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Dan Rafla/ Parks Canada

PLAN  
FOR  
REINTRODUCTION OF PLAINS BISON IN  
BANFF NATIONAL PARK

AUGUST 2013

Canada



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Reintroducing plains bison to Banff National Park will be a significant undertaking. This document presents Parks Canada's vision for this effort, and the reasons behind it. It also outlines the key considerations and the approach that will be used, and provides a foundation for detailed action planning and environmental assessment of the project.



## Why Reintroduce Bison to Banff?

For thousands of years, vast herds of plains bison roamed the prairies and the eastern slopes of the continental divide, including the area that is now Banff National Park. By the mid-1800s, hunting had nearly eliminated them from the continent. Today only a few small herds of wild, free-roaming plains bison remain, and their future in Canada is threatened by the scarcity of remaining suitable habitat and the conservation challenges inherent to small, remnant populations.

### Ecological Restoration

Bison were historically the dominant herbivore in the area of Banff National Park, and they played a key role in the ecosystem. Through their grazing and physical disturbance, bison helped create and maintain the patchwork of meadows, grasslands and other open habitats upon which they, and many other animals and plants, depend. Bison were also a food resource for predators and scavengers. Similarly, decomposing bison carcasses provided a flush of nutrients for soil microorganisms and plants. Restoring bison is an important step toward restoring the full diversity of species and natural processes to Banff's ecosystem, and to delivering on a core element of Parks Canada's mandate.

### Cultural Reconnection

Bison were an important feature of Canada's past. The lives and livelihoods of First Nations peoples and many of the country's pioneers were inextricably linked with bison, not only on the vast grasslands of North America but on the eastern slopes of the mountains as well. Restoring bison to the landscape is an opportunity to restore cultural connections that have been lost for more than a century.

### Inspiring Discovery

A chance to appreciate and learn about the full range of native species is integral to an authentic national park experience. Bison are inspirational, not only because of their impressive size and power, but as 'ecosystem engineers' and cultural icons of our landscape. Successfully restoring this keystone species in Banff will enrich opportunities for visitors, neighbours and the public at large to learn about their heritage and join Parks Canada in the reintroduction journey.



## The Vision

*Restoration of a wild, free-roaming bison population in Banff National Park in a way that supports ecosystem integrity, enriches and is compatible with other visitor experiences, facilitates cultural connections with the landscape and wildlife, and enhances learning and stewardship opportunities, both in the park and from afar.*

We also aim to contribute to international conservation efforts for plains bison by establishing a wild population that can roam freely across a large range in the park to meet its seasonal requirements, subject to natural processes including harsh weather and predators. We will develop a long-term population target for bison in Banff. It will be something less than 600-1000, the estimated number of bison that could be supported on 25% of the available forage depending on winter severity.

As a first step, we propose to begin with a five-year pilot to reintroduce 30 to 50 bison in the Panther River area of the park. During this period, we will closely evaluate the project and assemble recommendations towards restoring bison into other areas of the park.

## The Considerations

To reintroduce bison successfully to Banff, there are many elements that must be considered.

### The Banff Context

Banff is Canada's first national park and renowned for its unique blend of mountain nature, beauty, culture, and adventure. It is also known for its legacy of wildlife research and conservation, and innovations in ecological restoration.

As an iconic symbol of Canada, Banff plays a key role in Canadian tourism, by hosting over three million visitors yearly. Visitors come to enjoy the extensive opportunities offered by trails, cycling paths, historic sites, campgrounds, large-scale special events, scenic drives, and the amenities found in two communities. Along the park's eastern boundary lie provincial parks, wilderness areas, agricultural operations and a number of communities.

Incorporating this busy and complex context into our reintroduction planning will be fundamental to the project's success.



## Stakeholder Feedback

Banff is privileged to have a diverse, passionate stakeholder and visitor base. Additionally, thousands of people make their home either within or near the park. Understanding and accommodating the priorities, potential impacts and perspectives of the reintroduction on these groups is important for Parks Canada's long-term success. Accordingly, during the planning of this project Parks Canada met with dozens of organizations to discuss the project, including advocacy, tourism, educational, recreational and environmental groups, business operators, provincial and municipal government representatives, First Nations, bison and cattle producers, and outfitters.

