

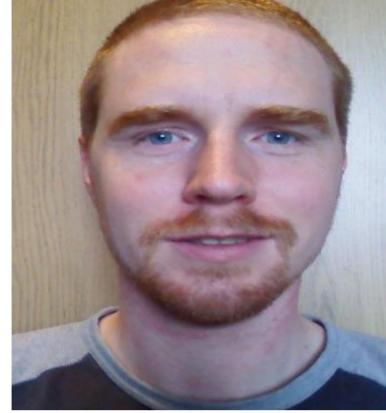
Waves of Colonization and the Sea of Moyle: Linking population history, resilience and landscape change of island communities.



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Inger Alsos¹, Patrick Gleeson⁴, Gill Plunkett⁴

















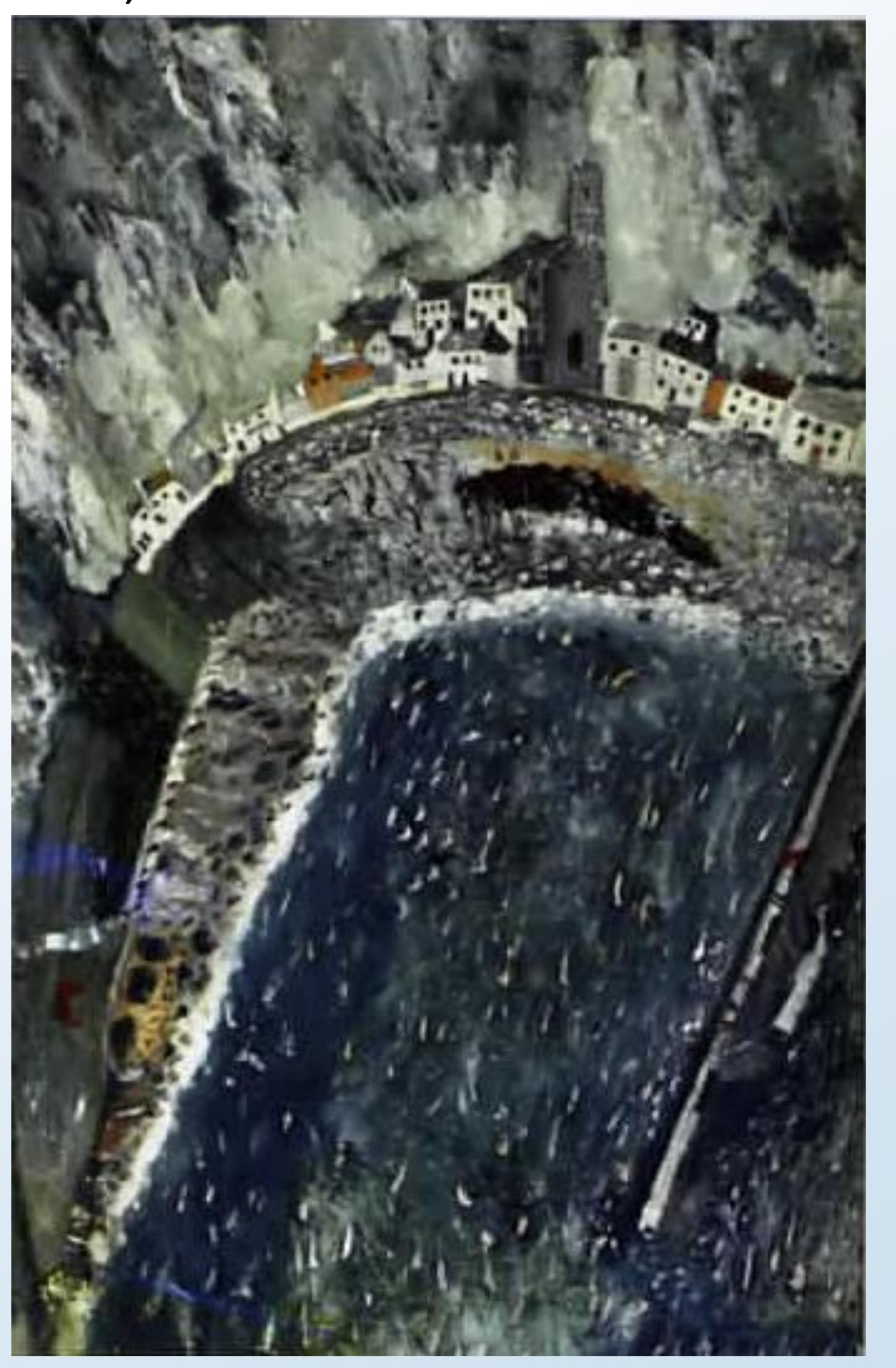




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- ³ Geography, Sociology and Politics, University of Newcastle, UK
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Tory Island Fieldwork (Phase 1) 29th August-7th September 2019

