LIVERPOOL JOHN MOORES UNIVERSITY

Spatio-temporal trends in vertebrate biodiversity following a beaver (*Castor fiber*) reintroduction in Cheshire (UK)

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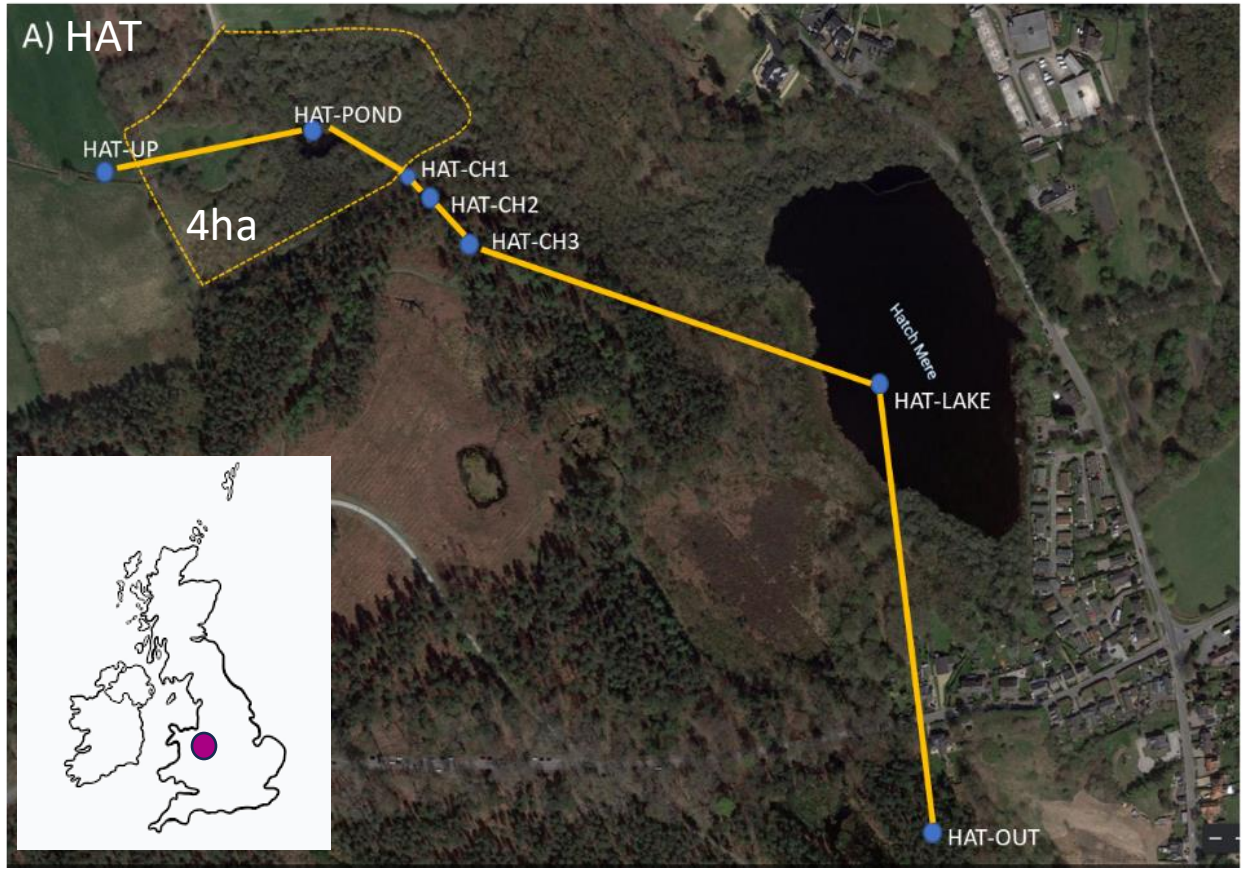
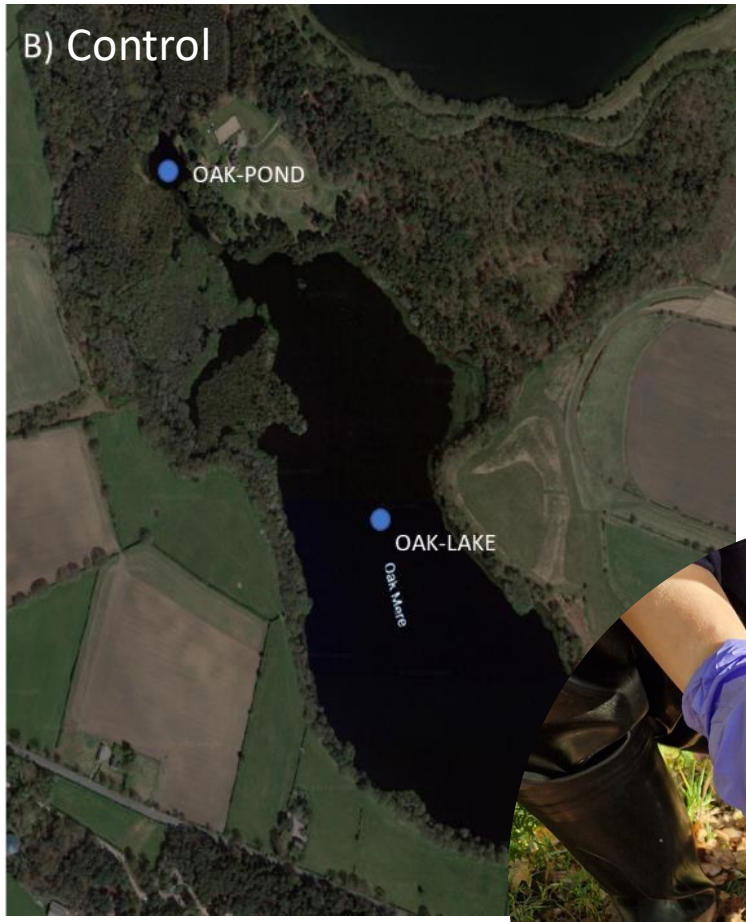
Biodiversity monitoring using eDNA metabarcoding

