InsectMOoD

BRAIN-be 2.0, B2/202/P2/InsectMOoD

project follow-up Committee

Final meeting

July 18th , 2023

Overview results

- DNA extraction, quality check and HTS completed
  - 1406 specimens processed
    - 2 insect families (Tephritidae, Syrphidae)
    - 84 different species
- quality check HTS data completed
  - 1305 specimens processed
- databasing completed
- GLMM modelling about to be finalized
- ms in prep (submission 2023)

scientific output

Poster: Genetics and Biotechnology

Linking genomes to Museum vouchers:
an open-access database for African "true" fruit flies (Diptera, Tephritidae)

Esselens L.[1,2], Ody J.[1], Sonet G.[2], Deschepper P.[1], Vanbergen S.[1], Ferrari G.[3], Hollingsworth P.[3], De Meyer M.[1], Vangestel C.[2], Virgilio M.[1]

[1]Royal Museum for Central Africa (RMCA), Biology Department, Tervuren, Belgium. Email: lore.esselens@africamuseum.be, [2]Royal Belgian Institute of Natural Sciences (RBINS), Brussels, Belgium, [3]Royal Botanic Garden Edinburgh, UK

Poster: Genetics and Biotechnology

Genomic characterisation of the population structure
of *Ceratitis rosa* and *C. quilicii* (Diptera, Tephritidae) in southern Africa

Esselens L.[1], Mullens N.[1,2], Addison P.[3], Canhanga L.[4], Cugala D.[4], Deschepper, P.[1], Karsten M.[3], Manrakhan A.[5], Snyman M.[3], Tsatsu S.[5], Terblanche J.S.[3], Vanbergen S.[1], De Meyer M.[1], Virgilio M.[1]

[1]Royal Museum for Central Africa, Biology Department, Tervuren, Belgium. Email: lore.esselens@africamuseum.be, [2]University of Antwerp, Department of Biology, Antwerp, Belgium, [3]Stellenbosch University, Department of Conservation Ecology and Entomology, Stellenbosch, South Africa, [4]Eduardo Mondlane University, Maputo, Mozambique, [5]Citrus Research International, Nelspruit, South Africa.

11th International Symposium on
FRUIT FLIES
of Economic Importance
13-18 NOV 2022 • SYDNEY • AUSTRALIA

