

A new life for natural history specimens

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People see a museum in different ways...

A place to visit...



A storybook of people and adventures...



Or a data vault?



Specimens can change the way we think...

Non-human humans



Origin of species



Missing links



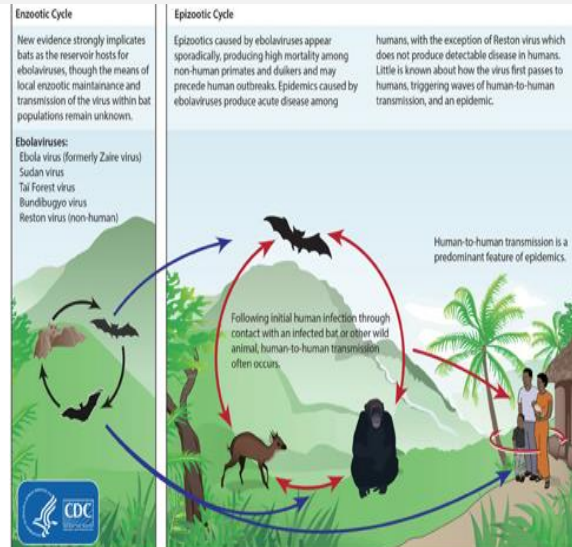
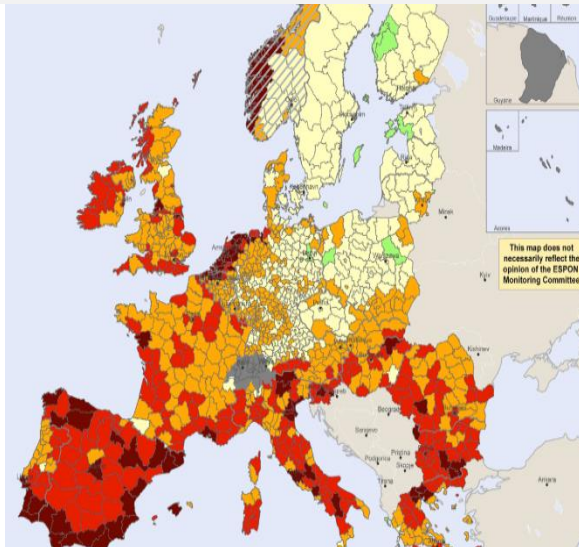
Mass extinction



