project operates by purchasing land and leasing back to the ranchers for grazing purposes only and effectively forms an unofficial buffer to the park on the eastern boundary.

First Nations and indigenous people

Southwest of Glacier NP the Confederated Salish and Kootenai Tribes (CSKT) live in the Flathead Reservation, which was established in 1855 and includes 1.3 million acres (5,260.9 km²) of land. Tribal members in six groupings make up 7,000 of the total population of 25,000 on the reservation. They have a 10-year management plan, especially for Flathead Lake and its fisheries, and there is a major irrigation scheme. The CSKT are increasingly being included in resource management commissions, including the Flathead Basin Commission. They emphasised to the mission that, as people who revere the land, they are concerned for the conservation of land, wildlife and resources. Maintaining the high quality of water in the lake and the river is crucial to fisheries management efforts and livelihoods for the CSKT. The CSKT maintain good relations with the Glacier National Park authorities and some of their members are also employed in park operations. The mission was told that indigenous groups regarded mining as a violation of land and an attack on people and their religion. Some of the statements the mission heard from them are: "*The example of the Dresden Bridge is reversible, but the threat facing the Flathead Valley is irreversible*"; "*Digging for coal is an invasion of our religious space*"; "*There is need for due diligence to the earth*".

[24] From an article by Dan Testa, 30 June 2008, from http://www.flatheadbeacon.com/articles

The Ktunaxa people occupy and claim historical rights to lands in the Canadian Flathead. The Flathead is important to them for hunting and fishing, and there are strong cultural associations with parts of the area, including ancient trails. Ktunaxa community leaders who met the mission stated that they feel disenfranchised from land use decisions and benefits. They are opposed to any further alienation of land including the establishment of parks, which they consider deny them tribal rights. However, they are willing to discuss options for conservation of these lands. Clean water and fisheries, as well as access to hunting are very important to them. They are not necessarily opposed to mining in principle, but are not satisfied with British Columbia's environment assessment process since a project can move forward even without their consent.

Southern Rocky Mountains Management Plan (SRMMP)

This plan, which is a landscape-level plan (mapped at 1:50,000 to 1:250,000 scale) covering south-eastern British Columbia including the Canadian Flathead, was initiated by the British Columbia Government in 2001 and approved in 2003. It was developed because of concerns over public uses of resources on Crown Lands. The plan provides specific management objectives for a wide range of land, wildlife and resource uses, including some of relevance to this inquiry such as riparian zone management, old-growth forest management areas, wildlife connectivity and ungulate use of winter ranges. Oversight of the plan comes from a committee of some 35 members who serve in a voluntary capacity and are widely representative of industry, public interest groups, NGOs and government institutions. The committee is an advisory one only, with minor enforcement roles.

The way in which the SRMMP addresses mining is an equivocal matter. The greatest majority of land under the SRMMP is classed as "Open to Mining", which is defined as being available for mineral exploration and development. Further, the plan notes that management objectives for other resource values will not preclude application for, or approval of, mining activities in these lands. The plan also includes objectives relating to encouragement of investment in exploration and development of minerals and coal, and certainty of access for mineral and coal exploration and development. The mission heard the views of opponents of the plan, especially the environmental NGOs, who claim that it gives priority to mining and minerals development over all other uses. The U.S-based National Parks & Conservation Association regards it as *". . . an unbalanced land use plan that places mining as the highest priority use for 87% of provincial crown lands in the B.C portion of the Canadian Southern Rockies."*[25] Others point to the BC Government's two-zone policy on mining, which categorises all lands outside existing protected areas as open to mining. Conversely the mission heard the views of proponents of the plan who claim that mining is not elevated above other uses in the Flathead, but is an "allowable" use subject to conditions, permitting and approval. In the view of the mission the plan unequivocally recognises mining and

[25] Pers. comm. Will Hammerquist, National Parks and Conservation Association, in presentation to mission team, 21 September 2009.

minerals development as potential uses of resources over a significant area of crown lands in British Columbia.

The Boundary Waters Treaty (1909)

This treaty is a transboundary instrument offering forums whereby external threats to the Waterton-Glacier World Heritage property might be addressed. Article IX of the treaty addresses any questions or matters of difference arising between the contracting parties involving rights, obligations or interests of either along the common frontier between the two countries. Under Article IX, any environmental issue can be referred to the International Joint Commission (IJC) for resolution, **so long as both nations agree to the referral**. In practice, the environmental assessment process is used to determine if there is any potential for significant adverse effects from a project, as a precursor to referring matters to the IJC. The treaty was invoked in the mid 1980s when confronted with the Cabin Creek mining proposal in the Flathead basin. The IJC found a violation of the treaty's pollution provisions (Article IV) and recommended against approving the mine proposal until potential transboundary impacts were determined to a level constituting an acceptable risk to both the U.S. and Canadian Governments.[26]

The IJC also recommended that the two Governments consider opportunities for defining and implementing compatible, equitable and sustainable development activities and management strategies in the upper Flathead River basin. This recommendation explicitly inviting meaningful multi-jurisdictional dialogue over the future of the Canadian Flathead, and its relationship to the larger regional landscape, has unfortunately never been implemented. It remains, however, as an innovative prospective challenge in finding mutually agreeable solutions to existing problems, including the issue of mining impacts on the Waterton-Glacier World Heritage property.

6 IDENTIFICATION OF THREATS

6.1 MINING AND ENERGY DEVELOPMENT

This is by far the most contentious issue affecting the property, and as noted above, there is a lot of concern over it on the US side, both within public agencies, including the US National Park Service, and the civil society.

Currently, there is no oil or gas or coal production within the US portion of the Crown of the Continent ecosystem. Although there are oil and gas leases in the Flathead National Forest in Montana (USA), which abuts the western boundary of the Glacier National Park, an indefinite court ordered moratorium on these leases has been imposed. There is some gravel

[26] International Joint Commission, 1988. Impacts of a proposed coal mine in the Flathead River Basin. Ottawa and Washington D.C., International Joint Commission.

mining, but forest managers informed the mission team that this activity does not result in the release of any toxic chemicals into the waterways. There are some oil and gas exploration activities in the Blackfoot Reservation east of the Glacier National Park, but this area is not a part of the Flathead River drainage and hence poses no ascertained or potential threat to the property. Therefore, the principal potential threat to the property from extractive energy development activities comes from proposed projects in Canada.

There are three major coalfields in south-eastern British Columbia *viz.* Elk Valley, Crowsnest and Flathead (see Annex 5, Figure 2). The former two have operating mines, including three in the Elk Valley coalfield and two in the Crowsnest coalfield. Both fields are located in the in Elk drainage, though about one-third of the Crowsnest field is in the Flathead watershed. Additionally there are three other minor coal deposits in the Flathead watershed: Lilyburt (25 million tonnes estimated) where coal licences have been issued but there has been no recent exploration; Harvey Creek (10 million tonnes), which is not tenured and there is no exploration; and Sage Creek and Cabin Creek, which are currently within the Coal Land Reserve where mining is prohibited. This Coal Land Reserve was established by the B.C. Government in June 2004, based on acknowledgement of long-standing concerns for environment and watershed protection. It stemmed in particular from the IJC review of the Sage Creek coal mine proposal under the Boundary Waters Treaty. The reserve covers 74,000 ha or some 46% of the Canadian Flathead including the part closest to the U.S. border. The reserve precludes any person from exploring, producing or developing coal resources, or the issue by the B.C. Province of licences or leases for mining in the area. The coal reserve is under a 10-year moratorium that will expire in 2014.

The mining and energy developments of greatest concern are the proposed Lodgepole coal mine in the Flathead coalfield and possible coal bed methane gas production from the Crowsnest coalfield (see Annex 5, Figure 2).

