

ICE AGE WILDLIFE DNA

*Understanding and Responding to
Global Health Security Risks from
Microbial Threats in the Arctic*

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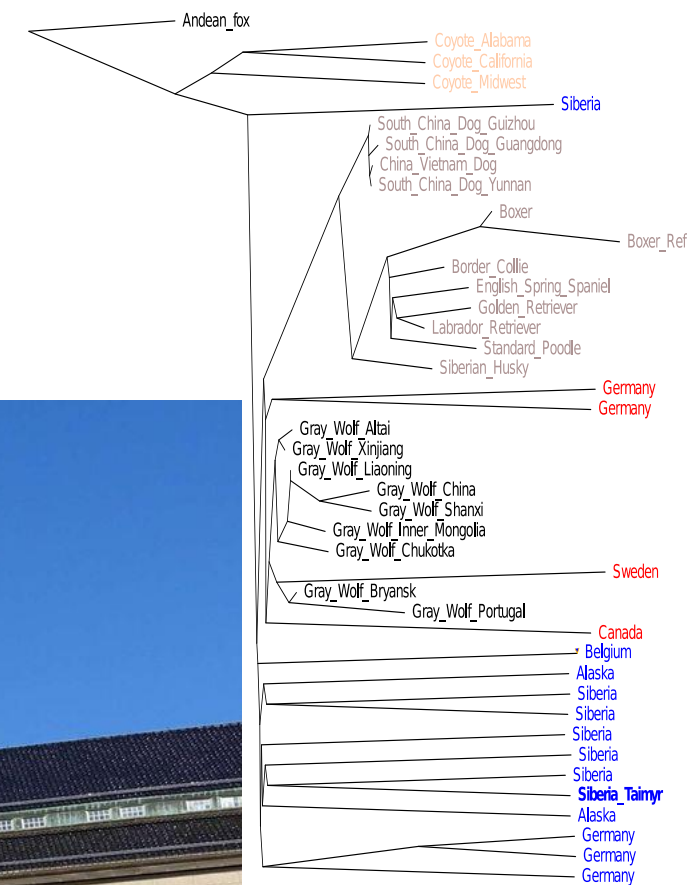
Photo: Love Dalén