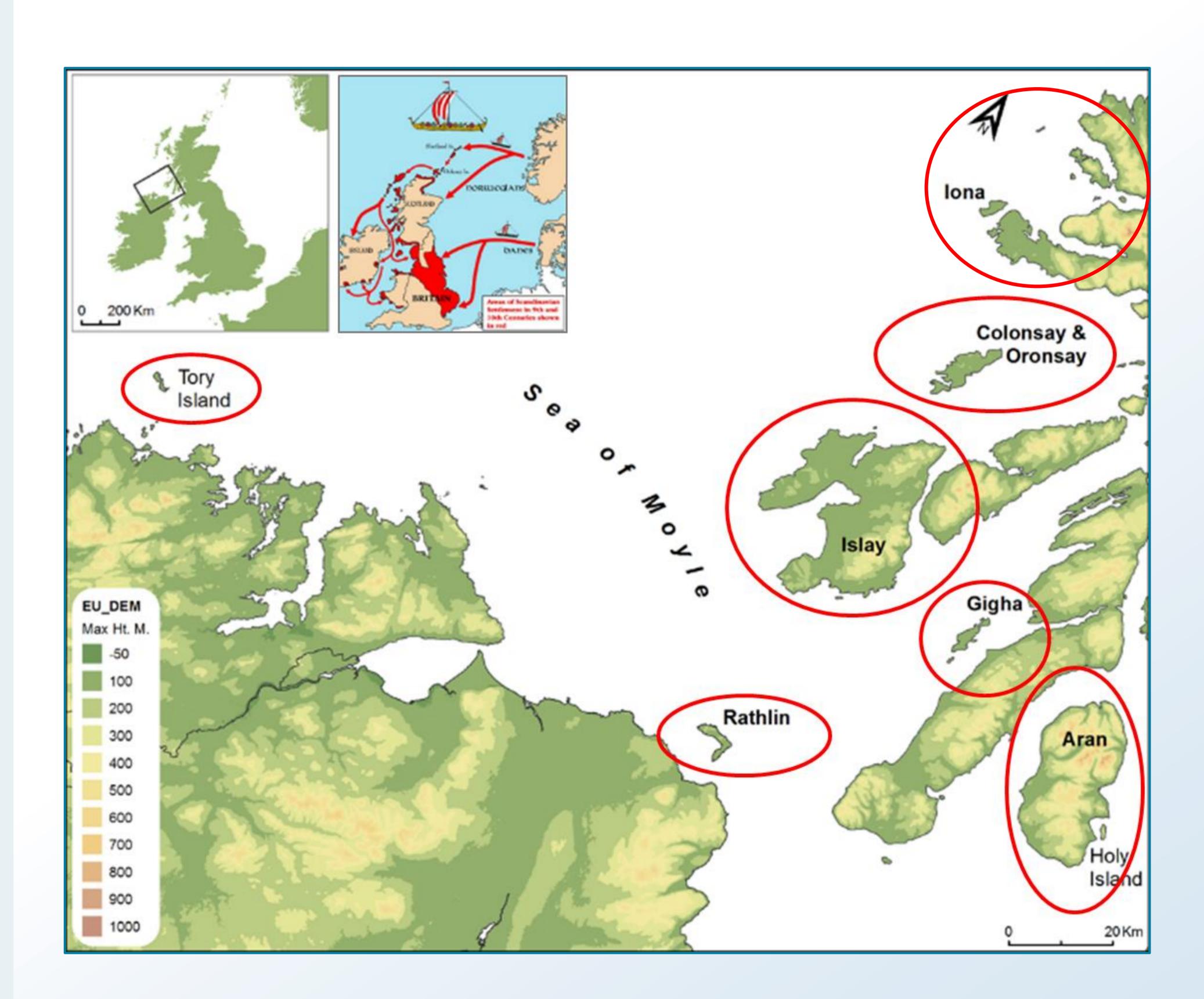


Dixon 1887-1970

STUDY AIMS

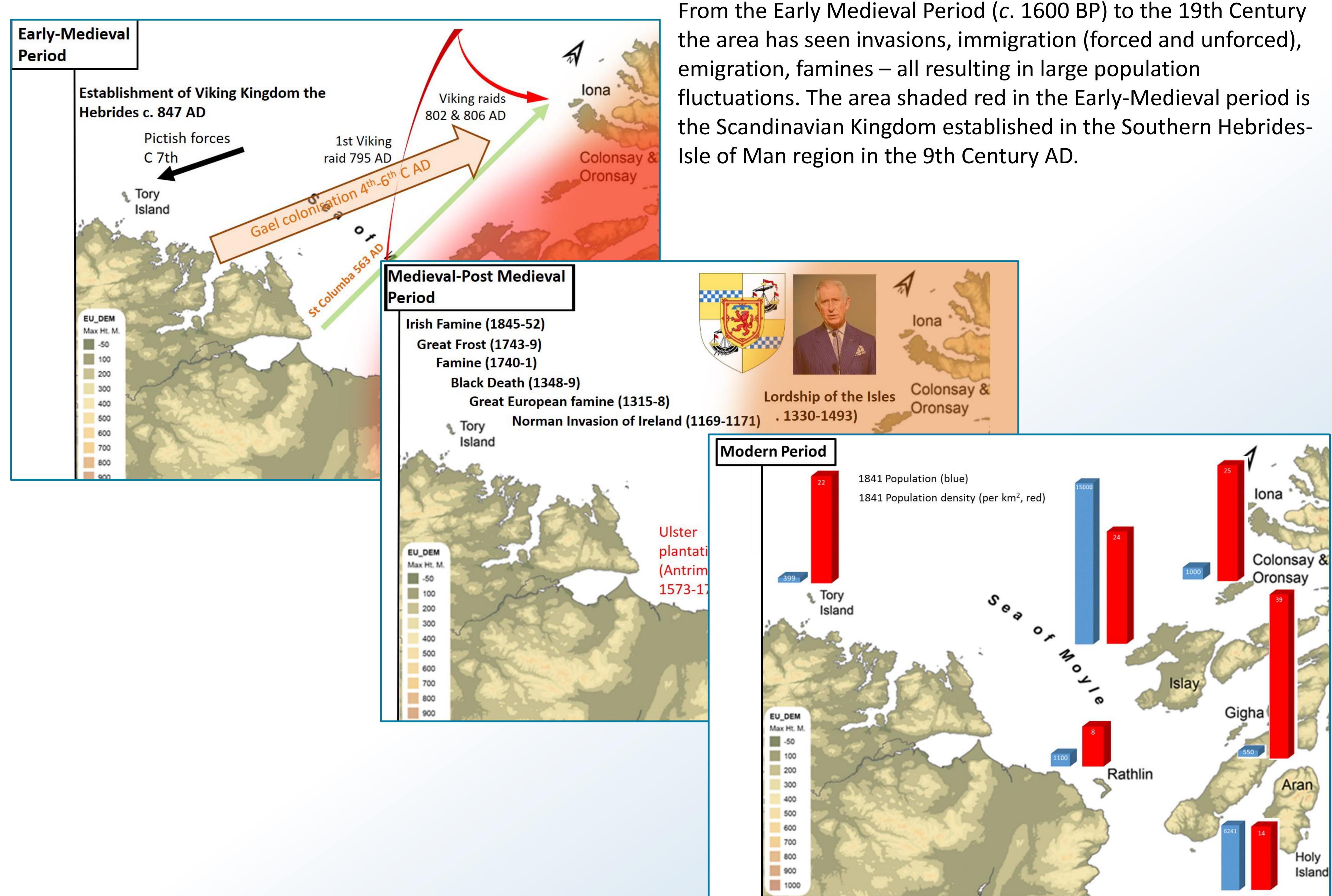
- Small islands present the opportunity to study the sustainability and resilience of complex socioecological systems over time. This project is investigating the changing landscapes, environment and population of 6-7 islands around the Sea of Moyle over the last 3,000 years.
- Today area is seen as a remote border zone between Scotland and Ireland. In the past this was not the case, and the Sea of Moyle was at times a coherent and central geographic region crossed by sea voyagers and linked by culture and kinship. The islands (Rathlin, Tory, Arran, Islay, Gigha & Colonsay) all saw the establishment of early Christian communities, were within the Dál Riata over-Kingdom in the 6th to early 7thC, were subject to early Viking Raids and then formed part of the Scandinavian Suðreyjar, or "Southern Isles".
- The later Medieval and post Medieval history of the islands is more complex and **divergent** but all six islands saw major, if not remarkable changes in population over the last 300 years.
- The project will be the first to explicitly compare archaeological proxies from islands in the same region with archaeological and historical data using new techniques (sedaDNA and lipid biomarkers) in a controlled archaeological setting.

THE ISLANDS

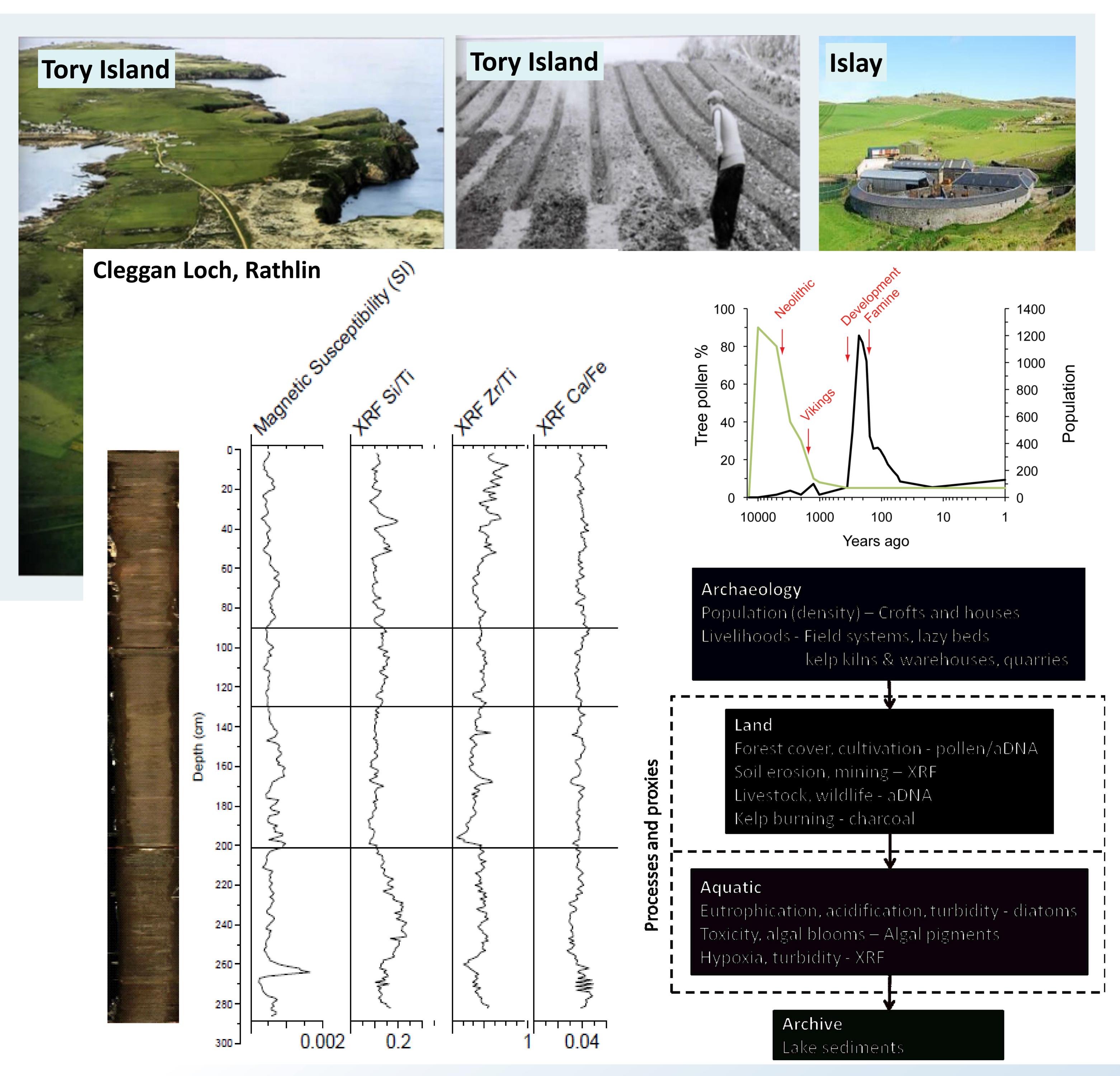


- 1. Tory Island/Oileán Thoraí
- 2. Rathlin/Oileán Reachlainn
- 3. Gigha/Giogha
- 4. Islay/Eilean Île
- 5. Colonsay/Colbhasa
- 6. Iona & Mull/Iona & Mhuile
- 7. Aran/Eilean Arainn