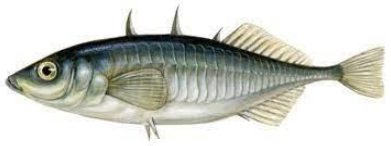




- Does beaver reintroduction change vertebrate diversity and community composition?
- How soon after reintroduction are effects detected?
- Is eDNA metabarcoding a useful monitoring tool?

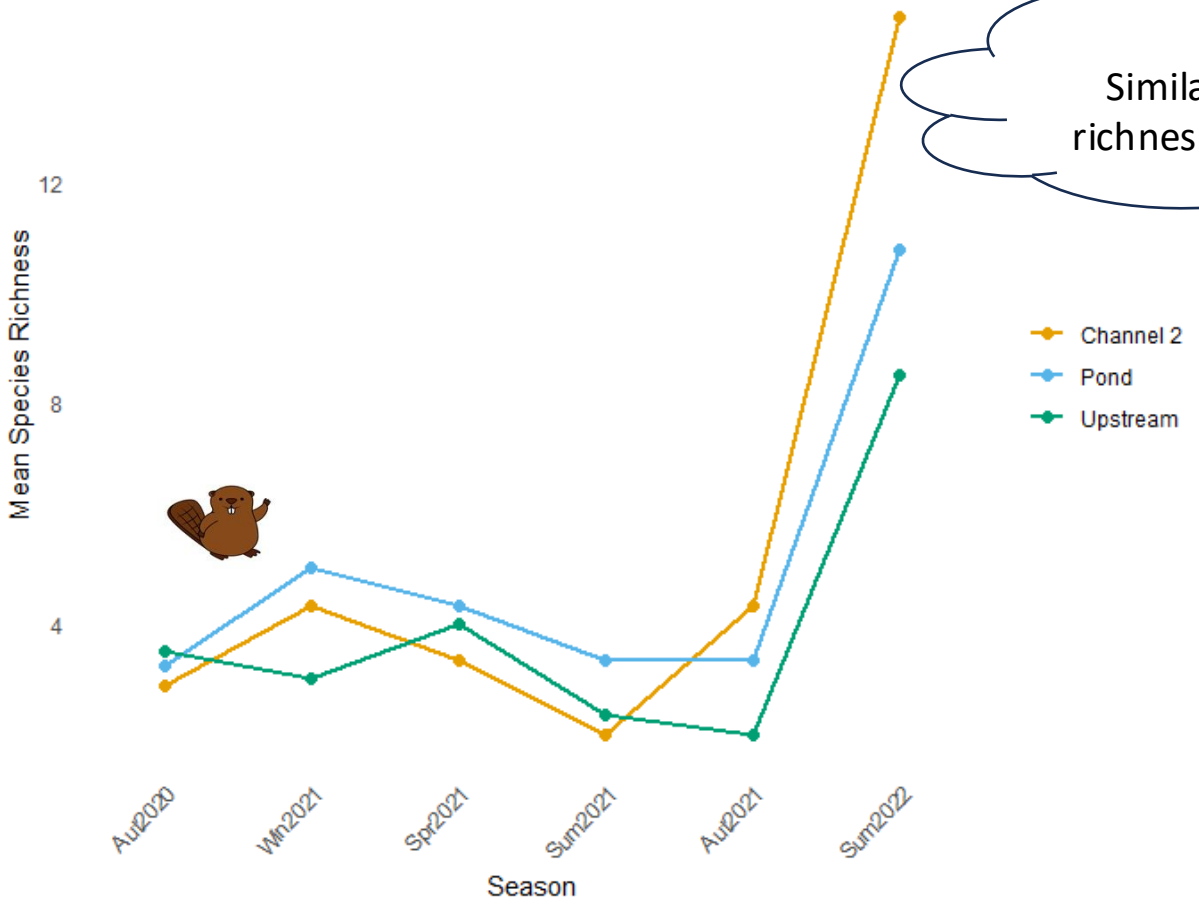
Autumn	Winter	Spring	Summer	Autumn	Ongoing….
2020	2021	2021	2021	2021	

