Swedish University of Agricultural Sciences

Assessing the Role of Eurasian Beavers (*Castor fiber*) in the Occurrence of Zoonotic Pathogens

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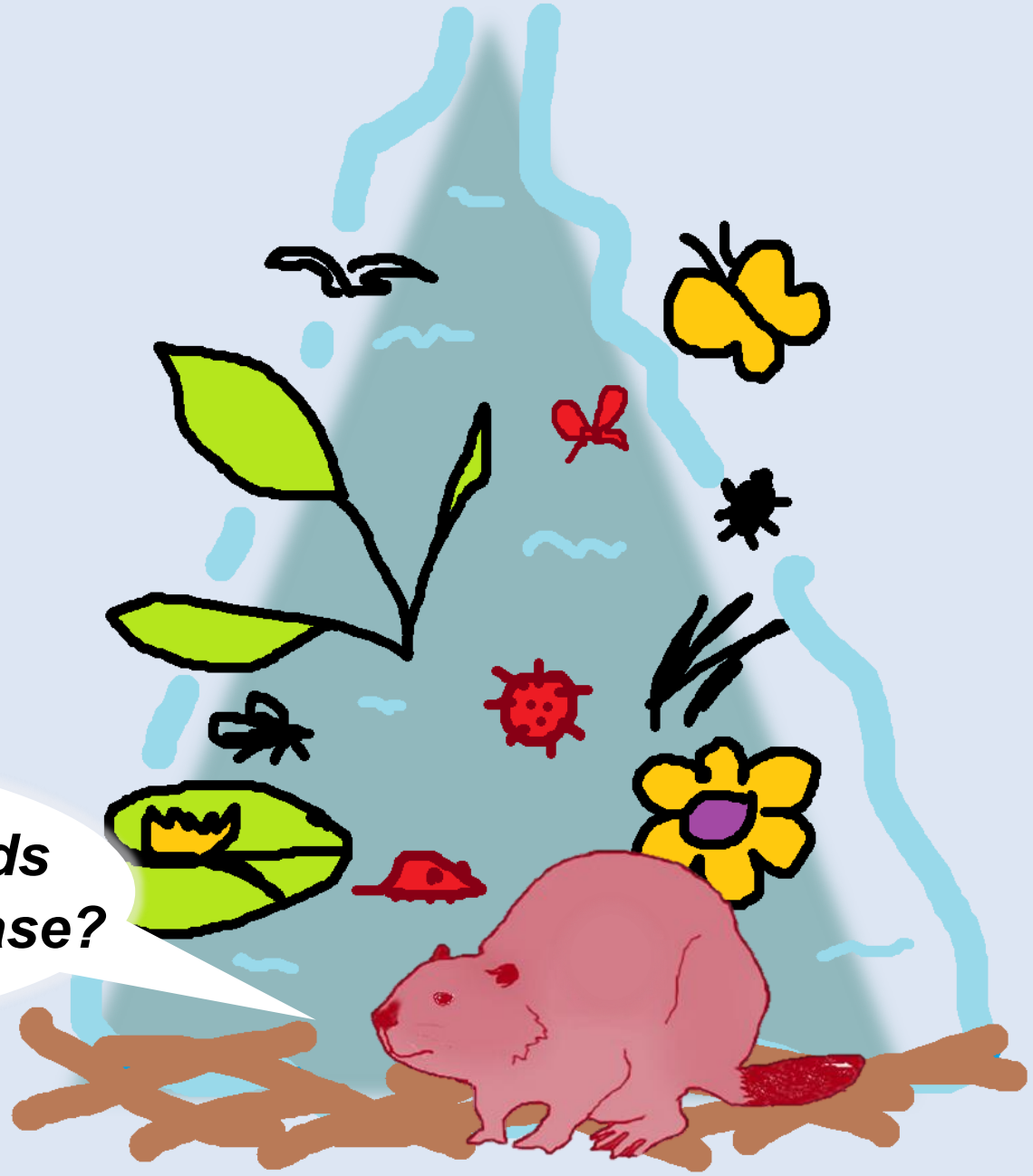
Background

Species thriving in beaver wetlands may include zoonotic pathogens, vectors and hosts. Beavers can also carry disease.

