

## DATAPAPER: A geographic distribution data set of biodiversity in Italian freshwaters

ANGELA BOGGERO<sup>1,2,\*</sup>, CATALDO PIERRI<sup>1,3</sup>, RENATE ALBER<sup>4</sup>, MARTINA AUSTONI<sup>2</sup>, ENRICO BARBONE<sup>5</sup>, LUCA BARTOLOZZI<sup>1,6</sup>, ISABELLA BERTANI<sup>7,8</sup>, ALESSANDRO CAMPANARO<sup>9</sup>, ANTONELLA CATTANEO<sup>10</sup>, FABIO CIANFERONI<sup>1,6</sup>, PAOLO COLANGELO<sup>1,2</sup>, GIUSEPPE CORRIERO<sup>1,11</sup>, AMBROSIUS MARTIN DÖRR<sup>12</sup>, A. CONCETTA ELIA<sup>12</sup>, G. FRANCESCO FICETOLA<sup>13,14</sup>, DIEGO FONTANETO<sup>2</sup>, ELDA GAINO<sup>12</sup>, ENZO GORETTI<sup>12</sup>, LYUDMILA KAMBURSKA<sup>2</sup>, GIANANDREA LA PORTA<sup>12</sup>, ROSARIA LAUCERI<sup>2</sup>, MASSIMO LORENZONI<sup>12</sup>, ALESSANDRO LUDOVISI<sup>12</sup>, MARINA MANCA<sup>2</sup>, GIUSEPPE MORABITO<sup>2</sup>, FRANCESCO NONNIS MARZANO<sup>12</sup>, ALESSANDRO OGGIONI<sup>1,15</sup>, NICOLETTA RICCARDI<sup>2</sup>, GIAMPAOLO ROSSETTI<sup>7</sup>, PAOLO TAGLIOLATO<sup>1,16</sup>, BERTHA THALER<sup>4</sup>, NICOLA UNGARO<sup>5</sup>, PIETRO VOLTA<sup>2</sup>, SILVIA ZAUPA<sup>2</sup>, ILARIA ROSATI<sup>1,3</sup>, NICOLA FIORE<sup>1,17</sup>, ALBERTO BASSET<sup>1,17</sup>, ALDO MARCHETTO<sup>2</sup>

<sup>1</sup> *LifeWatch, Italy- <http://www.servicecentrelifewatch.eu>*

<sup>2</sup> *National Research Council, Institute of Ecosystem Study (CNR-ISE), 28922 Verbania Pallanza, Italy*

<sup>3</sup> *National Research Council, Institute of Agro-environmental and Forest Biology, Rome, Italy*

<sup>4</sup> *Biological Laboratory, Environmental Agency of the Autonomous Province (APPA) Bolzano South Tyrol, 39055 Laives, Italy*

<sup>5</sup> *Apulian Regional Agency for the Environmental Prevention and Protection (ARPA), 70126 Bari, Italy*

<sup>6</sup> *Natural History Museum of the University of Florence, Zoological Section "La Specola", 50125 Florence, Italy*

<sup>7</sup> *Department of Life Sciences, University of Parma, 43124 Parma, Italy*

<sup>8</sup> *Water Center, Graham Sustainability Institute, University of Michigan, Ann Arbor, MI 48104, USA*

<sup>9</sup> *National Centre for the Study and Conservation of Forest Biodiversity "Bosco della Fontana", National Forest Service, 46045 Mantova, Italy*

<sup>10</sup> *Département de Sciences Biologiques, Université de Montréal, 6126 Montréal, Québec, Canada H3C 3J7*

<sup>11</sup> *Department of Biology, University of Bari "Aldo Moro", 70125 Bari, Italy*

<sup>12</sup> *Department of Chemistry, Biology and Biotechnology, University of Perugia, 06123 Perugia, Italy*

<sup>13</sup> *Laboratoire d'Ecologie Alpine (LECA), Université Grenoble-Alpes, 38000 Grenoble, France*

<sup>14</sup> *LECA, Centre National de la Recherche Scientifique (CNRS), 38000 Grenoble, France*

<sup>15</sup> *National Research Council, Institute for Electromagnetic Sensing of the Environment (CNR-IREA), 20133 Milano, Italy*

<sup>16</sup> *National Research Council, Institute of Marine Science (CNR-ISMAR), 30122 Venezia, Italy*

<sup>17</sup> *Department of Science and Biological and Environmental Technology, University of Salento, 73100 Lecce, Italy*

*\*e-mail corresponding author: a.boggero@ise.cnr.it*

Keywords: artificial habitats, freshwater biota, lentic waters, LifeWatch, lotic waters, natural habitats, reference collection.

## SUMMARY

We present a data set on the biodiversity of Italian freshwaters, including lakeshores and riverbanks of natural (N=379: springs, streams and lakes) and artificial (N=11: fountains) sites. The data set belongs partly to the Italian Long Term Ecological Research network (LTER-Italy) and partly to LifeWatch, the European e-Science infrastructure for biodiversity and ecosystem research. The data included cover a time period corresponding to the last fifty years (1962-2014). They span a large number of taxa from prokaryotes and unicellular eukaryotes to vertebrates and plants, including taxa linked to the aquatic habitat in at least part of their life cycles (like immature stages of insects, amphibians, birds and vascular plants). The data set consists of 6463 occurrence data and distribution records for 1738 species. The complete data set is available in csv file format via the LifeWatch Service Centre.

