Project title

Mapping Global De-Extinction Actors, Networks, and Materials

Description

De-extinction, or the process of recreating extinct species through biotechnology, is advancing rapidly amid considerable global debate within and beyond the scientific community. Proponents of de-extinction claim that it can restore lost biodiversity, combat climate change, and strengthen human-animal symbiosis (Adams 2017; DeSalle and Amato 2017). Critics argue that it diverts resources from conservation efforts while exploiting the regions that once served as its target species' natural habitats (ICUN 2016; Genovesia and Simberloff 2020). Despite growing financial backing and heightened public and media interest, there is still a significant knowledge gap in the systematic, multi-disciplinary study of the key actors, stakeholders, geographic areas, technologies, and materials associated with de-extinction. This research aims to address this gap in the field by evaluating three prominent contemporary de-extinction projects: the woolly mammoth, the thylacine, and the northern white rhino.

This IJRA project operates as part of a broader project to conduct a systemic network and ethnographic analysis of de-extinction research. During this programme, we will concentrate on the network analysis, prioritising the establishment and development a collaborative, comprehensive, and user-oriented database of the actors, networks, locations, technologies, and materials involved in global de-extinction initiatives beginning with the three aforementioned candidate species.

The network analysis comprises four main activities: (1) web scraping data sources to identify the key actors and entities involved in de-extinction research in each context; (2) building and analysing a database of relational data on the ties and connections among these actors and entities; (3) representing and visualizing these data using network graphs and metrics; and (4) creating and publishing an interactive online map to show the geographical connections among the data. During the IJRA programme, we will focus on the first two activities with the opportunity to lead into the second two activities.

Method

For the web scraping activity, we will use tools such as Scrapy to scrape data from project websites, social media, press releases, media coverage, and academic publications. We will extract information such as names, affiliations, roles, locations, and contact details of the actors and entities involved in these de-extinction projects.

For the database activity, we will use software such as MySQL to store and manage the scraped data. We will also use software such as Python pandas or R tidyverse to clean, process, and analyse the data. We will collect and calculate relational data on the ties and connections among the actors and entities, such as collaboration, communication, citation, funding, influence, or conflict. We will also use descriptive and inferential statistics to measure the structure, composition, dynamics, and patterns of the networks.

Skills / experience required

We are seeking a candidate from a field such as informatics, data science, science and technology studies, the social sciences, and / or the digital humanities who is interested in one or more of the following areas: biotechnology, genomics, genetic engineering, de-extinction, conservation, postcolonialism.

We are looking for a candidate who meets some, if not all, of these requirements:

- Experience with open-source web-scraping tools, such as Scrapy
- Familiarity with database software, such as MySQL
- Proficiency in Python or R (for data processing and analysis)

Additional Skills (not required):

- Familiarity with network analysis and modelling software, such as Gephi, NetworkX (Python), or igraph (R)
- Familiarity with GIS software, such as QGIS
- Familiarity with mapping software, such as Leaflet or Mapbox

Key readings

Extracts from – Latour, B. (2005) Reassembling the Social: An Introduction to Actor-Network-Theory (Oxford; New York: Oxford University Press).

Marres, N. (2015) Why map issues? On controversy analysis as a digital method, *Science, Technology, & Human Values* 40(5), pp. 655–86. doi:10.1177/0162243915574602.

Developing article – Nelson, S. and O'Riordan, K. Mammoths and tigers and rhinos, oh my: Mapping de-extinction species and networks.

Searle, A. (2020) Anabiosis and the liminal geographies of de/extinction, *Environmental Humanities* 12(1), pp. 321–45. doi:10.1215/22011919-8142385.

Database Documentation (MySQL or similar). https://dev.mysql.com

Learning Outcomes

Critical Thinking and Interdisciplinary Integration: The candidate will develop interdisciplinary critical thinking skills by integrating knowledge from various disciplines to interpret data related to de-extinction

Data Collection and Management: The candidate will gain proficiency in using web scraping tools for data collection and database software for data management

Data Processing and Analysis: The candidate will gain proficiency in data processing and analysis, including cleaning, processing, and employing descriptive and inferential statistics to understand network patterns

Network Analysis Skills: The candidate will have the opportunity to develop skills in network analysis, including building and analysing a database of relational data, understanding the connections among de-extinction actors and entities, and using tools for network visualisation and mapping

Communication and Presentation Skills: The candidate will develop skills in effectively communicating complex data and findings, both verbally and in written form, with the opportunity to create interactive online maps and visualisations for diverse academic and public audiences

Supervisor: Sandra Nelson

Department: Media, Arts and Humanities

Note: This project will be co-supervised by Kate O'Riordan.