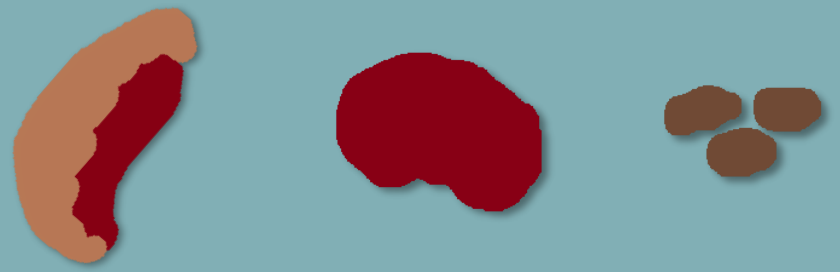
Study question:

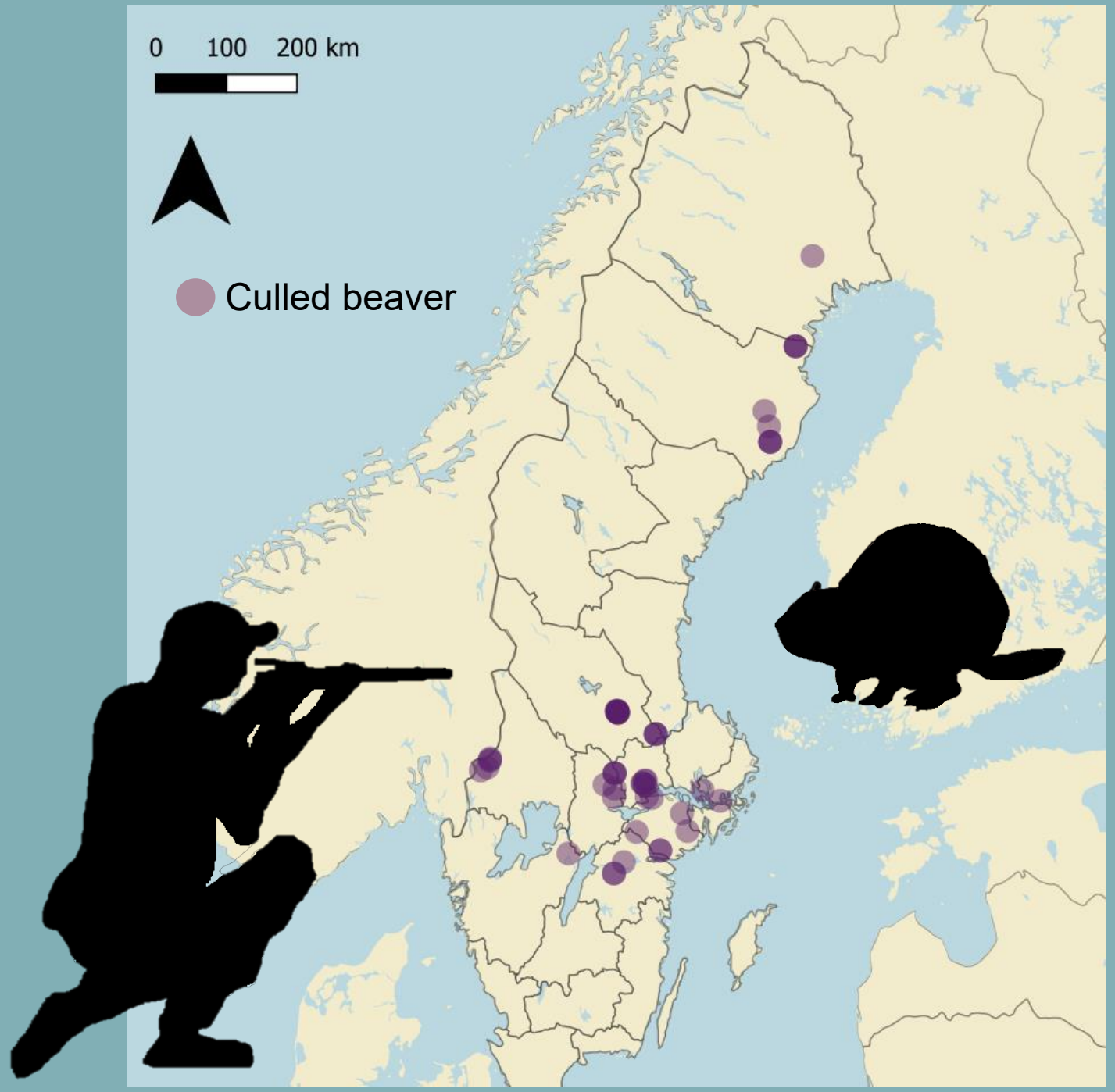
Are beavers/beaver wetlands hotspots for zoonotic disease?