## BACKGROUND & SCOPE

Many freshwater and taxonomic data sets exist at both European and National levels, such as the Freshwater Biodiversity Data Portal - BioFresh (<http://data.freshwaterbiodiversity.eu/metadb/metaDBfts/index.php>), the National Network of Biodiversity ([http://193.206.192.106/portalino/home\\_it/dati.php](http://193.206.192.106/portalino/home_it/dati.php)), and Nature 2000 (<http://www.minambiente.it/pagina/rete-natura-2000>). Further web-links exist that are data portals to locations along the Italian peninsula where information pertaining to the distribution of freshwater biodiversity is available (e.g., Checklist of the Italian Fauna, AQEM-STAR invertebrate database, Alpine GIG lakes phytoplankton, macrophytes and macroinvertebrates data, European Trichoptera, etc.). Of all of these websites and portals, no one site combines the simultaneous presence of different taxonomic groups. There is a clear need to collate different data sets based on broad-scale and long-term monitoring projects. Hence, we have compiled a data set that represents one of the most comprehensive and thorough collection nationwide, which is part of a larger LifeWatch data set including also coastal lagoons, littoral marine waters and terrestrial habitats.

This vast data set was created under the umbrella of a case study on Alien Species (AS) that was proposed and coordinated by LifeWatch Italy at the European level. The case study is designed using species occurrence data to assess the vulnerability of different Italian ecosystems to AS arrival (Boggero et al. 2014, Corriero et al. 2016). The taxonomic resolution adopted in the data set is at the species level for all the included taxonomic groups across different phyla. The utility of such a data set is widely recognized and reflected in INVASIVESNET (Lucy et al. 2016) joining together with the LifeWatch and several other existing initiatives at the European level to trace, monitor and counteract

the arrival of AS. By collaborating and combining efforts, the objective is to capitalise on existing knowledge and data exchange, scopes, and ideas, to create a better understanding of the AS problem, to find a common solution and to spread the news about this issue – including spreading the news to the general public.

The purpose of the present data set, which in line with the previously cited data sets, is to collect and share curated and verified species presence and geographic distribution data. This has been done for all the species recorded at 390 Italian freshwater sites belonging to the Italian Long Term Ecological Research network (LTER-Italy, <http://www.lteritalia.it>) (Bertoni 2012) and to the LifeWatch network (<http://www.lifewatch.eu>, <http://www.servicecentrelifewatch.eu>) (Basset and Los 2012, Basset 2016). The data set spans over a temporal period of about fifty years (1962-2014) across the Alpine, Continental and Mediterranean biogeographic zones of Italy (EEA 2002).

This data set is of particular interest as it aims to make biodiversity information available to future research that focuses on the occurrence and distribution of freshwater species at the national level. Data may also be relevant to policy makers, public authorities and enterprises involved in protection, management and sustainable use of freshwater ecosystems and their biodiversity. The analysis of this extensive survey of freshwater biodiversity in continental Italy will provide a basis for setting conservation priorities, developing monitoring programs and enforcing regulation (Boggero et al. 2014).

## RESULTS

### *SUMMARY STATISTICS*

The data set contains 17 different columns of information (Table 1), including: “Catalognumber”, to avoid replicates of species names; “eunisorganismgroups”, not strictly hierarchically identified, but assigned according to the EUNIS species group subdivision (<http://eunis.eea.europa.eu/species-groups.jsp>); then, from “phylum” to “providedscientificname” or to “scientificname”, Linnean categories were considered. Information on subspecies was kept to avoid losing information that could be useful for some users. Another series of columns specify: the verified “Alien” status of a species; the “eventdate” during which the sampling campaign occurred; the “locality” where the species were found following Darwin Core standards (<http://rs.tdwg.org/dwc>) with “decimallatitude” and “decimallongitude” description; “eunishabitatstypecode” to define the EUNIS type of habitat (used at level 1 only); the “scientificnameauthorship” and “namepublishedinyear” with information about author and year of description of each species.

Reported data include species occurrence from 390 sites (Fig. 1) and taxa from 11 different EUNIS groups (“algae”, “amphibians”, “birds”, “cyanobacteria”, “ferns”, “fishes”, “flowering plants”, “invertebrates”, “mosses and liverworts”, “protists”, “reptiles”) spanning 24 phyla (Table 2).

All of the records were verified by experts belonging to the different LifeWatch nodes. The LifeWatch nodes are represented by different Institutions (Universities, Research Centres, Museums, Environmental Agencies, National Forest Service, etc.) that gathered and managed species occurrence data from the different sites. The sites represent only freshwater habitats.

TABLE 1: Description of the dataset with specific information relative to definitions, units and storage.

LifeWatch DataPortal Fields	Variable definition	Units	Storage type
catalognumber	An identifier (preferably unique) for the record within the data set or collection		Integer
eunisorganismgroups	Assignment of the organism group based on the EEA, EUNIS species groups ( <a href="http://eunis.eea.europa.eu/species-groups.jsp">http://eunis.eea.europa.eu/species-groups.jsp</a> )		String
phylum	Full scientific name of the phylum in which the taxon is classified		String
class	Full scientific name of the class in which the taxon is classified		String
order	Full scientific name of the order in which the taxon is classified		String
family	Full scientific name of the family in which the taxon is classified		String
genus	Full scientific name of the genus in which the taxon is classified		String
providedscientificname	Full scientific name of the species as assigned by providers		String
scientificname	Full scientific name of the species assigned following the rules of currently (in 2015) accepted nomenclature for the taxonomic group, without authorship and date information		String
alien	Any species deliberately or inadvertently introduced to Italy by human activities after the discovery of the New World by Columbus in 1492 (Boggero et al. 2014)		Integer
eventdate	Date-time or interval during which an event occurred. For occurrences, this is the date-time when the event was recorded		DateTime
locality	Specific description of the place where the species was captured		String
decimallatitude	Geographic latitude (in decimal degrees, using the spatial reference system given in geodeticDatum) of the geographic center of a location	Decimal degrees (projection EPSG:4326 WGS84)	Double
decimallongitude	Geographic longitude (in decimal degrees, using the spatial reference system given in geodeticDatum) of the geographic center of a location	Decimal degrees (projection EPSG:4326 WGS84)	Double
eunishabitatstypecode	Assignment of the habitat type code based on the EEA, EUNIS habitat types. Only the levels 1-3 are used		String
scientificnameauthorship	Authorship information for the scientific name formatted according to the conventions of the applicable nomenclatural code		String
namepublishedinyear	Four-digit year in which the scientific name was published		Integer



FIGURE 1. Sampling sites distributed along the Italian peninsula.

