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DToL Taxon-specific Standard Operating Procedure for the Terrestrial and Freshwater Arthropods Working Group

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Darwin Tree of Life

Inez Januszczyk

This Standard Operating Procedure (SOP) collection contains guidance on how to process the various terrestrial and freshwater Arthropod taxa within the scope of the Darwin Tree of Life (DToL) project. The guidance specifically refers to the tissue samples needed for DNA barcoding (which takes place at the Natural History Museum (NHM)) and outlines the dissected tissues required for whole genome sequencing (WGS), which takes place at the Wellcome Sanger Institute. Every specimen is submitted for DNA barcoding first before potentially being sent to the Wellcome Sanger Institute.

DToL SOP Terrestrial and
Freshwater Arthropod
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images.docx

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Use: The taxon-specific dissection procedures are split according to the taxonomic order of Arthropoda, life stage and size. This guide outlines how to dissect specimens for DNA barcoding, genome sequencing, and specimen vouchering when relevant. Different taxa often require different sampling, preparation, photography, storage techniques and processes.

A set of questions in tabular form are used to summarise procedures for broad taxonomic groups, accompanied by taxon-specific pictorial dissection guides.

Details for field collection type, photography, dissection, storage and voucher curation of broad taxon groups are provided. Larger Orders are grouped under the larger dissection procedure headings due to their similar morphology. Please see the Sanger Sample Submission SOP (link below) for general details on physical handling of specimens, including cold chain use, and collation of metadata for sample submission to Sanger.

Future plans for this SOP: This SOP will be reviewed on an ad hoc basis by the Terrestrial and Freshwater Arthropods Working Group to incorporate feedback from the community.

Raising issues: We are still developing best practice and elements of this SOP are subject to change. If you would like to share any advice, comments, techniques or lessons learned, please do not hesitate to email darwintreeoflife@nhm.ac.uk or inez.januszcak@nhm.ac.uk.

Links to SOPs relating to this document:

- Sanger [Sample Submission SOP v2.2](#)
- Sanger [Sample Metadata Recording SOP v2.0](#)
- NHM [DNA barcoding SOP v2.1](#)

Document History [add below]

A	B	C	D
<i>Version</i>	<i>Date</i>	<i>Major changes</i>	<i>Contributors</i>
1.0	2020-04-07	Draft version	Lyndall Pereira (NHM)
2.0	2020-04-29	DNA barcoding for reference library at NHM edited	NHM: Olga Sivell, Laura Sivess, Gavin Broad, Ben Price, Lyndall Pereira
3.0	2020-05-13	Addition of pictorial dissection for each taxon group	Liam Crowley (Oxford WW) and Lyndall Pereira (NHM)
3.1	2020-07-17	SOP text split into Order-specific SOPs. Uniform style, publication quality images with colour blind friendly dissection lines	Olga Sivell, Laura Sivess
4.0	2022-01-04	Overall formatting further improved (including spelling/ punctuation changes, table of contents links), photo guides made more uniform, edits in protocol made to reflect any adaptations in the sampling process since July 2020, additional taxon protocols included, unrequired taxon guides removed. First submission to protocols.io.	Inez Januszczyk (NHM), Liam Crowley (Oxford WW), Olga Sivell (NHM), Laura Sivess (NHM), Chris Fletcher (NHM)

Pictorial dissection guide graphics: Olga Sivell (NHM)

Photos: Olga Sivell (NHM), Laura Sivess (NHM), Christopher Fletcher (NHM), Ben Price (NHM), Harry Taylor (NHM).

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FILES

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Taxon group: Non-larval Arthropods (TSS1)
Version 1
by Inez Januszcak
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Taxon group: Larval stage insects (TSS2)
Version 1
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Taxon group: Terrestrial Arthropods smaller than 5mm (TSS3)
Version 1
by Inez Januszcak