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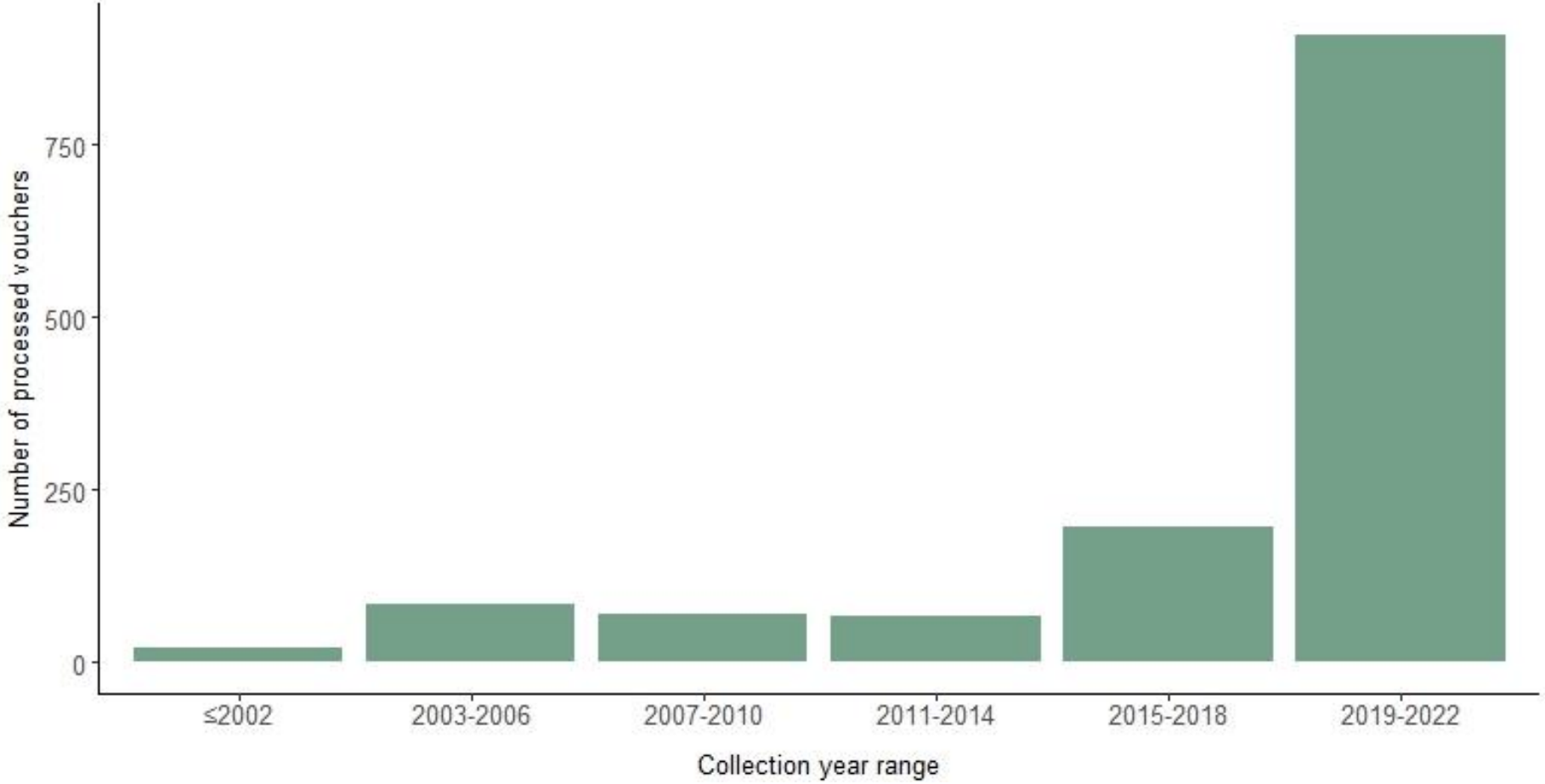
- ms in prep

Age distribution of the collected data



modeling HTS performances
GL(M)M

- sample age
- geographic origin
- species
- family

effect on

- DNA concentration
- DNA fragmentation
- DNA contamination

effect on

- number of reads
- percentage of quality reads

GL(M)M models fitted according to data (linear, binomial, Bernoulli)