*DATA SET*

*Object name:* Dataset\_Biodiversity\_Freshwaters\_LifeWatch\_2015.

*Data set citation:* Dataset\_Biodiversity\_Freshwaters\_LifeWatch\_2015.

*Character encoding:* UTF-8.

*Format name:* csv, json.

*Format version:* 1.0.

*Distribution (permanent link):* <http://www.servicecentrelifewatch.eu>

*Date of creation:* 7 March 2014.

*Date of last revision:* 29 November 2015.

*Date of publication:* 8 April 2016.

*Update policy:* following update policy rules of LifeWatch.

*Language:* English.

*License of use:* if used by researchers, administrators, managers, teachers, amateurs, general public, and others, the access is free and the use is based upon request. Details are defined in the intellectual property information. The data set authors would appreciate users providing a link to the original data set (<http://www.servicecentrelifewatch.eu>), when possible, or when researchers use the data to cite the present paper and/or to consider the data set authors for co-authorship. Stakeholders can contact authors via the contact information provided in the metadata.

*Metadata language:* English.

*Metadata managers:* Angela Boggero ([a.boggero@ise.cnr.it](mailto:a.boggero@ise.cnr.it)), Ilaria Rosati ([ilaria.rosati@unisalento.it](mailto:ilaria.rosati@unisalento.it)).

TABLE 2: Contribution of the different phyla to the composition of the data set.

Phylum	No. of records	No. of species
Amoebozoa	6	5
Annelida	97	43
Arthropoda	1893	426
Bryophyta	1	1
Cercozoa	1	1
Charophyta	123	63
Chlorophyta	486	224
Choanozoa	2	2
Chordata	883	98
Ciliophora	2	2
Cnidaria	1	1
Cryptophyta	89	24
Cyanobacteria	164	83
Euglenozoa	31	22
Haptophyta	40	3
Heliozoa	1	1
Mollusca	54	28
Myozoa	57	23
Nematoda	9	2
Ochrophyta	1387	362
Platyhelminthes	15	5
Porifera	1	1
Rotifera	915	205
Tracheophyta	205	113

#### MANAGEMENT DETAILS

*Project title:* Vulnerability of ecosystems to Alien Species invasion.

*Database managers:* Angela Boggero, Cataldo Pierri.

*Temporal coverage:* the present data set refers to the last 52 years (1962-2014).

*Record basis:* Mainly preserved specimens. Sometimes sample collection was based on field observation without specimen collection and preservation.

*Sampling methods:* The data set was created by collating different data sets managed by several research institutions. The data is shared within the context of the Alien Species Showcase of the

LifeWatch infrastructure. The definition of alien species that is adopted for the data set is very general, and is defined and available in the Alien Species Thesaurus produced by LifeWatch Italy (<http://thesauri.lifewatchitaly.eu/alienspecies/index.php>): where species are considered alien if deliberately or inadvertently introduced to Italy by human activities after the discovery of the New World by Columbus in 1492 (Boggero et al. 2014). This definition is similar to what plant invasion biologists call “neophytes” (Pyšek, 1998).

*IT specialist:* Nicola Fiore.

*Funding grants:* Data were obtained within the framework of several European and Italian projects, and thanks to the LifeWatch support. LifeWatch Italy is funded by Ministero dell’Istruzione, dell’Università e della Ricerca (MIUR) and managed by the National Research Council of Italy.

### *GEOGRAPHIC COVERAGE*

*Study area:* Sites are distributed along the Italian peninsula. The five main geographical areas are North-West, North-East, North, Centre, and South (Fig. 1). The data were georeferenced by each LifeWatch node according to WGS 84 datum.

*Bounding box:* min Longitude: 7.39 – min Latitude 39.38 – max Longitude: 17.95 – max Latitude: 46.98.

*Sampling design:* The general strategy developed within LifeWatch was to try to cover most of the territory and many different freshwater habitats. However, the data set covers only a minor part of Italy. It is anticipated that in the near future the data set will increase exponentially. The sampling design was intended to compile the information necessary for assessing Italian freshwater biodiversity and, in particular, the impacts of alien species on ecosystems. The idea is to design adequate management strategies to minimize the impacts of alien species and enable stakeholders to adapt the developed services to their particular needs (local, regional, or national scales).

*Habitat type:* Four habitat types (Fig. 2) were covered by the different sites belonging to the LifeWatch network according to the European Nature Information System (EUNIS; <http://eunis.eea.europa.eu/>) hierarchical protocol of habitat identification considering only the first-level option. The EUNIS habitat type classification is a pan-European system that aims to facilitate the harmonized description and collection of data across Europe. Thus, the EUNIS classification is a reference framework for the development of indicators and environmental reporting at the administrative and political level, and is particularly suitable for a study focusing on alien species impact.

Following The EUNIS system, the sites were classified as:

C1 - Surface standing waters;

C2 - Surface running waters;

C3 - Littoral zone of inland surface waterbodies;

J5 - Highly artificial man-made waters and associated structures.

*Biogeographic region:* Alpine, Continental and Mediterranean (EEA 2002).

*Country:* Italy.