Lodgepole Coal Mine

This is a proposed open-pit coal mine in the Lodgepole Creek area in the upper reaches of the Canadian Flathead. The coal is predominantly low-grade metallurgical coal, which would probably be exported for use in the overseas steel industry. The proponent estimates a production of 2 million tonnes of coal per year over a 20-year period. Although the B.C Government regards it as important to the energy sector, the estimated production from the mine is relatively small, representing about 13% of the estimated coal resources in south-east B.C and about 6% of coal resources of British Colombia.[27]

The Cline Mining Corporation launched this mining proposal in 2006, prompting the provincial Environmental Assessment Office of British Columbia to consult with the public

[27] Calculated from supplementary information provided to the WH Centre by the State Party of Canada, 20 October 2009.

in Canada and Montana, and with First Nations, on the terms of reference for an environmental assessment application. The proposal is effectively on hold currently as the company has advised that it will not proceed further, nor provide information necessary for triggering a federal environmental assessment, until it resolves land tenure and exploration permitting issues with the provincial government. While dormant, the proposal has the potential to proceed and the company's website shows that it was still being promoted to shareholders of the company.

The mission team was also informed that, because the proposal is currently at a stage of not having been defined sufficiently for an environmental assessment to be conducted, it is not possible to refer it to the IJC under the Boundary Waters Treaty. The mission team is of the view that the IJC potentially provides a appropriate dispute resolution mechanism for addressing the mining issues in the Canadian Flathead basin, as it did 20 years ago in the case of the Cabin Creek mine proposal. This report proposes that the issue be referred to the IJC jointly by the two countries at the earliest possible opportunity.

Coal bed methane gas production

In December 2008 the B.C. Government issued tenure over parts of the Crowsnest coalfield to BP Energy Canada for its Mist Mountain Coal bed Gas Project. The area covered is 326 km² in the Elk River watershed, near the towns of Fernie and Sparwood. The project is currently in the appraisal and design stage, which is expected to take three to five years to complete. Some exploratory drilling to 1,500 m is contemplated in 2010 but the company has now suspended this pending the outcomes of baseline environmental studies in the watershed. The mission team was informed by a representative of BP that it is estimated the project would cost about $10 billion if implemented, of which up to $2.5 billion would be spent employing local contractors.

Although the B.C. Government has currently excluded all lands in the Flathead drainage from petroleum and natural gas production, figures provided to the mission team show that the watershed is inferred as having an estimated potential of 1.4 trillion cubic feet (TCF) made up of 0.4 TCF from the Flathead and 1.0 TCF from the 16% of the Crowsnest coalfield in the Flathead valley.[28] This represents about 3% of the gas resource in south-east B.C or 0.4% of the provincial resource.

Impacts from coal mining and gas production

The mission team received a great deal of information on actual and potential impacts of mining and energy development in the region. This was obtained principally through technical sessions; structured discussions; written submissions; and research documents from government mining agencies and regulative authorities; the mining industry; and research institutions and universities. Additionally, the team was able to make first-hand observations

[28] Pers comm. D. Grieve, B.C. Ministry of Energy, Mines and Petroleum Resources, in presentation to mission team 25 September 2009.

both in the field and from aerial inspections. As for expressions from the State Parties to the Convention, the U.S. is strongly of the view that impacts from proposed mining pose an unacceptable threat to the integrity of the WH Property, while Canada considers that the current regulatory system is adequate to address potential threats. From a comprehensive analysis and assessment of this information, the picture that emerges of likely impacts from proposed mining and energy development operations in the Canadian Flathead watershed is as follows.

The mission was informed that mining at the Lodgepole Coal mine could involve removal of a large mountain block and filling the valley along a 6 km section of the adjacent Foisey Creek with waste overburden (about 325 million tonnes of waste rock is foreseen during the life of the mine), while also submerging part of it beneath settling ponds, and construction of an industrial coal washing facility in the Lodgepole Creek riparian zone.[29] These would have fundamental consequences on the natural topography, soils, erosion and sedimentation processes, vegetation, wildlife including aquatic life, and water quality.

Concerns regarding wholesale landscape change also accompany the BP Mist Mountain coal bed methane project, over an area of about 326 km², and in particular the dewatering process involved in gas extraction, which would fundamentally alter the quantity and quality of groundwater aquifers and rivers.[30] BP notes that water would be injected deep underground beneath a permeable rock layer (below the Fernie Shale layer), and that directional drilling and use of existing disturbance areas, allows the draining of an area 10 times greater than one drill site, which is expected to minimise its environmental footprint. Critics point out that the company has not yet proven it can re-inject water at deep levels or demonstrated that it can accomplish directional drilling in the type of geological conditions that exists at site.[31] Both the Lodgepole and the Mist Mountain projects would involve establishing construction sites and an expansion of road networks, which would add to levels of erosion, dust pollution and noise from the mine sites.

Aquatic ecosystems are considered to be particularly vulnerable to degradation from coal mining and gas production operations. Such operations would alter water volumes and flow regimes in rivers and groundwater systems, and produce increased sedimentation, turbidity and pollutants, thereby threatening water and habitat quality, migratory fish populations and all aquatic life downstream to Glacier NP.[32] Cold, clean water and silt-free streambeds are crucial for the growth and survival of native trout. Headwaters of the Flathead drainage near

[29] Letter from Rebecca Wodder, President, American Rivers, Washington D.C to Director, UNESCO World Heritage Centre, Paris.

[30] ibid.

[31] Pers. Comm.. Erin Sexton, Flathead Basin Commission, Montana, 25 September 2009.

[32] Muhlfeld, Clint C. & Deleray, Mark. Canadian energy development threats and native fish research and monitoring in the transboundary Flathead river system, Montana (USA) and British Columbia (Canada). Undated and unpublished ms. 5pp.

the proposed mine sites contain some of the most critical trout spawning and rearing habitats in British Columbia and Montana. Spawning surveys of the Flathead in 2003 and 2008 indicate that the highest numbers of bull trout redds (nesting areas) are in river sections immediately downstream of the proposed mines that receive ground and surface waters from the entire upper basin.[33] A basin-wide fishery survey in 2008 revealed that native fish are found throughout much of the river system, including in the proposed mine areas, and that genetically pure westslope cutthroat trout occur in a diversity of high-quality interconnected habitats throughout Foisey Creek which is at the centre of the proposed Lodgepole mine.[34]

The mission team was presented with research findings into the water quality of Michel Creek (a tributary of the Elk River in whose drainage valley mining is currently ongoing), which showed that as compared to the waters of the Flathead River, its level of selenium was 60 times higher, that of nitrates 650 times higher, and sulphates 18 times higher.[35] The researchers note that a similar fate can reasonably be expected to befall the Flathead River, should mining commence at the Lodgepole Mine.

Impacts of mining on water quality are clearly illustrated by the results of baseline environmental studies for the Mist Mountain methane project.[36] Since 2008 these have included sampling of water from eight sites in seven streams of the Elk River system that are affected by coal mining. Of a host of variables measured the following are classed as "variables of concern" to the maintenance of healthy natural aquatic ecosystems: temperature; turbidity; selenium; sulphate; nitrate and cadmium. Of particular concern are levels of nitrates, which in the Michel Creek are on average 100 times greater than in natural backcountry streams, including the Flathead. Also of "definite concern" is increase in selenium content. Selenium production from surface coal mines was discovered in the mid-1990s and has been intensively studied since. Shales of marine origin that dominate the geology of the Elk River area are a natural source of selenium, but high levels may be toxic for fish (especially juveniles), causing neurological damage, and for aquatic birds, in particular. The mission team was advised by a representative of the B.C. Ministry of Energy, Mines and Petroleum Resources that selenium was never foreseen as a problem, but is now the subject of research and field trials to discover how it is being leached and how it can be reduced. The Ministry is also concerned that levels of potentially toxic chemicals in waters draining coal mines are rising at an alarming rate, having exceeded established wildlife guidelines and prompting human health warnings in the Elk River system.

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[33] ibid

[34] ibid.

[35] Pers. Comm.. Richard Hauer, Flathead Lake Biological Station, University of Montana, in presentation to mission team, 21 September 2009.

[36] McDonald, Les. Coalbed gas baseline water quality survey. B.C. Ministry of Energy, Mines and Petroleum Resources, Miscell. Pub., 20 November 2008.

The mission team's view, based on critical review of all this information, is that the likely impacts are such that implementation of mining and energy development in the Canadian Flathead watershed would present a serious threat, incompatible with maintaining the Outstanding Universal Value of the WH property. Among the elements that make up OUV for the World Heritage property, those that would suffer most significant disturbance and irreparable damage are the rivers and extensive floodplains of the Flathead drainage. The cold, clean river waters, unimpeded intermixing of surface and groundwater systems and silt-free river beds provide optimum habitat essential for the growth and survival of migratory native salmonids, including the endangered bull trout and a pure strain of westslope cutthroat trout. Other significant OUV elements that would be disturbed or lost are key areas of natural terrain and intact vegetation cover providing migratory corridors for many species of native carnivores (especially grizzly), cats, mustelids and birds. Outstanding scenic and aesthetic values would also be lost.

