

## **WORLD HERITAGE NOMINATION - IUCN SUMMARY**

### **GLACIER AND WATERTON LAKES NATIONAL PARKS (USA - CANADA)**

Summary prepared by IUCN/WCMC (November 1995) based on the 1993 and 1994 nominations submitted by the Governments of the U.S.A. and Canada. This original and all documents presented in support of this nomination will be available for consultation at the meetings of the Bureau and the Committee.

#### **1. LOCATION**

The contiguous Glacier (405,087ha) and Waterton Lakes (52,525ha) national parks are located in north-western Montana and in south-western Alberta, respectively. The parks are situated along the eastern margin of the Rocky Mountains Biogeographical Province and at the extreme western edge of the Interior Grasslands of North America.

#### **2. JURIDICAL DATA**

Waterton Lakes National Park was established in 1930 and is administered by Parks Canada. Approved as a biosphere reserve in 1979, and combined with Glacier National Park in 1932 to form the first International Peace Park in the world. Glacier National Park was established in 1910 by Congressional Act, and is administered by the National Park Service, US Department of the Interior. Accepted as a biosphere reserve in 1976. There are current proposals to redesignate Glacier and Waterton Lakes national parks as the Rocky Mountain International Biosphere Reserve.

#### **3. IDENTIFICATION**

Glacier and Waterton Lakes national parks contain a stratigraphic record spanning more than 1,250 million years of sedimentary and tectonic evolution. Precambrian formations contain some of the oldest rocks exposed in the Rocky Mountains and a number of early fossil assemblages, including the fossil stromatolites formed from colonies of blue-green algae. The parks are typified by a sudden transition from prairie to mountain landscape, the latter represented by numerous peaks over 2,800m. Pleistocene glaciation has resulted in horn-shaped peaks, broad U-shaped valleys, hanging valleys, aretes, glacial lakes and cirques, as well as numerous lakes, streams and rivers. In Glacier National Park, some 50-60 small glaciers are found at higher elevations. The parks include headwaters flowing into three ocean systems, namely Hudson Bay, the Gulf of Mexico, and the Pacific Ocean.

Five large ecoregions are found within the Waterton-Glacier complex: Alpine Tundra, Subalpine Forest, Montane Forest, Aspen Parkland, and Fescue Grassland. A number of vegetation types have been identified for this area which are undescribed elsewhere; these include extensive Fir-Whitebark forests, large areas of Limber Pine scrub, and 'intermediate' alpine meadow associations. In all, some 1258 vascular plant species and 275 lichens have been identified from Glacier, including 18 which are found only in the park and its immediate environs. Six vascular plant species found in Waterton Lakes are classified as rare in Canada. Sixty mammal species have been recorded for the two parks, including a population of over 200 grizzly bear and more than twice as many black bear. Notable migrations include that of the elk which undergoes an annual migration from mountain summer ranges in Glacier National Park, to winter ranges on the prairies next to Waterton Lakes National Park. More than 240 bird species have been recorded from the two parks, and both the bald eagle and peregrine falcon pass through the area. The pygmy whitefish is known only from



Waterton lakes, while Glacier National Park provides one of the last strongholds for the native species of Westslope Cutthroat Trout, and contains around 98% of the remaining genetically pure stock in existence.

Waterton Lakes has been identified as one of the most significant areas for archaeological study in Alberta. To date, a total of 212 archaeological sites have been found, with twelve dating to at least 8000 years B.C. Glacier National Park encompasses over 50 known prehistoric sites, and the area has been used by the Blackfeet, Kootenai, Kalispel, Flathead, and possibly Assiniboiné tribes. The massif of Chief Mountain, less than 8 km from the international border as it passes through Waterton-Glacier International Peace Park, is a cultural landmark of the Blackfoot people.

#### 4. STATE OF PRESERVATION / CONSERVATION

Most of Waterton and Glacier national parks are managed as *de facto* wilderness or natural environment areas. Management plans exist, with Waterton being zoned to accommodate different land uses. Within Glacier, visitation is allowed in certain sensitive areas, and use of much of the park is regulated. Commercial developments are limited to small areas within the parks. Within the context of the international peace park, cooperative projects include staff exchanges, joint staff meetings and training sessions, combined interpretive programs, and mutual assistance arrangements.