*Quality control for geographic data:* Quality control was performed using Google maps identification of sites, and latitude and longitude coordinates provided by data providers. Geographic coordinate

format, coordinates within country/provincial boundaries, absence of ASCII anomalous characters in the dataset were additionally controlled.

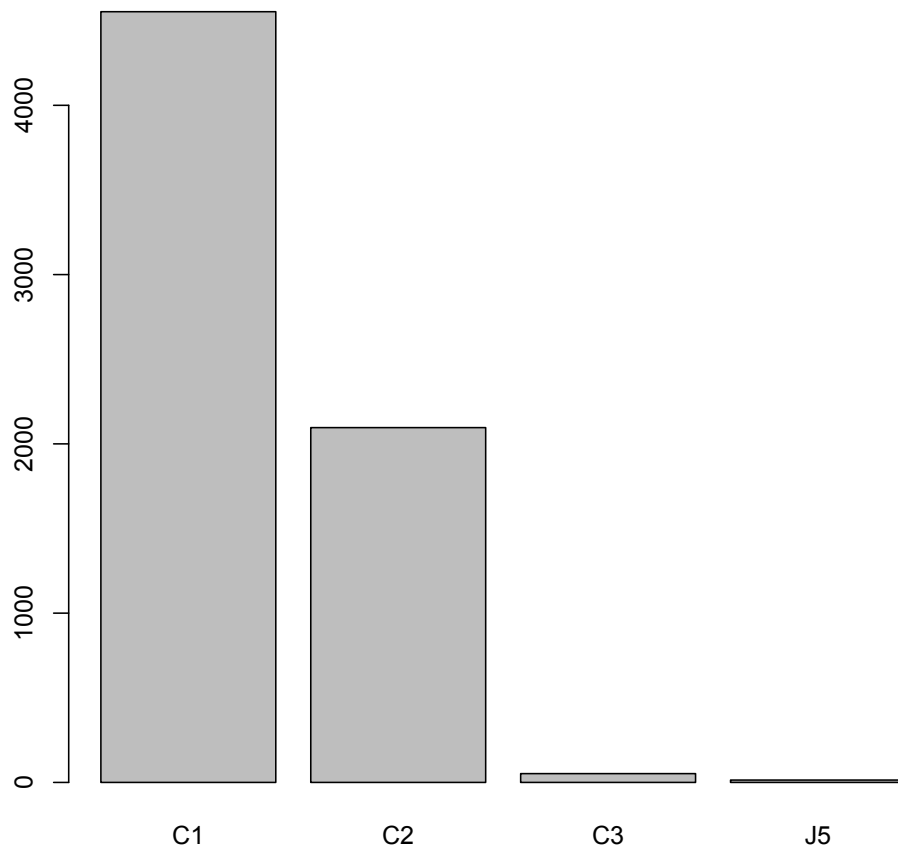


FIGURE 2: Representativeness of the different EUNIS habitats in the data set. C1 Surface standing waters; C2 Surface running waters; C3 Littoral zone of inland surface waterbodies; J5 Highly artificial man-made waters and associated structures.

### LITERATURE SEARCH

*General description:* The information on species presence at each site comes from published papers on surveys directly conducted by the authors and their collaborators from 1962 to 2014. Moreover, it includes additional papers and reports from universities and research institutions, as well as notes in technical reports from local authorities.

*Literature search methods:* All relevant literature (Supplementary file S1) was obtained using data from published papers on national and international journals directly supplied by data providers. Moreover, for each site, all the published grey literature (papers internal to public organizations, master thesis, reports, research deliverables, books, monographs) was screened.

*Quality control for literature data:* The data collated was property of most of the authors and co-authors of this paper, and since the same researchers are experts in their disciplines at National and International levels, they were involved as experts of the LifeWatch nodes. Therefore, the published data are considered reliable and simply checked for nomenclatorial consistency.



## TAXONOMIC COVERAGE

*General description:* The data set covers a wide spectrum of taxonomic groups inhabiting freshwater habitats and their surroundings. The inclusion of a species as aquatic or its exclusion as not aquatic was carried out considering its life cycle, linked or not to the aquatic habitat in at least part of its life. Thus, we included truly aquatic organisms, together with those that have immature stages in water, nest in or on water, and have roots in water.

*Taxonomic ranks:* All living freshwater biota or organisms related to waters in at least part of their life were considered. In particular, we gathered data from 24 phyla.

*Taxonomic methods:* These include revision of names, synonymizing, delimitation of genera and higher taxa, both conducted manually and through online tools supplied by the LifeWatch infrastructure (<http://www.servicecentrelifewatch.eu>).

*Taxon specialists:* Each LifeWatch node was responsible for data management from specific geographical areas and for the taxonomic control. Taxonomists from each node screened the data set for taxonomic reliability, potential problems in taxonomic identification, consistency and homogeneity of taxonomic coverage, and temporal coverage of repeated sampling for each site.

*Quality control for taxonomic data:* Record validation and cleaning were based on several steps and divided into: a) data standardization (considering the same time-span length, check of nomenclatural changes or synonyms); b) data cleaning and validation for taxonomic reliability and taxonomic consistency using different large zoological and botanical taxonomic indexes and databases known at European level following Pan-European Species directories Infrastructure (PESI), World Register of Marine Species - WoRMS, and Catalogue of Life; and c) final semi-automatic data cleaning, through the tools available on the LifeWatch portal. The online tools facilitate the taxonomic cleaning work of the researchers presenting at once the information on the species coming from different main international Global Species Databases (WoRMS, PESI, and Catalogue of Life).