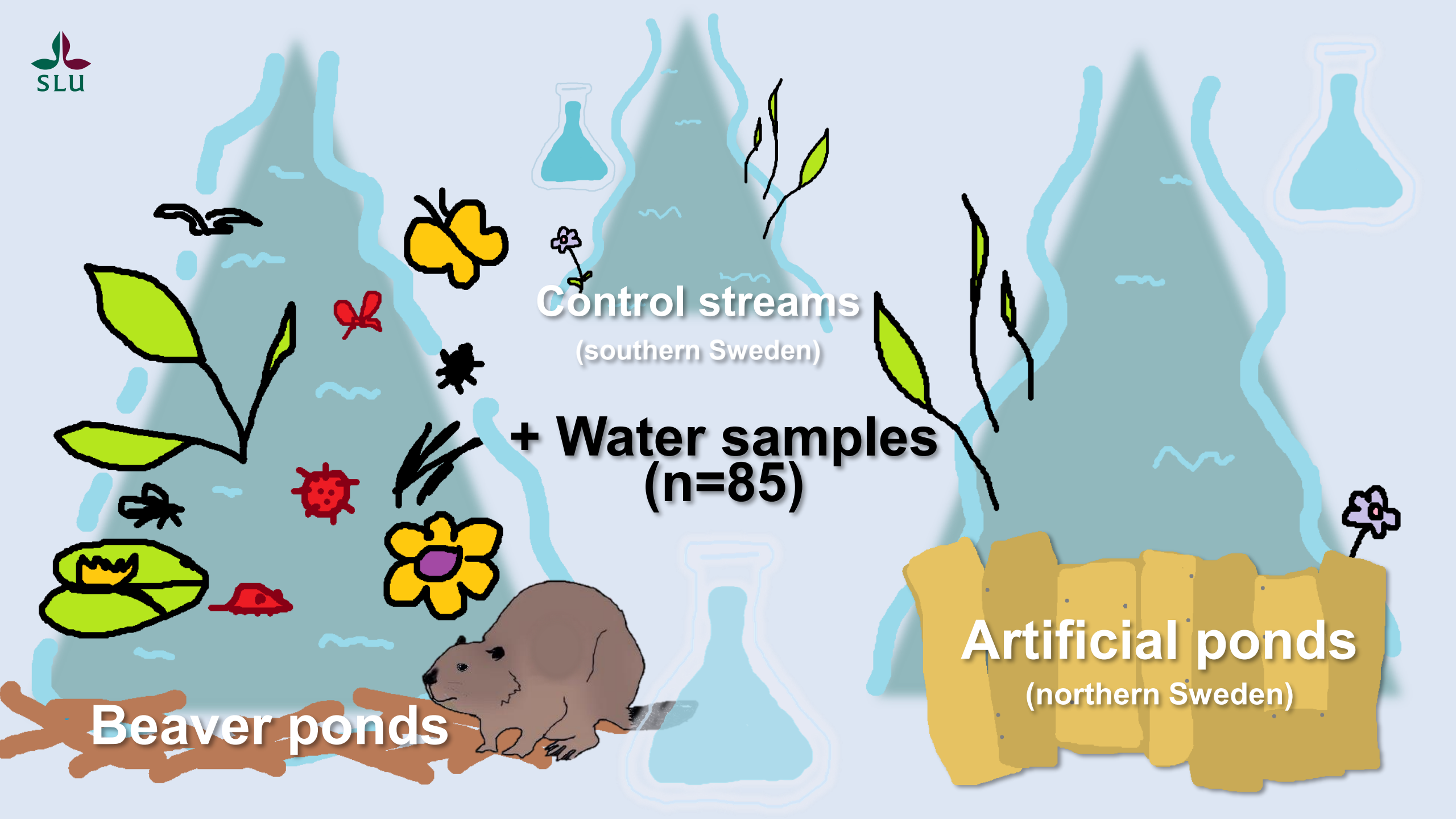


Method

Spleen, kidney, and faecal samples opportunistically collected from 54 culled beavers