Impacts include: logging, oil and gas development near park boundaries; demands for new overnight accommodation, sewage disposal facilities, and administrative expansion; and the spread of introduced plant species. The management plan for Waterton dates from 1992 while the 1977 management plan for Glacier is now in process of being updated.

#### 5. JUSTIFICATION FOR INCLUSION ON THE WORLD HERITAGE LIST

The Glacier and Waterton Lakes National Parks nomination, as prepared by the Governments of Canada and the United States, provides the following justification for designation as a World Heritage natural property:

- (i) **Outstanding example of earth's evolutionary history** The joint properties have superb examples of Precambrian rock formations and six species stromatolites (fossil algae). The Lewis Overthrust fault is well displayed in the two parks.
- (ii) **Outstanding example of on-going ecological and biological processes** Because of their transitional location, Glacier and Waterton are particularly subject to strong influences by Pacific weather systems. The site is of biogeographic significance bringing mountain and prairie biomes in contact. The area serves as a genetic link between the northern and southern Rocky Mountains, and serves as a corridor for the movement of wildlife and gene flow in both directions across the international boundary.
- (iii) **Contain superlative natural phenomena or areas of exceptional natural beauty** Located astride the Continental Divide, the two parks encompass a spectacular mountain landscape. Within the area is a tri-oceanic watershed divide.
- (iv) **Contain the most important and significant natural habitats for threatened species** The two parks are at the interface of five major ecoregions, with many plants and animals found at the extremities of their respective ranges. A number of nationally threatened plant and animal species are found in the parks, and Glacier National Park contains 98% of the world's remaining stock of genetically pure Westslope Cutthroat Trout.





## WORLD HERITAGE NOMINATION - IUCN TECHNICAL EVALUATION

### GLACIER AND WATERTON LAKES NATIONAL PARKS (USA - CANADA)

(Nb. This evaluation is based on the 1993 Revised Nomination with 1994 Amendments plus an additional report from a working group that met in Calgary on 28 March, 1995. This evaluation has been reviewed by IUCN's World Heritage Headquarters Panel and approved on 23 November 1995.)

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#### 1. DOCUMENTATION

- i) IUCN/WCMC Data Sheets (68 references)
- ii) Additional Literature Consulted: Gadd B. 1995. **Handbook of the Canadian Rockies**; USNPS. 1991-92. Science in Glacier National Park; Dolan B.R. 1993. Intervener Submission to NRCB on Westcastle Expansion; Sax J.L. and R.B. Keiter. 1987. Glacier National Park and its Neighbors. **Ecology Law Quarterly**. 14:207; Walter D. 1982. The Waterton-Glacier International Peace Park. 1932-82: Symbol and/or Reality?; Schmidt K.J. and S. Olin. 1993. Biodiversity in Glacier. 77 p.; Spencer, C. et.al. 1991 Shrimp Stocking, Salmon Collapse and Eagle Displacement. **Bioscience**. 41 (i); Komex International. 1995. **Atlas of the Central Rockies Ecosystem**. 49 p.
- iii) Consultations: Seven reviewers in 1985, eight in 1994, five in 1995; Senior Parks Canada and USNPS staff; Biosphere Reserve Committee, Montana University staff.
- iv) Field Visit: May 1994. Jim Thorsell; October 1995. Adrian Phillips, Hemanta Mishra, Jim Thorsell.

