



Christine Johnson, Curatorial Associate, Division of Invertebrate Zoology
Challenge: Map the Collections

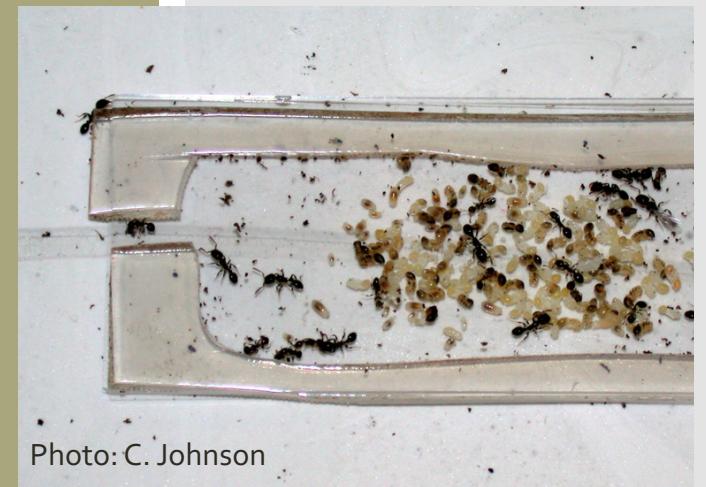
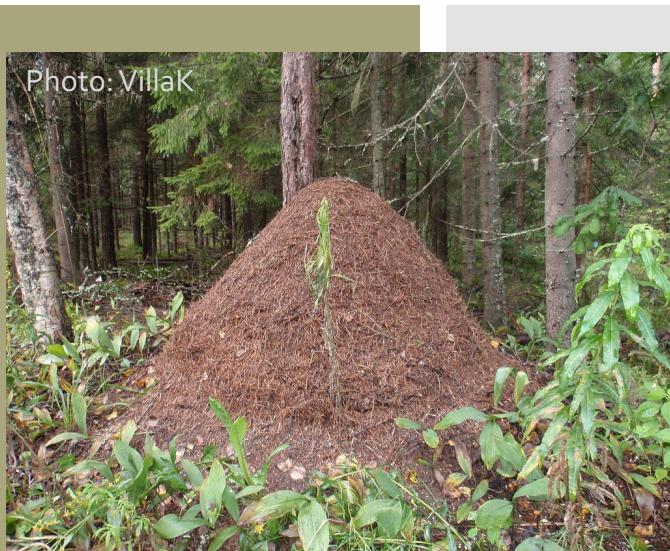


"slave-maker" ants

Ph.D. in Biopsychology
Research on behavioral &
chemical ecology of ants



wood ants



acorn ants

Photo: Erin Chapman



Mutillidae = wingless wasps

Curatorial Associate

Collections Management, Invertebrate Zoology

Invertebrate Zoology:
insects
terrestrial arthropods
marine & freshwater invertebrates



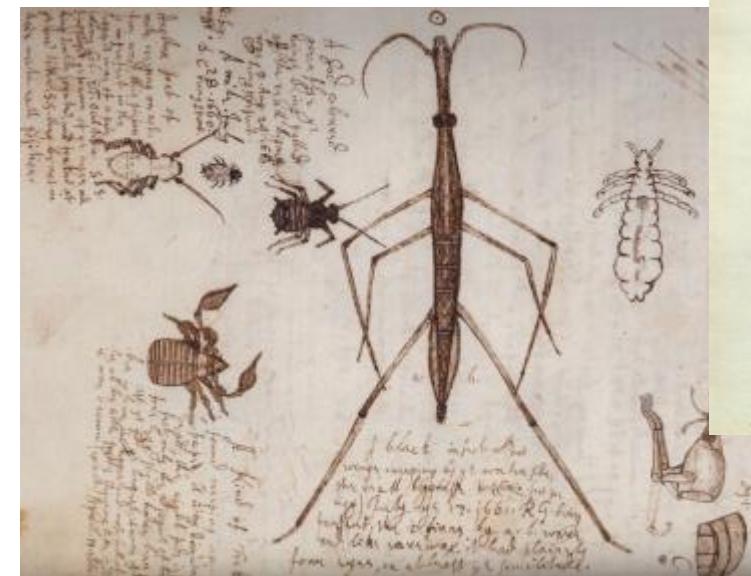
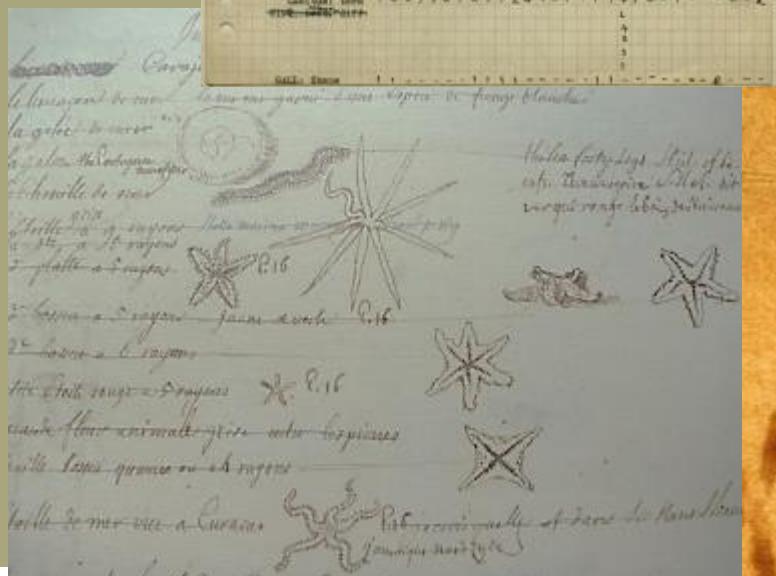
Estimated specimens in IZ collection