Regulation of mining, environmental assessment and mitigation of impacts

In B.C. coal mining licences and leases are issued under provisions of the Coal Act, while minerals are tenured under the Minerals Tenure Act. The B.C. Ministry of Energy, Mines and Petroleum Resources (EMPR) is responsible for issuing permits, and regulating and inspecting operations. The Mines Act and associated regulations govern mining operations. It requires that applications to mine include details of works and programs for conservation of cultural heritage resources, and protection and reclamation of land and water courses. Proposals are subject to a 30-day referral process for comment from First Nations, agencies and the public.

Project proposals may also be referred for assessment under the B.C. Environmental Assessment Act and associated regulations, which are administered by the Environmental Assessment Office. The B.C. Environmental Assessment Act aims to ensure that any proposed project meets environmental, economic and social sustainability goals and addresses concerns of the public, First Nations and all stakeholders. The four main elements of the environmental assessment process are: public consultation on a project terms of reference; technical studies of the effects of the project; identification of ways to prevent or minimise undesirable effects; and consideration of inputs from all interested parties in making recommendations about the project's acceptability. Prior to approval or otherwise by the Minister, there is a two-stage process: a Pre-Application Stage involving baseline studies, impact assessments and public comment; and an Application Review Stage involving review by the Environmental Assessment Office. A federal environmental assessment may be activated where the Government proposes or contributes financially to a project, provides land or issues a licence or permit. There may also be a Co-operative Environmental Assessment, which is a process for harmonising federal and provincial reviews under respective legislation.

The Lodgepole proposal is at the Pre-Application Stage. It underwent a 30-day public referral period in early 2007, extended for 30 days to allow U.S. federal agencies and public to

provide comment. The proponent is currently reviewing the comments. This project also triggered scoping under the federal environmental assessment process, which has been completed. A notice of commencement of a comprehensive study for the proposed mine was issued in December 2007, and the scoping document will be released for public comment.

Proponents of mining and energy developments maintain that the comprehensive provincial and federal environmental assessment processes in Canada would ensure that no project having unacceptable environment consequences would gain approval. However, there is a marked stand-off between this view and the one held by some critics who believe the process is flawed, for reasons that are explained below. They also argue that the process favours the proponents, claiming that rarely has the process led to non-approval of a project.

With respect to mining and energy developments in the Flathead, the mission team heard from critics who consider there are a series of inadequacies in the B.C provincial environmental assessment process, as follows: there is no legal mandate to consider at-risk species (e.g. bull and cutthroat trout, grizzly bear and wolverine); it is project-specific and site-specific with no mechanism for examining effects beyond the footprint of the project or downstream and cross-border effects (though the federal process considers environmental effects both inside and outside Canada); baseline and environmental impact data are collected at the discretion of the project proponent; and there is no framework for analysis of cumulative effects, or multiple projects at multiple scales (the federal process takes account of cumulative impacts).[37] On 1 February 2007, Parks Canada in its comments to the B.C Environmental Assessment Office on the assessment of the Lodgepole mine proposal noted that "the scope of the assessment is unclear and, as such, we are concerned that it will be inadequate."[38]

In regard to judgements on the B.C. Government environmental assessment process, the mission team observes that: 1) comprehensive environmental assessment processes are available, which the authorities believe are adequate to prevent and/ or mitigate any environmentally damaging impacts from resource developments; 2) some people consider these processes to be of limited value in addressing key issues relating to mining and energy development in the Flathead basin; and 3) the opponents of the mining and energy developments do not regard environmental assessment as an appropriate substitute for outright prohibition of these operations.

The mining industry also points to its efforts in restoration through re-contouring and re-vegetating of mine sites, which it considers are capable of returning landscapes to a condition suitable for sustaining (and even enhancing) wildlife populations. From evidence presented to it by the mining authorities and interests, and from first-hand viewing of open-pit mine sites undergoing restoration, the mission team concludes that the remedial measures go little way

[37] From undated briefing memo by Erin Sexton, Flathead Basin Commission.

[38] From the presentation to the mission team on 25 September 2009 by the National Parks Conservation Association.

to restoring original conditions. Nor can restoration be expected to compensate for the fundamental degradation and loss of land and biota that occurs during the long working life of the mines.

Other mining proposals and operations

There are several other mining proposals and operations of concern in the Flathead including gold and other hard rock minerals. Gold deposits in the Flathead are associated with limited exposures of alkaline igneous intrusive rocks and limestones. Exploration for gold has occurred at two places, Crowsnest and Howell Creek, the latter on the western flank of the Flathead River being the more important. Gold discoveries in the 1980s prompted an intermittent series of exploration applications from several companies. The current mineral tenure holder is Eastfield Resources Ltd, which has optioned the properties to MAX Resource Corporation for exploration. It began a 1,300 m drilling project in a 4,300 ha sector of Howell Creek in July 2008, confirming prospective sites, and this program has continued in 2009. Access is primarily by existing forestry roads and trails, and operations involve diamond drilling of nine holes and some trenching. Impacts from this early exploratory phase have, therefore, been limited in scope, but there is concern that the onset of mining (though underground) would produce, among other things, damaging by-products from acid rock drainage such as mercury and other heavy metals.[39][40] Copper occurs in the quartzites of Precambrian metasedimentary rocks east of the Flathead River. Classed only as "showings", none of the occurrences has been tenured and no resources are defined to date. Phosphate occurrences are regionally extensive in sedimentary rocks. The deposits are thin and of relatively low grade. Most occurrences are "showings" and there are no defined resources, though there has been some trenching, sampling and drilling and recent staking activity, both in the Elk and Flathead watersheds. There are also some small quarries for recovery of decorative stone in the Flathead.

The mission team observes that direct effects of these primarily exploratory activities on natural ecosystems have been limited to date. However, following an inspection and having considered a range of viewpoints, it concludes that all mining and energy production operations in the Canadian Flathead would have serious consequences for maintaining the Outstanding Universal Value of the Waterton-Glacier International Peace Park World Heritage property. The mission considers that the elements of the property's OUV with greatest potential to be significantly impacted include:

- superlative scenery and aesthetic qualities provided by wide expanses of wild, unmodified natural terrain and vegetation;

[39] Pers. comm. Bruce Hamilton, 26 September 2009, op. cit.

[40] At the time of finalizing this report, news has appeared in the media (Greenwire, 17 December 2009 http://www.eenews.net/) about the discovery of "high-grade gold deposits" by this company, which further notes "that development of the deposits could imperil Montana's Flathead River Valley and fragment North America's most prized grizzly habitat".

- pure river waters, clean riverbeds and extensive complex floodplain systems, with abundant and diverse aquatic life, providing vital habitat for growth and persistence of native fish, especially unique and endangered migratory salmonids;
- continuous expanses of intact vegetation forming unimpeded corridors for many migratory mammals, including all N. America's carnivore species (of which the grizzly is the most significant) as well as cats and mustelids;
- an abundance of plants in communities displaying a unique mixture of species from four life zones, some of which are at their biogeographical distribution limits, along with several threatened, rare and/or endemic species; and
- one of the most extensive and biologically productive expanses of intact natural ecosystems on the N. American continent, which is of vital and increasing significance for adaptation and survival of biota faced with stresses of changing global and regional climates.

In the view of the mission team, any legal, regulatory or planning provision that allows the possibility of mining in the Flathead watershed is incompatible with the long-term protection of the property's outstanding universal value and integrity.

6.2 BARRIERS TO WILDLIFE MIGRATION AND CONNECTIVITY

This is another crucial issue which impacts on the values of the site, its integrity and its sustainable management, especially as there are several challenges/developments in the broader ecosystem. There are also multiple land management agencies responsible for this broader region, which adds to the jurisdictional complexity.