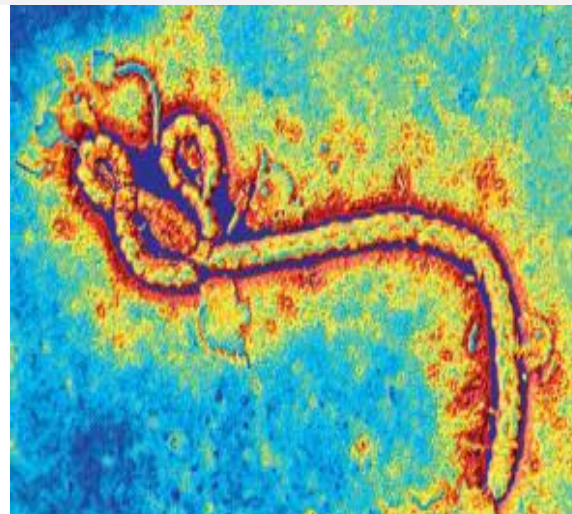
Extra-terrestrials



...and help us respond to urgent societal challenges



Ecological footprint of climate change



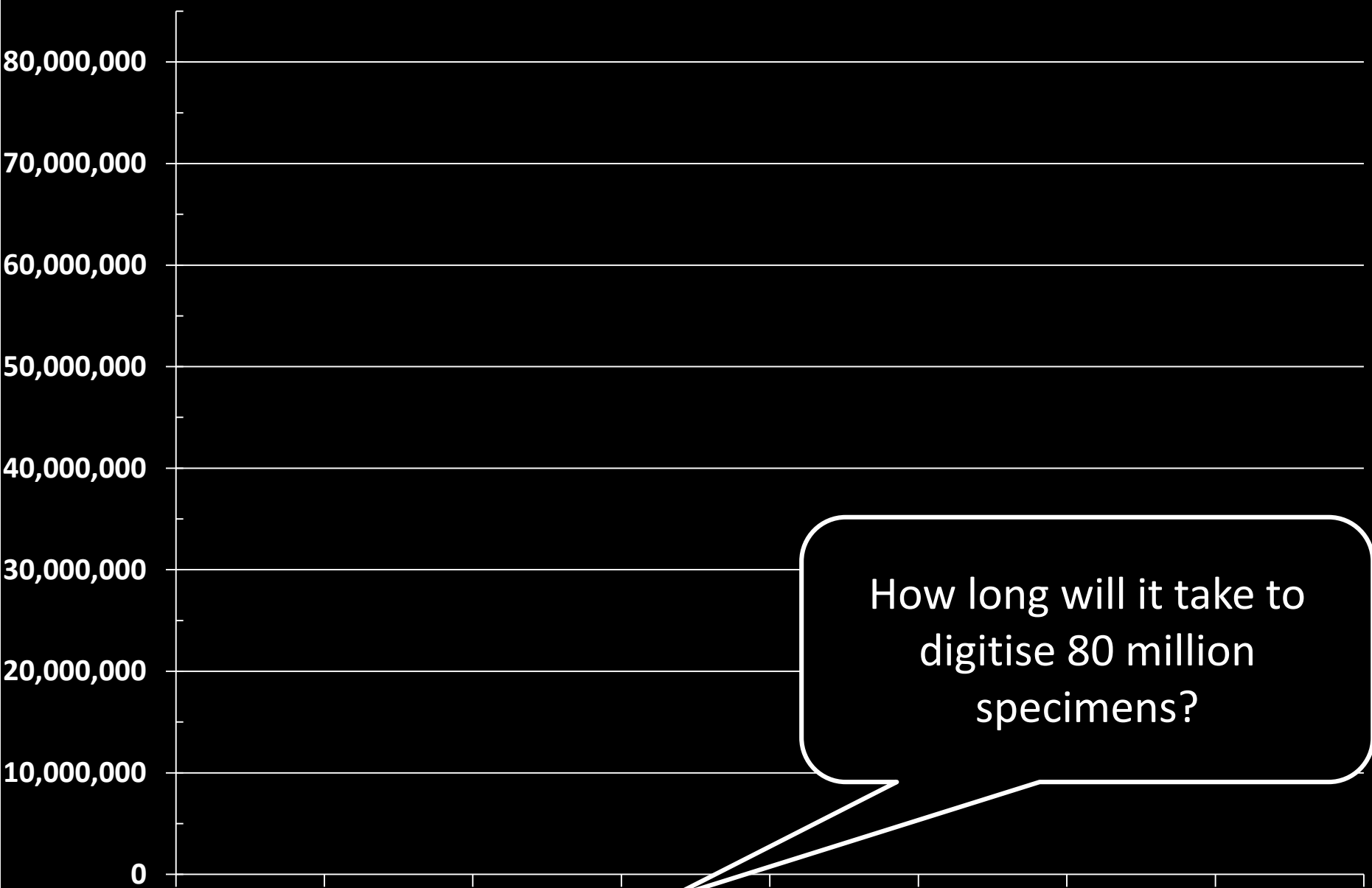
Virus Transmission

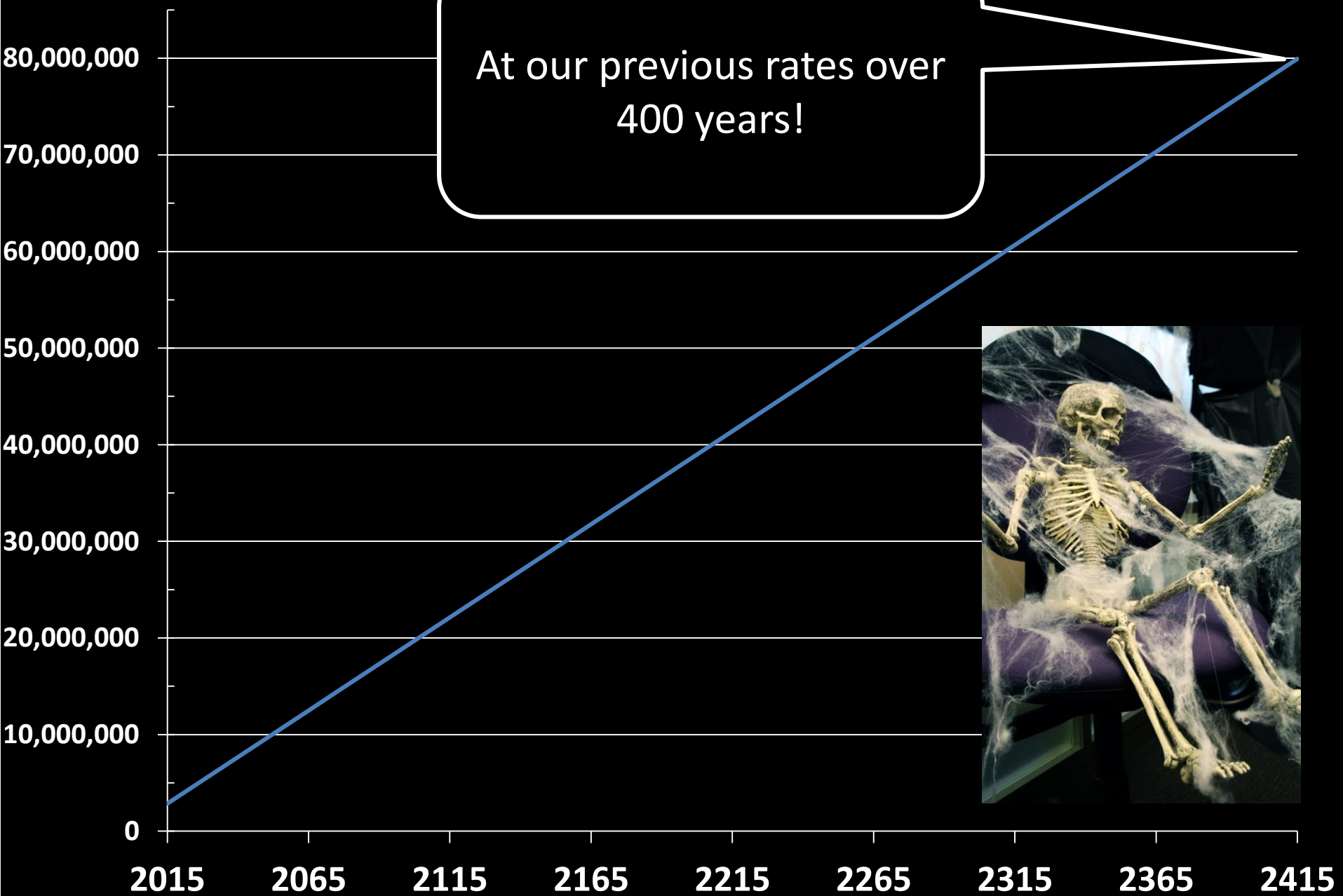


Protecting crops from invasive pests

We have around 80 million of them
but <5% digitised and computable...







NHM Digital Collections Programme

Exists to (work up to) tackle digitisation at this scale

**Ambition = 20m / 5 years
which means
>10,000 specimens digitised
per day**

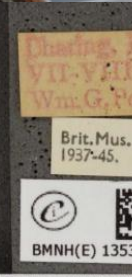
(if we worked every day
including Christmas)

And then there are the other
60 million or so specimens
(and growing)...



2D digitisation - lepidoptera

- UK butterflies & moths
- 500k specimens initially
- 2 mins per specimen
- c.£1 per specimen



2D Open Herbarium Pilot:

- High-throughput herbarium sheet digitisation
- NHM, Kew & Picturae (Netherlands)
- Small test (70k specimens)
- £1-2 total cost per specimen



But what about specimens that are...



BIG?



Wet?