A COMMON PAST: WAVES OF COLONISATION



ENVIRONMENTAL TRAJECTORIES: ARCHAEOLOGY AND PROXIES



The Archaeology

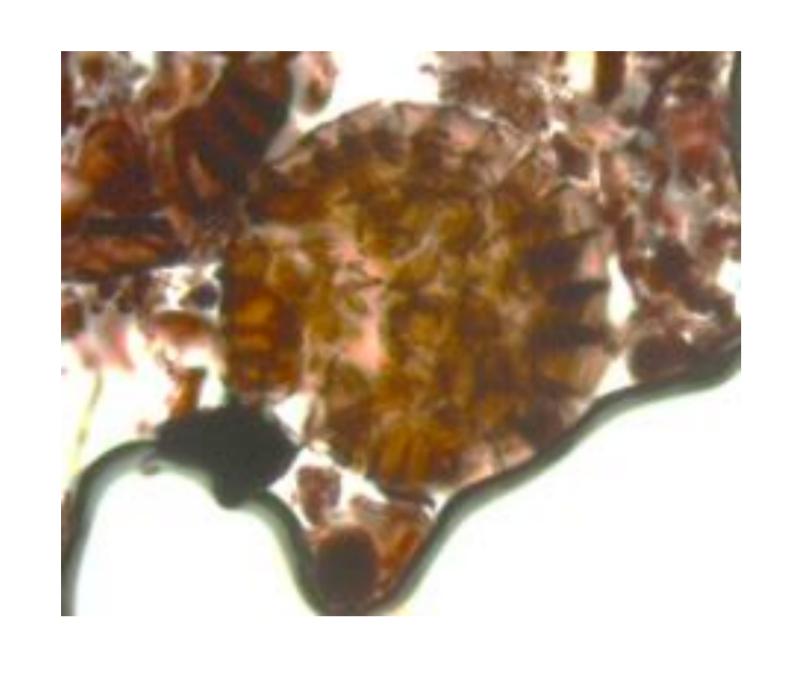
Aerial photography
Ground survey
Soil/test pits

The Proxies

sedaDNA
Feacal sterols
Bile acids
Geochemistry
Pollen
Diatoms

What has caused differing historical trajectories — what is the balance or geology, location, history-culture and their interaction with climate and disease?

TRADITIONAL PROXIES FOR HUMAN IMPACT & CRANNOG HISTORY



POLLEN & SPORES (incl. fungal spores)

- Nearly always preserved
- Well used methods

vegetation, activities, housing....



DIATOMS(Siliceaous Algae)

- Wide spread
- Well preserved

nutrients
water quality



CHIRONOMIDS
(Non-biting midges)

- Aquatic larvae develop in-situ
- Well preserved

temperature
O₂
nutrients



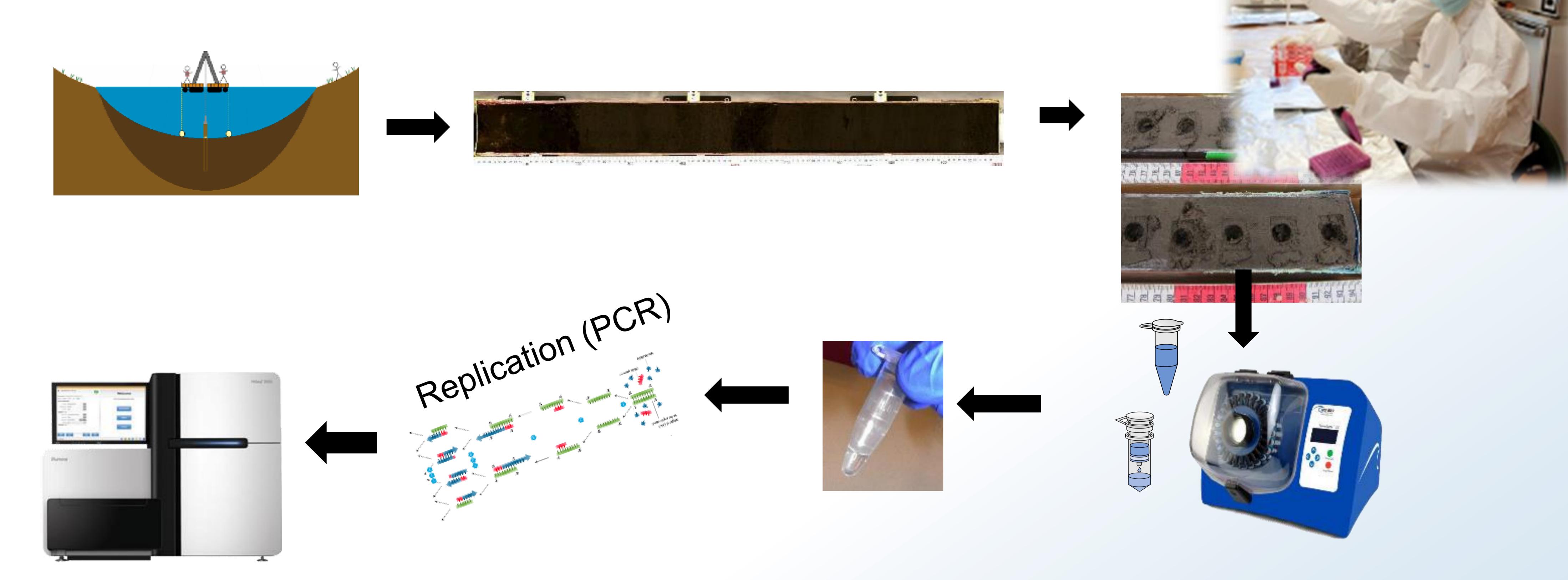
CLADOCERA (Water fleas)

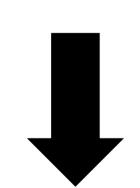
- Wide spread
- Well preserved

Bottom up processes (nutrients, O2) top down (predators)

sedaDNA

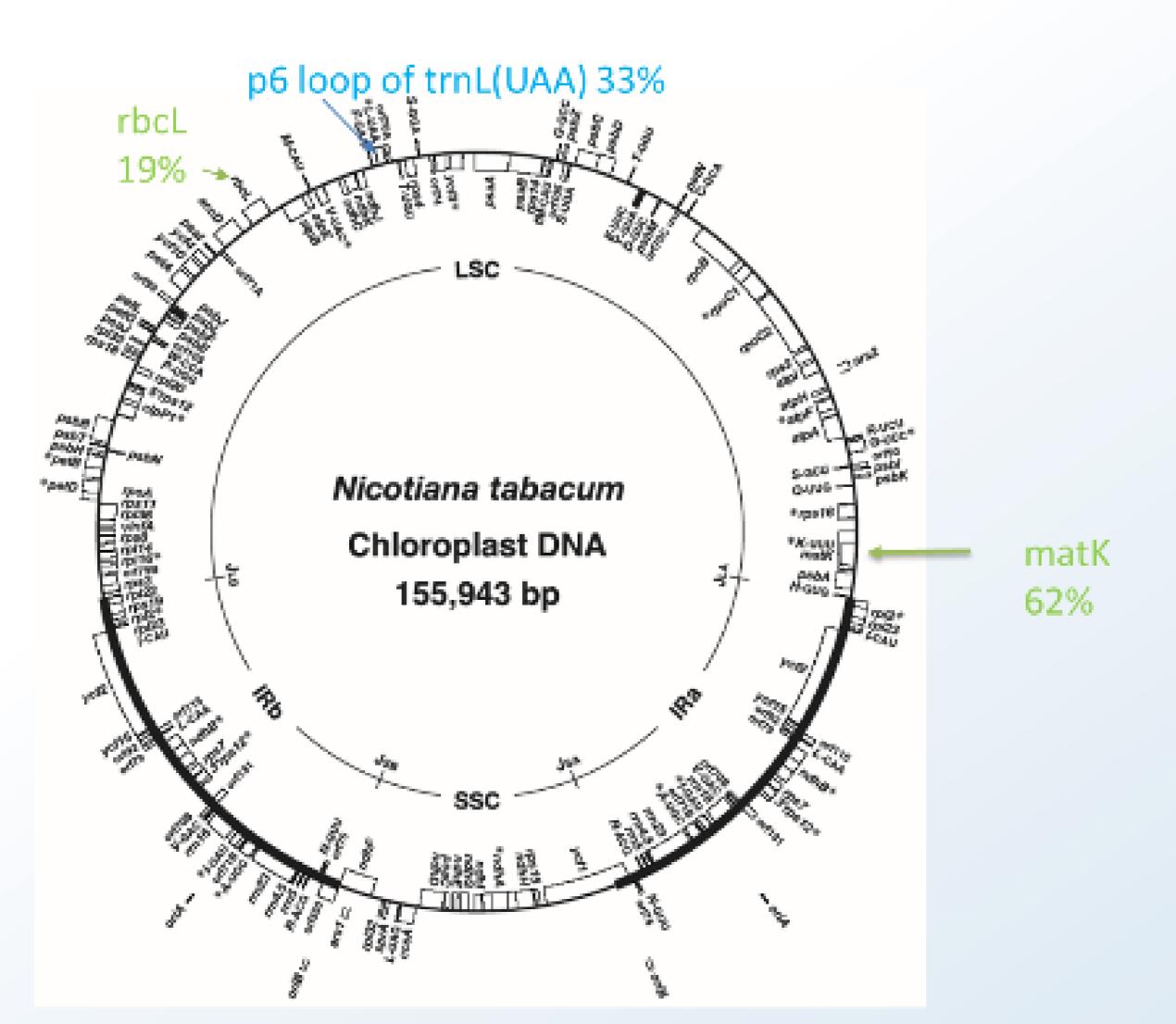
Extra-cellular DNA preserved in sediments that can be identified to genus and often sp