Most stakeholders supported bison reintroduction, but some also indicated concern regarding:

- The financial sustainability of the project over time (as there will be ongoing costs beyond the initial reintroduction), and the need for a plan that can be reversed if reintroduction proves to be financially unsustainable or not feasible for some other reason;
- Potential bison excursions into communities, high visitor use areas, land outside the park, or onto highways and railways; and the consequent need for a strong public education program and for efficient and effective responses across federal-provincial boundaries, to any excursions that occur;
- Potential health risks to wildlife and domestic livestock and the need to have protocols in place to prevent disease transmission;
- Mechanisms of herd management including fencing (amount required, the efficacy of it as a tool for managing bison movement, and possible impacts of fencing on other wildlife), and the potential use of culling to control herd size or respond to excursions;
- The accessibility of the proposed core area for the initial bison reintroduction, and the limited extent to which it will actually allow for enhanced visitor experiences as described in the vision;
- Potential negative ecological impacts on other wildlife (through fencing, competition for food, shift in predator-prey numbers, disturbance through increased levels of human use in the backcountry, etc.), or other aspects of the ecosystem such as soils and water (through application of prescribed fire to maintain bison habitat, increased use of trails, etc.);
- The need to realistically define and sustain roles for others outside Parks Canada (including First Nations, volunteers, educational institutions, etc.) in moving the project forward; and
- The need to clearly and reasonably define visitor opportunities at each stage of the project (including the limited 'live' viewing and business opportunities associated with the first phase) and to work creatively with others to create new opportunities that focus on programming and education.



### Visitor Enjoyment and Safety

As with all wildlife in the park, the opportunity to view bison can never be guaranteed. Consequently, Parks Canada will make every effort to bring the bison story to people in the park or in their home through new and enhanced interpretive and cultural programs, remote technology, internet content and special bison-themed events.

In the first few years of the project, backcountry users will be the most likely to see bison in the park. Tourism operators and outfitters working along the eastern slopes of the park may experience increased visitor interest and develop new products as a result of reintroduction. (It should be noted that no new roads or trails will be built to facilitate this; access to the reintroduction area will only be allowed on established trails by foot or horseback.) Over time, if it is determined that the herd can be expanded into more easily accessible areas of the park, the opportunities for visitors to see bison in their natural state will grow.

At the same time, bison reintroduction may negatively affect some park users through changes resulting from fencing or the impact of bison on trails, and may pose safety risks for those who venture too close to bison. Parks Canada has a long history of successfully managing human–wildlife interaction in Banff and across our system of national parks; we are confident that these issues can be addressed through strong planning, public education and safety protocols.

### Ecological Factors

Restoration of North America's largest land mammal in Banff's current landscape is a challenging prospect. Key among the challenges will be managing the natural tendency for bison to roam, in a way that supports overall health of the Banff ecosystem. Historically, they ranged freely on the eastern slopes and prairies in response to availability of high quality habitat.

Habitat quality will be key to successful reintroduction. When provided with high quality habitat, bison are less inclined to roam. Bison prefer primarily grass and sedge habitat, especially areas that have burned within the last 25 years. Recent research shows that there is sufficient high quality habitat to support bison year-round within the park, particularly in the Panther and Red Deer River valleys, and the Fairholme Bench area of the lower Bow Valley. These locations provide prime habitat where lower elevation, southerly aspects, and Chinook winds combine to produce optimal winter foraging conditions and reduced snow cover.

Good habitat for bison must be maintained over time through regular application of prescribed fire. This not only benefits bison, but it benefits many other species that also prefer relatively open and productive habitats.

While containing bison within the park through fencing is a fundamental requirement for the project, it also challenges the project vision of achieving wild, free ranging bison with minimal impediment to their natural wandering. Further, any fencing must be used in such a way as to avoid undermining the efforts and successes that have been made to improve habitat and population connectivity for other wildlife in the park.