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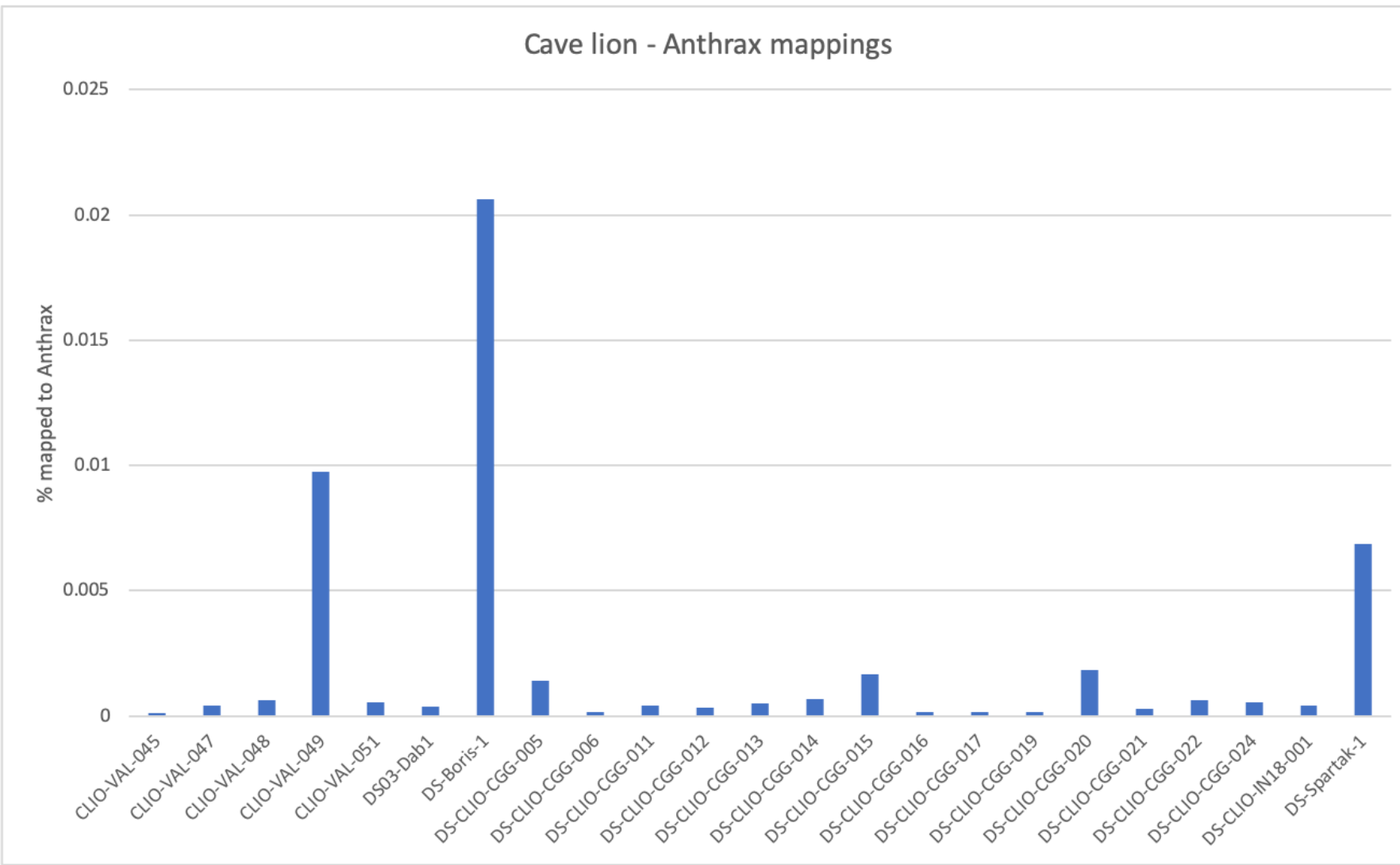
NATURHISTORISKA RIKSMUSEET: Swedish Museum of Natural History



- Huge range of different ancient permafrost species
- Historic to >50,000 years
- DNA extraction -> library build -> sequence -> analysis

