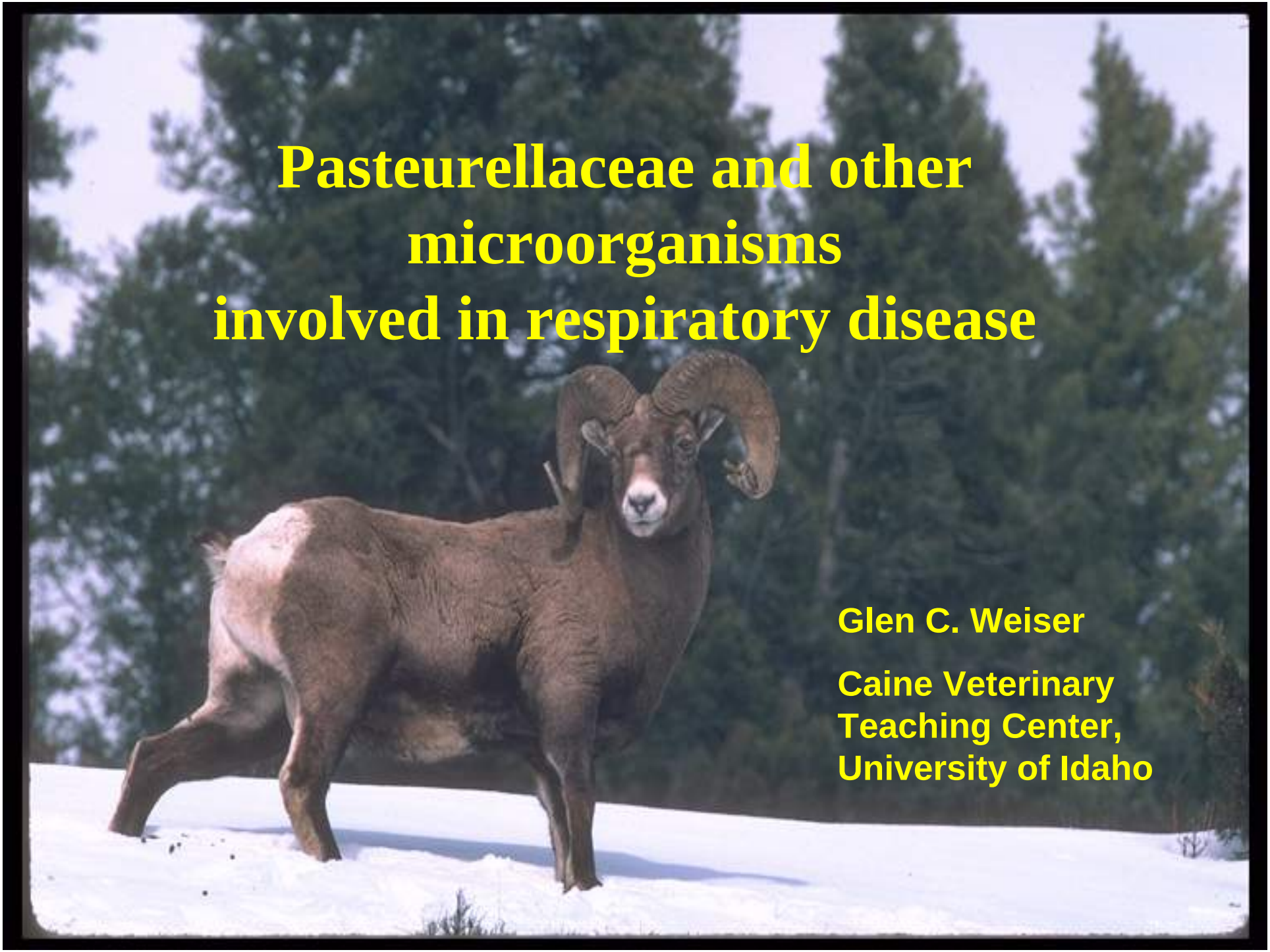

Pasteurellaceae and other microorganisms involved in respiratory disease

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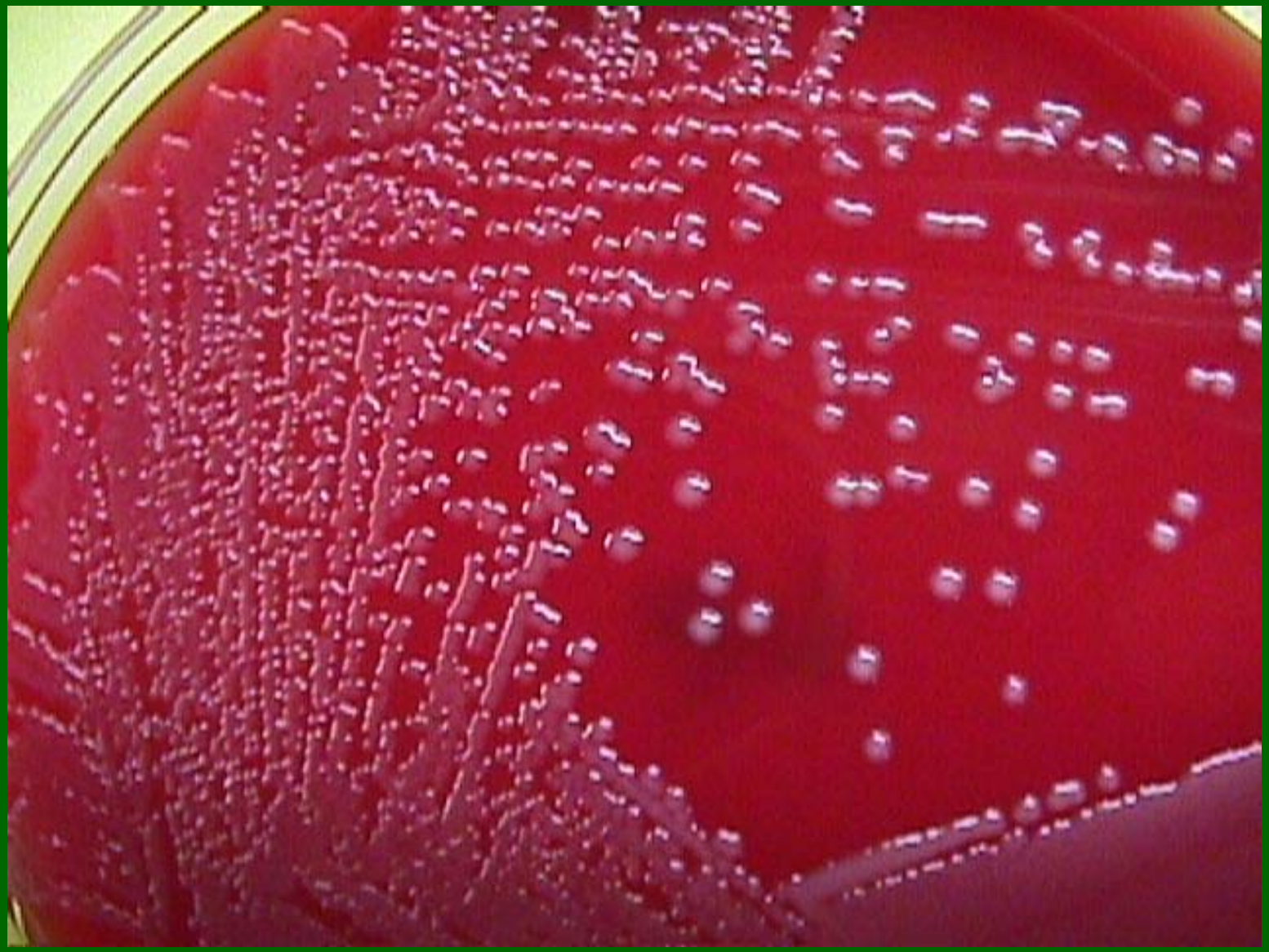
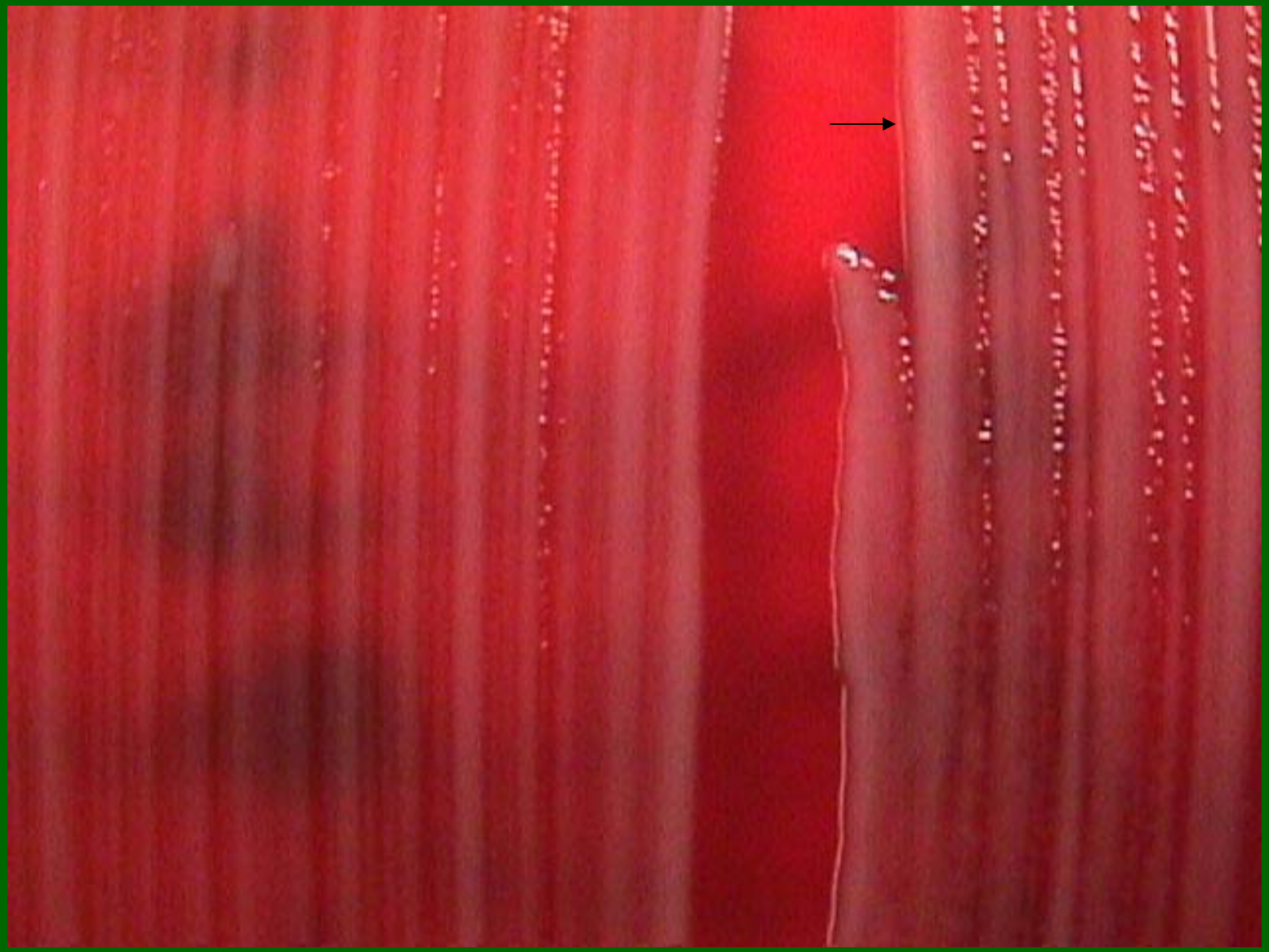
- Marsh (1938): *Pasteurella* spp. and *Corynebacterium pyogenes.*
- 1980’s to (almost) present: center on *Pasteurella* (some now renamed *Mannheimia*) spp.
- Recent: The realization by many that the *Pasteurella* story alone does not answer the questions.
- Today: Look at *Pasteurella*, then some other possibilities…….