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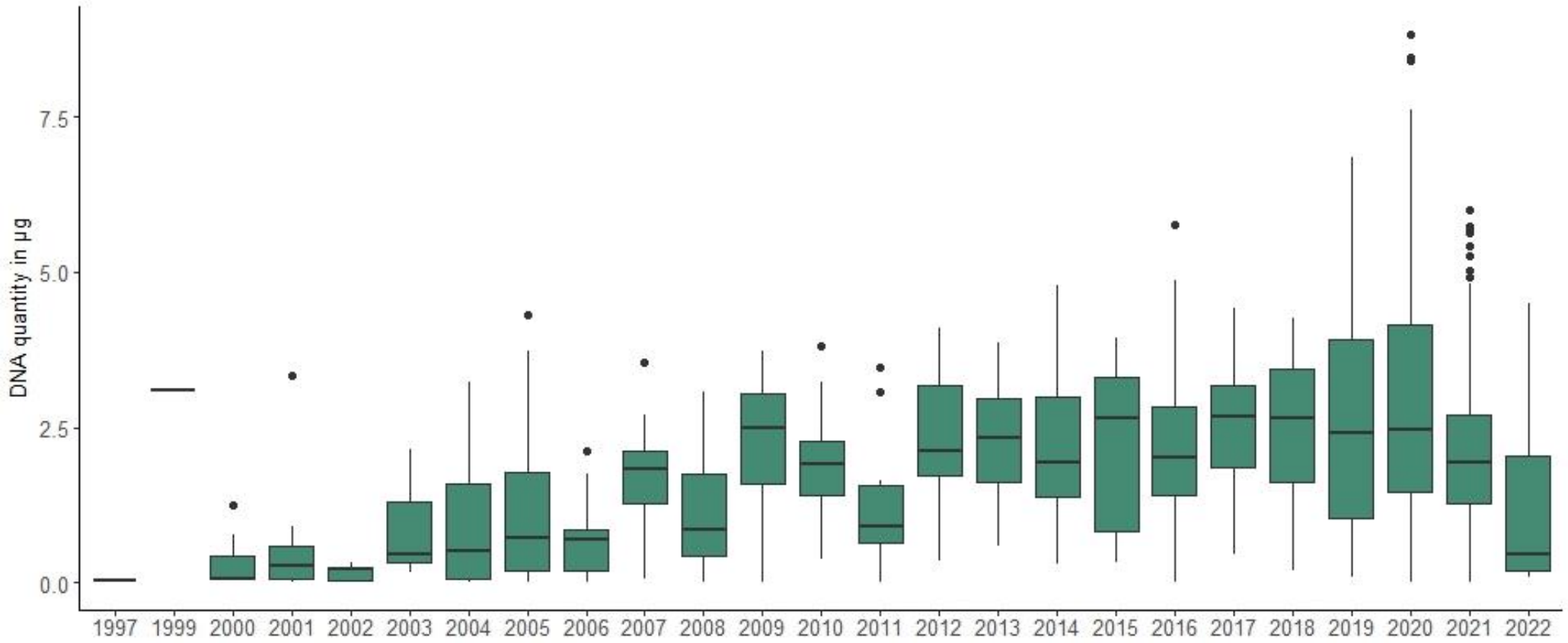
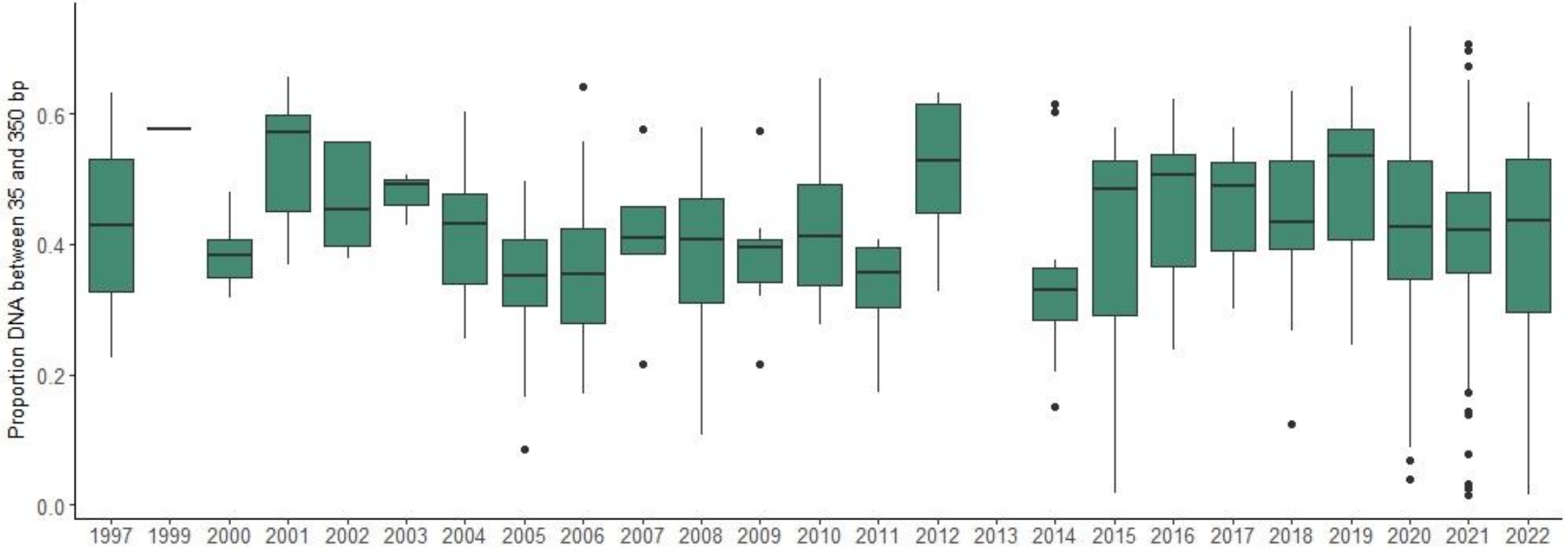
DNA quantity