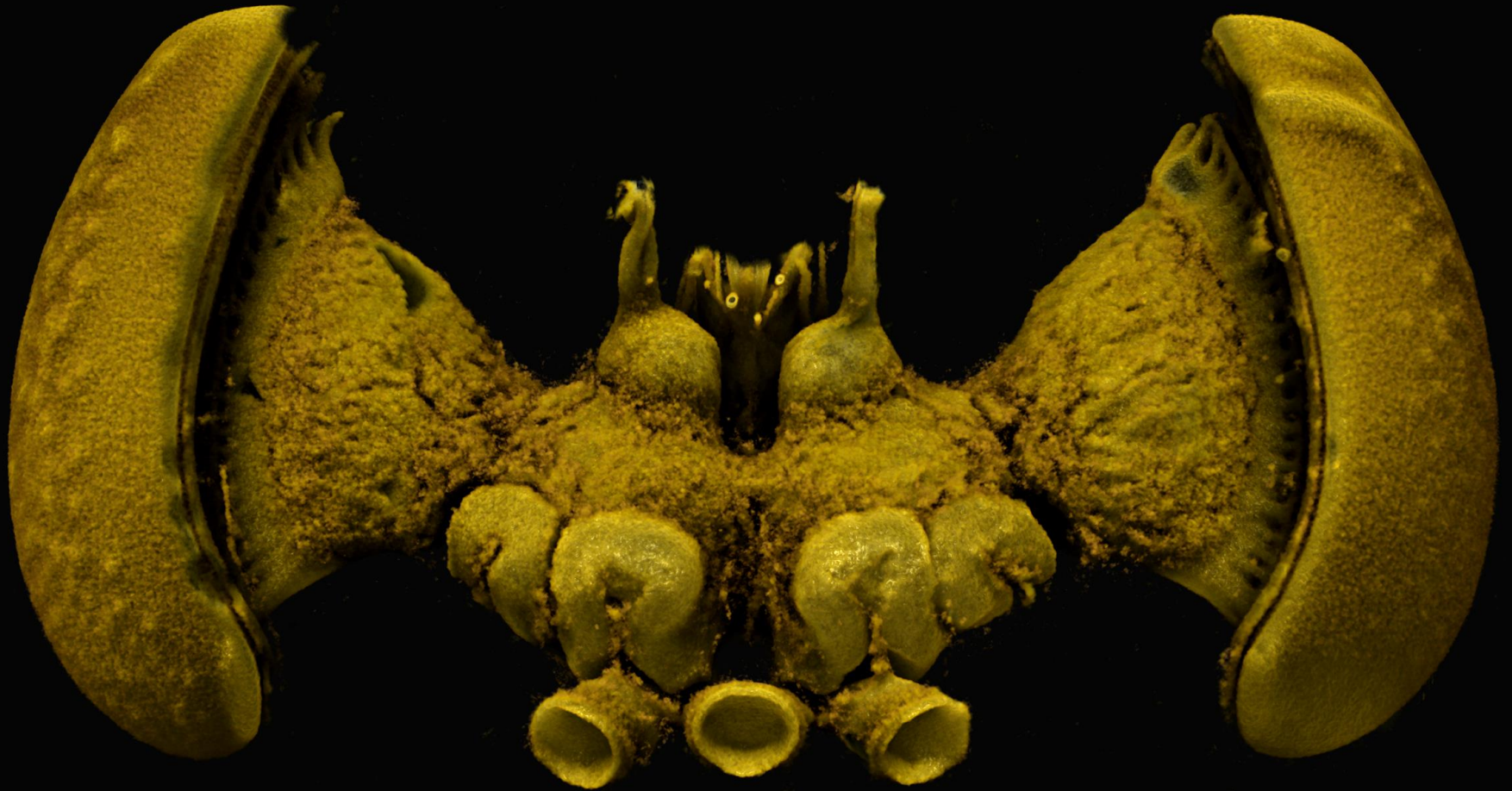


Hard to tell apart?

