# Nantucket Biodiversity Digital Repository

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#### CHALLENGE: RESEARCH OUTPUTS **DESERVE FINDABILITY**

The Nantucket Biodiversity Initiative (NBI) is a consortium of non-profit organizations on Nantucket Island, MA that supports researchers studying biodiversity on the islands of Nantucket, Tuckernuck, and Muskeget. Since 2005, NBI has sponsored five research projects each year with grant funding and logistical support, but the reports and datasets from these projects were stored offline. NBI wanted to make these resources findable, citable, and available under the standards of open science.



NBI funds biodiversity research and organizes a conference every two years. It is a collaboration of Nantucket science non-profits. Clockwise from top left: NBI Committee members, NBI conference, NBI Citizen Science trip, and a researcher studying bats

# **OPEN SCIENCE**

- Increases reproducibility
- Lowers barriers to access
- Increases opportunities for collaboration across space and specialization
- Speeds innovation and knowledge creation

# WORKFLOW

Researcher	NBI → Curates Data and Report	NBI Metadata Form Information entered into this form describes the research output(s) destined for the NBI Digital Repository. Your answers below will be uploaded onto the digital repository with the research output you are describing. Put the accompanying research output files
Has Data Report	Confirms Any Changes with Researcher	(report/dataset/etc) into [in progress]  * Required Upload Type
Formats Report and Data	Submits NBI Metadata Form Submits Data and Report	Choose -
		Protected Species and Locations For both datasets and reports: Do the files contain any sensitive information regarding protected species or locations? Choose an option below. If yes, DO NOT upload the full mean or dot patienteed assets a new off with the file, without on a abstract for upload. This account of the sense of the s
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Clockwise from left: Workflow, NBI Metadata form, Zenodo upload page. The workflow ties in with NBI's organizational structure to make the curation and upload process as efficient as possible

# **Controlled Keyword Vocabularies**

- Based on NBI reports and domain specific terms Important for search consistency
- Controlled vocabularies include: geography, study type, specific location, and study method

## **Other Considerations**

- Global Biodiversity Information Facility (GBIF) for subject identifiers
- Special keyword for NBI grant funded projects
- Provide simple but detailed data curation instructions

# Tools



#### **Google Drive**

- File Storage
- Google Form
- Controlled Vocabularies
- Accessible to NBI Members





GitHub

- Documentation
- Hosts Website
- Collaborative workspace



#### Zenodo

- Established Repository
- Mints DOIs Communities
- group uploads

# DOCUMENTATION

Nanucket Biodiversity Initiative							
Researchers	NBI Curators	About the Repository	Open Science FAQ	Visit the Repository			
NBI Cu	rator Overview Curati	ion Process Uploading Data & Re	eports Specifications & Technic	cal Details			
Ceneral Workflow Overview Collecting Reports and Datasets Curating Data Metadata and File Submission Preparing for Upload Uploading	This is an overview researchers to fina- view. Overview Definitions of Role Researcher outputs tha Wrangler: T researcher? Uploader: T of research Researcher Respo Submit a report ar option for dataset 1. Submit data arrange a d	The person or representative of t t are within the scope of the repose the NBI committee member who f s work and has the most knowled the NBI committee member who i outputs along with any outputs w <b>nsibilities:</b> and metadata form one year after re (s): a with report for upload. a with report for upload. a with report and agree to the defa ifferent embargo timeline. port only and agree to a custom e	lored to the NBI committee mer he group of people who produc sitory. facilitates an NBI funded (or othe ge of the individual project. s responsible for uploading each ith expired embargoes. ecciving funds from NBI and cho ault two year embargo period fo	mber's point of ced research er) h year's worth pose one	Project mai nantucketb Hosted on Gi by mattgraha		

The documentation site hosted on GitHub contains information for researchers, a curation protocol, and general resources for NBI Committee members

### Testing

Two studies with users to test the findability of information within the documentation site.



Results from the second treejack test. We analyzed the paths users took as they attempted to find specific information by navigating through a mock-up hierarchy of the documentation site pages, helping us increase usability.

# Users



Created by Milinda Courey from Noun Project

#### **Researchers**

- Diverse backgrounds
- Mixed data curation skills
- Uncertainty about data sharing



#### **NBI Members**

- Time is valuable • Mixed data
- curation skills • Work closely
- with researchers



Created by Milinda Courey from Noun Project

- Students, journalists,
- educators • Need search,
- Need citation
- function



# **Information School** UNIVERSITY of WASHINGTON

# REPOSITORY

	ZECOCO Search Q Upload Communities					
	Nantucket Biodiversity Digital Repository					
	Recent uploads					
	February 15, 2017 (v1)       Report       Open Access       View         Biodiversity of the tunicate fauna at Nantucket and Muskeget Islands       View       Carmen, Mary R.;         Report submitted in fulfillment of a 2016 Nantucket Biodiversity Initiative grant. Tunicates (Ascidiacea) are common benthic marine invertebrates that occur in New England and elsewhere from the intertidal zone to the deep sea. In the near shore, they are often the dominant fouling organ       Nan tucket         Uploaded on May 9, 2020       Description       Nan tucket					
	February 15, 2010 (v1)       Report       Open Access       View         Inventory of Nantucket Macrofungi       Milman, Lawrence;         Report submitted in fulfillment of a 2009 Nantucket Biodiversity Initiative grant. Nantucket's plant diversity might suggest an equivalent diversity of fungal species, since diversity in fungi is often predicated on diversity either in host plants, if the fungus is parasitic, or in symbiot       Nantucket Biodiversity Digital Repository         Uploaded on May 9, 2020       Uploaded on May 9, 2020       Nantucket Splant diversity might suggest if or curation and maintenance. Any resource with					
	February 15, 2008 (v1)       Report       Open Access         Inventory of the ants of Nantucket       View					
	<ul> <li>Ellison, Aaron M.; Allison, Taber, Gotelli, Nicholas; Cover, Stefan;</li> <li>Report submitted in fulfillment of a 2007 Nantucket Biodiversity Initiative grant For summer of 2007, we (Aaron Ellison, Nick Gotelli, Stefan Cover, and Taber Allison) received \$1000 from NBI to support our work inventorying the ants of Nantucket. In addition to the field work conducted in July, we</li> <li>Curated by: nantucketbiodiversity</li> <li>Curated by: nantucketbiodiversity</li> <li>Curated by: nantucketbiodiversity</li> <li>Curated by: nantucketbiodiversity</li> </ul>					

#### **Future Users**

browse function

The repository is a community on Zenodo. It is accessible to anyone and includes both search and browse features

# Impact

#### The repository enables

- Easy summarization of NBI funded research for reporting
- Search and access for reports and datasets
- Persistent linking and citation for researchers' work

#### Larger impacts include

- Advances open science principles, and uplifts NBI as an advocate for open scientific research and collaboration
- Sets an example for similar organizations
- Replicable by other organizations using the open source documentation and free tools
- Broadens access to the research outputs
- Opens the possibility of NBI funded research to lead to new scientific discoveries

#### Acknowledgments

Sarah T. Bois, acting as NBI's representative in the role of sponsor, guided us and answered many questions. Karen Beattie provided access to all NBI reports and her maintenance of these files over the years made this project possible. We thank all the NBI committee members who helped with testing.