This will necessitate an approach to bison fencing based on the latest research and technology. Parks Canada will undertake intensive on-the-ground efforts to evaluate and adapt the fence to ensure it is permeable for other wildlife. This will



involve using pre-existing baseline information on wildlife movement habits in the park and conducting fence permeability monitoring before and throughout the bison reintroduction.

Other ecological sensitivities and competing interests will be addressed through environmental impact analysis, the goal of which is to ensure a clear and substantial net benefit for the ecosystem by mitigating any negative impacts to the greatest extent possible.

Finally, working towards the longer term vision for wild, free-roaming bison in Banff is potentially a meaningful contribution to international conservation efforts for plains bison. Currently the capacity to conserve plains bison in Canada relies on a few small, widely dispersed herds. The Banff reintroduction will represent a valuable opportunity for bison to occupy their ecological niche in a relatively wild and free-ranging context.

### Citizen Engagement and Stewardship

With this project, Parks Canada intends to continue the Banff tradition of innovation and excellence in park management, while strengthening the culture of co-operation, learning and stewardship in the park. The initial backcountry location for reintroduction necessitates a creative, multi-pronged approach to bring bison experience to people, including:

- Film documentaries (for web and television) of the reintroduction process;
- Social media providing updates from the field;
- Citizen Science (eco-tourism) Field Schools where small groups of people can work onsite and alongside researchers;
- Collaboration with universities and students on a variety of bison-related research;
- Remote viewing (web-cams) and virtual learning programs;
- First Nations-led cultural, ceremonial, and educational activities;
- Bison-related special events (e.g. Year of the Bison) that invite large scale public participation in frontcountry cultural and educational activities;
- Enhanced interpretive or live theatre programs, both in the park and in urban areas with partners such as the Calgary Zoo, that include or focus on bison;
- Using wildlife cameras, GPS data, and people working on the project to convey on-the-ground stories of Banff's reintroduced bison via the web, mass media, and new media; and
- Portable displays that will facilitate awareness and education efforts in urban settings.



## The Approach

To provide the best long-term chance of success for bison reintroduction and for eventual expansion of the herd into other areas of the park as described in the vision, Parks Canada will start with a phased approach, involving:

- Beginning bison reintroduction as a five-year pilot project at a small scale in Banff's backcountry;
- Concurrently developing and implementing education, outreach and visitor experience programs;
- Learning about bison herd behaviour, monitoring and management on the Banff landscape;
- Continually evaluating the approach and effectiveness of all programs;
- Adapting the approach and programs as necessary to support the long-term vision; and
- Evaluating the feasibility of bison range expansion into other areas of the park (see Figure 1).

## The Key Elements of the Five Year Pilot Project

### Location

Habitat quality significantly influences bison movement. High-quality habitat reduces their potential to roam, thereby reducing the risk of excursions and other unintended events. With this in mind, a small herd of 30-50 animals will first be introduced into the area of the Panther and Dormer Rivers in the east-central portion of the park. This core area offers a large amount of suitable habitat and opportunities to more easily manage bison movement without negatively impacting the movement of other species, while enhancing the experience for backcountry users. Because of its large size, the area is also likely to accommodate natural herd movements and offers ample habitat for the herd to grow.

### Herd Selection and Soft-Release

Parks Canada will begin the project by releasing young bison, which increases their ability to adapt and encourages bonding to their new surroundings. The herd will largely be comprised of yearling and two-year olds that will initially be held and monitored in a large 'soft release' paddock that provides high quality feed, shelter and water. After three to four months of acclimatization, the paddock gates will be opened in early spring and the bison will be free to move and forage within their new home range.



### Fencing

A combination of fences and natural topographic barriers will also be used to discourage bison from moving onto provincial lands, transportation corridors, or other areas in the park. This involves installing about 21 kilometres of wire fence in small sections in specific locations, primarily along the park boundary. Fence effectiveness in containing bison, while maximizing its permeability to other wildlife and people, will be tested in advance and monitored on an ongoing basis during the project. Its construction will be of a high quality and reliability, and present the least possible risk of entanglement or injury to other wildlife.