#### 2. COMPARISON WITH OTHER AREAS

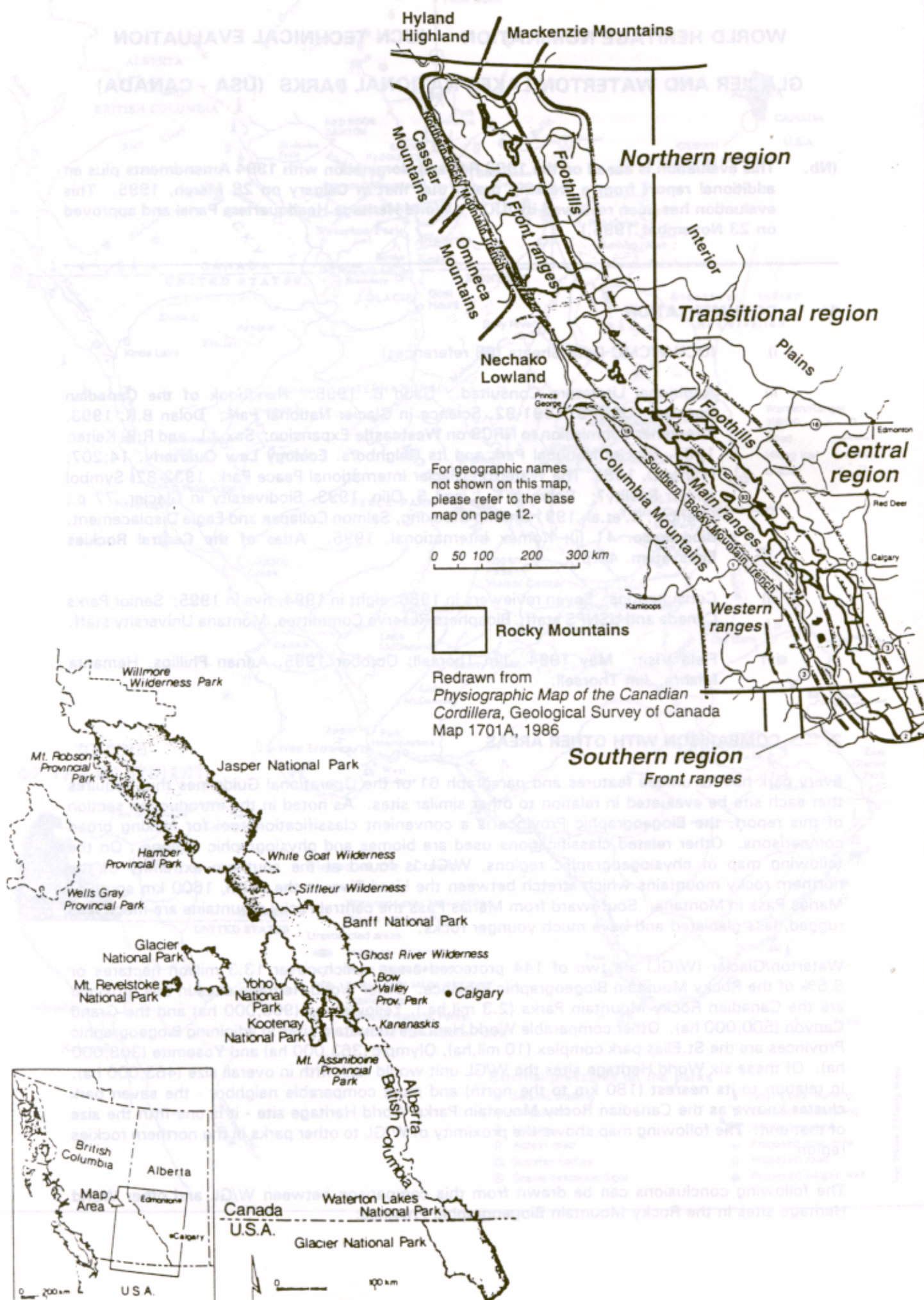
Every park has its unique features and paragraph 61 of the Operational Guidelines thus requires that each site be evaluated in relation to other similar sites. As noted in the introduction section of this report, the Biogeographic Province is a convenient classification tool for making broad comparisons. Other related classifications used are biomes and physiographic regions. On the following map of physiogeographic regions, W/GL is found at the southern extremity of the northern rocky mountains which stretch between the Liard River in the north, 1600 km south to Marias Pass in Montana. Southward from Marias Pass the central rocky mountains are much less rugged, less glaciated and have much younger rocks.