23,340,068

Specimens date back to
mid-late 1800s



Photo: Denis Finnan





Collections Management – Proper Storage

Phyla: Arthropoda

Class: Insecta

Order: Lepidoptera

Family: Papilionidae

Subfamily: Papilioninae

Tribe: Troidini

Genus & species

Collections Management – Taxonomic organization



Photos: Tam Nguyen

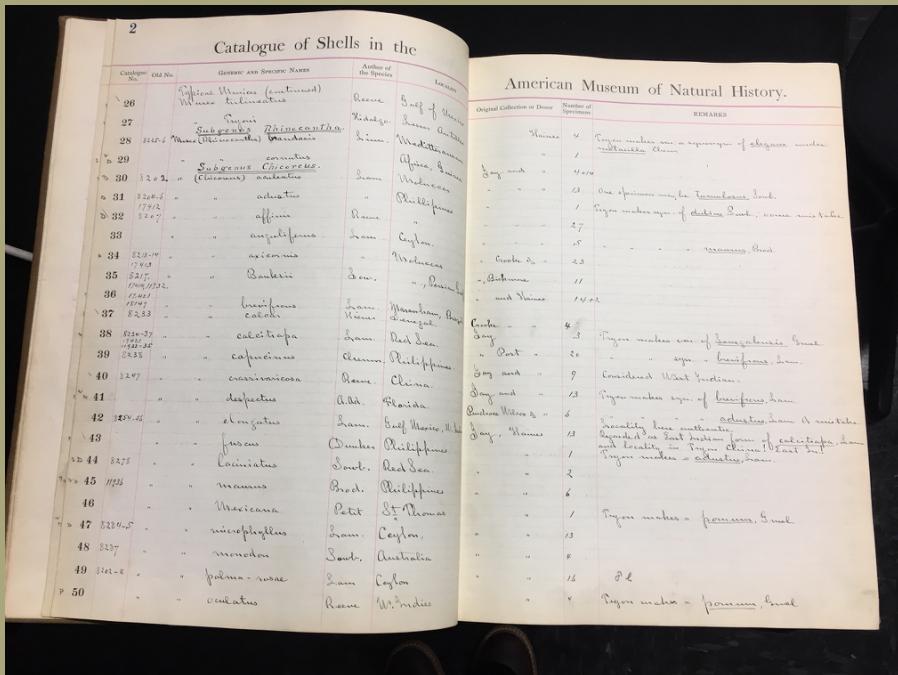
Collections Management – Associated information



1. Collecting information (where, when, who)
2. Catalog/specimen number
3. Identification label (species identification)

American Museum of Natural History
SOLOMON ISLANDS: Western Province,
Shortland Island, Coral Sand Beach, Whitney
South Pacific Expedition, 12.IX.1929, Coll.: W.J.
Eyerdam; IZ Acc. No. 6351; rcvd. 17.VII.1930
CITES Appendix II