Many of the animals in the Waterton-Glacier Park, particularly the carnivores, have home ranges that extend well beyond the security of protected land and waters in the Park.[41] They rely for their growth and persistence not only on the healthy naturally functioning ecosystems of the Park, but also on the freedom to move between the Park and surrounding areas during their life cycle. Individual male grizzlies, for example, may have a territory covering as much as 1,000km², and it is known that grizzlies selectively avoid areas where they are likely to encounter humans. Human constructions and activities including settlements, housing sub-divisions, transport networks and tourist and industrial developments, in localities in and around the Crown of the Continent ecosystem as a whole, are causing increased fragmentation of natural areas, reducing the availability of wildlife habitats, restricting the movement of the native fauna – carnivores and fish in particular – and fragmenting populations.

[41] Pers. comm. B. McClennan, B.C. Forest Service & Chris Servheen, US Fish and Wildlife Service, in presentation to mission team, 21 September 2009.

While wolves, elk and moose, for example, range eastwards seasonally far beyond the high mountains, the general physiography of the terrain here dictates the predominant north-south movements of animals along natural corridors. The mission noted that the connectivity between the Canadian Rocky Mountain Parks (to the north) and the Waterton Glacier International Peace Park (to the south) is fragmented and should be increased. The transboundary Flathead plays a crucial role in this maintaining north-south ecological connectivity in the Rocky Mountains. Research on five species of carnivores in the Flathead – wolf, lynx, marten, wolverine and grizzly bear – reveals that all move across the international border.[42]

Among the fish, bull and cutthroat trout are migratory in lifestyle and use the entire extent of the interconnected transboundary stream system to complete their life history and persist. Monitoring of radio-tagged cutthroat trout released near Kalispell in Montana has revealed that 50% of the tagged fish spawned in the British Columbia portion of the Flathead.[43] Bull trout are known to move up to 250 km from Flathead Lake back to their natal incubation sites in the headwaters of the Canadian Flathead. Such illustration of animal and fish migration clearly indicates that the Flathead is a truly transboundary landscape that should be managed as an integral ecological unit, and subject to a transboundary wildlife conservation plan.

Grizzly and grey wolf, in particular, range from the Waterton-Glacier and Flathead areas as far north as Banff and Jasper NPs in Alberta. Human developments, including a major highway, railway, transmission lines and settlements, along the east/west trending Crowsnest Pass Highway (Highway 3) north of the Waterton-Glacier and Flathead areas, constitute a significant connectivity barrier. A study of six carnivore species, conducted between 2001 and 2004 over an area of 30,000 km² in the Southern Canadian Rockies, revealed that the Crowsnest transport and development corridor severely restricts movements of animals.[44] Reproductive female grizzlies are particularly vulnerable to these effects and this has the potential to fragment natural populations. Trains are revealed as the greatest source of animal mortality, but the greatest impact is from the spin-off development that occurs along the highway. The study recommended that urgent consideration be given to maintenance of core natural areas with a high level of security, and the development of a pro-active conservation plan providing for connectivity across and around the Crowsnest Highway.

6.3 FOREST MANAGEMENT IN THE FLATHEAD WATERSHED

In the North Fork of the Flathead in USA, the forests west of the river and adjoining the World Heritage property are managed within the Flathead National Forest. Located adjacent

[42] Weaver, J.L. The transboundary Flathead: a critical landscape for carnivores in the Rocky Mountains. Wildlife Conservation Society, Working Paper 18, July 2001.

[43] Muhlfeld, Clint C. & Deleray, Mark op. cit.

[44] Apps, Clayton D. et al., 2007. Carnivores in the Southern Canadian Rockies: core areas and connectivity across the Crowsnest Highway. Wildlife Conservation Society (Canada), Toronto, Conservation Report No. 3.

to the western boundary of Glacier NP, with its administrative centre at the city of Kalispell, the Flathead National Forest is one of five such forests in the Crown of the Continent ecosystem. The forest is managed for multiple uses including wood production, recreation, fish and wildlife, water quality, fire, access and some 40 easements for private owners, and also manages the Wild and Scenic River designation for the N. Fork of the Flathead River. The management plan for the forest dates from 1986 and is in urgent need of revision. Conservation and wildlife management are the principal land uses and there is little timber production today.

The use of the river as the boundary between the Flathead National Forest and Glacier NP is not consistent with current practice in establishing the integrity of World Heritage natural properties, which recognises watershed boundaries as the natural ecological limits within fluvial landscapes. This is particularly pertinent in the case of the Flathead basin, only part of which is in the World Heritage property, where industrial and other developments in the upper watershed can have wide-ranging downstream impacts. Notwithstanding this deficiency, the mission does not consider any changes are necessary at this time. Multiple-use management of the national forest is basically compatible with protective management in the park, and the river itself is strictly protected as a Wild and Scenic River. Moreover the national forest, bearing the results of its long history of resource use and modification, might not be appropriate as an addition to the WH property, though it could provide important connectivity as an adjoining protected area.

In the Canadian Flathead the forests are managed as part of the Cranbrook Forest District of the B.C. Forest Service. Forest here have been actively managed for more than 50 years and harvested since the early 1960s. Tembec Forest Resource Management, a major forest operator in the area, argues that it conducts its operations according to the highest standards of forest management in the world.[45] The company expects to develop some 100,000 m^3/year of timber from its Flathead holdings in the next 5-10 years, processing the timber at its Elko sawmill, which employs approximately 200 workers. Forests covering large parts of the watershed are designated High Conservation Value (HCV) Forest, based on plans that were consulted with relevant stakeholders including environmental NGOs. HCV forests, which are delimited using systematic, science-based analysis, are those containing globally, regionally or nationally significant values for at least one of the following: biodiversity; viable populations of naturally occurring species; rare, threatened or endangered ecosystems; or basic services necessary to nature, to local communities or to retention of traditional cultural identity. Most of the valley corridor is managed within a Special Resource Management Zone that takes account of sensitive values. There are guidelines addressing biodiversity, habitat connectivity, ungulate winter range, grizzly bear conservation, management of old-growth forest areas, and access and backcountry recreation.

[45] Pers. comm. Ken Streloff, Tembec Forest Resource Management, during field inspection by mission team, 26 September 2009.

The mission team assesses that, in both the US and Canada parts of the Flathead watershed adjoining the property, current forest management practices, which give close attention to highly rated and sensitive wildlife values in resource conservation, are essentially compatible with the maintenance of the Outstanding Universal Value of the Waterton-Glacier International Peace Park World Heritage property.

6.4 THE EFFECTS OF CLIMATE CHANGE

Climate change is considered by all stakeholders to be a major issue and is beginning to have a clear and profound impact on the property. Recession of glaciers and reduction in the extent of ice cover are the most conspicuous evidence of change. The glaciated landforms are one aspect of the property's outstanding universal value, and they are the basis of the name of Glacier NP. In a presentation made by a climate change researcher from the US Geological Survey, the mission was informed that over the past 100 years many glaciers have receded, thinned or completely disappeared. Of an estimated 150 glaciers that existed in Glacier NP in 1850, only 50 remained in 1998 and only 25 in 2005 (a loss of 84%). Observations at the Jackson Blackfoot Glacier show that glacier recession and loss of ice are 10 years ahead of original predictions

Concerns over the impacts on the Waterton-Glacier property from climate change were expressed by the State Parties in the previous periodic reporting cycle, and by NGO petitions to the Committee in 2006 and 2009. Among other things, these reports note that in Glacier NP in the period since 1850 average summer temperatures have risen markedly, precipitation has decreased by at least 20%, while of the original 150 glaciers only 25 remain and continue to retreat.

Other evidence cited for changing climate includes: vegetation zones migrating northwards and upslope - especially rising treelines with trees invading the alpine and subalpine zones; restriction of the alpine tundra ecosystems with consequences for species such as mountain goat and pika; increased avalanche activity leading to increases to hazards for recreationists and property damage; increased frequency and intensity of droughts; increased frequency of large natural fires, especially since 2001; soot (black carbon) production leading to increased ablation of glaciers (a recently-observed phenomenon that was the subject of a petition submitted to the 33rd session of the World Heritage Committee, but not yet studied in detail by the Intergovernmental Panel on Climate Change); changes in stream discharge and seasonal flows with earlier Spring runoff and late Summer low-flows; increased water temperatures affecting river-spawning native salmonids that are extremely sensitive to perturbation in habitats; increased numbers of non-native fish species, some of which have reached pest levels, and with hybridisation threatening unique gene pools; species in danger of local extinction; and increased invasion of the more resilient non-native plants and weed species.[46]

[46] A summary of climate change impacts is in a US National Park Service pamphlet entitled Glacier National Park: Climate Change.