## ACKNOWLEDGEMENTS

All the Authors would like to express their sincere gratitude to technicians, students, and colleagues offering their unconditional support during the different sampling campaign and the laboratory activities during all these years of hard work. Without their cooperation, this data set could never have been created. Authors are also in debt with Mattia Menchetti and an anonymous reviewer for their comments improving an earlier version of the manuscript, with Ester Eckert (CNR, Institute of Ecosystem Study, Italy) and Marnie Campbell (Univ. of Waikato, New Zealand) for their helpful suggestions and for the English correction of the text.

## AUTHOR CONTRIBUTIONS

Angela Boggero: freshwater responsible and coordinator in LifeWatch Italy, contacts with data providers.

Cataldo Pierri: assembler of the data set, contacts with data providers.

Angela Boggero, Cataldo Pierri: these authors contributed equally to the present paper.

Renate Alber, Martina Austoni, Enrico Barbone, Luca Bartolozzi, Isabella Bertani, Angela Boggero, Alessandro Campanaro, Antonella Cattaneo, Fabio Cianferoni, Ambrosius Martin Dörr, A. Concetta Elia, G. Francesco Ficetola, Diego Fontaneto, Elda Gaino, Enzo Goretti, Lyudmila Kamburska, Gianandrea La Porta, Rosaria Lauceri, Massimo Lorenzoni, Alessandro Ludovisi, Marina Manca, Aldo Marchetto, Giuseppe Morabito, Francesco Nonnis Marzano, Nicoletta Riccardi, Giampaolo Rossetti, Bertha Thaler, Nicola Ungaro, Pietro Volta, Silvia Zaupa: data providers.

Giuseppe Corriero: coordinator of the Alien Species showcase in LifeWatch Italy.

Cataldo Pierri, Ilaria Rosati, Nicola Fiore: full database managers in LifeWatch Italy.

Nicola Fiore, Alessandro Oggioni, Paolo Tagliolato: ICT in LifeWatch Italy.

Paolo Colangelo, Diego Fontaneto, Aldo Marchetto: responsible for statistical elaboration and statistical tools development.

Alberto Basset: JRU Manager in LifeWatch Italy.

## REFERENCES

- Basset, A. (2016) e-Science perspectives for the conservation of transitional and coastal wetlands. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 26, 411–415. DOI:10.1002/aqc.2683
- Basset, A. & Los, W. (2012) Biodiversity e-Science: LifeWatch, the European Infrastructure on Biodiversity and Ecosystem Research. *Journal of Plant Biosystems*, 146, 780–782. DOI:10.1080/11263504.2012.740091
- Bertoni, R. (2012) *La rete italiana per la ricerca ecologica a lungo termine (LTER-Italia)*. Aracne, Rome. ISBN 978-88-548-4661-6
- Boggero, A., Basset, A., Austoni, M. et al. (2014) Weak effects of habitat type on susceptibility to invasive freshwater species: an Italian case study. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 24, 841–852. DOI:10.1002/aqc.2450
- Corriero, G., Pierri, C., Accoroni, S. et al. (2016) Ecosystem vulnerability to alien and invasive species: A case study on marine habitats along the Italian coast. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 26, 392–409. DOI:10.1002/aqc.2550
- EEA (European Environment Agency). (2002) *Europe's biodiversity – biogeographical regions and seas*. EEA Report No 1/2002.
- Lucy, F.E., Roy, H., Simpson, A. et al. (2016) INVASIVESNET towards an International Association for Open Knowledge on Invasive Alien Species. *Management of Biological Invasions*, 7, 131–139. DOI:10.3391/mbi.2016.7.2.01
- Pyšek, P., Jarošík, V., Hulme, P.E., et al. (2010) Disentangling the role of environmental and human pressures on biological invasions across Europe. *Proceedings of the National Academy of Sciences USA*, 107, 12157–12162. DOI:10.1073/pnas.1002314107

*Submitted: 9 May 2016*

*First decision: 7 June 2016*

*Accepted: 21 September 2016*

*Edited by Federico Marrone*

SUPPLEMENTARY FILE S1. References for the data set.

AA.VV. (2000) Carta Ittica della Provincia Di Verbania.

Antonietti, R., Ferrari, I., Rossetti, G., Tarozzi, L. & Viaroli P. (1988) Zooplankton structure in an oligotrophic mountain lake in Northern Italy. *Verhandlungen des Internationalen Verein Limnologie*, 23, 545–552.

Bertani, I., Ferrari, I. & Rossetti, G. (2012) Role of intra-community biotic interactions in structuring riverine zooplankton under low-flow, summer conditions. *Journal of Plankton Research*, 30(4), 308–320. DOI:10.1093/plankt/fbr111

Bertani, I., Segers, H., & Rossetti, G. (2011) Biodiversity down by the flow: new records of monogonont rotifers for Italy found in the Po River. *Journal of Limnology*, 70(2), 321–328. DOI:10.3274/JL11-70-2-N3

Boggero, A. & Lencioni, V. (2006) Macroinvertebrates assemblages of high altitude lakes, inlets and outlets in the Southern Alps. *Archiv für Hydrobiologie*, 165, 37–61. DOI:10.1007/s10750-005-1808-7

Boggero, A., Füreder, L., Lencioni, V., Simcic, T., Thaler, B., Ferrarese, U., Lotter, A.F. & Ettinger R. (2006) Littoral Chironomid communities of Alpine lakes in relation to environmental factors. *Hydrobiologia*, 562, 145–165. DOI:10.1007/s10750-005-1809-6

Boggero, A., Marchetto, A., Manca, M., Mosello, R. & Tartari, G.A. (2005) Studies on small mountain lakes in the Val Grande National Park (Central Alps, Italy). *Studi Trentini di Scienze Naturali, Acta Biologica*, 82, 43–54.