Waterton/Glacier (W/GL) are two of 144 protected areas which cover 13.3 million hectares or 8.5% of the Rocky Mountain Biogeographic Province. Other World Heritage sites in this province are the Canadian Rocky Mountain Parks (2.3 mil.ha.), Yellowstone (900,000 ha) and the Grand Canyon (500,000 ha). Other comparable World Heritage mountain sites in adjoining Biogeographic Provinces are the St.Elias park complex (10 mil.ha), Olympic (363,000 ha) and Yosemite (308,000 ha). Of these six World Heritage sites the W/GL unit would rank fifth in overall size (463,000 ha). In relation to its nearest (180 km to the north) and most comparable neighbor - the seven park cluster known as the Canadian Rocky Mountain Parks World Heritage site - it is one-fifth the size of that unit. The following map shows the proximity of W/GL to other parks in the northern rockies region.

The following conclusions can be drawn from this comparison between W/GL and other World Heritage sites in the Rocky Mountain Biogeographic Province:



# Physiographic/geologic regions





- while the mountains of W/GL are part of the Front Range of the Rockies, the area does not contain the Main Ranges nor the Western Ranges which make up the bulk of the Rockies - all three ranges of which are represented in the Canadian Rockies World Heritage site (CRWH). On the other hand, W/GL includes a small section of (33 km<sup>2</sup>) of the interior grasslands as a part of Waterton. It also exhibits a dramatic prairie/mountain interface not found to the same degree in the CRWH site;
- the location of W/GL, east of the mountain ranges at their narrowest point, and astride prevailing storm tracks, makes it more exposed to the climatic influence of the Pacific Ocean, which has important implications for biota. Open too to the warm tropical air masses from the south and east and cold arctic air masses from the north, W/GL has a cross-roads location in climatic terms. It is also the location where the chinook is most marked in North America, with the records of the strongest winds and greatest rises of temperature occurring in the near vicinity;
- the W/GL area is sometimes referred to as "The Crown of the Continent", a reference to its being the only location from whence water flows to the Arctic (Hudson Bay), Atlantic (Gulf of Mexico) and Pacific. A cursory examination suggests that this tripartite oceanic drainage is a unique feature in the Western Hemisphere, and possibly globally (similar tri-oceanic drainage may occur in central Asia). It also has important implications for the distribution of freshwater aquatic species.

In terms of its geological values one expert reviewer has commented as follows:

"While it is true W/GL has excellent exposures of early Proterozoic stromatolites and includes thick sections of relatively unaltered Precambrian sediments of the Belt and Purcell series, they are not the only examples. The rocks are well preserved, but it certainly may be challenged that these are "the best examples of Precambrian rock in North America". (It might be noted that the type example of the Belt series is in the Little Belt Mountains of Montana to the southeast, while the type example of the Purcell Series is in the Purcell Mountains of British Columbia to the west.) The value of the rocks exposed in W/GL to the interpretation of the early geological history of North America is greatly increased through comparative studies of rocks of equivalent or succeeding age and different degrees of metamorphic alteration in other parts of the great Precambrian geosyncline whose remnants are found along the Canadian Rockies throughout most of their length, with well-studied exposures in the present Rocky Mountain Parks World Heritage, particularly in Mount Robson Park.

"One of the unique geological features of the W/GL area is the Lewis Overthrust, and the nomination proposal rightly gives it prominence. It is the best-displayed and most spectacular large low-angle thrust fault in North America, even if, as noted above, the most visited exposures for the actual fault plane are just outside the boundaries of Glacier Park. But the scientific value of the feature lies largely in its relation to the imbricate and splayed thrust faulting characteristic of most of the rest of the Front Ranges, and the block faulting of the Main Ranges, both of which are spectacularly displayed in the Rocky Mountains Park World Heritage site. It is this spectrum of tectonic styles and expressions, with the Lewis Overthrust at one end of the spectrum, that is responsible for the distinctive land forms and scenery of the Rocky Mountains, and provides the rationale for the scientific value of the Lewis Overthrust."

The existence of stromatolite fossils in the park is also an interesting feature but such fossils are found in many other sites including the Pethei peninsula in the Canadian Arctic and in Hamelin Pool in Western Australia. These fossils have attracted wide interest but are not of the international significance that the Burgess Shale fossil site which is part of the Canadian Rockies Parks World Heritage site. W/GL also does not have internationally recognized Karst features that are found in the Canadian Rockies site (Castleguard Caves, Maligne Canyon) or thermal features as found in the Canadian Rockies and Yellowstone sites.