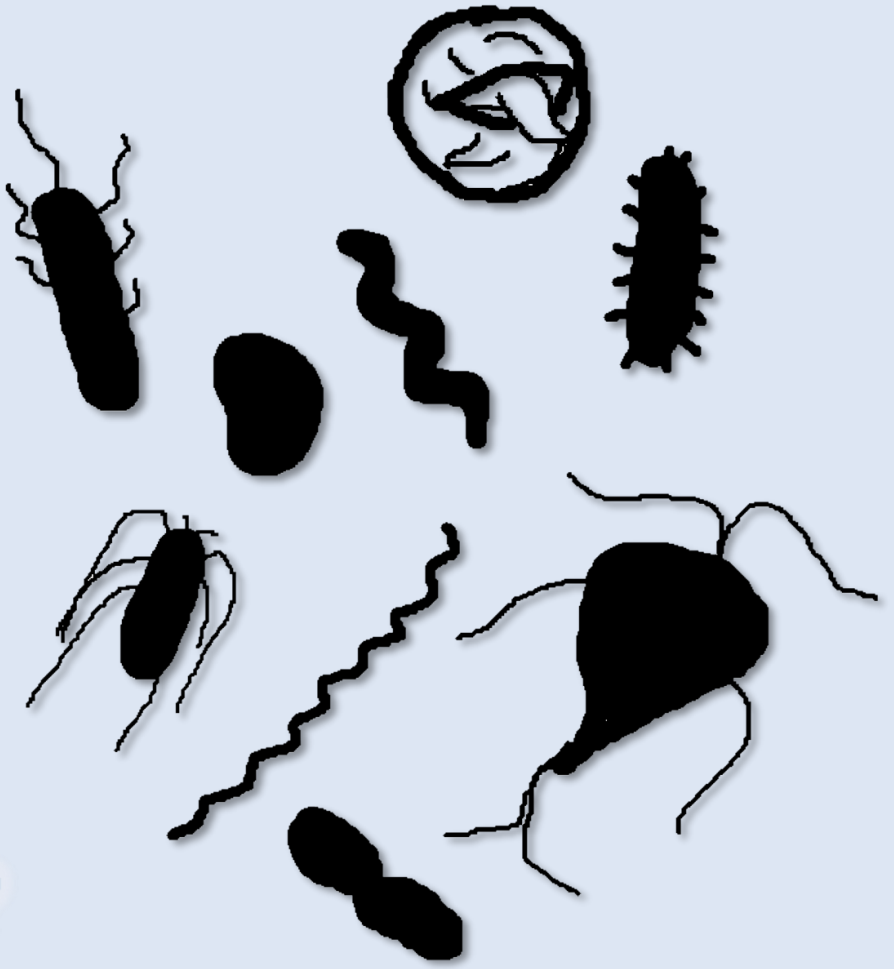


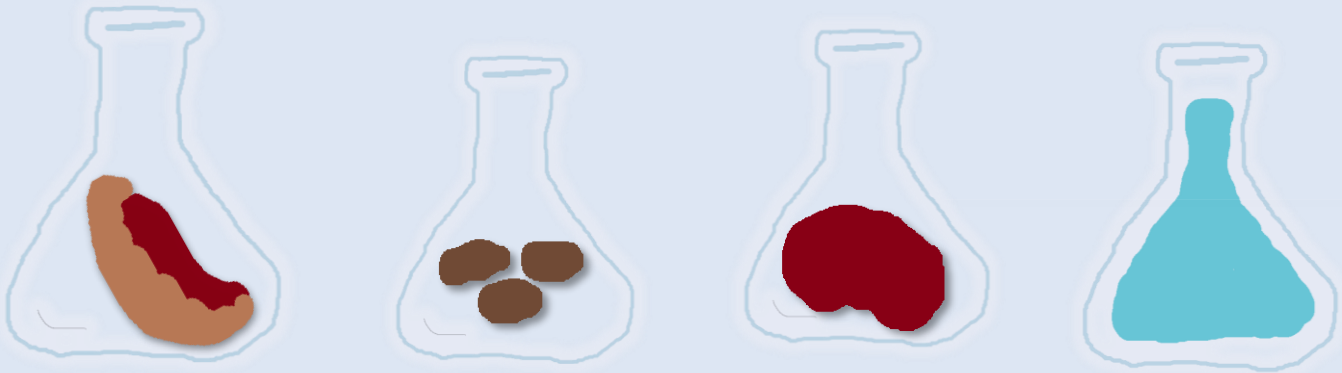

Control streams
(southern Sweden)
+ Water samples
(n=85)
Beaver ponds
Artificial ponds
(northern Sweden)

We qPCR tested **water** and **beaver tissue/faecal** samples for the following pathogens:

Bacteria
- *Francisella tularensis*
- *Leptospira* spp.
- *Escherichia coli*
- *Yersinia pseudotuberculosis*
- *Campylobacter jejuni*
- *Klebsiella pneumoniae*
- *Salmonella* spp.

