

Brucellosis in Wyoming: A Wildlife-livestock issue

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Coordination Team

Brucellosis

- Gram negative bacteria
- Affinity for lymph, reproductive tissue
- Cattle, bison, elk, sheep, humans
- Zoonotic hazard: "Undulant fever"
- Abortion, weak newborn animals
- Spread via fetal fluids
 - Hazard = calving times

Brucellosis

- Carriers, 'hides'
- LPS-"O" chain
 - Virulence, lack is 'rough' (e.g. RB51)
- Vaccination not 100%
 - Strain 19; RB 51
 - Wildlife?
- Serology
 - Multiple tests
- Culture
 - DNA identification



Brucellosis: The issue

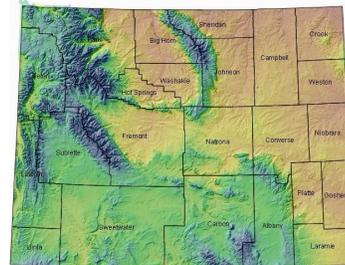
- Spread between wildlife and cattle
- Human health
- Economics
- Impacts on wildlife
- Management is key



Brucellosis: History in WY

- First US isolate 1910
 - *Brucella* (1887; Bruce; Malta fever)
 - *B. abortus* (1897; Bang; "Bang's disease")
- GYA wildlife 1917, Biovars 1,4
- Prevalence
 - Elk on feedgrounds, 3-54%; not fed, 2%
 - Bison, 30-80%

Brucellosis in Wyoming



Brucellosis: Cases

- Sublette County, December 2003
 - Worland case, multiple cows, ages
 - Source and follow-up, matched elk (4/14)
- Teton County, June, November 2004
 - Aged cow, n=1 (June); n=4 contacts/750 Nov
 - Source probable, follow-up underway
- Campbell County, July 2004
 - Aged cows, SD sale, n=2, match UUU bison isolate
 - Source unknown; Laboratory practices questioned
 - Herds released Nov '04; wildlife tested negative

Wyoming Brucellosis Coordination Team

- Governor Freudenthal and the legislature
 - March 2004
- Diverse group:
 - 19 members; 10 technical advisors
 - Sportsmen, outfitters, ranchers, state, university, legislators, federal managers, governor's office
- Hq. Lander
 - Also, Pinedale, Casper, Jackson, Gillette
- Public input is heard each meeting day

Wyoming Brucellosis Coordination Team: Charge

- Identify issues, best management practices, and recommendations: 4 topics:
 - Brucellosis in cattle (to regain and maintain free status); reduce transmission between species
 - Provide response roadmap for brucellosis cases
 - Address human health
 - Reduce, and eventually eliminate brucellosis in wildlife; paying special attention to elk feedgrounds

Wyoming Brucellosis Coordination Team Findings

- Best management practices listed
 - “Tools in the toolbox”
- 28 Recommendations
- Most recommendations implemented

Recommendations: All Topics

- Brucellosis action management plans
 - Done for 7 Elk Herds + Bison
- Research needs
 - Select Agent Issue
 - Topics on vaccines, delivery, diagnostics, management, impacts
 - USAHA “Laramie Project”
 - “CABS”

Recommendations for Cattle & Transmission

- Maintain Surveillance (Wy Livestock Bd)
- Support for testing; herd plans
- Ranch enterprise risk and impacts of brucellosis in WY (research)
- Enhance veterinary support
- Plus 4 other recommendations
 - Includes trader/dealer registration

Recommendations for Managing the Next Case

- Regulatory Decision Group
 - Communications roadmap in BMP's
- Authorize Wy Livestock Bd to use brand inspectors to help quarantines, etc.
- Ensure tissues from affected cases are held

Recommendations for Human Health

- Develop public communications process
- Formulate protocols for Wyoming physicians to follow after brucellosis exposure
- Study incidence of human brucellosis in Wyoming

Recommendations for Wildlife

- Pilot project to reduce seroprevalence in elk
 - Test and remove, vaccinate; Pinedale Herd Unit
- No feed ground closures for now
 - Divided discussion, BMAP's still may consider phase-out
- Legislative general funding to WG&F for brucellosis
- Winter habitat acquisition and improvement
- Review elk population issues ea 5 yrs, BMAP's to consider phase outs of winter elk feed grounds
- Plus 7 additional; bison and federal issues



What Next?

- Report Jan, 2005: Reconvene annually
- New Case; spring 2008; n=26 Reactors
 - No herd plan; biosecurity questions
 - 60 d timing dilemma; depopulated?
 - Did not lose status (scares)
- Increasing incidence in Park County
 - Better surveillance? Wolves?
- 2009:
 - CABS
 - Brucellosis Concept Paper

CABS

- Consortium for the Advancement of Brucellosis Science
 - Scientific Team
 - Stakeholder Team
- Follows "Laramie Agenda"

CABS

- *The mission of CABS is to identify gaps in current research, secure funding, award research grants, and conduct outreach for the advancement of brucellosis science worldwide.*
- *Focus on vaccine and test methods*
 - Elk, wild bison, and cattle
- *Estimated cost \$20-50 million; 10-20 yrs*
- *Initial investment: \$1.8 million/year X 5 years*
 - Evaluate animal's response to bacteria/vaccine
 - Identify genetics and subunit responses to brucellosis

APHIS Concept Paper

- Whole country “Free”, no status
- Designated Management Area (GYA)
- Follow state rules (e.g. Chapter 2 - WY)
- Reallocate APHIS funds to GYA
 - Help fund surveillance, wildlife efforts, research
- Local concerns:
 - Wildlife sovereignty; abandonment of GYA; Top-down approaches
 - Comments by Dec 4, 2009