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Why We Need Wild Plains Bison

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Alberta Wilderness Association (AWA) was frustrated by the recent failure of the Honourable Stéphane Dion, Canada's Minister of the Environment to add plains bison to the list of species protected under the *Species at Risk Act* (SARA). While the minister listed the vast majority of species recommended by Committee on the Status of Endangered Wildlife in Canada (COSEWIC), plains bison is conspicuous by its absence.

This decision will hamper recovery plans for grassland species at risk, including plains bison. COSEWIC made the right decision in listing it as a threatened species in May 2004. The minister should have accepted its recommendation. Here's why.

The stated primary reason for not listing plains bison was the difficulty of telling wild from domestic plains bison. This is a red herring and is an economic argument in disguise. It is most important to distinguish genetically pure bison from cattle contaminated bison.

This testing is relatively easy; however, few cattle genome-free plains bison herds have been identified. These total about 8000 head globally. Most are located in the USA, e.g. Wind Cave (375), Yellowstone (4000), and Grand Teton (700) National Parks, Henry Mountains (300), and Turner's Castle Rock herd but there are some in Canada, e.g. Elk Island National Park (430) and Old Man on His Back Plateau Nature Conservancy area (60).

Political interference in listing species at risk was identified as one of the AWA's concerns when we commented on early drafts of the Species at Risk Act, basing decisions about species on economic concerns, especially bad economics, rather than on scientific evidence.

The other stated reason for not listing was "the potential economic implications for the Canadian Bison industry." The game farming industry is in crisis in Canada and bison ranching has been suffering an economic downturn. About half of the 50 or so pilot bison ranching projects on public lands in Alberta are no longer operating.

It is appalling that, in failing to list plains bison under SARA, Canada has chosen domestic bison and the concerns of a handful of bison producers over wild bison and thousands of Canadians who want to see wild plains bison back in the prairies. It flies in the face of common sense to let declining commercial operations hinder efforts to put the wild back in the west.

The decision panders to decades of the type of unsustainable agricultural land use in Canada's threatened grassland region that has led to it having one of the largest concentrations of species at risk. It is part of World Wildlife Fund's Global 200 list of most threatened ecosystems. Canada's refusal to list plains bison under SARA limits our ability to use this keystone species in recovery efforts.

Recovery of a species at risk means achieving viable, free-ranging populations over large areas within its original range. These populations must be subject to forces of natural selection, including predation; and protected under law. There are about 20,000 plains bison in conservation herds (2,000 in Canada) and 500,000 in commercial ownership; few are genetically pure.

Free ranging, predator influenced, disease free bison number less than 1300 within the Plains region. Less than 700 of those are not subject to regular handling by humans. In other words, few bison in the plains exist under natural conditions. This is well below the threshold of population viability.





Genetic introgression with cattle and bison domestication has created a legacy of issues. The presence of cattle DNA has precluded listing under legislation, e.g. US Endangered Species Act and domestication is at least partially responsible for the failure of the minister to list under SARA in Canada.

The purposeful selection of traits favourable for human needs results in differences in form and function (morphology, physiology and behaviour). This has been true for both cattle and bison. There has been selection for docility, e.g. cattle are poor defenders against predators; smaller pelvic girdle has created calving and walking difficulties; wild character being tamed producing animals less adapted to the natural environment.

The recovery of original genetic diversity is difficult once an animal is domesticated and wild stocks are extinct. Domestication leads to altered genetically based behavior, morphology, physiology and function and to the loss of the wild type and its genetic diversity.

The goal of most commercial bison ranchers is to increase profit by maximizing calf production, feed to meat conversion efficiency and meat quality. Over time, they must select for traits serving this purpose, e.g. conformation, docility, growth and carcass composition. Selection for these traits reduces genetic variation and changes the look and behavior over time. Many bison producers apply cattle husbandry practices and standards to bison—this will not maintain the plains bison genome.

Wild bison played an incredibly important functional role in grassland ecosystems. They were a keystone species central to the life cycles of what are now species at risk. Differential grazing, wallowing, trampling, and fertilization under wild bison grazing increase biodiversity.

A growing body of literature comparing grazing behaviour of cattle and bison indicates that large scale bison grazing is more compatible with grassland ecosystems. It is not that cattle or domestic bison can't play any functional ecological role, it is just that wild bison are uniquely adapted to this semi-arid ecosystem. Domestic cattle grazing has been the replacement but we have nothing that approaches the scale and intensity of wild bison herds as grassland ecosystem modifiers.

Bison must be managed in their ecosystem role rather than as a product for market. We must not replace one second-best approach (livestock grazing) with another (cattle/bison hybrids, wildlife-proof fencing).

Some people think that getting bison, any kind of bison, back into the plains is important but it may have more drawbacks than benefits. As one of my friends noted, "We must keep bison wild and not have them genetically altered by producers who want to turn them into creatures with no humps, wide rumps, short legs, no jumping and no aggressiveness, i.e. to domesticate them."

Conservationists recognize that some private herds may have conservation value for various reasons, including innovative management, both genetic and cultural. It is not important who owns the bison, only whether they are providing the full range of ecological benefits.

In almost all cases, bison raised like cattle are not "conservation" herds any more than cattle herds are. However, like cattle, some private herds may be able to provide some conservation benefit in the continuum between "wild" and "domestic."

Conservationists are still working on defining the attributes of "conservation herds." Grazing, both wild and domestic, must be used in a full species conservation framework.

It is our view, supported by considerable negative evidence of the game farming industry in Alberta and elsewhere, that we should not be domesticating wild species. Promoting non-conservation plains bison herds muddies the water immensely.





Domestic livestock grazing can continue to be an important part of the economy and play a role in grassland biodiversity conservation; however, we also need to advance the wild bison model. That is the role AWA feels comfortable playing. It is promoting a workshop next fall in Montana to engage ranchers, scientists and conservationists in a constructive debate to get to the next plateau where wild bison would once again play a major role in maintaining the diversity and character of the grasslands.

It is the conservation community's strongly held and scientifically supported view that commercial bison production is at odds with the conservation of wild species. Given its opposition to listing plains bison as a species at risk, the bison industry is demonstrating its true colours and its threat to the recovery of this magnificent species and the grassland ecosystem. The conservation issues related to genetic diversity, hybridization and domestication all support plains bison listing. COSEWIC has the science, now we need the political will!

Fortunately, the minister has not closed the door on listing and will be working with the public to develop an approach for the recovery of wild plains bison. However, his decision ties one hand behind his back in recovery efforts. Groups like AWA are committed to working with the minister to find a path forward.

AWA is equally committed to securing a listing under the Species at Risk Act until we have recovered significant populations of Plains bison in the Canada's grasslands. This is where they rightfully belong along with the whole suite of prairie species with which they evolved.

Reintroducing plains bison to Grasslands National Park this fall is a small step in the right direction but much more political resolve and adequate regulatory tools are needed to help conserve this species and to restore the natural biodiversity in the plains ecosystem.