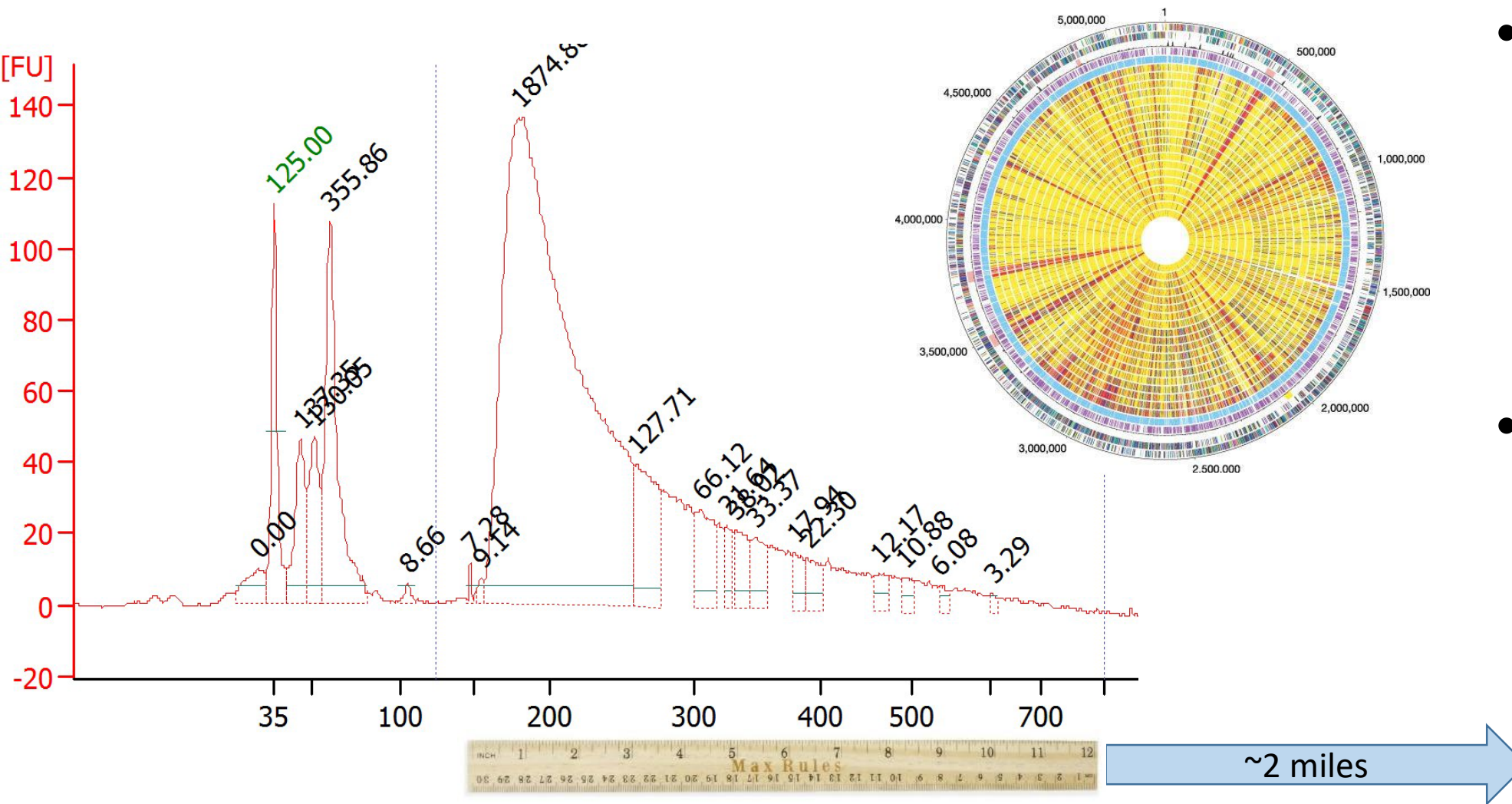


Screening samples for pathogens: Cave Lions



- We can easily screen for DNA from pathogens
- This could be done to see which pathogens exist in these carcasses
- ...and if this depends on location/age etc...

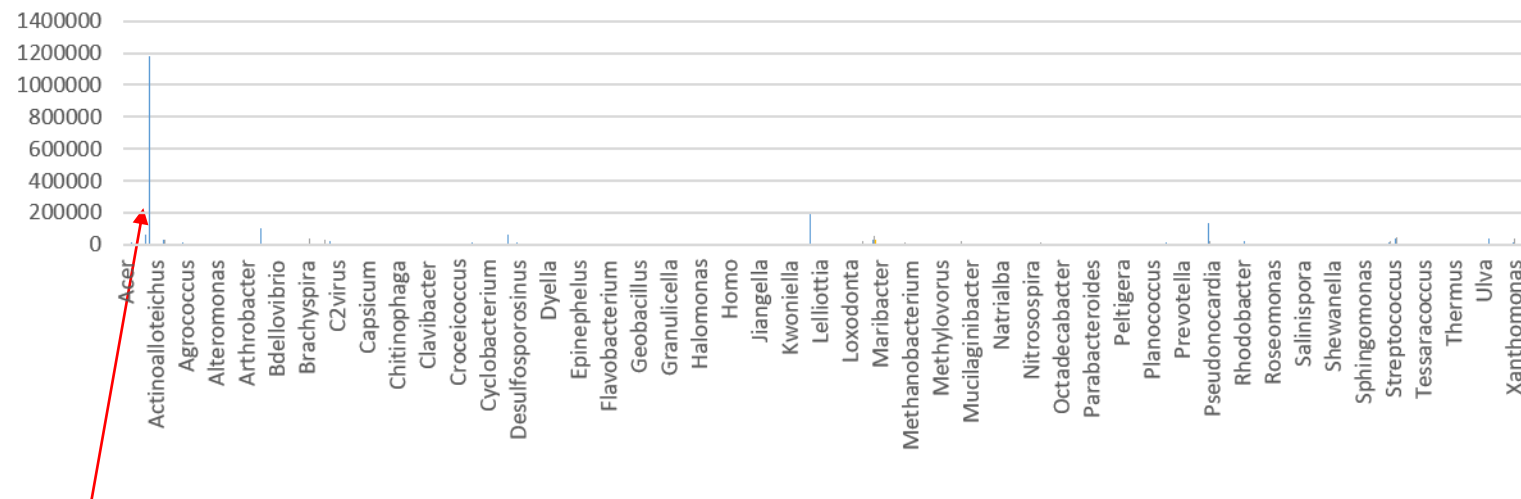
DNA this old is highly damaged and fragmented