Catalog (1) - Display

File Edit Select View Tools Preps Tabs Multimedia Window Help

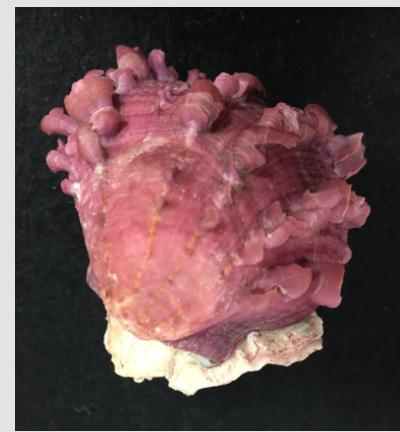
Crustacea Brünich, 1772., Cat.Crustacea 19100, COMMONWEALTH OF THE BAHAMAS, Sta. WP 145 Q5 CC 10019546

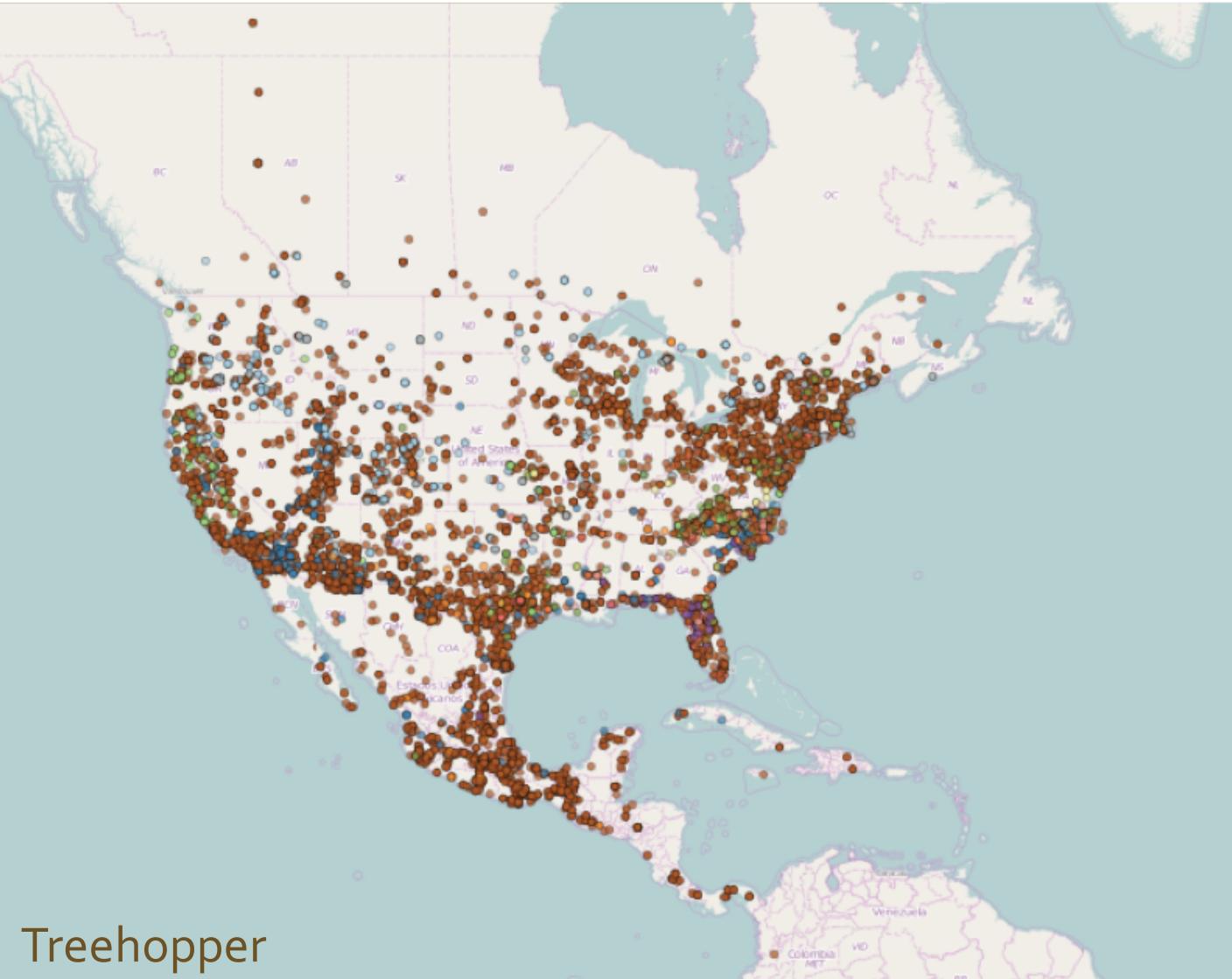
Catalog Numbers	Prefix:	Unique Specimen Identifier:	Suffix:									
Barcode Cat. Num.:	Crustacea 19100											
Legacy Cat. Num.:	Crustacea											
Coll. Subset:	Crustacea											
Bulk Record:	<input type="radio"/> Yes	<input checked="" type="radio"/> No	Lot Count: [] Cur. Count: []									
Accession Numbers												
AMNH Accession No.:	63582											
Division Accession No.:	10380											
Other Numbers	<table border="1"> <thead> <tr> <th>Other Numbers Category</th> <th>Source</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>1 Catalog No.</td> <td>RINMS Crustacea FM...</td> <td>Crustacea 19100</td> </tr> <tr> <td>*</td> <td></td> <td></td> </tr> </tbody> </table>			Other Numbers Category	Source	Value	1 Catalog No.	RINMS Crustacea FM...	Crustacea 19100	*		
Other Numbers Category	Source	Value										
1 Catalog No.	RINMS Crustacea FM...	Crustacea 19100										
*												
Physical History & Storage Medium	<table border="1"> <thead> <tr> <th>Storage Medium</th> <th>Storage Container</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>1 EtOH:</td> <td>Jar: 1</td> <td></td> </tr> <tr> <td>*</td> <td></td> <td></td> </tr> </tbody> </table>			Storage Medium	Storage Container	Date	1 EtOH:	Jar: 1		*		
Storage Medium	Storage Container	Date										
1 EtOH:	Jar: 1											
*												