Bioinformatics:

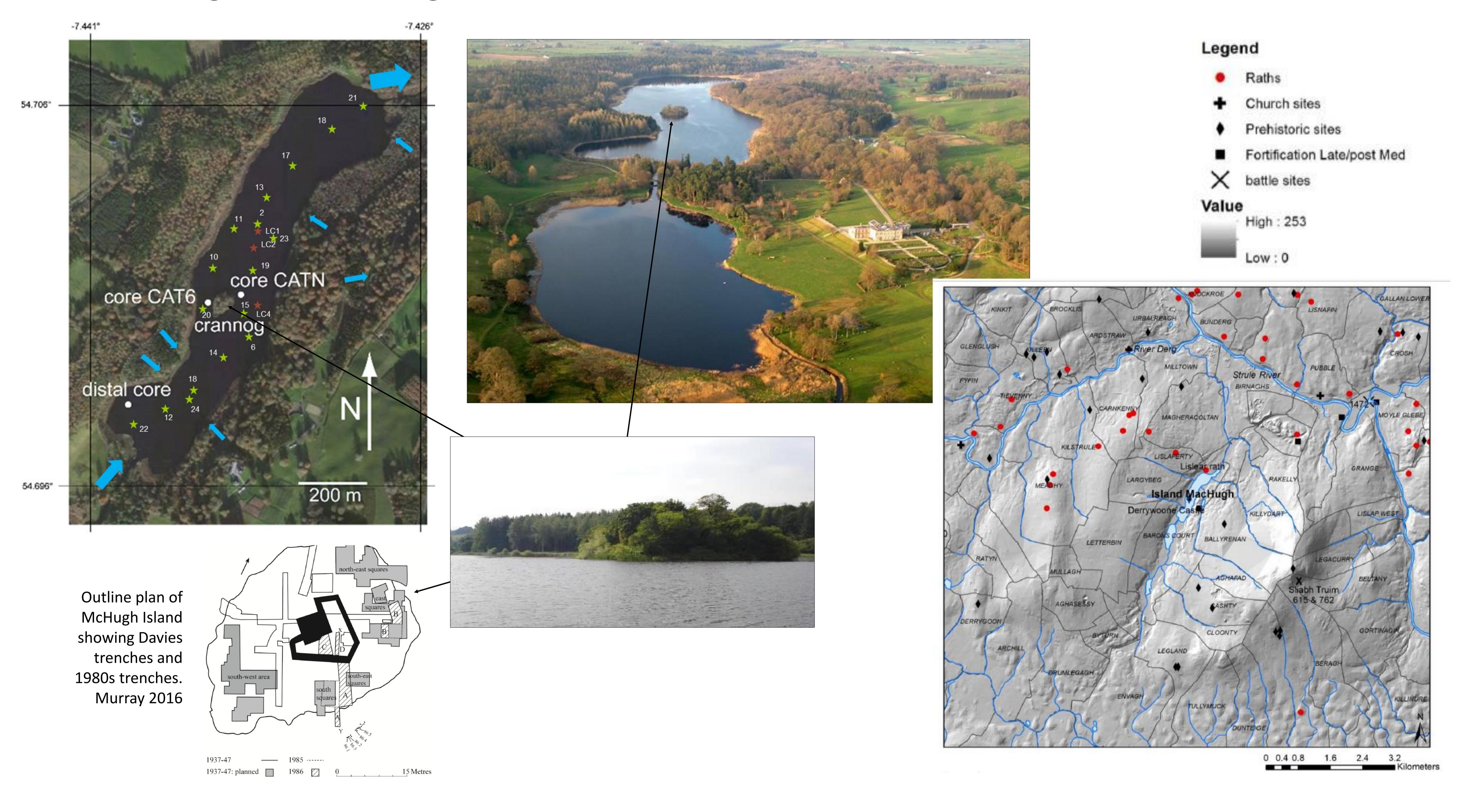
matching to reference library (e.g. PhyloNorway, GeneBank..)



- Extraction with PowerMax Soil Kit in clean lab.
- Mammal primer P007:
 MamP007F, 5'-CGAGAAGACCCTATGGAGCT-3'
 MamP007R, 5'-CCGAGGTCRCCCCAACC-3'
- Plant primer gh (p6 loop of chloroplast *trn*L (UAA) intron (Taberlet et al. 2007)
 - g, 5'-GGGCAATCCTGAGCCAA-3' h, 5'-CCATTGAGTCTCTGCACCTATC-3'
- 45-50 PCR cycles
- Illumina HiSeq 2500
- OBITools (Boyer et al. 2015 Mol. Ecol. Res.)

