



## Final Report

### WoRMS Editors Workshop: aquatic parasite editors

Venue: Flanders Marine Institute (VLIZ) – Oostende, Belgium

Date: 24-25 April 2017

### Participants:

In attendance were 18 researchers (Table 1), including both current editors and potential candidates who have subsequently been added as WoRMS Editors (\* in Table 1) and whose attendance at the workshop was supported through this programme. Our participants were from Australia (5), USA (4), UK (4), South Africa (2), Mexico (1), the Czech Republic (1) and China (1), and included a wide range of experience, location and specialist taxa as well as reasonable gender balance.

Table 1- Details of the Workshop attendees.

Editor	Affiliation	Country	Taxa
Adlard, Robert	Queensland Museum	Australia	Myxozoa
Atkinson, Stephen	Oregon State University	USA	Myxozoa
Bernot, Jimmy	Natural History Museum	UK	Copepoda
Boxshall, Geoff	Natural History Museum	UK	Copepoda
Boyko, Christopher	American Museum of Natural History	USA	Isopoda/Rhizocephala
Bray, Rod	Natural History Museum	UK	Trematoda, Cestoda
Caira, Janine*	University of Connecticut	USA	Cestoda
Cribb, Thomas	The University of Queensland	Australia	Digenea
Cutmore, Scott*	The University of Queensland	Australia	Trematoda
Gibson, David	Natural History Museum	UK	Monogenea, Trematoda, Aspidogastrea, Acanthocephala, Nematoda
González-Solís, David	El Colegio de la Frontera Sur	Mexico	Nematoda

Hadfield, Kerry*	School of Biological Sciences, North West University	South Africa	Isopoda
Kuchta, Roman*	Institute of Parasitology, Biology Centre of the Czech Academy of Sciences	Czech Republic	Non-elasmobranch marine cestodes
Shamsi, Shokoofeh	Charles Sturt University	Australia	Nematoda
Smith, Nico	School of Biological Sciences, North West University	South Africa	Parasitic protozoa
Weaver, Haylee*	Australian Biological Study Resources	Australia	Acanthocephala
Whipps, Christopher	State University of New York	USA	Myxozoa
Yang, Tingbao	Zhongshan (Sun Yat-Sen) University, China	China	Monogenea

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### **Introduction:**

This was the first workshop in the 21<sup>st</sup> Century to bring together expert parasite taxonomists, with the aim of establishing a database of aquatic parasites that will be freely available to researchers and public. Globally, there is little funding to support taxonomists and taxonomy related research. There is a world-wide shortage of taxonomic knowledge, trained taxonomists and curators. While there are major threats to many parasitic species, such as imminent extinction of many taxa even before they are properly described, the limited taxonomic funding goes mainly in support of reconstructing molecular phylogenies. This workshop presented a great opportunity for the efficient discussion of ways to coordinate the work of the parasite editors among themselves and also between the editors and the WoRMS Data Management Team (DMT).

### **Objectives:**

The aims of this workshop were:

- To develop a parasite portal under WoRMS database, World Register of Aquatic Parasites (WRAP)
- To identify the major gaps in the coverage of parasitic species and develop strategies to fill them.
- To identify potential specialist editors for parasitic taxa, and use our established contacts/networks to recruit them.

- To develop a succession plan to engage new editors for specific parasitic taxa and allow overlap with retiring editors.
- To develop a strategy to incorporate and consolidate host and distributional data, which is vitally important to the proposed Parasite Portal, WRAP.
- To agree on the additional data categories/field structure necessary to incorporate host and geographical data (and finalize definitions of such fields).
- To agree on approaches to updating host data, i.e., to account for changes in host taxonomy.
- To identify the best way to expand from our initial focus on parasites to include protistan parasites.
- To engage with the “user perspective” to maximize the value of the data presented via the new parasite portal (WRAP)

#### **Activities:**

- The workshop started with presentations by Associate Professor Shokoofeh Shamsi and Dr Malin Strand, the main applicants for the Parasite and Nemertea workshops, respectively, on the background and the aim of the workshop.
- Presentations by Leen Vandepitte (Data manager of WoRMS & EurOBIS) and Sofie Vranken (Worms Data Management Team) on the history of the Flanders Marine Institute, the interface that supports all WoRMS databases (Aphia), the LifeWatch infrastructure, and detailed training for all editors to enter their specific data.
- Data entry by all editors
- Presentations by each editor on their specific taxonomic groups, highlighting how complete WoRMS is at present, what needs to be done, what are major obstacles to completing the database, what support is needed, and who else can be involved and might be interested in being part of this? This session was chaired by Shokoofeh Shamsi.
- An interactive presentation by Prof. Tom Cribb, on the shape and implications of the proposed Parasite Portal section of the database (WRAP), including characteristics of an effective database, linking WRAP to other databases, what the expectations from the portal are and how these issues can be addressed.
- An interactive presentation by Prof. Geoff Boxshall, on “The Way Forward” in which details of the WRAP were discussed. Examples included identifying editors for

parasitic groups, such as gregarines, that currently lack an editor so that data can be collated and validated, issues surrounding images, development of a glossary of parasite terms that editors agree upon, as well as issues surrounding type host, life cycle stages and geographic data.