Data Entry Specimen Info. Determination Eco/Host Rel. Associations Storage Loc. Monitoring Loan History

cjohnson Invertebrate Zoology 20146

Collections Management – Cataloging & Databasing

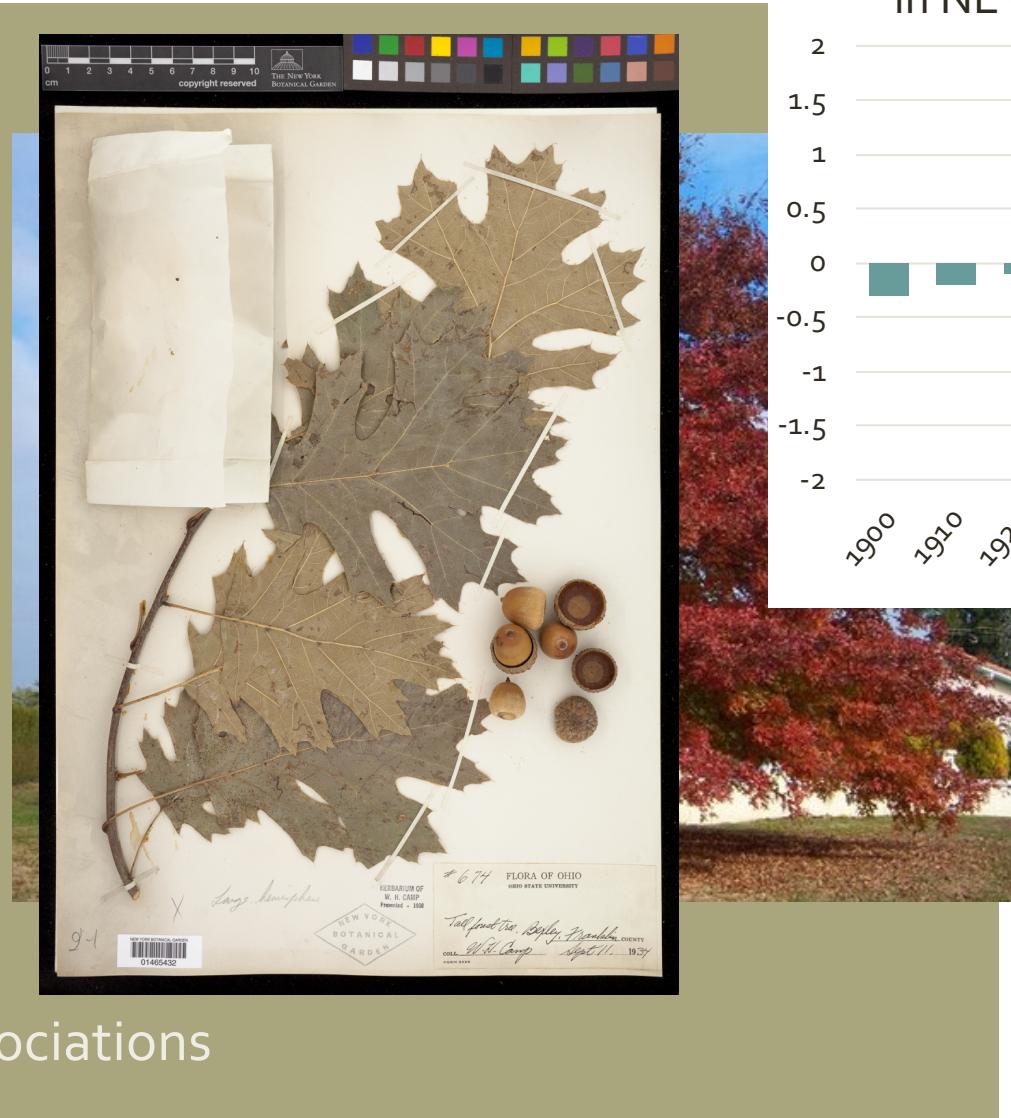




Mapped using geographical coordinates



Collections Management –
Databasing → Making Associations



Average Temperature Change ($^{\circ}$ F)
in NE U.S. Over Last 100 Years

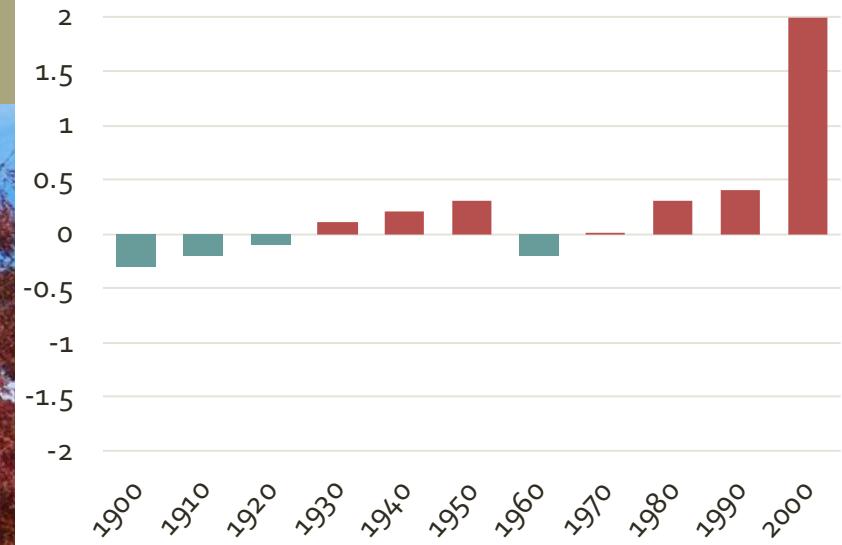


Figure source: NOAA NCDC/CICS-NC,
<http://nca2014.globalchange.gov/report/our-changing-climate/recent-us-temperature-trends#tab2-images>

Map the Collections

Main challenge components:

- Parse & clean locality data
 - Provide geographical coordinates
- Clean taxonomic names
- Visualize ecological communities in space & time by mapping specimen record data