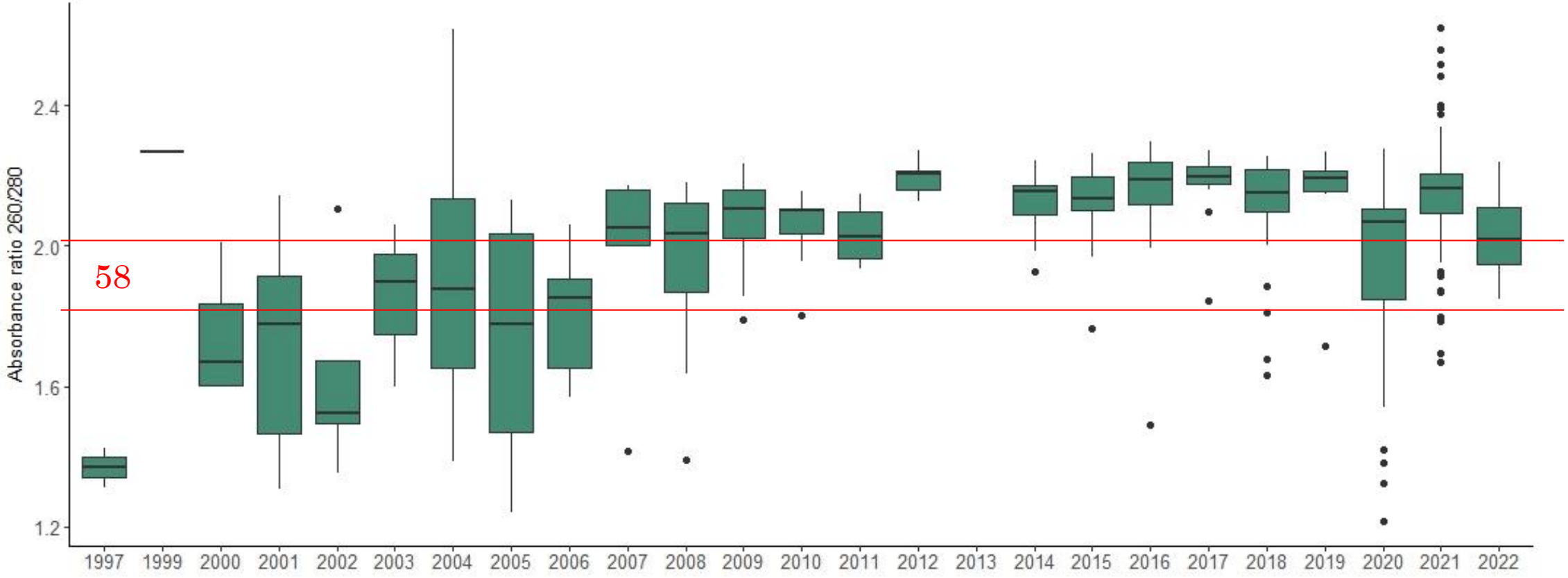


DNA quality: fragmentation



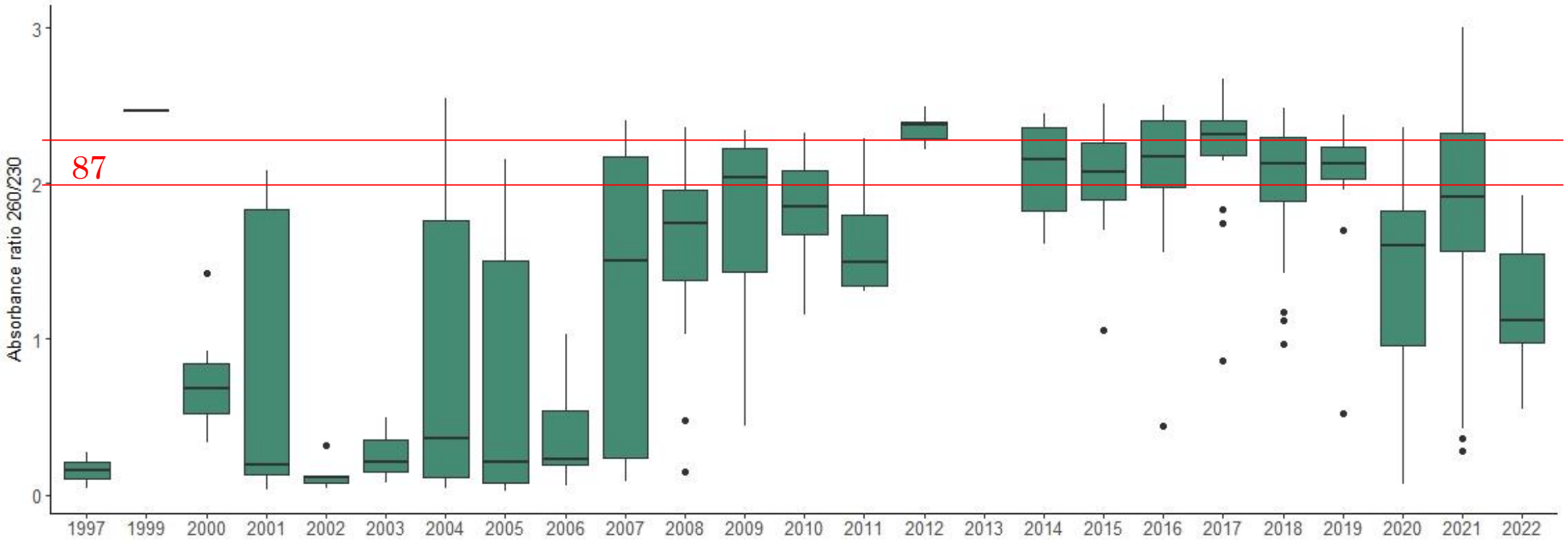
DNA quality: absorbance ratios

260/280nm



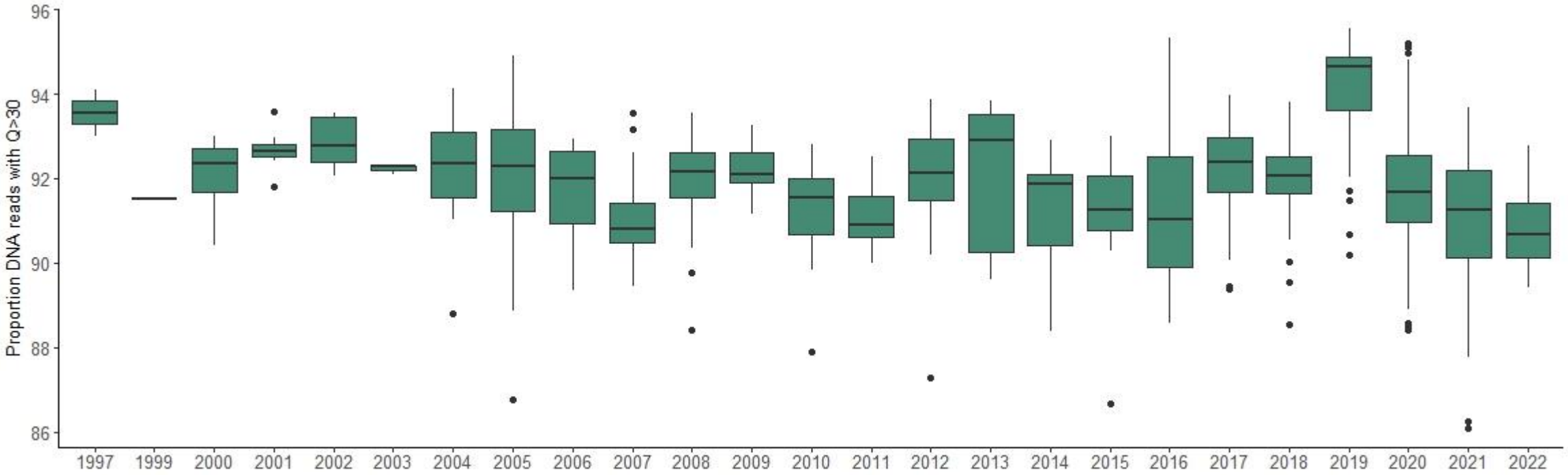