Because mountains have pronounced altitudinal gradients and a great diversity of microclimates and biota over small geographic areas, they are much more sensitive to climate change than lower altitude areas. Mountain areas also provide very limited opportunities for dispersal of biota. Climate change will push species of plants and animals northwards and to higher altitudes, requiring the maintenance of biological connectivity. Clearly, changing atmospheric conditions are producing rapid cascading ecological effects in the Waterton-Glacier property, including a transition from a snow-dominated to a rain dominated environment. At the same time, the parks and the huge area of intact nature in the Crown of the Continent ecosystem provide the best available environment to allow resilience and adaptation for plants and animals faced with climate-induced challenges to their survival. For this reason, the Flathead watershed, retained in its natural state, can be expected to play a vital role in climate change responses in this part of the continent.

In 2009 the World Heritage Centre and IUCN recommended in their report to the Committee that adaptive measures should be taken to optimise the ability of ecosystems and resident wildlife to adapt to changing conditions. It was noted that resilience should be maintained by reducing habitat fragmentation, and ensuring ecosystem connectivity and genetic diversity. The mission team endorses this recommendation. It further suggests there be encouragement of research and management specifically aimed at mitigating the negative ecological impacts of climate change.

Any adaptive measures should give emphasis to enhancing the resilience and capacity of wildlife and plants in adjusting to changing environmental conditions. through: minimising habitat loss, conversion and fragmentation, while maximising retention of intact, interconnected ecosystems over large expanses of the landscape; restoring and rehabilitating degraded ecosystems, for example through plantings and re-afforestation; stabilising vegetation cover on slopes to avoid accelerated soil erosion and sedimentation and prevent disruption to runoff, river flow regimes and loss of water quality; combating the invasion and impacts of non-native predators, pests and weeds; and encouraging collaborative management with land managers in the wider Crown of the Continent ecosystem in aspects of wildlife protection, ecosystem restoration, control of introduced species and fire management, among others. Ex-situ methods that might be considered for enhancing the survival of native animals and plants include species re-location, assisted migration and captive breeding. Research effort might focus on identification of sensitive, vulnerable and other indicator species for measuring and monitoring the rate, trend and extent of changes; establishment of baseline studies on a range of ecosystems over 3-5 year periods; incorporation of cumulative effects analysis in research; and undertaking of environmental assessments, including socio-economic assessment.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

With respect to the situation regarding coal mining and energy development in the Canadian Flathead watershed, the mission team acknowledges that the proposed development projects are external to the existing WH property; they are currently on hold in the Pre-Application Stage of a comprehensive environmental assessment process; there is an indefinite court ordered moratorium on petroleum and natural gas production in the U.S. Flathead watershed; coal exploration and production is excluded from a coal land reserve covering almost half of the watershed; extensive areas of the watershed are subject to a widely consulted, multiple use management plan and currently managed primarily for sustainable forestry and recreation; and a small part of the watershed adjacent to the WH property is protected in a provincial park.

Notwithstanding this situation, it is the considered view of the mission team that should open-pit coal mining and coal bed methane gas production proceed in the upper Canadian Flathead watershed, this would present a serious threat, incompatible with the Outstanding Universal Value of the Waterton-Glacier International Peace Park World Heritage property. Of particular concern are the likely degradation and irretrievable losses that would occur in: water quality that ranks among the highest anywhere in the world; rich aquatic ecosystems providing breeding and feeding habitats critical for the growth and survival of endangered migratory native salmonids; corridors of natural terrain and vegetation providing key migration routes for important wide-ranging populations of carnivores, ungulates, cats and mestelids; an abundance of plants in communities comprising unique assemblages of plants from four life zones, some of which are at the extremes of their biogeographical range; and one of the largest expanses of intact natural ecosystems anywhere on the N. American continent of vital importance for adaptation of biota in the face of changing climatic regimes.

There is, in the view of the mission, no possibility of proceeding with mining in the Flathead watershed without creating an unacceptable direct impact on the Outstanding Universal Value of the property, and there does not appear to be a compromise position in this regard.

If a mining proposal in the Flathead region does reach the Application Review Stage, both the USA and Canadian Governments should request the International Joint Commission to undertake a detailed technical assessment of the proposal under Article IX of the Boundary Waters Treaty (1909). The mission team notes that the IJC examined a previous mining proposal in the Cabin and Howell Creeks of the Canadian Flathead, concluding that the potential risk of failure of waste dumps and settling ponds represented an unacceptable risk to the drainage basin. As a consequence of the IJC's recommendation, this mining proposal was declined.

Retention of the large expanse of natural landscape in the Crown of the Continent ecosystem is of vital importance for avoiding habitat fragmentation and providing the ecosystem connectivity essential for the growth and survival of native plants and animals in the region. The Waterton-Glacier World Heritage property forms the core protected area in this regional ecosystem, and its natural integrity is inextricably linked with the neighbouring transboundary Flathead watershed.

Wide-spread and rapid environmental and ecological changes are occurring in the Waterton-Glacier property, and throughout the Crown of the Continent ecosystem, as a result of changing atmospheric conditions and climatic regimes. These accentuate the need to retain a large intact natural landscape to allow plants and animals to adapt to the changes. They also present difficult challenges for management of the property, and will require increased cross-border collaboration, and co-operative management with landowners and key stakeholders in surrounding lands.

In the spirit of the International Peace Park initiative, there needs to be open dialogue and discussion to find mutually acceptable solutions to the issues currently confronting the World Heritage property. Established almost 80 years ago, the Waterton-Glacier International Peace Park was the first of its kind, and it has occupied a special place in the global network of World Heritage properties for more than a decade. The Park was designated in order to "permanently commemorate the relationship of peace and goodwill between the peoples and governments of Canada and the US." The present circumstances provide an ideal opportunity to give prominence to the values and aspirations underpinning this initiative. They call for the State Parties to demonstrate mutual respect, understanding and co-operation in resolving the resource development and other problems that threaten the integrity of a shared World Heritage.

7.2 RECOMMENDATIONS

These recommendations relate to maintenance of the Outstanding Universal Value, integrity and management of the Waterton-Glacier International Peace Park World Heritage property,

<u>Mining and energy development in the Flathead watershed</u>

1. Although environmental assessment mechanisms are available, in the view of the mission mining in the transboundary Flathead watershed would not be compatible with the protection of the Outstanding Universal Value of the Waterton-Glacier International Peace Park. Given the importance of the Flathead watershed in maintaining the OUV of the World Heritage property, mining and energy development should be prohibited throughout the watershed. Accordingly, the Southern Rocky Mountains Management Plan (SRMMP), which guides the B.C. Government's land use decisions in the Canadian Flathead, should be revised to provide for permanent prohibition of mining and energy development in the Canadian Flathead. The revised SRMMP should establish a new multiple-use management regime, excluding mining but including forestry and other uses, for the Canadian Flathead that gives priority to natural ecological values and wildlife conservation.

2. If a mining proposal in the Flathead region does reach the Application Review Stage, both the USA and Canadian Governments should request the International Joint Commission to undertake a detailed technical assessment of the proposal under Article IX of the Boundary Waters Treaty (1909).

3. If the Lodgepole coal mine proposal should move into the application review stage of environmental assessment, the mission considers that this would constitute a basis for inscribing the Waterton-Glacier property on the list of World Heritage in Danger[47].

Barriers to connectivity

4. Steps should also be taken to minimise the barrier to wildlife connectivity due to mining, transportation and communication lines and associated developments in the Crowsnest Pass of B.C., and where such barriers exist, appropriate mitigation measures should be planned and implemented. In particular, there should be a long-term moratorium placed on any further mining developments in south eastern British Columbia, immediately west of the Alberta border, in the corridor of natural terrain that creates vital habitat connectivity and allows the unimpeded movement of carnivores and ungulates between the Waterton-Glacier property and Banff/Jasper NPs of the Rocky Mountains WH property in Alberta. Other measures should include minimising future infrastructure development and removal of unnecessary structures, maintenance of core natural areas and rehabilitation of degraded areas, and development of a pro-active plan for enhancing connectivity in the area.