Tracking Number	Coll. Subset	Catalog Num	Family Name in Database	Genus Name	Species Name in Database	Species Year	Determined by Verbatim	NOTES: Specimen Notes	Notes on Labels	Type of Type	Specimen Number	Photographed	Storage Medium	Continent	Ocean	Country	Department / Province / State	County	City/Town/ Hamlet	Specific Locale	Latitude (from)	Latitude (to)
M5905	Mollusca	260780	Cypraeidae	Cypraea	cylindrica	1778	Received from collector on May 18, 1910.	Found on reef in 0.3 tide	Received from collector on May 18, 1910.	1	Dry		Indian Ocean	Australia	Western Australia	Broome						
M5185	Mollusca	258878	Conidae	Conus	fulmineus	1791	Trawled			1	Dry			Australia	Queensland				Cape Moreton			
M5311	Mollusca	251922	Cerithiidae	Rhinoclavis	aspera	1758		In sand between rocks.		1	Dry			Australia	Queensland				Mackay Reef (Cay) off Port Douglas			
M5113	Mollusca	259649	Camaenidae	Thersites	fraseri	1833		Ex Mal de Mer Enterprises		1	Dry			Australia	Queensland							
M6602	Mollusca	275596	Corticulidae	Corbicula	angasi	1864				10	Dry			Australia	South Australia							
M5758	Mollusca	263312	Thiaridae	Plotopsis	tetra	1850				12	Dry			Australia	Victoria							
M5798	Mollusca	259674	Orthalidae	Bothriembryon	kingii	1825		On trees & shrubs in Jarrah forest ex Mal de Mer Enterprises		1	Dry			Australia	Western Australia				in Jarrah forest			
M11835	Mollusca	289888	Muricidae	Trophon	orpheus	1849				1	Dry			Canada	British Columbia				Bennett's Point near Campbell River			
OIP13128	Crustacea	Crustacea 69	Peneaidae	Farfantepenaeus	duorarum	1939	Martin D. Bu Orig. No. 12	Originally identified as Penaeus duorarum, now: 1		EtOH:	Africa	Atlantic Oce	ANGOLA	Benguela Province					Libito City			
M128	Mollusca	226546	Turridae	Agathotoma	temporaria				Paratype(s)	1	Dry	Africa	Atlantic Oce	Angola					Luanda			
OIP13127	Crustacea	Crustacea 16	Paratanaididae	Paranarthrus	similis	1971	K. Lang		Syntype(s)	1	EtOH:	Africa	Atlantic Oce	ANGOLA					offshore, V- 06°30' S			
M127	Mollusca	226524	Costellariidae	Thala	africana	1995			Paratype(s)	1	Dry	Africa	Atlantic Oce	Angola					Luanda	Corimbo		
OIP14797	Crustacea	Crustacea 47	Peneaidae	Farfantepenaeus	duorarum	1939	Martin D. Burkenroad			2	EtOH:	Africa	Atlantic Oce	DEMOCRAT(!!) Bas-Congo Province					Banana			
OIP14678	Crustacea	Crustacea 47	Diogenidae	Pseudopagurus	granulimanus	1881	L. W. Schmitt	2 taken for Belgian govt., orig cat card reads 10 spec 01/03/2019		EtOH:	Africa	Atlantic Oce	DEMOCRATIC REPUBLIC(MUANDA)									
OIP12914	Crustacea	Crustacea 32	Cymothoidae	ichthyoxenus	expansus	1920			Holotype	1	EtOH:	Africa	Atlantic Oce	DEMOCRATIC REPUBLIC OF THE CONGO	Poko				tributary of I. 3.1	N		
M156	Mollusca	283146	Muricidae	Phyllonotus	duplex	1798				1	Dry	Africa	Atlantic Oce	Ivory Coast					Abidjan	E. Abdijan		
M157	Mollusca	287634	Ovulidae	Primovula	bellaqueae				Holotype	1	Dry	Africa	Atlantic Oce	Morocco					Between Safi and Agadir			
M158	Mollusca	287635	Ovulidae	Primovula	bellaqueae					2	Dry	Africa	Atlantic Oce	Morocco					Between Safi and Agadir			
M155	Mollusca	283145	Muricidae	Phyllonotus	duplex	1798				1	Dry	Africa	Atlantic Oce	Senegal					N'Gor			
M159	Mollusca	291068	Cassidae	Cassis	tessellata	1791				1	Dry	Africa	Atlantic Ocean					West Coast				
M129	Mollusca	265334	Chaetodermidae	Falcidens	nontargatus	1992			Holotype	1	Dry	Africa	Atlantic Ocean					off Western	34°35' S			
OIP3450	Other Invert	Bryozoa 562	Bugulidae	Kinetoskias	elegans	1963			Paratype(s)	1	EtOH:	Africa	Atlantic Ocean					V-14-33, off	34°26' S			