- ...but even if they are there it does not mean that they are viable!
- Most of the DNA we work with is ~70-80 bp

Screening samples for pathogens: mammoths

Namouchi et al. (In. Prep.)

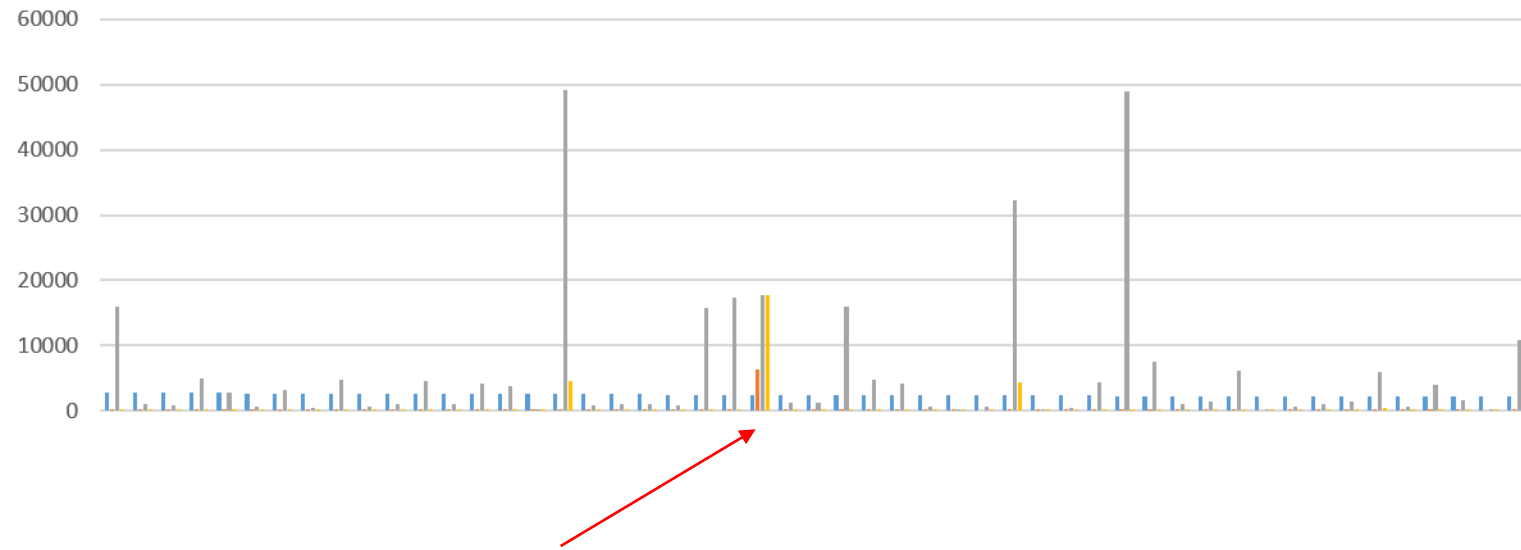


- *Azospirillum brasilense*
- Widely found soil bacterium



Screening samples for pathogens: mammoths

Namouchi et al. (In. Prep.)



- *Clostridium botulinum*
- Lives in soil, and invades rotting flesh
- then produces toxin (Botox)
- How you get food poisoned!
- So if you find a dead mammoth: Don't eat it!