W/GL contains many exceptionally scenic features typical of the northern Rockies. Such features,



however, are even more evident in the existing Canadian Rocky Mountain Park World Heritage Site which displays much greater relative relief, a far greater extent of glaciation and on-going glacial processes, many more lakes, waterfalls and much more extensive wilderness zones. The scenic values of W/GL nevertheless are high and have strong cultural associations. There has long been a reverence for the area by native peoples as partly reflected by the existence of numerous archeological sites and the existence of legends and myths. The International Peace Park idea also emerged from the recognition of the cross-border nature of these values.

In terms of biota, W/GL does contain abundant wildlife and a number of rare and threatened species which are complementary to both Yellowstone to the south and the Canadian Rockies to the north. All three sites share essentially the same species complement but each has several that the others do not. The Canadian Rockies, for instance, are unique in having caribou, Yellowstone is unique in having pronghorn antelope while Glacier has a greater variety of Pacific flora. All contain different sub-species of native trout. Both Yellowstone and the Canadian Rockies World Heritage site have greater numbers of grizzly bears but Glacier has the densest population. Both existing World Heritage sites also have a greater diversity of bird species than W/GL. There are not substantive differences between sites with Sorensen Coefficients for most taxa nearing .90. One expert reviewer has compared the data on fauna and concluded that the main concern was the ecological integrity and population viability of W/GL, the size of which is a limiting factor.

One aspect of W/GL is its concentration of biotic values. Even though it is only one-fifth of size of the Canadian Rockies site, it has the same number of vascular plant species (ca 1300). It also has two ecoregions (aspen parkland and grassland) that is not represented in the larger Canadian Rockies site. The aquatic diversity of the site also appears to be higher than either Yellowstone or the Canadian Rockies but a full comparison of the data has not been made.

Further comparative analyses could be made but the main conclusions reached by IUCN are:

- W/GL is one of many protected areas found in the western Cordillera which extends from the Brooks Range in Alaska to the Sierra Madre in Mexico. It is one of the "stepping stones" in the Yellowstone to Yukon biodiversity corridor strategy and its intermediate location between the Yellowstone and Canadian Rockies World Heritage site blends some elements of both these units.
- The geological and biological values of W/GL (criteria *i* and *iv*) are certainly important on a regional scale but are secondary in importance to other mountain parks in the region.
- Where W/GL is distinctive is that it represents a transitional ecotone between prairie and mountain biomes and contains elements of both. As the narrowest part of the Rockies it is also much more affected by Pacific weather systems and the biological processes resulting from this geographical setting distinguish it from other sites in the region (criterion *ii*).
- Another unique element of the site is its location as the "Crown of the Continent" and its distinction as containing a tri-ocean watershed divide (criterion *ii*).
- A final distinction that the W/GL area claims is its role and history as the world's first "international peace park". This designation was based on the aesthetic and scenic values of the site and while these are culturally defined, the use of this appellation provides an indicator of the importance of the site (criterion *iii*).

### 3. INTEGRITY

Integrity issues can be viewed in relation to **size and boundaries, threats and management.**

The legal boundary of W/GL encompasses 38 percent of the area of the ecosystem boundary according to an estimate made by Newmark (1985). This is better representation than some parks in the Pacific Northwest but is significantly lower than that registered for Yellowstone (84%), Grand Canyon (60%), Olympic (48%) or the Canadian Rockies site which is almost double the size



of the biotic boundary. Even if these figures are disputed, the essential point is that the W/GL unit is less complete in its coverage of its ecosystem than existing World Heritage sites in the region. This could make the unit more prone to loss of species in the long run unless extra effort is made to manage cooperatively the public and private lands that adjoin the parks (see below how this is indeed being attempted).

On the Canadian side it is noted that the size of Waterton was reduced 60% from the size it was in 1914 leaving out key habitat in the West Castle and Poll Haven areas. This may be partially compensated for in future as a Provincial Wildland Recreation area is being proposed for a portion of the area that was excised. A missing element of the W/GL area is the adjoining Akamina/Kishinena area in British Columbia, a portion of which has been given provincial park protection but which has not been included in the nomination.