Bonacina, C., Ferrari, I. & Rossetti, G. (1991) Composizione ed evoluzione temporale della biocenosi zooplanctonica nei laghi di Suviana e Brasimone (Appennino Tosco-Emiliano). *Rivista di Idrobiologia*, 30, 77–101.

Bottazzi, E., Bruno, M.C., Pieri, V., Di Sabatino, A., Silveri, L., Carolli, M. & Rossetti, G. (2011). Spatial and seasonal distribution of invertebrates in Northern Apennine rheocene springs. *Journal of Limnology*, 70, 77–92. DOI:10.3274/JL11-70-S1-06

Campanaro, A., Hardersen, S. & Mason, F. (2007) Piano di gestione della Riserva Naturale Statale e Sito Natura 2000 "Bosco della Fontana". Cierre Grafica, Verona, pp. 221.

Campanaro, A., Hardersen, S., Minari, E., Toni, I. & Mason, F. (2014) Piano di gestione della Riserva Naturale Statale e Sito Natura 2000 "Bosco Fontana". Aggiornamento 2014 - 2020. Cierre Grafica, Verona, 265 pp.

Camurri, L., Ferrari, I. & Villani, M. (1976) Biomassa e produzione del fitoplancton nel Lago Santo Parmense nella stagione delle acque aperte. *Archivio di Oceanografia e Limnologia*, 18, 237–253.

Cerretti, P., Hardersen, S., Mason, F., Nardi, G., Tisato, M. & Zapparoli, M. (2004) Invertebrati di una foresta della Pianura Padana. Bosco della Fontana - Secondo contributo. Cierre Grafica, Verona, 304 pp.

Cerretti, P., Hardersen, S., Mason, F., Nardi, G., Tisato, M. & Zapparoli, M. (2004) Ricerche naturalistiche a Bosco della Fontana. Cierre Grafica, Verona, 96 pp.

- Cianferoni, F. (2009) Biodiversità del bacino idrografico del Fiume Sieve, con particolare riferimento all'entomofauna acquatica e semi-acquatica (Insecta: Heteroptera e Coleoptera). Tesi di Laurea in Scienze Biologiche. Università degli Studi di Firenze, 346 pp.
- Cianferoni, F. & Mazza, G. (2012) The aquatic Heteroptera (Insecta: Hemiptera) of the Foreste Casentinesi, Monte Falterona e Campigna National Park (Central Italy). *Zootaxa*, 3568, 36–52.
- Cianferoni, F., Rocchi, S., Terzani, F. & Mascagni, A. (2014) Coleotterofauna acquatica e semiacquatica del bacino idrografico del Fiume Sieve (Toscana) (Insecta Coleoptera). *Bollettino della Società entomologica italiana*, 146(2), 51–81.
- Cianferoni, F., Terzani, F., Rocchi, S., Cianfanelli, S., Fabiano, F., Mazza, G. & Zinetti, F. (2012) Gli Invertebrati della Riserva Naturale Integrale di Sasso Fratino. In: *La Riserva Naturale Integrale di Sasso Fratino: 1959-2009. 50 anni di conservazione della biodiversità* (ed. by A. Bottacci), pp. 227–248. CFS/UTB Pratovecchio, Italy.
- Cianferoni, F., Terzani, F., Rocchi, S., Mazza, G. & Carano, G. (2011) Segnalazioni faunistiche italiane. 505 - *Microvelia (Microvelia) reticulata* (Burmeister, 1835) (Hemiptera Heteroptera Veliidae). *Bollettino della Società entomologica italiana*, 143(1), 40–41.
- Cianferoni, F., Zinetti, F., Mazza, G. & Zoccola, A. (2009) Segnalazioni faunistiche. 96 - *Micronecta (Micronecta) minuscula* Poisson, 1929 (Insecta Hemiptera Heteroptera Micronectidae). *Quaderno di Studi e Notizie di Storia Naturale della Romagna*, 28, 193–194.
- de Bernardi, R., Giussani, G., Manca, M. & Ruggiu, D. (1988) Long-term dynamics of plankton communities in Lago Maggiore (Northern Italy). *Verhandlungen des Internationalen Verein Limnologie*, 23, 729–733.
- de Bernardi, R., Giussani, G., Manca, M. & Ruggiu, D. (1990) Trophic status and the pelagic system in Lago Maggiore. *Hydrobiologia*, 191, 1–8. DOI:10.1007/978-94-009-0467-5\_1
- Dörr, A.J.M. & Scalici, M. (2013) Revisiting reproduction and population structure and dynamics of *Procambarus clarkii* eight years after its introduction into Lake Trasimeno (Central Italy). *Knowledge and Management of Aquatic Ecosystems*, 408, 10–16. DOI:10.1051/kmae/2013045
- Dörr, A.J.M., Elia, A.C., Rodolfi, M., Garzoli, L., Picco, A.M., D'amen, M. & Scalici, M. (2012) A model of co-occurrence: segregation and aggregation patterns in the mycoflora of the crayfish *Procambarus clarkii* in Lake Trasimeno (Central Italy). *Journal of Limnology*, 71, 135–143. DOI:10.4081/jlimnol.2012.e14
- Dörr, A.J.M., Galarini, R. & Elia, A.C. (2009) Monthly variability of heavy metal accumulation and detoxifying response of freshwater Copepoda, *Cyclops abyssorum*. *Proceedings of the 2nd International Conference on Environmental Management, Engineering, Planning and Economics (CEMEPE 2009) and SECOTOX*, (ed. by A. Kungolos, K. Aravossis, A. Karagiannidis and P. Samaras), 131–137, ISBN: 9789606865091.
- Dörr, A.J.M., La Porta, G., Pedicillo, G. & Lorenzoni, M. (2006) Biology of *Procambarus clarkii* (Girard, 1852) in Lake Trasimeno. *Bulletin Français de La Pêche e de la Protection des Milieux Aquatiques*, 380–381, 1155–1168. DOI:10.1051/kmae:2006018
- Dörr, A.J.M., Pacini, N., Abete, M.C., Prearo, M., Righetti, M. & Elia, A.C. (2010) Antioxidant response, heavy metal and selenium accumulation in juvenile and adult *Procambarus clarkii* of both sexes from Lake Trasimeno. In: *Ecotoxicology around the Globe* (ed. by J.E. Visser), pp. 325–328. Nova Science Publishers, Inc., ISBN: 9781617611261.