DNA quality: absorbance ratios

260/230nm

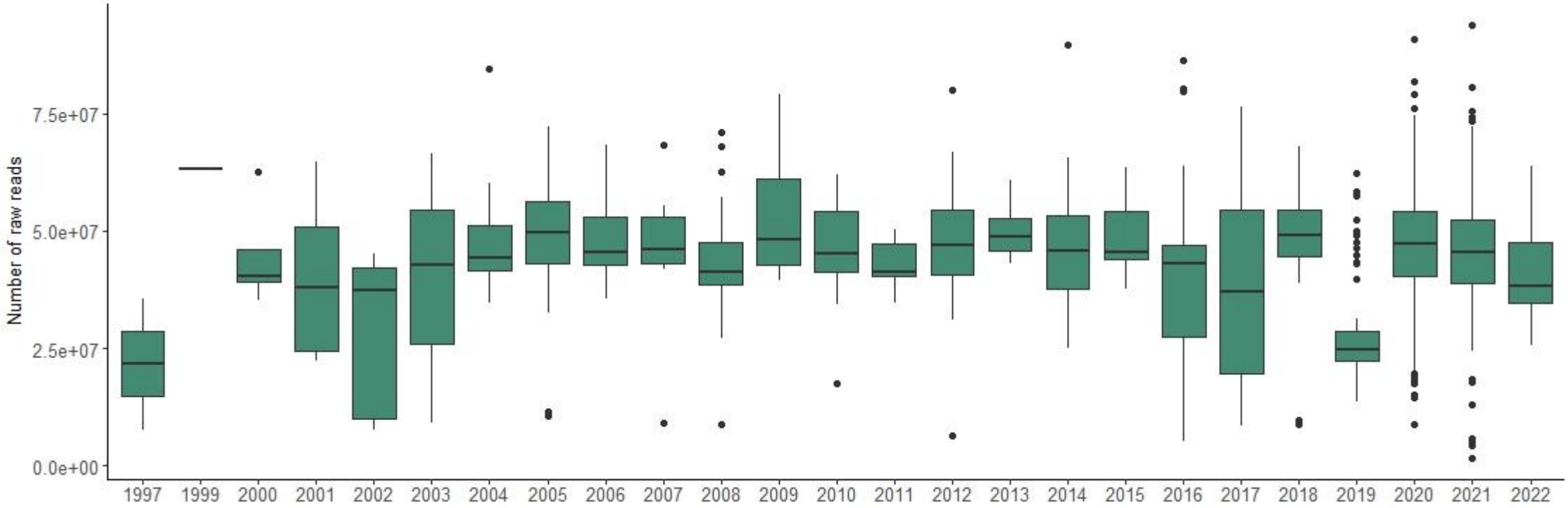


DNA quality: reads

Q>30



n. raw reads


Number of raw reads
7.5e+07
5.0e+07
2.5e+07
0.0e+00
1997