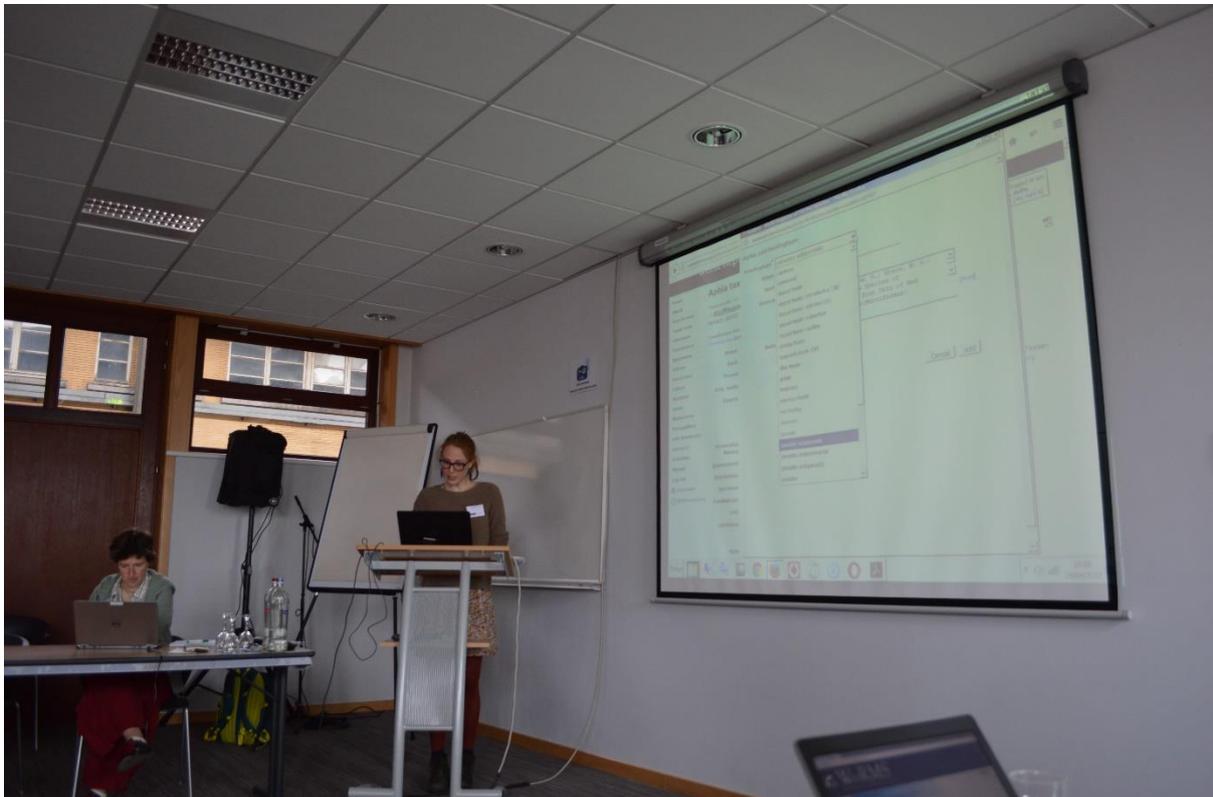
### **Outcomes:**

- The two day face-to-face workshop was a great opportunity for deep and detailed discussion of the important issues listed in the Objectives section of this report, as well as for agreeing on the shared responsibilities and a plan for moving forward to make the Parasite Portal of WoRMS database (WRAP) happen within 2 years.
- The editors learned how to use the online tools available in WoRMS, which will allow more efficient editing of the taxa. A mailing list ([parasites@marinespecies.org](mailto:parasites@marinespecies.org)) was created to facilitate communication and information exchange between/with parasite editors.
- It was decided to aim for a major joint publication. By collating superior data generated as the result of WRAP, we will aim to publish an article on the richness of marine (metazoan) parasites of fishes to be published in a high impact journal.
- The workshop provided opportunities for discussions on linking/combining some major taxonomic databases, e.g., The Australian Biological Resources Study (ABRS) and WoRMS or FishBase and Parasite data.
- Launching WRAP at the 10<sup>th</sup> International Symposium of Fish Parasites (10ISFP) in 2019
- Presenting in moet World conference on marine biodiversity (May 2018)
- Users' priorities in use of WRAP to be considered. For example, zoonotic species or those causing problems in aquaculture should be flagged. Adding geographical location to zoonotic or aquaculture important species will bring the potential of the WRAP attracting the attention of government authorities and policy makers.
- New thematic and taxonomic editors were suggested and invited to join the team.
- The following tasks were also defined, with the editors named below taking on the responsibility of completing the task collaboratively with other editors:
  - Developing a logo for WRAP (Janine Caira and her team)
  - Life cycle stages of parasites to be defined (by Tom Cribb)
  - List of sites in the host to be provided (by Chris Whips)

- Glossary (by Geoff Boxshall)
- Host classification (by Geoff Boxshall)

**Acknowledgement:**

We are grateful to the LifeWatch programme for providing financial support and also to the WoRMS data management team at Flanders Marine Institute – VLIZ for making the arrangements which allowed the workshop to happen. The valuable contribution by participants is also very much appreciated.



Day 1: Sofie providing detailed training on how the database works.



Day 1: Data entry by all editors, after training by Ms Sofie Vranken



Day 2: Tom Cribb, presenting on the shape and implications of the Parasite Portal section of the database



Day 2: "The Way Forward" with Geoff Boxshall