- Dörr, A.J.M., Pedicillo, G. & Lorenzoni, M. (2001) Prima segnalazione di *Procambarus clarkii*, *Orconectes limosus* e *Astacus leptodactylus* (Crustacea, Decapoda) in Umbria. *Rivista di Idrobiologia*, 40, 221–233.
- Dörr, A.J.M., Rodolfi, M., Scalici, M., Elia, A.C., Garzoli, L. & Picco, A.M. (2011) *Phoma glomerata*, a potential new threat to Italian inland waters. *Journal for Nature Conservation*, 19, 370–373. DOI:10.1016/j.jnc.2011.06.006
- Dörr, A.J.M., Rodolfi M., Elia, A.C., Scalici, M., Garzoli, L. & Picco, A.M. (2012) Mycoflora on the cuticle of the invasive crayfish *Procambarus clarkii*. *Fundamental and Applied Limnology*, 180, 77–84. DOI:10.1127/1863-9135/2012/0175
- Elia, A.C., Dörr, A.J.M, Mastrangelo, C., Prearo, M. & Abete, M.C. (2006) Glutathione and antioxidant enzymes in the hepatopancreas of crayfish *Procambarus clarkii* (Girard, 1852) of Lake Trasimeno (Italy). *Bulletin Français de La Pêche et de la Protection des Milieux Aquatiques*, 380–381, 1351–1361. DOI:10.1051/kmae:2006040
- Elia, A.C., Todini, C., Di Brizio, M. & Taticchi, M.I. (2012) Struttura e composizione del popolamento fitoplanctonico del Lago Trasimeno negli ultimi 50 anni. In: *Tutela ambientale del Lago Trasimeno*, (ed. by A. Martinelli), pp. 89–99, PERUGIA: Arpa Umbria, ISBN: 9788890592003.
- Ferrari, I. & Bellavere, C. (1976) Ricerche ecologiche su zooplancton e macrozoobenthos del Lago Santo Parmense. *Rivista di Idrobiologia*, 15, 1–48.
- Ferrari, I. & Mazzoni, R. (1989) Zooplankton in the Po River during the summer of 1985. *Toxicological and Environmental Chemistry*, 20/21, 39–48. DOI:10.1080/02772248909357357
- Ferrari, I., Farabegoli, A. & Mazzoni, R. (1989) Abundance and diversity of planktonic rotifers in the Po River. *Hydrobiologia*, 186/187, 201–208. DOI:10.1007/BF00048913
- Ferrari, I., Viglioli, S., Viaroli, P. & Rossetti, G. (2006) The impact of the drought event of summer 2003 on the zooplankton of the Po River (Italy). *Verhandlungen des Internationalen Verein Limnologie*, 29, 2143–2149.
- Füreder, L., Ettinger, R., Boggero, A., Thaler, B. & Thies, H. (2006) Macroinvertebrate diversity in Alpine lakes: effects of altitude and catchment properties. *Hydrobiologia*, 562, 123–144. DOI:10.1007/s10750-005-1808-7
- Gaino, E., Lancioni, T., La Porta, G. & Todini, B. (2004) The consortium of the sponge *Ephydatia fluviatilis* (L.) living on the common reed *Phragmites australis* in Lake Piediluco (Central Italy). *Hydrobiologia*, 520, 165–178. DOI:10.1023/B:HYDR.0000027735.11246.41
- Gaino, E., Reborà, M., Corallini, C. & Lancioni, T. (2003) Life-cycle of the sponge *Ephydatia fluviatilis* (L.) living on the reed *Phragmites australis* in an artificially regulated lake. *Hydrobiologia*, 495(1–3), 127–142. DOI:10.1023/A:1025454506643
- Gaino, E., Scoccia, F., Piersanti, S., Reborà, M., Bellucci, L.G. & Ludovisi, A. (2012) Spicule records of *Ephydatia fluviatilis* as a proxy for hydrological and environmental changes in the shallow Lake Trasimeno (Umbria, Italy). *Hydrobiologia*, 679, 139–153. DOI:10.1007/s10750-011-0861-7
- Galanti, G., Guilizzoni, P. & Libera V. (1990) Biomanipulation of Lago di Candia (Northern Italy): a three-year experience of aquatic macrophyte management. In: *Biomanipulation-Tool for Water Management* (ed. by R.D. Gulati, E.H.R.R. Lammens, M.-L. Meijer and E. van Donk). *Hydrobiologia*, 200/201, 409–417. DOI:10.1007/978-94-017-0924-8\_35