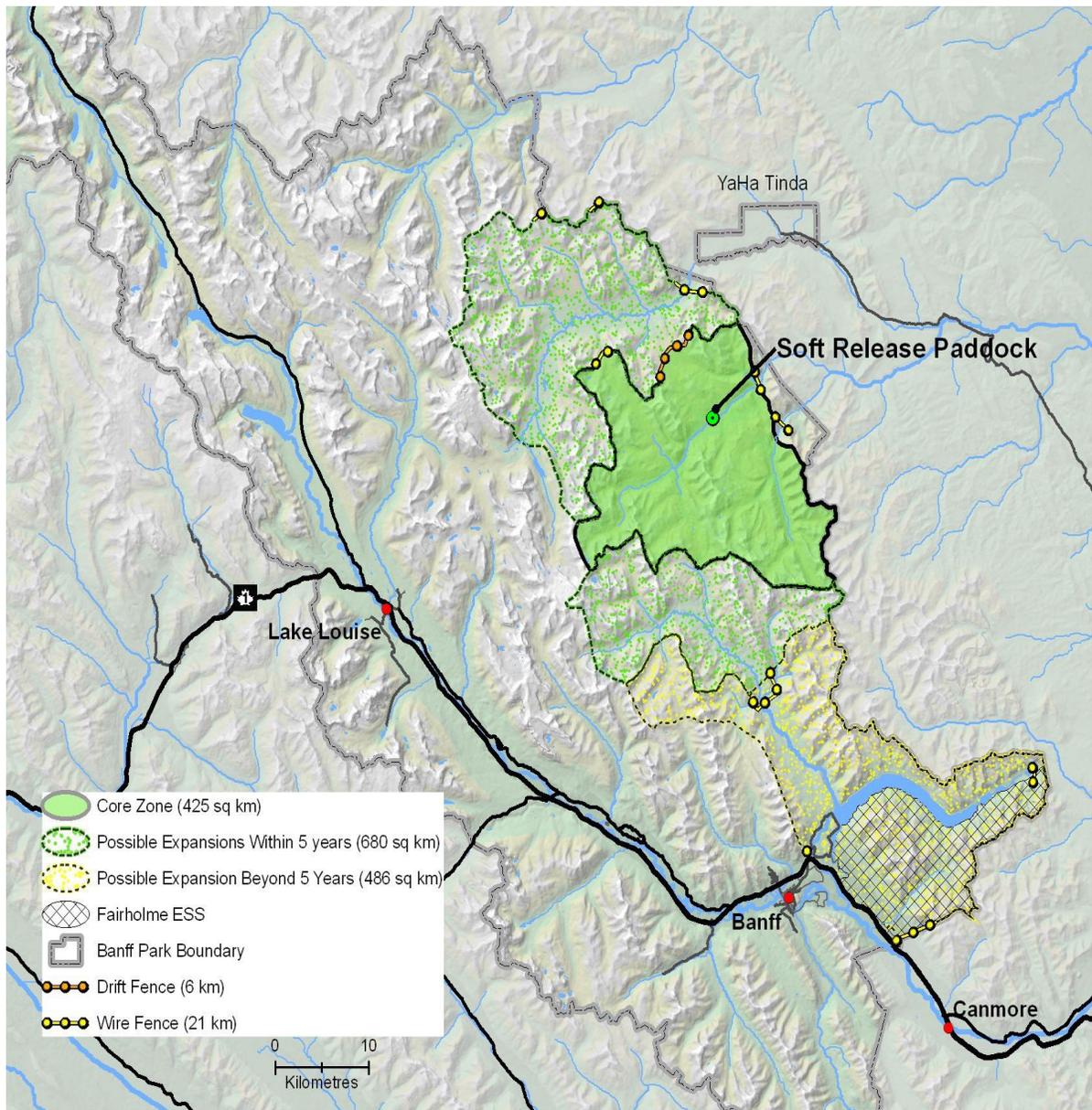
### Monitoring

All bison released will have ear tags, and a subset of the herd will also have satellite-linked GPS collars. Their locations, survival and patterns of habitat use will be monitored remotely from the GPS collars and by regular direct observation of the herd.