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
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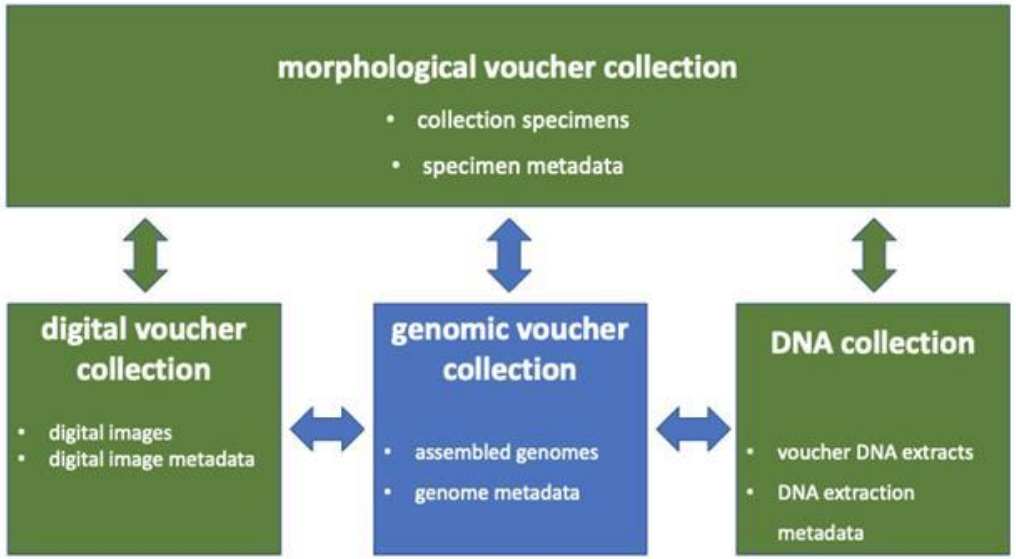
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022