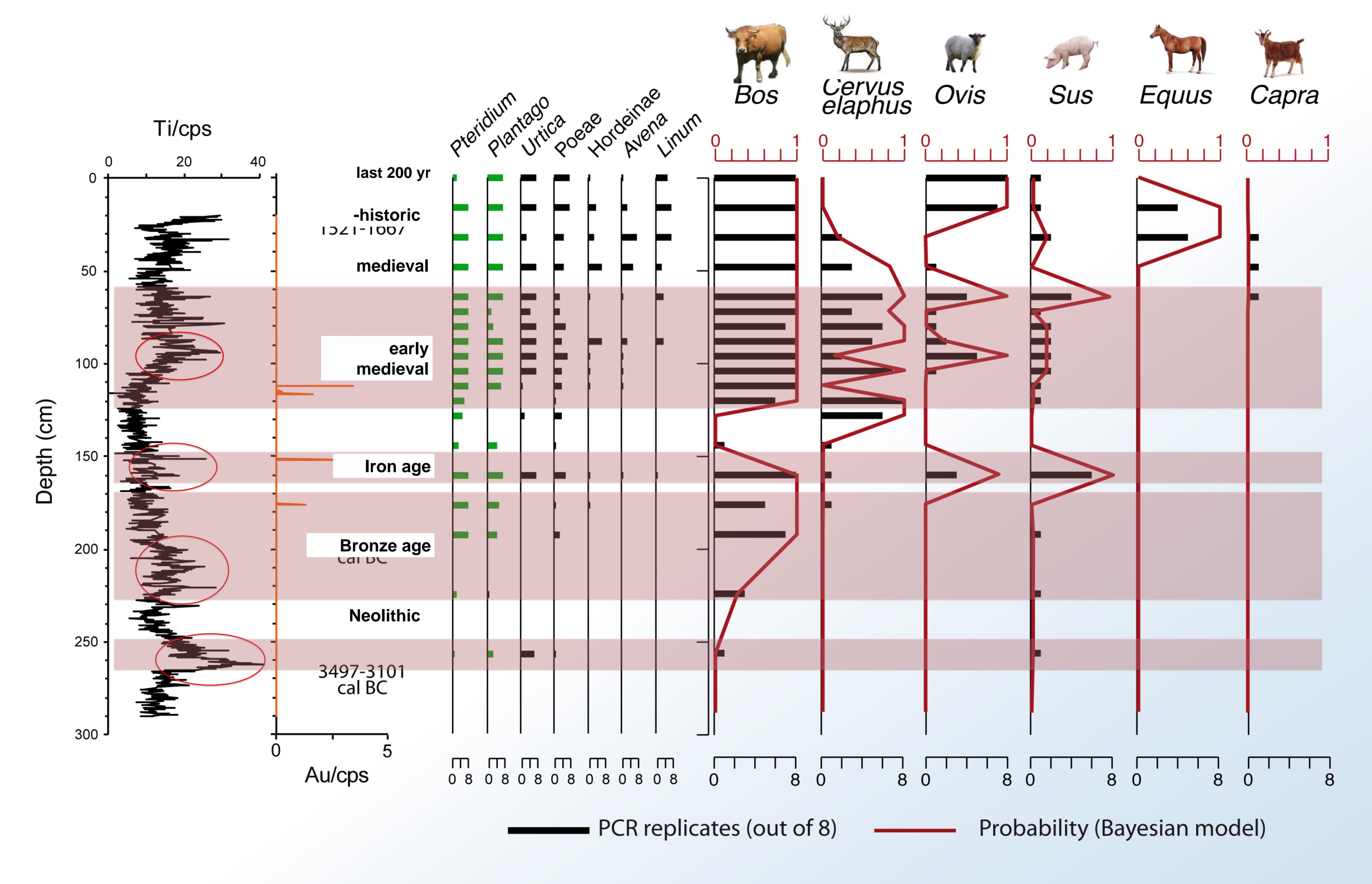
Lough Catherine, Co. Tyrone

Island McHugh – archaeological site on a natural island



Lough Catherine, Co. Tyrone

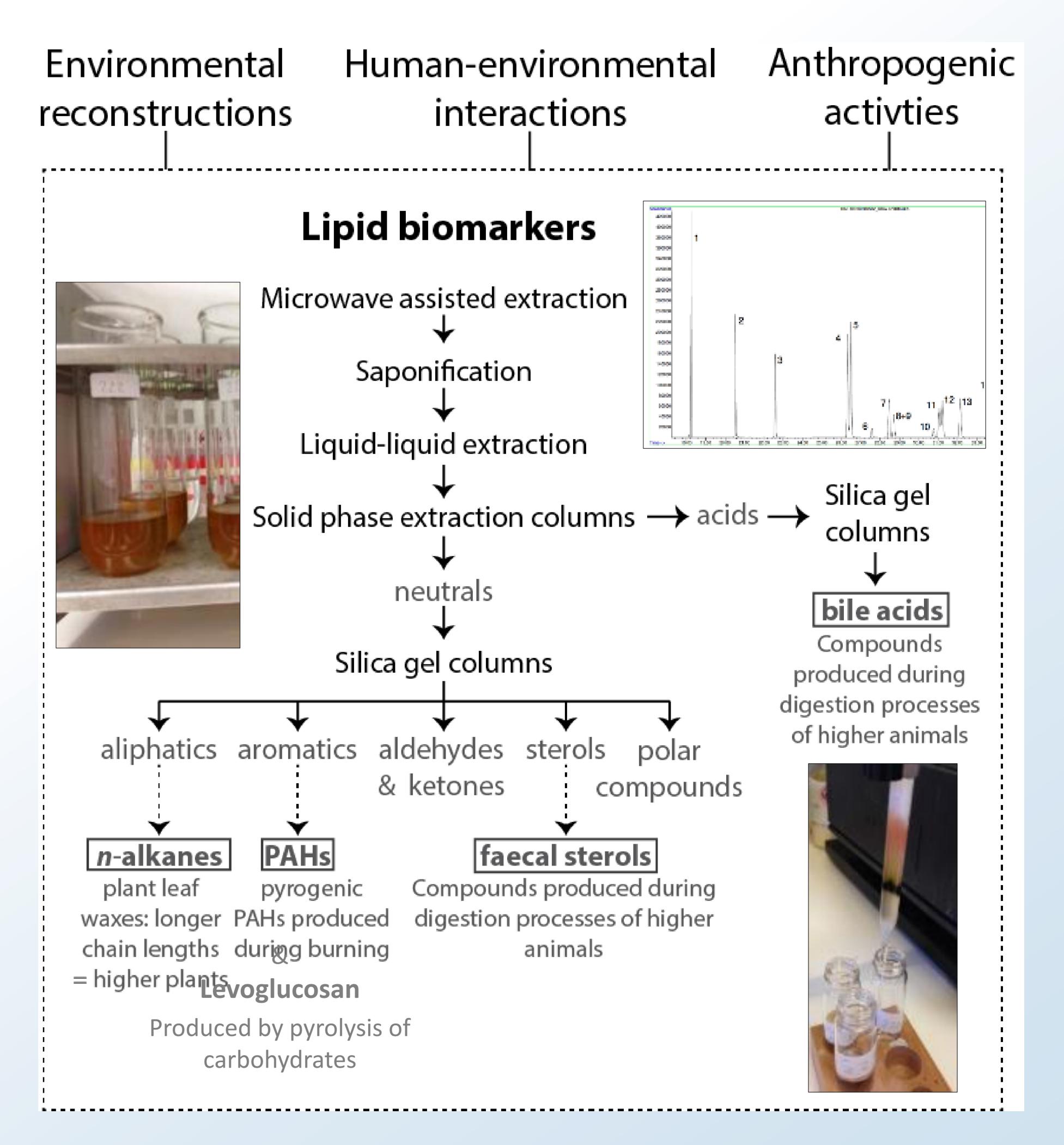
sedaDNA: domesticates & related



LIPID BIOMARKERS

Molecular fossils preserved within sediments that are indicative of a particular biological source





HISTORICAL SOURCES

THE ISLAND OF TORY; ITS HISTORY AND ANTIQUITIES.

By EDMUND GETTY, M.R.I.A.

"Usque Columbinam insulam quæ Thorach dicitur."

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PART I.

Dr. Johnson, by a few eloquent words, created an interest in Iona that still attracts to its shores pilgrims of every class; and awakens a lively curiosity regarding the history of the personage who founded its remarkable ecclesiastical buildings,—our own Columba. It is not, however, any dispar.

agement to that sacred territory to affirm, that the Island which forms the subject of the present article (and which was also one of the seats of the Royal Saint) has an interest not possessed by the Hebridean; inasmuch as we find in it, at this hour, remains of the very buildings erected by the early Christian monks, who had there devoted themselves to a life of holy seclusion. It will be found that this interest will not be diminished by a careful examination of the remains themselves; nor will the poetic fervour of the visitor be cooled down by the "ipse dixit" of some member of a Church-architectural Society, informing the enthusiast that "none of these ruins date earlier than the thirteenth century."

Saint Columba was one of the most remarkable Christian missionaries of the post-apostolic ages, not only on account of the number of churches which he founded, but for the purity of his life and doctrine. He was born at Gartin, in the county of Donegall, about the year 521; and, although his descent from King Niall of the Nine Hostages gave him a high civil rank among his countrymen, he, from a very early age, devoted himself to the service of religion. According to Jocelyn and Usher, he founded one hundred monasteries: and, in one of the lives published by Colgan, his entire ecclesiastical foundations, including monasteries and churches, are estimated at three hundred. A well-