### Bison Management

**Core Area:** Bison will be released into the core area and their locations monitored closely. Bison management activities within the core area will include: ongoing assessment of herd health and size; monitoring fence integrity and effectiveness; and prompt response to reports of bison-human conflicts or bison mortalities. Based on the behaviour of the bison, fence effectiveness, and experiences in bison monitoring and response, the boundary of this area may be refined or expanded into the Red Deer and/or Cascade River valleys during the five-year project (See Figure 1).

**Outside the Core Area:** Bison movement outside the core area will trigger intensive monitoring and management to move them back to the core area. A control team will assess and select response strategies based on location, time of year, number of animals, animal behaviour and distance from park boundary. The management response may include: active baiting and soft hazing of bison where feasible; capturing, immobilizing and relocating or culling; and reporting to neighbouring land managers as appropriate.



**Figure 1.** Proposed soft-release site, core areas and possible expansion areas for reintroduction of bison in Banff National Park.

Contingent on performance, the Red Deer and Cascade extensions will be evaluated for possible expansion of the core area during and beyond the five-year project. The Fairholme Environmentally Sensitive Site extending from the East Gate to Johnson Lake is the largest remaining intact block of secure montane wildlife habitat in the park. To protect wildlife from disturbance, human use of this area is restricted by means of educational measures and a voluntary access closure. These would still apply in the event of eventual bison reintroduction to this area.



### Bison Health

The probability of reintroduced bison introducing or being exposed to the major reportable diseases of bovine tuberculosis, brucellosis or anthrax in Banff is estimated to be negligible to low. Yet the potential negative impacts, should any of these diseases occur, could be high for bison, other native ungulates or nearby livestock operations. Parks Canada will use proven approaches, from other bison restoration projects, to ensure herd health, take all necessary precautions and be vigilant for any sign of illness in the herd. This includes:

- Releasing only bison that have been tested and found to be disease-free for bovine tuberculosis and brucellosis. The animals will be obtained from Elk Island National Park, which has been recognized as free of bovine tuberculosis and brucellosis for over forty years;
- Implementing stringent biosecurity measures including: regular monitoring for disease, immediate follow-up of symptoms by a qualified veterinarian, and adhering strictly to sanitary practices and protocols at handling facilities and during translocation. Additionally, preparedness plans will include cooperation with other federal and provincial agencies that have specialized skills, expertise and equipment for disease containment and control. The project action plan will include contingency plans for response to anthrax, bovine tuberculosis and brucellosis; and
- Installing bison fence to help ensure physical separation between park bison and commercially raised livestock in the province by striving to contain bison within park lands and implementing rapid response to all bison excursions.

### Public Awareness and Safety

Despite their seemingly docile appearance, bison can be dangerous. They weigh from 450 to 900 kilograms, are agile and fast for their size, and capable of reaching speeds of 70 kilometres an hour. As with many other wildlife species, bison will respond aggressively if they feel threatened. Failure to respect safe viewing distances has resulted in bison-caused fatalities and serious injuries.

Parks Canada is recognised as a world-leader in visitor safety, education and in managing public interactions with potentially dangerous wildlife. Enhanced outreach and information programs will focus on fostering visitor and community understanding of bison biology and behaviour, the potential risks posed by interaction with free roaming bison, and how to act in ways that support both personal safety and that of the bison. These programs will include visitor information and education programs, staff training and response protocols, and community outreach. Parks Canada also anticipates working closely with other organizations such as Alberta Parks and Wildsmart, to ensure the widest possible distribution of bison safety material.