In terms of **threats**, Glacier was rated as the most threatened park in the US in the 1980 State of the Parks report. Many of these threats have not been substantiated and others have diminished. The main concern over the development of an open pit strip mine 13 km upstream from the park has been reduced after an International Joint Commission recommended not to proceed. Other threats have been identified in various studies of the two parks and mostly include incompatible activities on adjacent lands (oil and gas development, logging, cattle ranching and recreational development). Perturbations in the Flathead drainage due to the introduction of opossum shrimp have also been well-described by Spencer, et.al. (1991). One reviewer also expressed concern that the nomination did not note the evidence of adverse impacts stemming from air pollution and acid precipitation originating in the Puget Sound region. Threats to the integrity of W/GL, however, from intensive transportation and recreational development are not as evident as those in part of the Canadian Rockies park site.

The **management** response to this range of threats has been to become much more involved in regional land management through both the Biosphere Reserve Programme and the Crown of the Continent Society. Both Waterton and Glacier are Biosphere Reserves (as is another adjacent area known as the Coram Forest) and this approach has been helpful in fostering relationships with surrounding land owners and managers. The concept has been more active on the Waterton side where a Biosphere Reserve Committee is in existence and meets regularly. A proposal to combine the two adjacent parks under one "Rocky Mountain Biosphere Reserve" has been in existence for some years. This would be logical in light of the W/GL peace park status and their joint World Heritage nomination.

Partially as a recognition of the constraints of the Biosphere Reserve designation (see article by Sax and Keiter cited above), an even broader approach to address regional issues is being promoted through the Crown of the Continent Society. This coalition of conservation groups and land users in the region is supported by both Park Services and takes in an area six times as large as the two Biosphere Reserves. Ambitious as it is, the success of this initiative will prove crucial to the long term integrity of W/GL which is seen as the "jewel in the crown and the core of total conservation unit.

An added positive feature of this revised nomination is its cross-boundary and inter-jurisdictional nature. This is especially in keeping with the concept of World Heritage as they remind us that ecological values and processes are independent of legal and political boundaries.

Both parks are managed to a very high standard with exemplary programmes in research, education and resource management. Waterton has an up-to-date management plan (1992) and Glacier is currently revising their 1977 plan. The legal basis for both parks is secure and public support is strong.

#### 4. ADDITIONAL COMMENTS

- 4.1 Glacier National Park is one of nine possible nominations from the western cordillera included on the indicative list of natural sites submitted by the USA. Waterton National Park is not on the indicative list of natural sites provided by Canada. Both indicative lists



were compiled over a decade ago and both countries should be encouraged to up-date and harmonize them.

4.2 This is the third formal IUCN evaluation of the various versions of the W/GL nominations that have been submitted. Each version and amendment has contributed further information and has been an improvement on the previous one. Materials provided subsequent to the Calgary workshop and the October, 1995 field review have provided new information on the Crown of the Continent/Yellowstone to Yukon corridor and Peace Park values, all of which had not been well articulated in earlier nominations.

Nevertheless, IUCN acknowledges that there were differences among professional park experts on the suitability of W/GL as a World Heritage site. All six external reviewers of the latest nomination expressed reservations over the merits of the proposal. Three suggested that the serial nomination as discussed and rejected at the March 1995 meeting in Calgary deserved pursuing. Two others felt that a cultural landscape approach or international Biosphere Reserve status would be more appropriate vehicles for conservation. Taking the full file into account plus the new material provided since the Calgary meeting, however, the IUCN panel concluded that none of these options was feasible and that a final evaluation of the nomination on a criterion by criterion basis was now possible and desirable.

4.3 In making its recommendation on this property, IUCN was also asked by the 19th Bureau to comment on definition of the term "outstanding universal value". Along with another issue relating to natural criterion (iii), a short note is provided in the annex to this evaluation.

## 5. EVALUATION

Previous Bureaus and IUCN technical evaluations have all noted the important natural values of W/GL but also were concerned that the site was of secondary importance in the regional context and duplicates many of the values already found within the neighboring seven park World Heritage site known as the Canadian Rockies Parks (this site may soon also be proposed for expansion by the addition of four additional protected areas on the Alberta side). There is less overlap with the Yellowstone site to the south.