Co-operative conservation management in the WH property and the Crown of the Continent ecosystem

5. Recognising that although there are two park jurisdictions in the WH property it should be managed holistically as one property, there should be a review and strengthening of institutional arrangements related to management of the property. Further initiatives should also be taken for co-operative planning, management and research between Waterton Lakes and Glacier NPs, possibly supported by a shared project funding resource, to make more effective use of resources in solving common management problems and to strengthen the functioning of a single WH property.

6. Recognising that the entire Flathead basin, including both the US part in the WH property and the largely unprotected part in Canada, is important for protecting, maintaining and buffering the OUV of the World Heritage property, a single conservation and wildlife management plan should be developed for the transboundary Flathead. This should encourage the various managers of lands and resources to adopt common objectives, management approaches, and monitoring and research methods to improve consistency and effectiveness in achieving management goals.

7. Further co-operation should be fostered between the Parks and land and resource managers and key stakeholders in the Crown of the Continent ecosystem, and

[47] On the concluding day of the mission, this view of the mission team was made explicitly clear to the Heads of Delegation of both countries, who were in agreement, considering the fact that the World Heritage Committee had taken such a decision several times in the past in similar cases.

supervised by the Crown Managers' Partnership. In particular this should encourage greater synergies with the Biosphere Reserves, First Nations and indigenous tribal groups, and environmental NGOs. These could focus on issues of mutual interest such as: water resources and fisheries protection and management; fire management; invasive species control; wildlife connectivity on farmlands; multiple-use land and resource management; and socio-economic benefits.

8. Increased efforts should be made to harmonise the management of the Akamina-Kishinena Provincial Park area with the WH property and to incorporate it into the property, as was recommended at the time of its inscription on the WH List. This process should be undertaken in close consultation with indigenous peoples. This would strengthen the protection management over a small but significant portion of the Canadian Flathead watershed immediately adjacent to the western boundary of the WH property. Together with the recommended change to a conservation and wildlife management regime for the remainder of the Canadian Flathead under a revised SRRMP, this would also enhance the maintenance of a continuous, unfragmented landscape of conservation lands with unimpeded corridors essential for migrating animals and birds.

Climate change

9. Recognising the clear evidence for ecological and environmental stress under changing climatic regimes, specific programmes of management and associated monitoring and research should be developed to combat climate change impacts. Adaptive management strategies should give emphasis to enhancing the resilience and capacity of wildlife and plants in adjusting to changing environmental conditions.

10. Further promotion of trans-border co-operation in monitoring and research should be undertaken such that consistent techniques and measurements can allow for comparability across the region and development of regional adaptation strategies; establishment of greater synergies with the applied research and education programs conducted in the context of the associated Biosphere Reserves; and establishment of ecological monitoring and research programs on a Crown of the-Continent scale, possibly under the guidance of the Crown Manager's Partnership.

ANNEX 1

Terms of Reference for Mission to the Waterton-Glacier International Peace Park World Heritage property (Canada / United States of America)

In accordance with Decision 33 COM 7B.22 (see Annex) of the World Heritage Committee, undertake the joint World Heritage Centre / IUCN Monitoring Mission to the Waterton Glacier International Peace Park World Heritage property (Canada / United States of America) in September 2009.

The joint mission will:

1. Assess the state of conservation of this property and the factors affecting its Outstanding Universal Value (including conditions of integrity and management), including in relation to the threats identified in the state of conservation report and related decision of the World Heritage Committee. The mission should also consider potential threats originating outside the boundaries of the property, including from extraction, energy and other development within the Elk River and Flathead River watersheds as well as in the broader (Crown of the Continent) ecosystem. The mission should further consider threats and impacts of climate change on the property;

2. Hold consultations with the authorities and relevant stakeholders in Canada and USA (including those that submitted petitions to the World Heritage Committee) in assessing the potential and / or ascertained impacts of these threats in relation to the issues discussed in working document WHC-09/33.COM/7B, the state of conservation reports submitted by the two States Parties, and the recommendations of the World Heritage Committee (Decision 33 COM 7B.22). The two States Parties are requested to make appropriate arrangements for these consultations to take place;

3. On the basis of the findings, the mission should prepare a joint report considering Operational Guidelines paragraphs 178-186 and 192-198, and outlining recommendations to the States Parties and the World Heritage Committee on the requirements for ensuring the protection of the property's Outstanding Universal Value, including but not limited to the need for baseline and comparative research on the resources of the broader ecosystem.

ANNEX 2

ITINERARY AND DAILY PROGRAMS OF THE MISSION

UNESCO World Heritage Centre / IUCN Mission to
Waterton-Glacier International Peace Park World Heritage Site
20-27 September, 2009

Sunday 20 September

Fly into Kalispell (Glacier Park International) Airport, stay at Rocky Mountain Lodge (http://www.rockymtnlodge.com) in Whitefish, about 12 miles from the airport. Paul and Kishore will be picked up by Steve Morris and Jon Putnam, U.S. National Park Service

Monday 21 September

Information/orientation meeting at West Glacier Community Building, (30 minutes from Whitefish). Paul and Kishore will ride up with Steve Morris from Rocky Mountain Lodge.

8:30 *Welcome to the Waterton-Glacier International Peace Park and Introductions*

Chas Cartwright and Dave McDonough, superintendents of Glacier and Waterton Lakes NPs

Welcome from the staff of U.S. Senators Baucus and Tester and Montana Gov. Schweitzer

8:45 *Brief overview/background from National Park Service and Parks Canada and the UNESCO/IUCN Mission*

Stephen Morris and Larry Ostola

9:00 *Overview of Mission's Terms of Reference, Post-Mission Timeline*

Kishore Rao and Paul Dingwall

9:10 *Session Introduction and agenda*

Wendy Ross – Management Assistant at Glacier NP – Facilitator

9:15 *Summary of the Outstanding Universal Values and the State of Conservation of Waterton-Glacier International Peace Park (review/update of Periodic Report/Statement of Significance)*

Steve Morris/Jon Putnam, NPS and John Pinkerton, Parks Canada

9:30 *Introduction to the World Heritage Site*

John Waller, Glacier NP Biologist, Tara Carolin, Director, Crown of the Continent Research Learning Center, Waterton Lakes NP presenter TBD

10:30 BREAK

10:40 *Presentation by representatives of the U.S.-based petitioners*

Will Hammerquist and Rich Moy, National Parks Conservation Association.

11:20 *Flathead River Basin research – baselines and state of the broader ecosystem*

Erin Sexton, State of Montana Transboundary Issues Specialist

- *Water quality, hydrology and geomorphology* – Dr. Richard Hauer, Flathead Lake Biological Station
- *Fisheries* - Mark Deleray, Montana Fish and Wildlife and Parks, Dr. Clint Muhlfeld, U.S. Geological Survey, Northern Rocky Mountain Science Ctr.
- *Wildlife overview, connectivity, ungulates* – Dr. John Weaver, Wildlife Conservation Society Canada
- *Carnivores* – Dr. Bruce McClellan, British Columbia Forest Service, Dr. Chris Servheen, U.S. Fish and Wildlife Service, Grizzly Bear Recovery Coordinator

12:30 LUNCH – catered lunch (RSVP $10.00) or bring your own lunch

13:00 Continue session on research

13:45 *Climate change and its potential impacts in the World Heritage Site* – Dr. Dan Fagre, U.S. Geological Survey

14:30 Questions on science/research

15:00 BREAK

15:15 *Management challenges, conservation strategies and internal capacities – Waterton Lakes NP*

Dennis Madsen

16:15 *Management challenges, conservation strategies and internal capacities – Glacier NP*

Jack Potter, Chief, Glacier NP Division of Science and Resources Management

(as time permits, continued on Tuesday afternoon)

17:15 *Opportunity to meet the local press (Q & A session for Kishore and Paul)*

17:45 Adjourn

<u>Tuesday 22 September</u>

8:00 – 11:30 Aerial field trip over the World Heritage site and broader ecosystem, including the Flathead River; Paul and Kishore, Ric Hauer, FLBS pilot, plus Ricci Berdusco, B.C.