Getty 1853

Kinship and Land Tenure on Tory Island

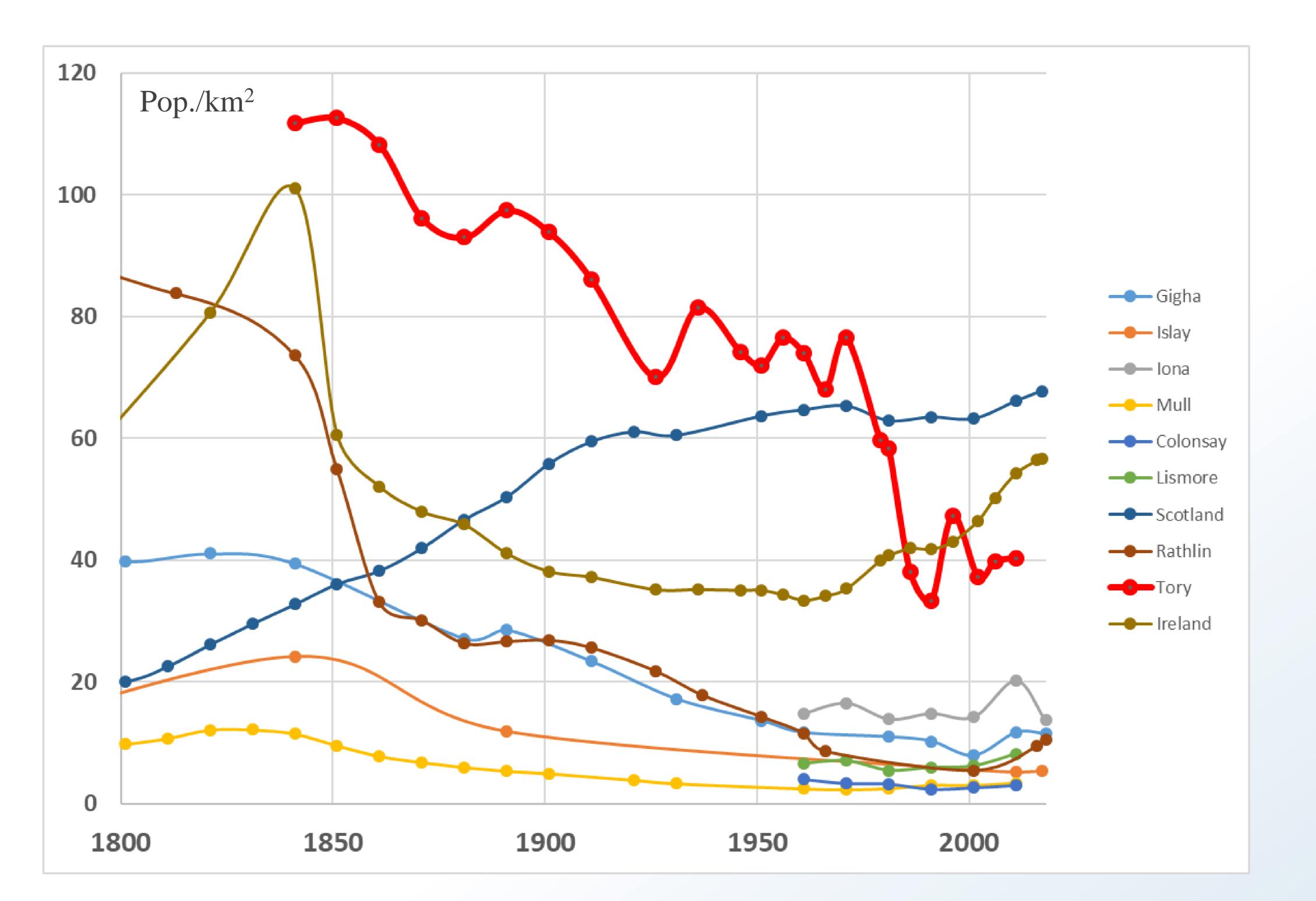
by

J. R. FOX

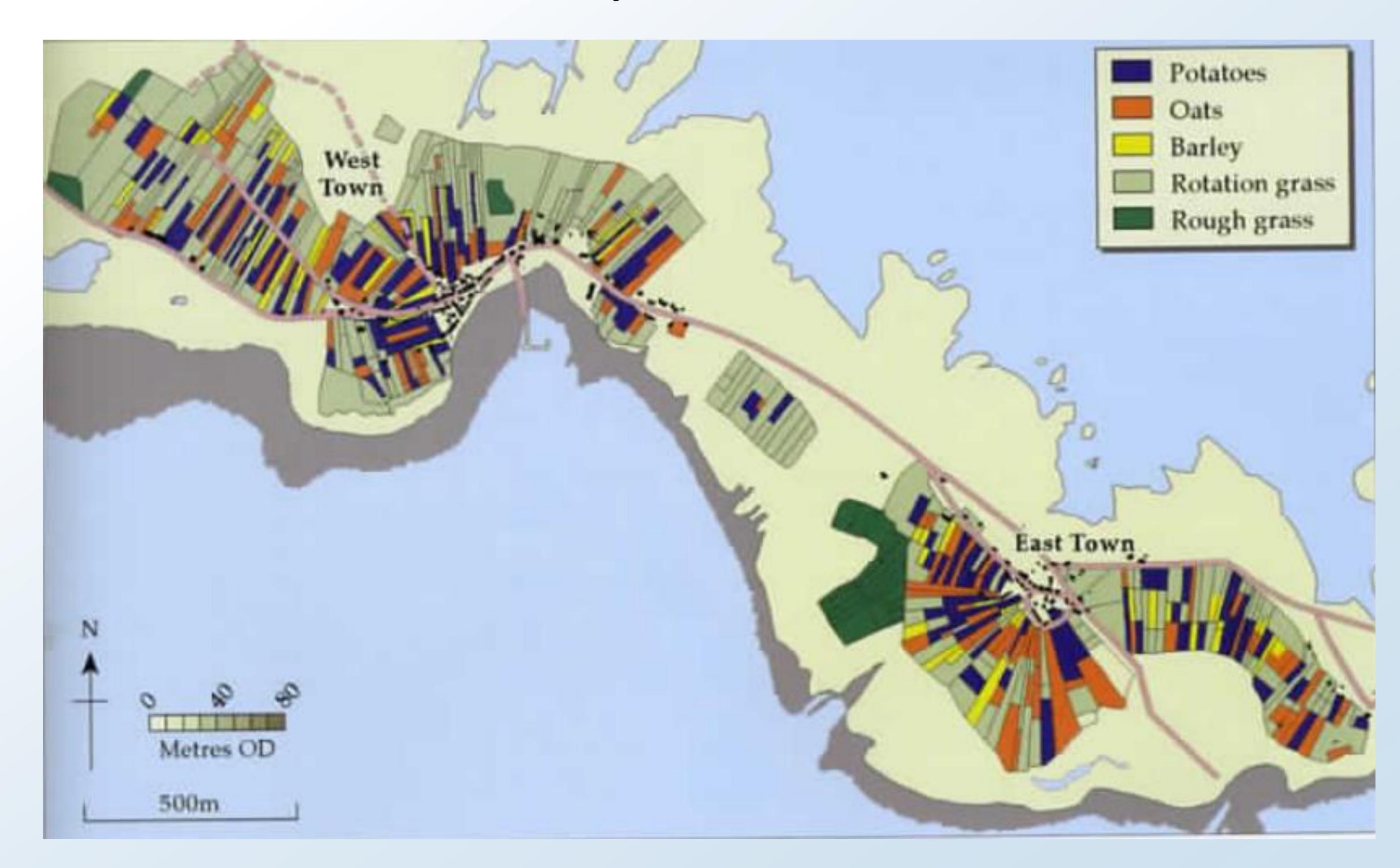
A publication of the Institute of Irish Studies Queen's University, Belfast

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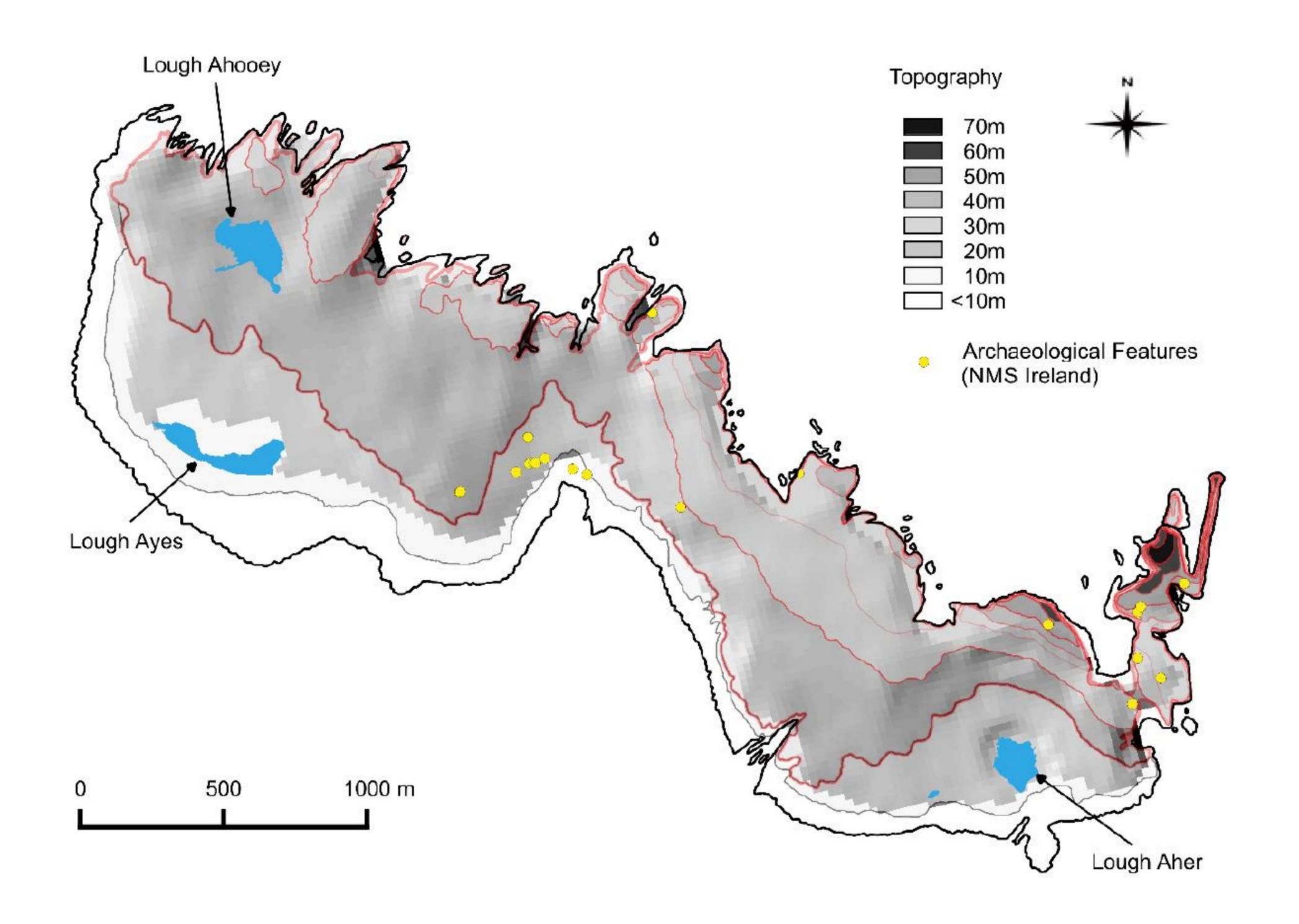
Fox 1966