OIP3451	Other Invert	Bryozoa 563	Bugulidae	Kinetoskias	poculum	1881				8	EtOH:	Africa	Atlantic Ocean					in white clay	25°33' S			
M154	Mollusca	270783	Conidae	Conus	textile	1758				2	Dry	Africa	Indian Ocean	Kenya								
OIP35546	Other Invert	Porifera 308	Callyspongiidae	Callyspongia	armigera	1864		orig. non-AMNH #519, 523		2	Dry	Africa	Indian Ocean	MAURITIUS								
OIP35548	Other Invert	Porifera 358	Thorectidae	Cartieriospongia	pennatula	1884				3	Dry	Africa	Indian Ocean	MAURITIUS								
OIP35547	Other Invert	Porifera 558	Microcionidae	Clathria	juniperina	1814	Alc			1	EtOH:	Africa	Indian Ocean	MAURITIUS								
OIP35549	Other Invert	Porifera 379	Thorectidae	Phyllospongia	lamellosa	1794				1	Dry	Africa	Indian Ocean	MAURITIUS								
M126	Mollusca	94263	Strombidae	Strombus	mutabilis	1960																
OIP4077	Other Invert	Chordata 24	Didemnididae	Didemnum					Paratype(s)	1	Dry	Africa	Indian Ocean	MAURITIUS								
M153	Mollusca	264020	Chamidae	Chama	multirugosa	1838				2	Dry	Africa	Indian Ocean									
M150	Mollusca	237915	Turbanillidae	Vasum	rhinoceros	1791				1	Dry	Africa	Pacific Oceai	Kenya					Shelly Beach			
M151	Mollusca	246446	Muricidae	Murex	tribulus	1758				1	Dry	Africa	Pacific Oceai	Mozambique								
M152	Mollusca	255081	Stomatellidae	Stomatella	articulata					2	Dry	Africa	Pacific Oceai	Tanzania					Makatumba			
M149	Mollusca	237838	Turbanillidae	Vasum	rhinoceros	1791				4	Dry	Africa	Pacific Oceai	Tanzania								
OIP13075	Crustacea	Crustacea 77	Armadillidiidae	Armadillidium	sulcatum		Karl W. Verhoeff			2	EtOH:	Africa	ALGERIA									
OIP13076	Crustacea	Crustacea 10	Cirratulidae	Cirratula	fortis		B. H. Buxton	Besides this lot and those possessed by the donor Buxton, th	7		EtOH:	Africa	ALGERIA									
C705	Cnidaria	Cnidaria 322	Corallimidae	Corallium	niobe	1964				1	Dry	Africa	ALGERIA									
OIP9420	Cnidaria	Cnidaria 322	Corallimidae	Corallium	niobe	1964				1	Dry	Africa	ALGERIA									
OIP13082	Crustacea	Crustacea 80	Porcellionidae	Porcellio	platysoma		Karl W. Verhoeff			1	EtOH:	Africa	ALGERIA									
OIP13083	Crustacea	Crustacea 80	Porcellionidae	Porcellio	variabilis		Karl W. Verhoeff			1	EtOH:	Africa	ALGERIA									
OIP13084	Crustacea	Crustacea 37	Porcellionidae	Porcellio	wagneri		Karl W. Verhoeff			3	EtOH:	Africa	ALGERIA									
OIP13089	Crustacea	Crustacea 59	Calapidae	Calappa	granulata	1758	Miss Lee Boone			2	EtOH:	Africa	ANGOLA	Benguela Province	Libito City							
OIP13142	Crustacea	Crustacea 58	Portunidae	Callinectes	marginatus	1861	Miss Lee Boone			7	EtOH:	Africa	ANGOLA	Benguela Province	Libito City							
OIP13143	Crustacea	Crustacea 59	Diogenidae	Clibanarius	africanus	1898	Miss Lee Boone			1	EtOH:	Africa	ANGOLA	Benguela Province	Libito City							
OIP13090	Crustacea	Crustacea 59	Diogenidae	Clibanarius	africanus	1898	Miss Lee Boone			25	EtOH:	Africa	ANGOLA	Benguela Province	Libito City							

Hack the Deep Challenge: Map the Collections

Corals & sponges



AMERICAN MUSEUM OF NATURAL HISTORY

AMNH Digital Library K4508

Hack the Deep Challenge: Map the Collections

Mollusks



Hack the Deep Challenge: Map the Collections

Crustacea



Hack the Deep Challenge: Map the Collections

Reptiles



Hack the Deep Challenge: Map the Collections

Mammals



Hack the Deep Challenge: Map the Collections

Birds



Hack the Deep Challenge: Map the Collections

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Fish