## Evaluation

The five-year pilot project will culminate with an in-depth assessment of:

- Visitor safety and visitor experience impacts;
- Neighbour/partner impacts and perspectives;
- Response to citizen engagement and stewardship programs;
- Bison containment, monitoring and responses;
- Mitigating effects of the bison project on other species;
- Bison population growth and population targets;
- Public awareness, education and appreciation; and
- Factors influencing bison movement and habitat selection.

In conjunction with feedback from key stakeholders and interested groups, the assessment will inform long-term decisions about modifying, maintaining and/or expanding the bison herd to other areas of the park.



## The Phasing

We will apply an adaptive management approach to all aspects of the bison reintroduction. This means relying on ongoing monitoring and evaluation to guide management decisions throughout the course of the project. The approximate timelines for the five-year pilot project are described below. It should be noted that some Year 1 activities such as collection of pre-fence wildlife movement and fence testing will have begun sooner.

- **Year 1**

Continued collection of pre-fence wildlife movement information to enable fence permeability assessment. Continued fence testing to determine permeability to other species will be undertaken. A detailed Bison Reintroduction Action Plan will be developed and an environmental impact analysis conducted. Contingent on results of fence permeability assessment, the fence and soft-release paddock will be installed in the core zone in the Panther-Dormer River area. Prescribed fire will be applied on a small scale (approximately 1000 hectares a year) to maintain and improve habitat quality for bison within the core area. Outreach, education and visitor programs will be under development, and some will be introduced in this year with others to follow in the next. Objectives of these early outreach programs are to increase awareness among visitors and regional residents, to generate public interest in bison reintroduction, set realistic expectations, and provide basic information regarding bison biology, behaviour, and safety measures.



- Year 2

A herd of approximately 30-50 ear-tagged and collared bison from Elk Island National Park will be transported to the soft-release paddock in mid-winter. They will be held for three to four months prior to opening the paddock in spring to enable them to roam in the core area. Prescribed fire will be applied on a small scale (approximately 1000 hectares a year) to maintain and improve habitat quality for bison within the core area. Concurrently, additional education, outreach and visitor programs will be launched. This will include: special events, interpretive and cultural programming, media and website features, and programs in nearby communities/adjacent areas to inform residents of safety protocols and the response protocol for bison excursions. Monitoring of bison as well as the other visitor experience and educational programs begins.

- Year 3

Continued monitoring of the bison herd in the core zone to record their movement and habitat use. Evaluation of fencing for effective containment of bison and permeability for other wildlife will be ongoing. Prescribed fire will be applied on a small scale (approximately 1000 hectares a year) to maintain and improve habitat quality for bison within the core area. Bison may be allowed to move into the Red Deer and/or Cascade expansion areas (see Figure 1). Education and outreach programs will continue and be evaluated on an ongoing basis.

- Year 4

All activities will continue as per Year 3 with intensive monitoring of visitor experience, public safety, learning, and stakeholder and ecological impacts. This includes continued evaluation of bison use of habitat, effectiveness of containment and management systems, associated ecological impacts, public information and education programs, direct and indirect impacts on visitor experience and stakeholders, and the number and type of human-bison conflicts and excursions.

- Year 5

Based on cumulative monitoring and evaluation from previous years, programs and activities will be adapted as required.

Monitoring results from all years will be evaluated to determine long-term feasibility of bison reintroduction, location and herd size, protocol and program strengths and gaps, and ongoing resource requirements. This information will be incorporated into a final report on the five-year bison reintroduction with recommendations towards achieving our long-term vision. This information will be made available for public review and comment.



## Next Steps

Parks Canada will refine this reintroduction plan based on any public comments received, complete a detailed action plan for the five-year pilot project, and conduct an environmental impact analysis of that plan.

Additionally, Parks Canada will continue to work with key stakeholders such as the Government of Alberta, on programs and protocols associated with the project.



## Your Thoughts

Considering the full range of possible implications of bison reintroduction on visitor experience, the park ecosystem and neighbouring lands is key to the success of this project. This can only happen with your help — please contact us with any comments or questions.

To submit comments contact:

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