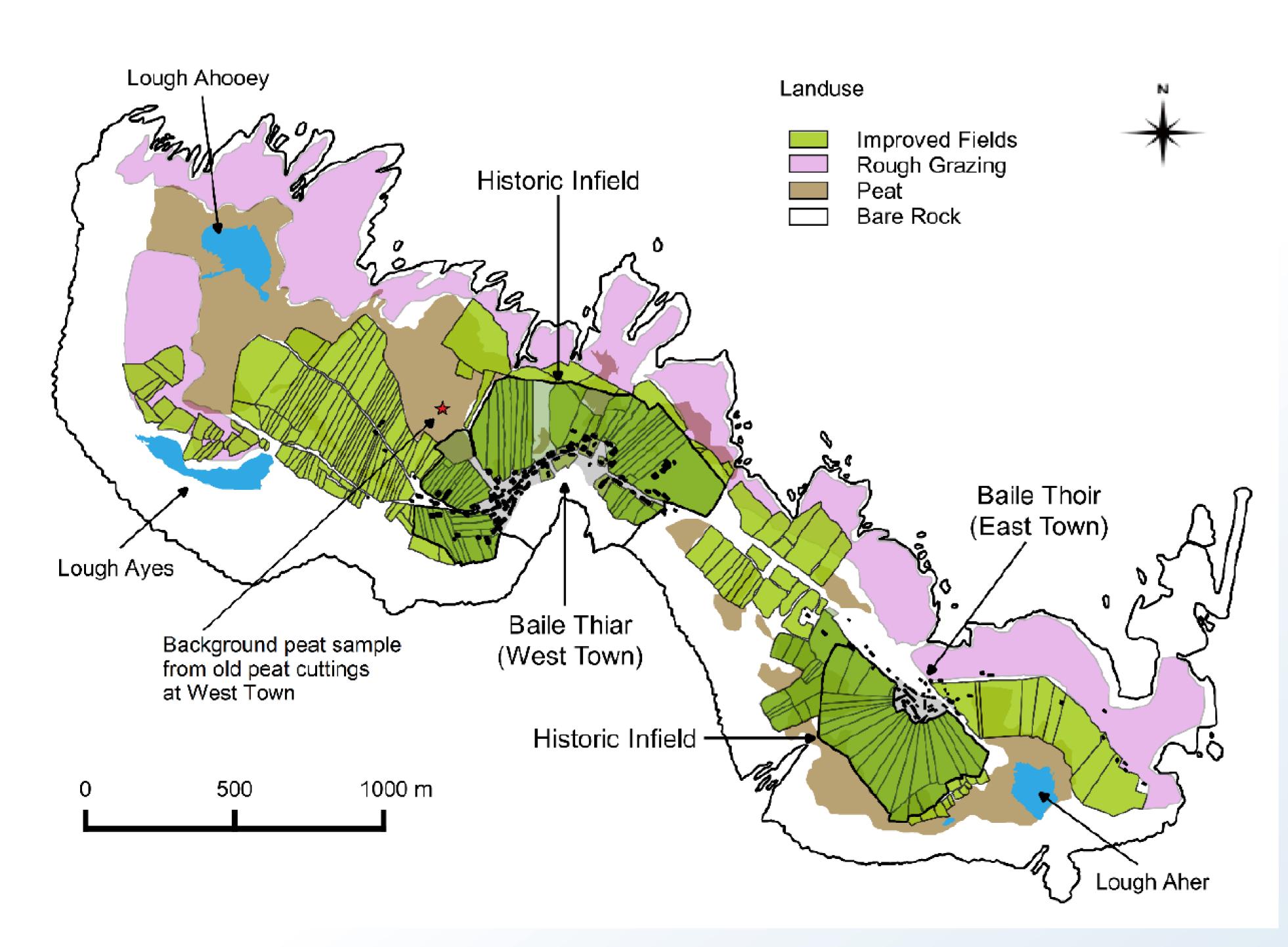


Land Utilization Survey 1958

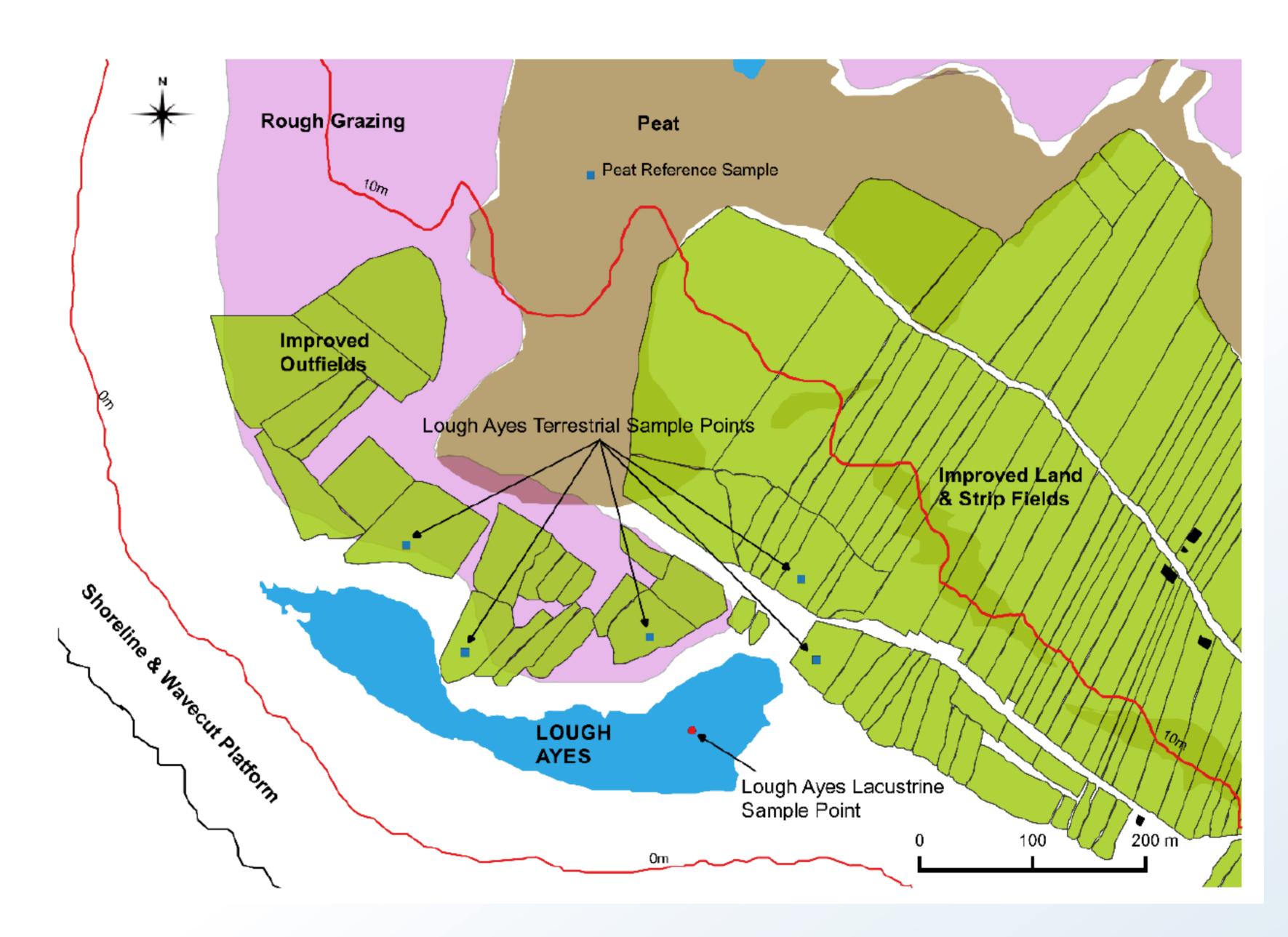


TORY ISLAND AND OUR WORK

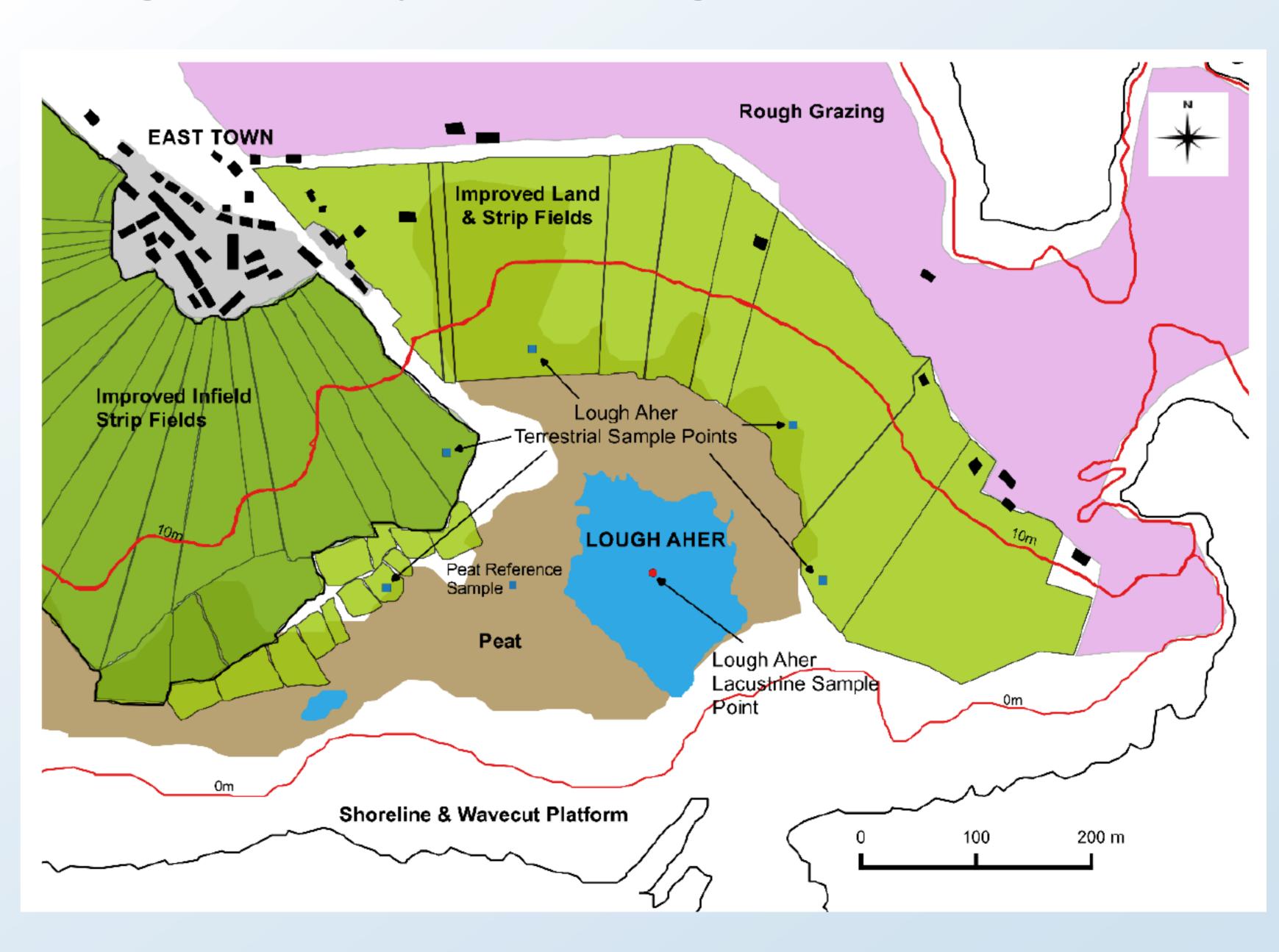




Lough Ayes (barrier lake)



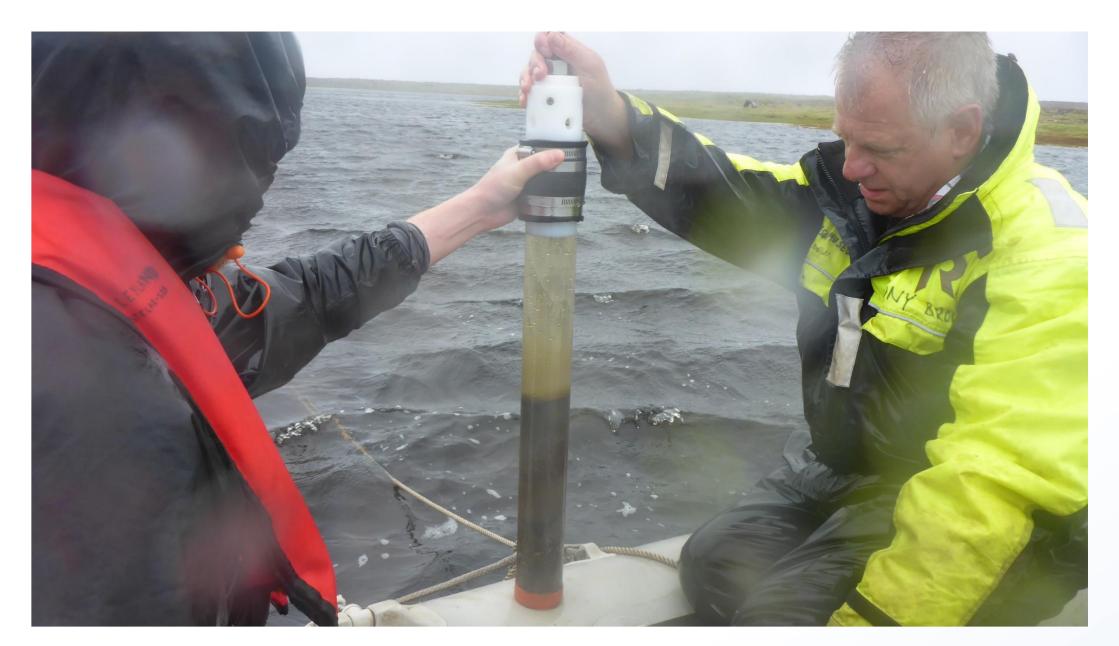
Lough Aher (peat cuting lake?)



TORY ISLAND: WHAT WE HAVE DONE

Short cores from 2 Loughs (Ayes and An Loch Thoir)





Core from a mire





Core from peat under a soil





10 soil profiles





2 exposures for longer history

TORY ISLAND: SOME OBSERVATIONS DURING OUR WORK

The Irish botanist Robert Lloyd Praeger visited Tory in 1920s botanical surveys in 1898 (Hart),

1970 and 2004 (Randall)

Increases in bracken, crocosmia and Phragmites australis

Contained since 2004: Fuchsia, Japaneses knotweed

New arrivals: Rhododendron

Key to control of these these species is grazing — enough (but not too much)





TORY ISLAND: SOME QUESTIONS WE WOULD LIKE TO BE ABLE TO ANSWER

- 1. What was Tory Island like when Neolithic peoples arrived 6000 years ago?
- 2. How much land was cultivated (and where) in the Iron Age?
- 3. What was the population size in the early Medieval period?
- 4. When did peat cutting start?
- 5. Can we date the arrival and extent of potato cultivation in the historical period?

6.

We will also produce an updated map of the archaeology of the island using GIS



AND THANKS FOR LISTENING!

You can follow our work on: http://gtr.rcuk.ac.uk/projects?ref=AH/M005259/1

Also if you are interested in being involved or contributing email us at: Tony.Brown@soton.ac.uk



Supported by:



An Roinn Ealaíon, Oidhreachta, Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta

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