Management of Bovine Tuberculosis in Wildlife in Canada’s National Parks

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Parks Canada Mandate

• “Maintenance or restoration of ecological integrity, through the protection of natural resources and natural processes, shall be the first priority of the Minister when considering all aspects of the management of parks” (National Parks Act 2003)

• "...a condition that is determined to be characteristic of its natural region and likely to persist, including abiotic components and the composition and abundance of native species and biological communities, rates of change and supporting processes."
History of Bovine TB Canada’s National Parks

Our basic assumption is that bovine TB arrived in Canada with the first shipments of cattle from Europe.

Therefore, it is considered to be an “exotic” disease that should be eradicated from wildlife where possible.
Wood Buffalo National Park
…This is one of the most tragic examples of bureaucratic stupidity in all history…

Dr. Thomas Barbour
Harvard University
1907-2006: A brief synopsis

Pablo-Allard Herd – Gov’t of Canada purchases herd, and creates Buffalo N. P./Elk Island N.P.

1922 – WBNP established

1925-1928: 6,673 (roughly!) bison go up the river

1937 – TB suspected in WBNP bison

1952 – 1956: TB & brucellosis confirmed, annual slaughters begin, continued to mid 1970s.

1963 – 77 bison captured from “isolated area,” 1 animal had TB, over half had brucellosis. Eighteen (18) bison, considered to be disease free, were moved to McKenzie Bison Sanctuary.

1965 – 40 captured, of these 24 disease-free animals were transported to Elk Island N.P. to establish Wood Bison breeding program.
* Health status of bison to the SW of WBNP in Northern Alberta is poorly known relative to tuberculosis and brucellosis but limited testing indicates bovine brucellosis occurs...
Perspectives - Agriculture

- Billions of dollars spent over 70 years to eradicate TB & Brucellosis from Canadian cattle herd
- BSE ‘scare’ alerted Canadians to financial implications of losing trading status
- Historical tensions between agriculture and wildlife interests from late 1980’s
- Expansion of agriculture in Peace River country over last 30 years (including bison ranching)
Perspectives - wildlife

- Response to 1990 disease report generated more letters (11,000, most in support of protecting bison) to Minister than any other wildlife issue in Canadian history.
- Diseases have been present since 1930’s and haven’t spread – why worry?
- Diseases not having an impact on bison demography.
- However, considered to be “…the greatest obstacle to the recovery of wood bison in Canada.” Nat’l Recovery Plan for Wood Bison.
Lessons from Hook Lake

Captured day old bison calves, hand reared them. Founder animals were to be slaughtered after first calf, but were not.

Risk assessment 2004 - Probability that at least one tuberculosis + bison present was > 0.0003

TB positive case found via slaughter of surplus 3 year old bull in 2005

Ten other infected animals found during herd depop.
Lessons from Hook Lake

True index animal was founder female with umbilical abscess (latent TB) captured as calf in 1997

She had 13 negative caudal fold tests on this animal between 1997 and 2005

Retrospective analysis using MAPIA would have discovered this animal in 1999
Current situation: TB in Wood bison in Wood Buffalo National Park

Apparent prevalence: 49%, based on CFT as well as lesioned animals culled in 1950’s

Prevalence much higher in bulls (90%)

It is considered to be endemic, with some cases in moose (spillover)

WTD invading north – new potential reservoir
Current situation: TB in Wood bison in Wood Buffalo National Park

In 2005, a workshop was held to discuss the feasibility of depopulating the bison (and hence the disease) from Wood Buffalo N.P. and repopulating it with disease free animals.

Determined to be technically feasible, but expensive (up to $78 million) and would take over 20 years to complete.
TB & Brucellosis: Current management

• Education/Communication

• Enhanced Livestock Surveillance
  • using Fluorescent Polarization Assay (FPA) blood tests for both Brucellosis and TB on domestic cattle south of the Park

• Creation of Task Force based on RMNP Task Force structure

• Bison Control Area, establish in 1987, 
  • PC contribution is $50.0/year)
TB & Brucellosis: Current management

- Status quo involves limited containment
- Isolation has prevented spread to date
* Health status of bison to the SW of WBNP in Northern Alberta is poorly known relative to tuberculosis and brucellosis but limited testing indicates bovine brucellosis occurs.
History of Bovine TB in the region

• Manitoba declared TB free in 1985
• in 1991, however, a cattle herd was discovered with TB.
• in 1992, a wild elk, located near the farm, was also discovered with the disease.
• in 1997, a second case of TB in cattle was discovered,

• since that point, an increased awareness, interest, and testing of TB has resulted in the discovery of more TB positive animals
History of Bovine TB in the region

• since 1991, there have been 42 elk and 10 whitetail deer found to be TB positive, and a total of 7 TB outbreaks on regional farms.
Why is this discovery important?

Bovine TB appears not to have a significant impact on wildlife populations.

The greatest concern lies in the long term implications of current management decisions.

TB also has implications on cattle producers in the region.
So what was done about TB?

In 2000, a multi-agency group was convened to tackle the TB issue. This group is made up of:

- Canadian Food Inspection Agency
- Manitoba Conservation
- Manitoba Agriculture, Agri-foods, & Rural Initiatives
- Parks Canada Agency

This group also includes representatives of two stakeholder groups: the Manitoba Cattle Producers Association and Manitoba Wildlife Federation.
Bovine TB Management Plan

Goals:

• To achieve and maintain Bovine TB-free status in domestic cattle

• To eradicate Bovine TB in wildlife that may pose a risk to agriculture

• To minimize wildlife-livestock interactions, and to minimize unnatural cervid herding behaviour
TB Task Group (est 2000)
- Parks Canada
- CFIA
- MB Agriculture & Food
- MB Conservation
- MB Cattle Producers Assoc
- MB Wildlife Federation

Stakeholder Advisory Cmte (est 2003)
- First Nations
- Fish and game groups
- Hunting outfitter group
- 2 local producer groups
- Environmental NGO
- Ecotourism interests
- Local rural municipal councils

Scientific Review Cmte (est 2004)
- Scientific Specialists from government agencies, academia
- Individuals chosen for expertise
- Provides objective scientific advice
Outline of TB Management Program

• Disease Surveillance (wildlife & cattle)

• Disease Prevention

• Disease Control

• Research

• Communications