Protozoa
- *Giardia intestinalis*
- *Cryptosporidium* spp.





Preliminary

Results

(more data are yet to be analyzed)

Preliminary **beaver results (n=54)**

Francisella tularensis

Leptospira spp.

ESBL-producing *Escherichia coli*

Yersinia pseudotuberculosis

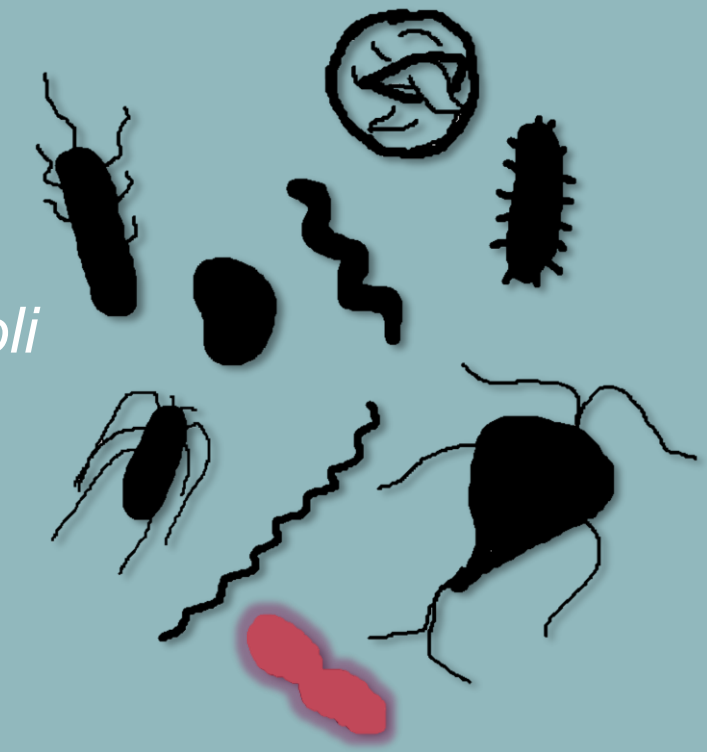
Campylobacter jejuni

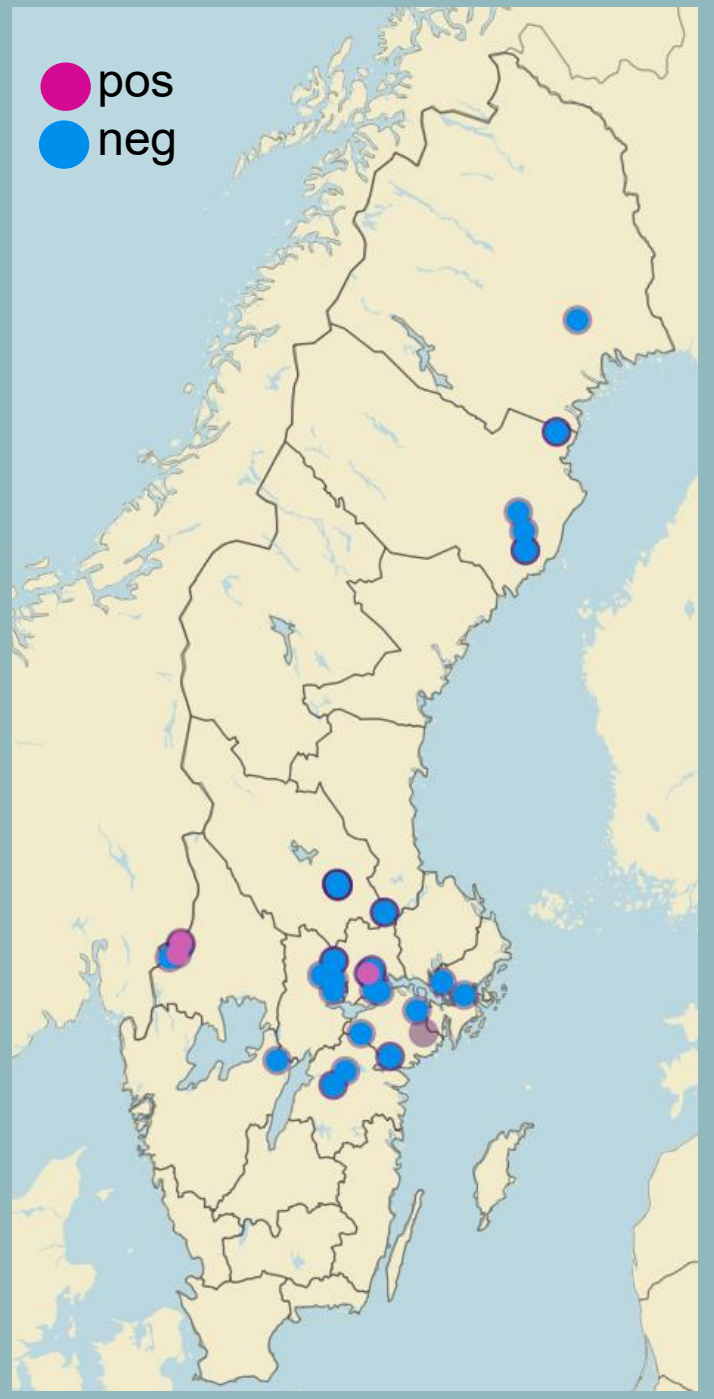
***Klebsiella pneumoniae* x 3**

Salmonella spp.

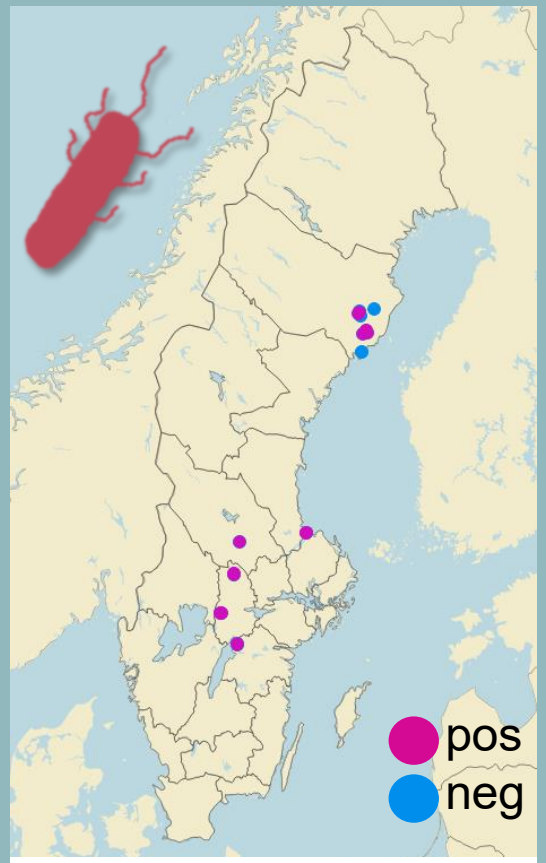
Giardia intestinalis

Cryptosporidium spp.