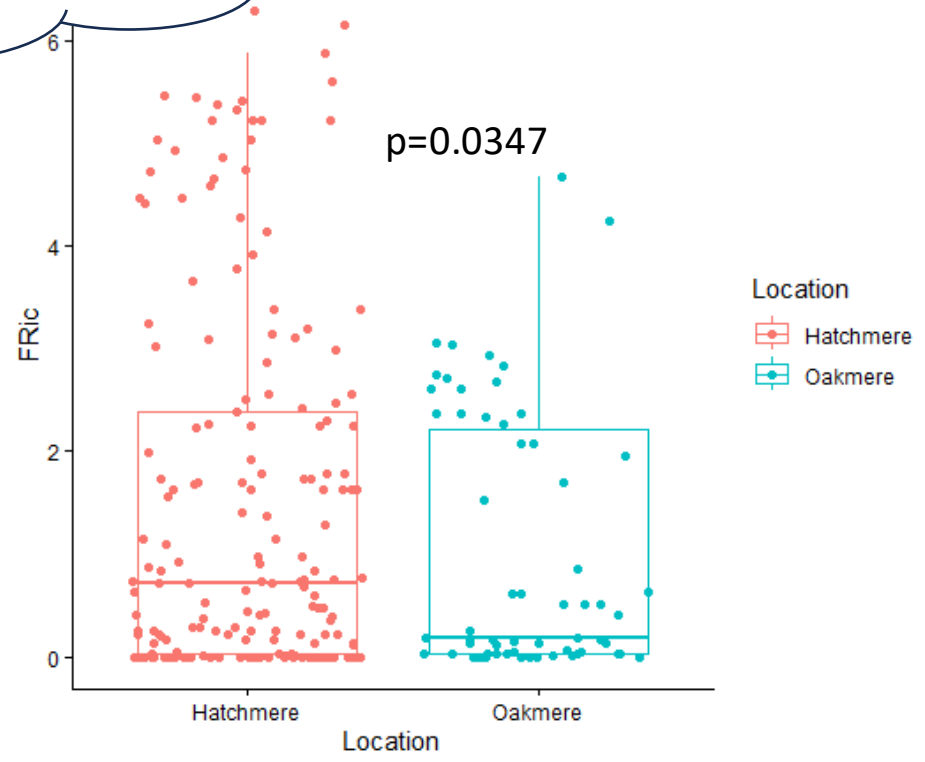
Vertebrate Species richness



Vertebrate Functional richness

GLMM: p<0.05
Similar trends for Functional richness and functional diversity





General-Beta diversity results non-significant, but birds do show turnover as main driver of significant changes

Additional vertebrate species detected in 2022

Vanellus vanellus (lapwing)

Scolopax rusticula (woodcock)

Lissotriton helveticus (palmate newt)

Sorex minutus (pigmy shrew)

Summary

- No significant changes observed during the first year…
- … but clear increase in species richness and functional richness detected ~18 months after reintroduction
- Spatial extent of beaver effects goes beyond the enclosure
- New species detected in the beaver pond/downstream channel area in 2022
- eDNA useful tool to monitor spatial and temporal beaver effects – monitoring continues…

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