Ministry of Energy, Mines and Petroleum Resources). Leave from the Whitefish Airport. Erin Sexton will pick up the delegates and Ricci at the Rocky Mountain Lodge. **Weather permitting. If the weather is bad we may switch the time of the flight or postpone until Wednesday.**

11:30 Box lunch and drive to West Glacier, meet in the Conference Room, Park Headquarters building

13:00 *Ecosystem Context – land ownership, protection status, and potential mineral development in the US Crown of the Continent area*. Karen Miske – State of Montana, Flathead Basin Commission, Erin Sexton

14:00 *National Forest Management* – Jimmy Deherrera, USFS District Ranger

14:30 *Native American conservation efforts and perspective* - Confederated Salish and Kootenay Tribes. Clayton Matt – Resource Management Office

15:00 BREAK

15:10 *Management challenges, conservation strategies and internal capacities – GNP, continued from Monday* – Jack Potter

Fisheries/air quality - Chris Downs, Glacier NP Fisheries Biologist

Exotic/invasive plants – Dawn LaFleur, Glacier NP Biologist

Wildlife – Dr. John Waller, Glacier NP Wildlife Biologist

16:30 Questions, wrap up, adjourn

17:00 Adjourn

Evening: Meet with representatives of WCPA – North America (Rocky Mountain Lodge)

Wednesday 23 September

AM Check out of Rocky Mountain Lodge

8:30 Glacier NP field trip and issue discussion

13:00 Return to West Glacier and drive to Waterton Lakes National Park via Highway 2 and the east front

Thursday 24 September

Glacier Room, Bayshore Inn, Waterton Park, Alberta

8:30 *Welcome to Waterton Lakes National Park*

Dave McDonough, Field Unit Superintendent

8:45 *Introduction to Day 4*

Larry Ostola, Head of Canadian Delegation to World Heritage Committee

9:00 *The Crown of the Continent Ecosystem in Alberta: Overview; current state of the ecosystem; Alberta's legislative, policy, planning and management framework*; *local stewardship*

Presenter(s): Bill Dolan, Alberta Parks and Chair of Crown Managers' Forum; Rick Blackwood, Alberta Sustainable Resource Development; Ian Dyson, Alberta Environment; Larry Firth, Chair of Waterton Biosphere Reserve (TBC); Kimberley Pearson, Waterton-Alberta Region, Nature Conservancy of Canada

12:00 LUNCH

12:45 Tour of Waterton Lakes National Park

15:30 Depart for Fernie, British Columbia

17:30 Arrive in Fernie, British Columbia

19:00 Reception for WHC/IUCN, BC team, Parks Canada and US team

Mt Proctor Room, Best Western Hotel, Fernie, British Columbia

<u>Friday 25 September</u>
Mt Proctor Room, Best Western Hotel, Fernie, British Columbia

8:30 Welcome to Ktunaxa Nation (KTN) traditional territory

Kathryn Teneese, Chair, Ktunaxa Nation Council

Introduction to Day 5: Larry Ostola, Head of Canadian Delegation to World Heritage Committee

8:45 *The Southern Rocky Mountain Management Plan (SRMMP): History of development; goals and objectives; resource and science data employed; current implementation*

Presenter: Sangita Sudan, Chair, Southern Rocky Mountain Management Committee

9:30 *Potential subsurface resource development in the Flathead*

Presenter: Dave Grieve, Regional Geologist, Mining and Minerals Division Cranbrook, BC Ministry of Energy, Mines and Petroleum Resources

10:15 BREAK

10:30 *Permitting and approval process in Canada*

Presenter: Sean LeRoy, Senior Program Officer, Canadian Environmental Assessment Agency

11:15 *Permitting and approval process in British Columbia*: *BC Environmental Assessment*

Presenter: Kathy Eichenberger, Project Assessment Director, BC Environmental Assessment Office

12:00 *Presentation by Canadian representatives of ENGO coalition*

Chloe O'Loughlin, Canadian Parks and Wilderness Society (BC Chapter)

John Bergenske, Wildsight

George Heymans, Sierra Club BC

12:45 LUNCH

13:30 *Mineral Exploration and Mining Regulation in BC*

Presenter: Ricci Berdusco, Regional Director, Mining and Minerals Division Cranbrook, BC Ministry of Energy, Mines and Petroleum Resources

14:15 *Habitat management in BC and the Flathead*

Presenters: Matt Austen, Large Carnivore Specialist, BC Ministry of Environment, and Doug Martin, Habitat Specialist, BC Ministry of Environment

15:00: Visit to the headwaters of the Flathead and the Tembec forestry site

Return to Fernie

19:00 Presentation by Association for Mineral Exploration British Columbia (AMEBC)

(TBC)

20:00 Adjourn

<u>Saturday 26 September</u>

Mt Proctor Room, Best Western Hotel, Fernie, British Columbia

8:30 *Closing session*: Final questions and answers, requests for additional information, next steps

9:00 Site visit to Cline/Lodgepole proposal

12:30 Visits to Eastfield Resources' two sites

14:00 Packed lunch

16:00 Mt. Hefty (Crevice Lookout).

Helicopter flies down for heli-tour of Southern Flathead. Estimate 5 passengers: Kishore Rao, Paul Dingwall, Ricci Berdusco, John Pinkerton, US representative (likely Erin Sexton)

17:00 Return to Fernie (some by helicopter, some by road)

Sunday 27 September

7:00 Depart Fernie (John Pinkerton to transport the team to Calgary)

11:00 Arrive Calgary

Xx:00 Depart Calgary

ANNEX 3

DECISION OF THE WORLD HERITAGE COMMITTEE

22. Waterton Glacier International Peace Park (Canada / United States of America) (N 354 rev)

Decision:33 COM 7B.22
The World Heritage Committee,

1. Having examined Document *WHC-09/33.COM/7B*,

2. Recalling Decision **29 COM 11A** adopted at its 29th session (Durban, 2005) on the Periodic Report for North America, which noted the continued excellent cooperation between the States Parties of Canada and the United States of America,

3. Noting the information provided by the State Party of Canada during its 33rd session, in particular that there is currently no coal mining or coalbed methane extraction in the property or the adjacent Flathead Valley,

4. Also recalling the conclusions of the1988 International Joint Commission study of a proposed coal mine at Cabin Creek in the Flathead Valley, which determined that the effects of the proposed mine could not be fully mitigated,

5. Notes that the 1994 nomination document indicated that the integrity of the property is inextricably linked with the quality of stewardship of the adjacent areas within the international Crown of the Continent ecosystem and that therefore the protection of the property's Outstanding Universal Value require that it be managed within the context of this greater ecosystem;

6. Notes with concern the potential threat to the Outstanding Universal Value of the property from potential mining and energy development within the Flathead Valley and, in particular, to the continued quantity and quality of water supplies and ecosystem connectivity between the property and important habitats outside its boundaries;

7. Also notes the high level of public concern regarding this potential threat and any effects of climate change on the property;

8. Urges the State Party of Canada not to permit any mining or energy development in the upper Flathead River basin until the relevant Federal and Provincial environmental assessment processes have been completed;

9. Requests the State Party of Canada to provide timely opportunities for the State Party of the United States of America to participate in these environmental assessment processes and to fully consider its contributions;

10. Invites the States Parties to exchange experiences with other States Parties whose properties contain glaciers to explore appropriate and practical adaptation and mitigation strategies to maintain the Outstanding Universal Value of the property in the long term;

11. Also requests the States Parties to invite a joint World Heritage Centre/IUCN monitoring mission to take place as soon as possible to evaluate and provide recommendations on the requirements for ensuring the protection of the property's Outstanding Universal Value, including, but not limited to, the need for baseline and comparative research on the resources of the broader ecosystem;

12. Further requests the States Parties to submit to the World Heritage Centre, by **1 February 2010**, a joint state of conservation report on the property, including the status of all mining and energy development proposals in the Flathead Valley, as well as on other developments in the broader ecosystem, such as residential, industrial and tourism development, their potential impacts and cumulative effects, and progress in developing climate change adaptation strategies for the management of the property, for examination by the World Heritage Committee at its 34th session in 2010.