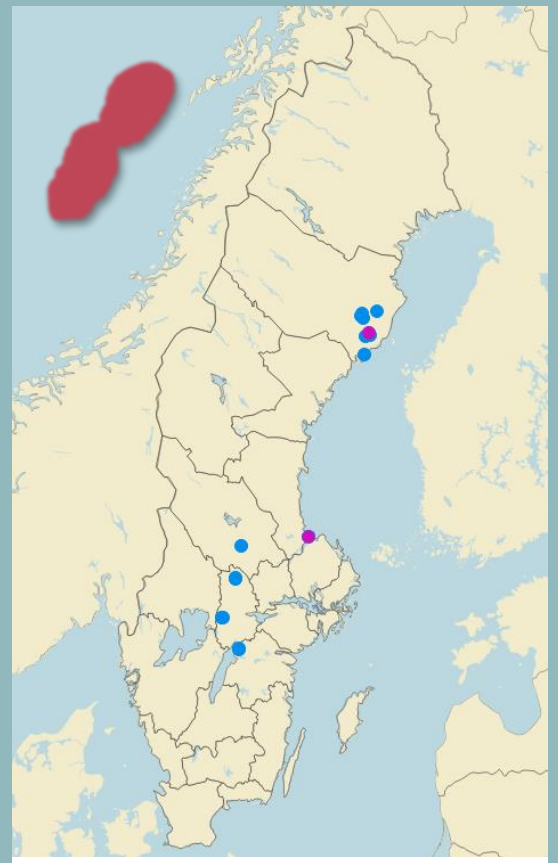


Preliminary **water results (n=85)**



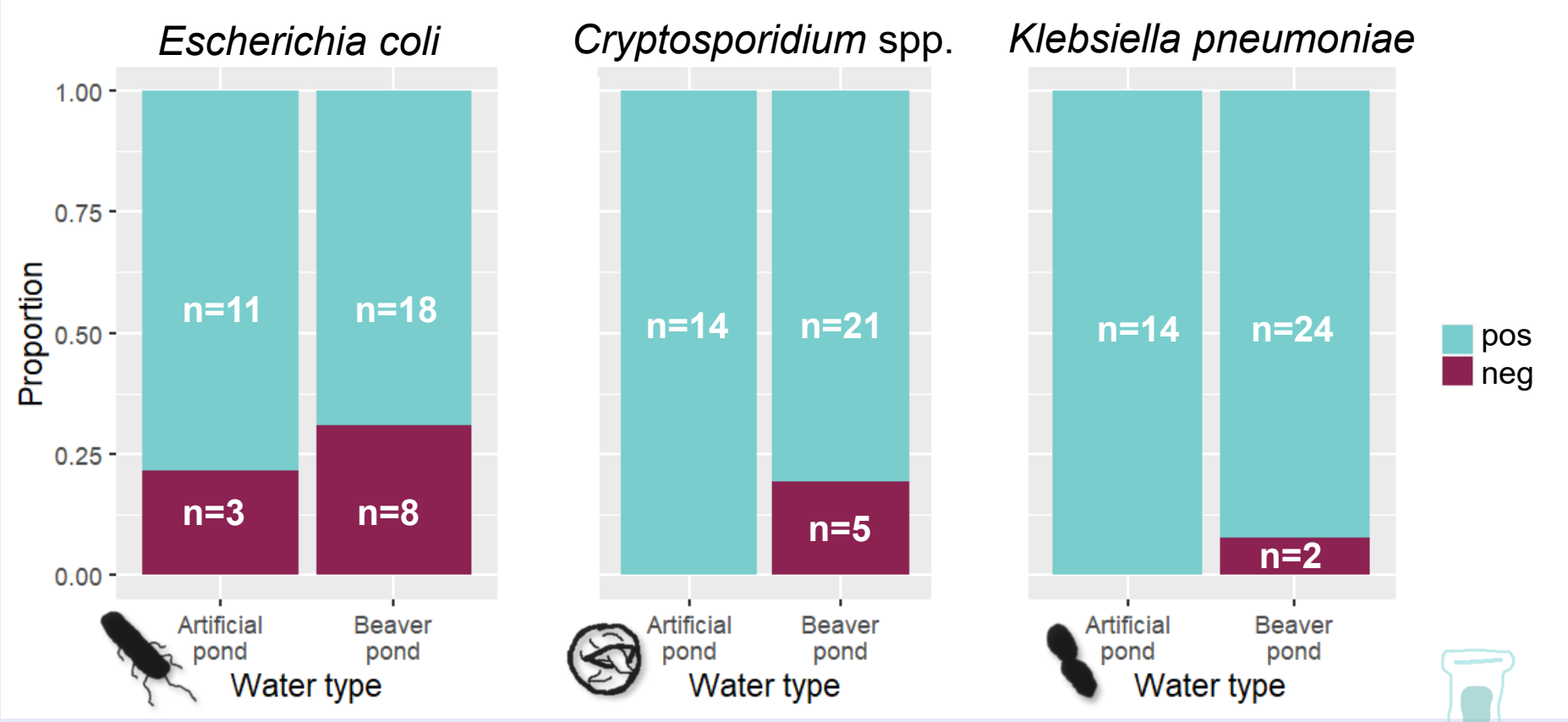
Escherichia coli x 27

Cryptosporidium spp. x 22



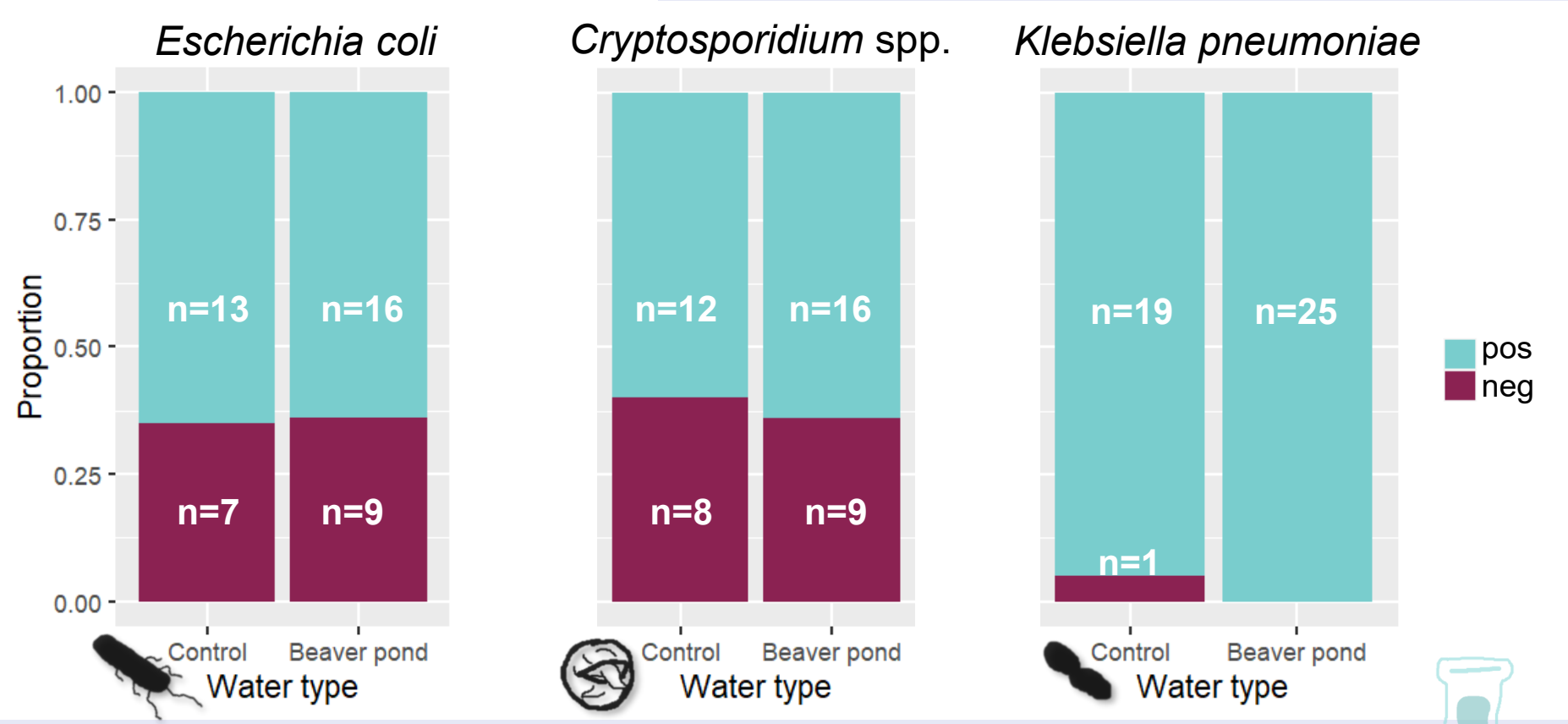
Klebsiella pneumoniae x 3

Patterns observed in **the North**:



Artificial ponds = 14 observations in 5 sites
Beaver ponds = 26 observations in 5 sites

Patterns observed in **the South**:



Controls = 20 observations in 4 sites
Beaver ponds = 25 observations in 5 sites

Summary:

→ Beavers generally healthy

→ No evidence supporting that pathogen prevalences differ in beaver and non-beaver systems

Stay tuned!

More pathogens will be tested in the coming months:

TBE, Sindbis, Betacorona, and Inkoo viruses,

Parechovirus B and *Borrelia* spp.


The end

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BE PREP

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NATUR VÅRDS VERKET

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Thank you for listening!