However, with the additional amplification given in the amended nomination, the Calgary meeting and the October 1995 field mission, IUCN's view now is that W/GL's qualification under criteria ii and iii can be justified. As section two of this evaluation has noted, W/GL has a certain distinction as a result of its cross-roads/transitional location. Its distinctive climate, physiographic setting and mountain/prairie interface and the existence in the nominated area of a tri-ocean hydrographical divide combine to make the area an "outstanding example of on-going ecological and biological processes" (criterion ii). In addition, its scenic values and the cultural importance of its international peace park designation also indicates that W/GL meets criterion iii. Conditions of integrity relating to both of these criteria are met.

IUCN examined the application of criteria i and iv as well but concluded that the natural values here, important as they are on a national and regional scale, would not be of international significance.

## 6. RECOMMENDATIONS

W/GL should be inscribed on the World Heritage list on the basis of criteria ii and iii. The authorities should be encouraged to pursue the proposal to create a single Rocky Mountain Biosphere Reserve and to eventually expand the site to include the adjacent protected area in the Akamina/Kishinena.



## ANNEX

### Supplementary comments by IUCN on Matters Pertaining to the Operational Guidelines

#### The meaning of "Outstanding Universal Value"

During its discussion on the Glacier/Waterton nomination in July 1995, the Bureau requested IUCN to address the question of whether the nomination should be of "outstanding universal value" or of "most outstanding value". Based on an opinion from its Environmental Law Centre,<sup>1</sup> and the Commission on National Parks and Protected Areas, IUCN offers the following commentary for the Committee's consideration.

The World Heritage Convention speaks of "outstanding universal value" in respect of Articles 1 & 2 but does not provide a definition of the phrase. The Operational Guidelines contain some guidance on how to interpret this:

- the natural criteria under paragraphs 43 and 44;
- the statement in paragraph 6 (i) that "(the Convention) is not intended to provide for the protection of all properties of great interest, importance or value, but only a select list of the most outstanding of those from an international viewpoint";
- paragraph 61 requires that "each natural site" should be evaluated relatively within a biogeographic province or migrating pattern"; and
- paragraph 62(a) encourages "(IUCN and ICOMOS) to be as strict as possible in their evaluations".

The Operational Guidelines do not state that sites on the World Heritage List be "the best property of their kind", although this was the interpretation given by IUCN and included in the Committee Report of 1979. Reinforcing this view have been numerous Committee decisions not to accept certain nominations because it considered their "... significance to be secondary in importance to similar sites in the region" (example taken from 1994 Committee decision on Murchison Falls National Park).

On the basis of the above, IUCN then suggests that:

1. Inscription on the World Heritage List is to be reserved for only a selection of the internationally most outstanding sites.
2. That an comparative evaluation of similar sites is an essential part of the process of evaluation.
3. While it may not be appropriate to identify only one site in a biogeographical province for inclusion on the World Heritage list, any sites recommended for inclusion should be among the best of their kind.

#### Interpreting Natural Criteria *iii*

The evaluation of the Waterton Lakes/Glacier International Peace Park nomination has revealed the need for more detailed guidance on the interpretation of criteria (iii), which requires that natural sites:

"contain superlative natural phenomena or areas of exceptional natural beauty and aesthetic importance".



ANNEX

Whereas criteria (i), (ii) and (iv) are open to some kind of objective assessment (e.g. number of species, size of physical phenomena) the concept of natural beauty is essentially a social construct and a subjective concept. As important as this is, problems which arise in interpreting criterion (iii) include:

1. Are there objective measures of the features which are claimed to exhibit this quality of natural beauty? (e.g. topographical relief)
2. Can natural beauty be measured by observing or recording human behaviour? (e.g. numbers of tourists)
3. Can natural beauty best be assessed by the cultural and aesthetic values associated with an area? (e.g. its celebration in literature or its place as an "icon" for society)

Such questions need to be addressed by the Committee if it is to apply criterion (iii) consistently and confidently. The Committee may wish to request IUCN to undertake a review of the issues associated with this criterion for the next Bureau meeting. Because of the close affinity with the cultural landscapes issue, IUCN would propose to involve ICOMOS in such a review.