Bacteria worthy of additional study

- *Streptococcus*
- *Staphylococcus*
- *Arcanobacterium pyogenes*
- *Moraxella*
- *Neisseria*
- *Mycoplasma*

Rare isolates (some found mainly with non-culture methods, more maybe possible)

- *Actinobacillus*
- *Histophilus*
- *Bordetella*
- *Pseudomonas*
- *Clostridium, Fusobacterium* ?

(what might be the role of anaerobes?)

Streps and Staphs isolated from wild sheep, Idaho, 1994

Streptococcus:

- *acidominimus*
- *bovis*
- *mitis*
- *mutans*
- *suis I*
- *sanguis*
- *Group E*

Staphylococcus:

- *auricularis*
- *cohnii*
- *epidermidis*
- *sciuri*
- *warneri*
- *xylosus II*

Non-culture, 2006, additional species identified

Streptococcus pneumoniae

Staphylococcus aureus

Clostridium spp.

Sphingomonas wittichii

Fusobacterium necrophorum

- Non-culture methods suggest greater diversity exists in several genera than is found by culture.

Organisms identified by culture* in the 1995-1996 Hells Canyon dieoff

P. multocida
P. trehalosi
M. haemolytica
P. gallicida
Mycoplasma ovipneumoniae
Arcanobacterium pyogenes
Enterococcus spp.
Streptococcus spp.
Acinetobacter spp.
Enterobacter spp.
E. coli
Moraxella spp.
Proteus spp.
Pseudomonas spp.
Also some viruses

* Non-culture methods suggest greater diversity exists in several genera than is found by culture.

Polymicrobial communities and discrimination between commensals and pathogens

- Bacteria occur commonly as biofilms on mucosal surfaces (human saliva contains ~700 phylotypes)
- Dendritic cells recognize microorganism-associated molecular patterns (mamps) e. g. LPS, peptidoglycan.
- Commensal mamps elicit different, usually non-inflammatory responses, than those of pathogens.

Polymicrobial communities and discrimination between commensals and pathogens (continued)

- Could commensal and pathogen mamps be characterized, and used to identify the most pathogenic forms? Do some commensal mamps possess properties that allow them to become pathogens?
- Mamps are recognized by pattern recognition receptors (prrs) e. g. toll-like receptors (tlrs). Could study of the prrs in wild sheep help us understand the potential for disease from commensals?