ANNEX 4: MAPS OF THE FLATHEAD VALLEY WATERSHED

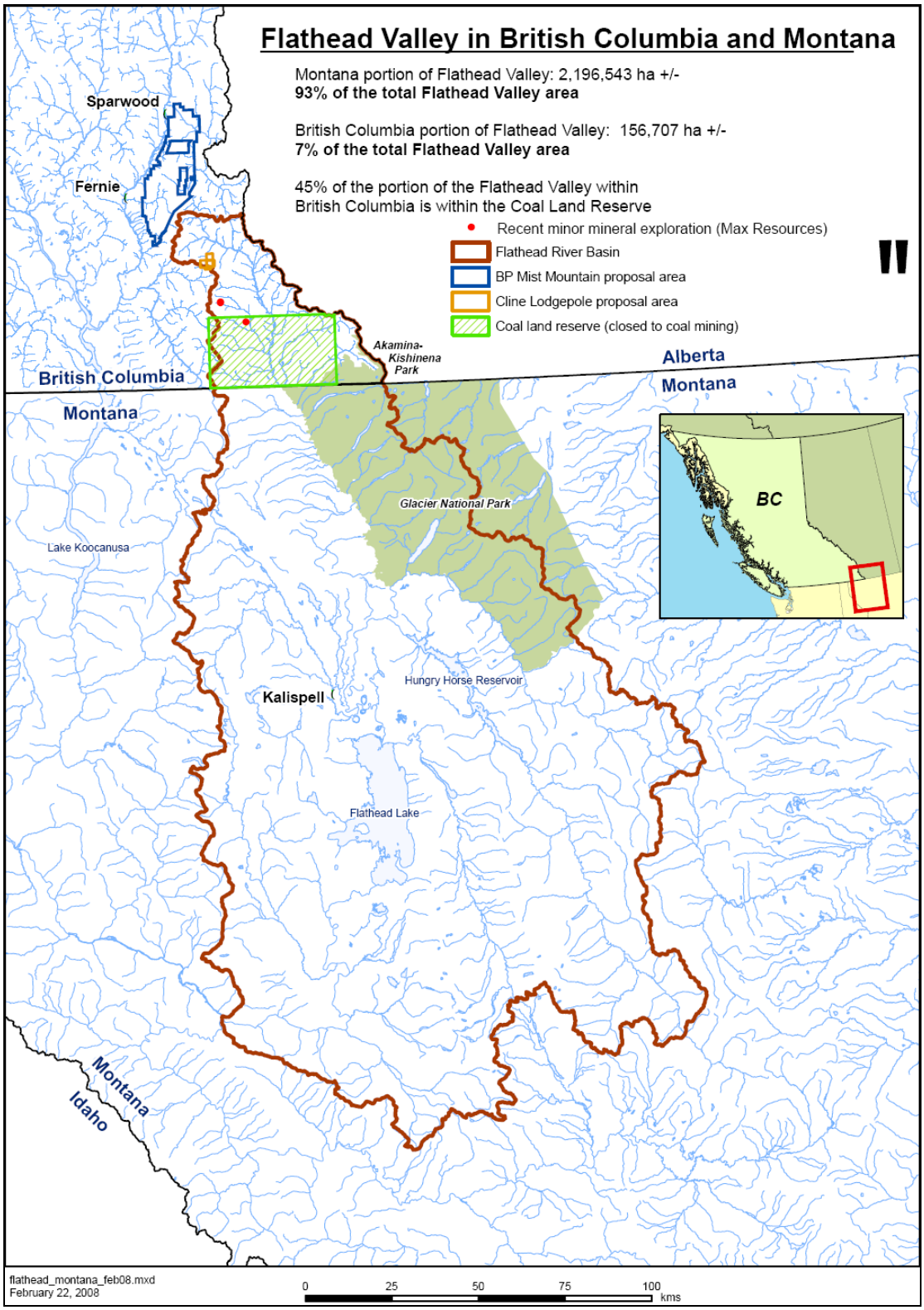

Figure1: Map of the Flathead Valley in British Columbia and Montana

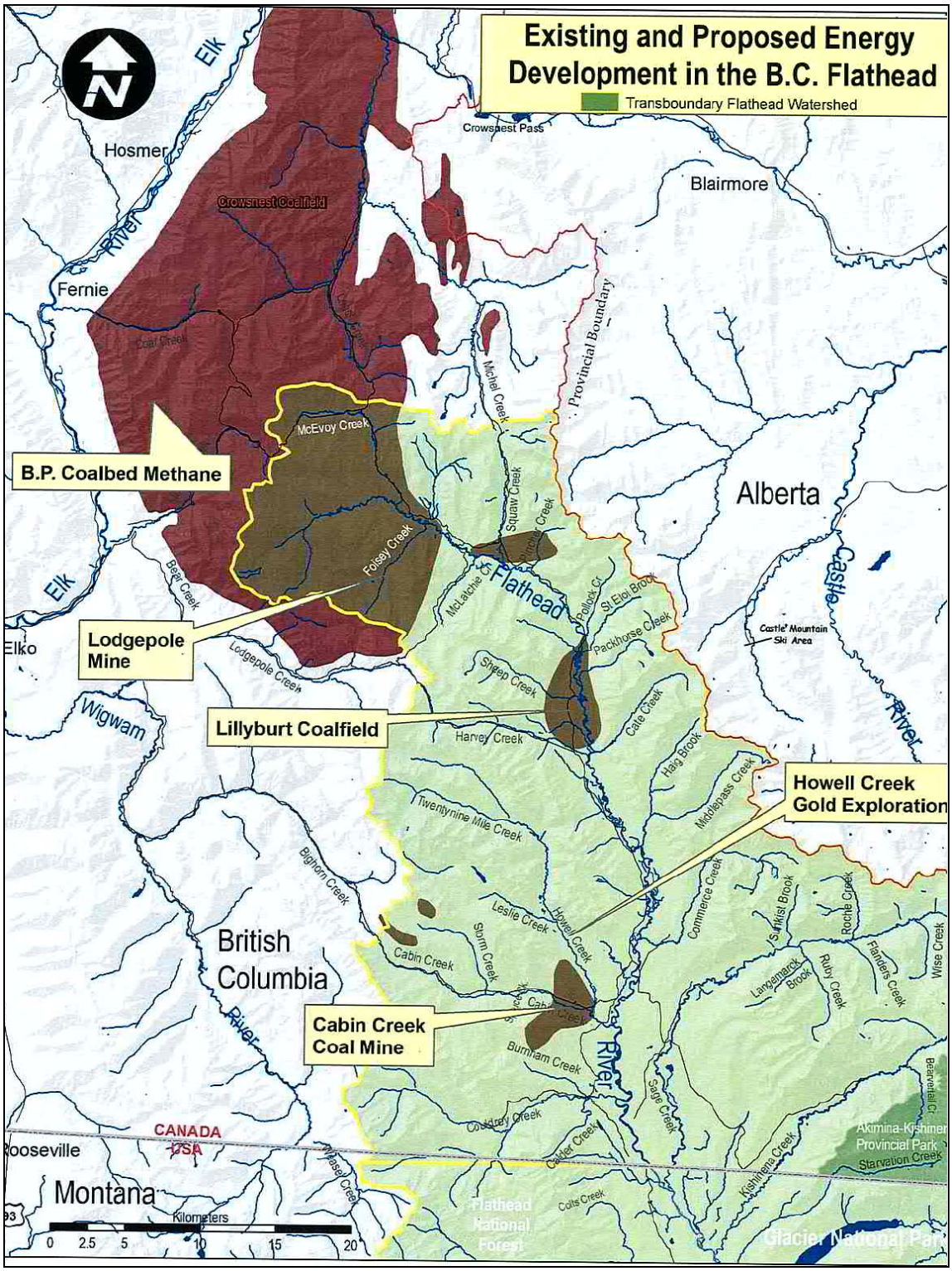

Figure 2: Map of existing and proposed energy developments in the B.C. Flathead

ANNEX 5: PICTURES[48]

1. The Flathead Valley

2. An Operational Coal Mine in Elk

3. Exploration for Gold by Eastfield Resources

4. Receding Glaciers

5. Sustainable Forestry in the Canadian Flathead

[48] All pictures and captions courtesy of Kishore Rao.