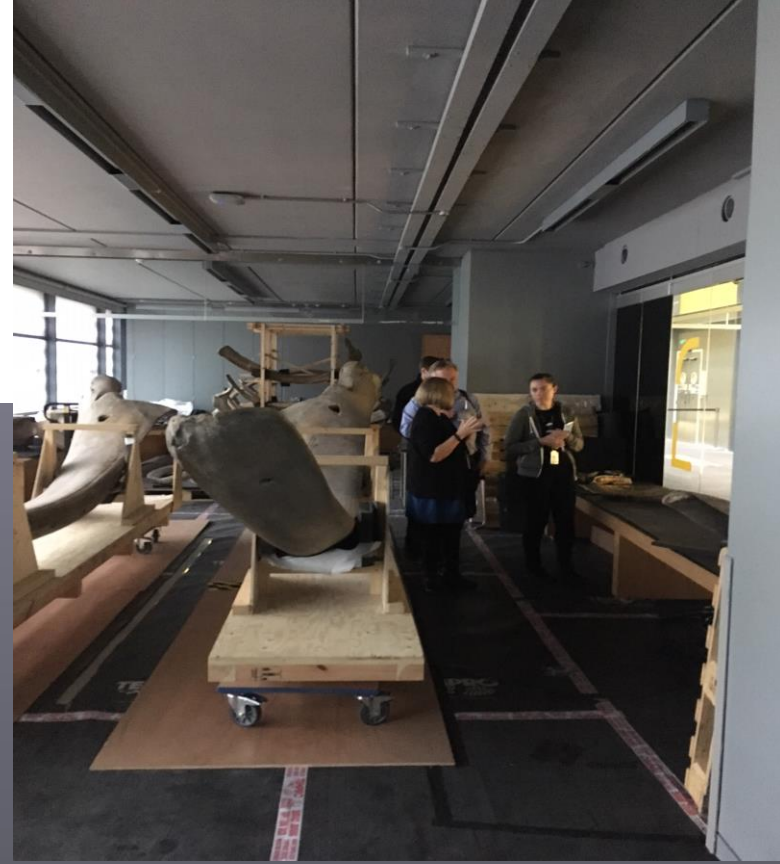
3D for research – NHM Imaging & Analysis Centre



Small worlds close up!



And large worlds - blue whale laser scanning



200 mm

Challenge 1 – Reality




805.

skeleton of Diplodocus carnegii (Mr. Coggeshall, the preparator).

Challenge 2 – Balance

- time
- cost
- science/research
- engagement
- conservation
- feasibility





Where
?

How
Big?

Will it
Last?

Challenge 3 – Data

Explore and download the Natural History Museum's research and collections data.

4.9M
records

76
datasets

23
contributors

Search the Natural History Museum Specimen Collection

3,341,882 of the Museum's 80 million specimens are now available online.



 1,294,194
Zooology

 649,208
Botany

 618,365
Entomology

 394,965
Mineralogy

 385,150
Palaeontology

Open by default

Example specimen data (lepidoptera)



Some quality issues...

(where is H. M.
Edelsten!?)

Higher Classification

Scientific name: *Thymelicus lineola*
(Ochsenheimer, 1808)

Family: HesperIIDae

Location

Locality: Tilbury Docks

State/province: England

Country: United Kingdom

Continent: Europe

Decimal latitude: 51.4605

Decimal longitude: 0.3449

Collection Event

Recorded by: T G. Howarth; Howarth

Collection date: 31 / 07 / 1938

And our data is just the tip of the iceberg...

Programme	# records	Type of information
Biodiversity Heritage Library (BHL)	50M	Literature
Global Biodiversity Informatics Facility (GBIF)	120M*	Metadata
iDigBio	65M	Images, Metadata
Atlas of living Australia (ALA)	10.5M*	Images, Metadata
E-ReColNat	6.3M	Images, Metadata
NHM London Data Portal	3M	Images, Metadata
Global Plants Initiative	2.2M	Images, Metadata
Canadensys	13M	Images, Metadata
VertNet	16.7M	Metadata
Paleobiology Database	1.3M	Metadata
GenBank	1.7M*	Genomic
Barcode of Life (iBOL)	4M	Genomic
Global Genome Biodiversity Network (GGBN)	0.5M	Genomic

* Derived from natural history specimens *per se*



**Thank
you!**



**NATURAL
HISTORY
MUSEUM**