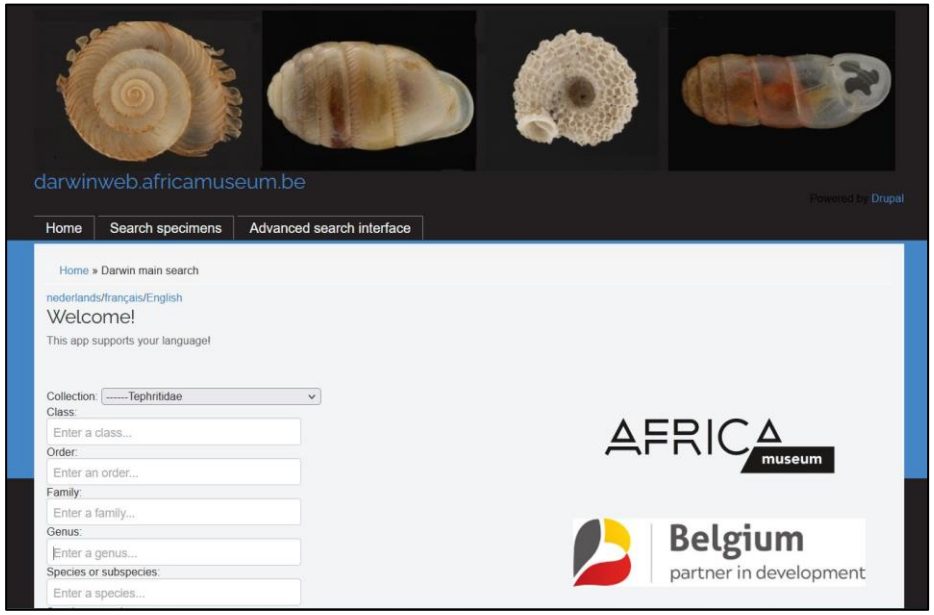
databasing



476 pictures

https://fruitflies.africamuseum.be/home

http://darwinweb.africamuseum.be/search_specimens



deliverables

- D 1.1.1: report on suitable methodological literature (M4)
- D 1.1.2: report on suitable JEMU datasets for validation of results (M4)[MV1]
- D 2.1.1: project experimental setup (M6)
- D 2.1.2: report on test for target taxa (syrphids, tephritids) (M12)
- D 2.2.1: cost-benefit analysis (M12)
- D 2.2.2: decision map for the WGS of suboptimal samples (M12)
- D 3.1.1: report on voucher WGS and assemblage (M18, M24)
- D 3.2.1: report on tests for non-target taxa (bees, fishes) (M18, M24)
- D 3.3.1: production of digital vouchers complementing the RMCA digital collections (M24)
- D 3.3.2: production of DNA collection vouchers complementing the RMCA collections (M24)
- D 3.3.3: establishing a collection of RMCA genomic vouchers (M24)
- D 3.3.4: online, open access database of genomic vouchers (M24)
- D 4.1.1: meetings follow-up commitee (M1, M12, M24)
- D 4.1.2: project reports (M3, M12, M24)
- D 5.1.1: backup and long term storage of WGS data and metadata (M24)
- D 5.1.2: backup and long term storage of digital images and metadata (M24)
- D 6.1.1: participation to international congresses (M10, M19)
- D 6.1.2: post / interviews on RMCA social media accounts (M6, M12, M18, M24)

Thank you for your attention

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