- Galanti, G., Guilizzoni, P., Mangoni, M., Nocentini, A.M. & Piva, A. (1991) A study on the littoral sediments and macrobenthos in connection with the harvesting of aquatic macrophytes in L. di Candia (N. Italy). *Memorie dell'Istituto Italiano di Idrobiologia*, 48, 163–184.
- Giussani, G. & Galanti, G. (2006) Studi limnologici sul bacino del Lago di Candia. Attività: Giugno-Dicembre 2005. Report CNR-ISE, 07.06, 14 pp.
- Giussani, G. (1998) Piano di miglioramento e conservazione della fauna ittica autoctona. CNR Report-Provincia di Torino, 6135 del 16/10/1998, 36 pp.
- Giussani, G., Galanti, G., Ciampittiello, M., Morabito, G., Oggioni, A. & Riccardi, N. (2006) Evoluzione del Lago di Candia nel periodo 2002-2006. La situazione limnologica alla fine del 2002. Rapporto preliminare Progetto LIFE-TRELAGHI. Report CNR-ISE, 06.06, 25 pp.
- Gommes, R. & Muntau, H. (1975) La distribution de quelques métaux lourdes (Zn, Cu, Cr, Ni, Mn, Co) dans la zone littorale des bassins sud et de Pallanza du Lac Majeur. *Memorie dell'Istituto Italiano di Idrobiologia*, 32, 245–259.
- Goretti, E., Marcucci, C., Di Veroli, A., Fabrizi, A. & Gaino, E. (2014) The tubificids (Annelida, Oligochaeta) of Lake Trasimeno and Lake Piediluco in Central Italy, with a study of SEM morphology of some species. *Turkish Journal of Zoology*, 38, 1–8. DOI:10.3906/zoo-1308-40
- Guancini, M.I., Rigby, E., Scialanca, F., Rossetti, G. & Franzoi, P. (1997) Evoluzione recente del popolamento zooplanctonico pelagico nel Lago di Vico (Lazio). *Atti XVIII Congresso Società Italiana di Ecologia*, 161–164.
- Guilizzoni, G. & Galanti, G. (1989) Biomass, primary production and nutrient movements in the Fondotoce wetland (Pallanza Basin-Lago Maggiore). *Memorie dell'Istituto Italiano di Idrobiologia*, 46, 197–234.
- Guilizzoni, P., Galanti, G. & Muntau, H. (1989) The aquatic macrophytes of Lake Maggiore: species composition, spatial distribution and heavy metal concentrations in tissue. *Memorie dell'Istituto Italiano di Idrobiologia*, 46, 235–260.
- Havens, K.E., Elia, A.C., Taticchi, M.I. & Fulton, III R.S. (2009) Zooplankton-phytoplankton relationships in shallow subtropical vs temperate lakes Apopka (Florida, USA) and Trasimeno (Umbria, Italy). *Hydrobiologia*, 628, 165–175. DOI 10.1007/s10750-009-9754-4
- Kamburska, L., Lauceri, R. & Riccardi, N. (2013) Establishment of a new alien species in Lake Maggiore (Northern Italy): *Anodonta (Sinanodonta) woodiana* (Lea, 1834) (Bivalvia: Unionidae). *Aquatic Invasions*, 8, 111–116. DOI:10.3391/ai.2013.8.1.13
- Kamburska, L., Lauceri, R., Beltrami, M., Boggero, A., Cardeccia, A., Guarneri, I. & Riccardi, N. (2013) Establishment of *Corbicula fluminea* (O.F. Müller, 1774) in Lake Maggiore: a spatial approach to trace the invasion dynamics. *BioInvasions Records*, 2, 105–117. DOI:10.3391/bir.2013.2.2.03
- La Porta, G., Angeli, V., Bicchi, A., Carosi, A., Pedicillo, G., Viali, P. & Lorenzoni, M. (2010) Variations in the fish community in Lake Piediluco (Italy) caused by changes in the lake's trophic status and the introduction of alien species. *Journal of Applied Ichthyology*, 26, 53–59. DOI:10.1111/j.1439-0426.2010.01498.x
- Lachavanne, J.B. & Perfetta, J. (1981) Étude des macrophytes des lacs del Lugano (Ceresio) et Majeur (rives Suisses). Université de Genève, 127 pp.

- Lancioni, T. & Gaino, E. (2006) The invasive zebra mussel *Dreissena polymorpha* in Lake Trasimeno (Central Italy): distribution and reproduction. *Italian Journal of Zoology*, 73, 335–346. DOI:10.1080/11250000600918001
- Lancioni, T. & Gaino, E. (2007) The zebra mussel *Dreissena polymorpha*: reproduction and competition with the sponge *Ephydatia fluviatilis*. In: *Biological invaders in inland waters: profiles, distribution and threats*, (ed. by F. Gherardi), pp. 597–611. Springer, Dordrecht, The Netherlands.
- Lorenzoni, M. & Ghetti, L. (2012) Evoluzione della fauna ittica e problematiche gestionali del Lago Trasimeno. In: *Tutela ambientale del Lago Trasimeno* (ed. by A. Martinelli), pp. 227–242. Libri Arpa Umbria, Perugia.
- Lorenzoni, M., Pace, R., Pedicillo, G., Viali, P. & Carosi, A. (2009) Growth, catches and reproductive biology of ruffe *Gymnocephalus cernuus* in Lake Piediluco (Umbria, Italy). *Folia Zoologica*, 58, 420–435.
- Ludovisi, A., Pandolfi, P. & Taticchi, M.I. (2005) The strategy of ecosystem development: specific dissipation as an indicator of ecosystem maturity. *Journal of Theoretical Biology*, 235, 33–43. DOI:10.1016/j.jtbi.2004.12.017
- Ludovisi, A., Todini, C., Pandolfi, P. & Taticchi, M.I. (2008) Scale patterns of diel distribution of the copepod *Cyclops abyssorum* in a regulated lake: the relative importance of physical and biological factors. *Journal of Plankton Research*, 30, 495–509. DOI:10.1093/plankt/fbn017
- Manca, M. & Comoli P. (1995) Temporal variations of fossils Cladocera in the sediments of Lake Orta (N. Italy) over the last 400 years. *Journal of Paleolimnology*, 14, 113–122. DOI:10.1007/BF00735477
- Mantilacci, L., Pandolfi, P., Ludovisi, A. & Elia, A.C. (2000) Monitoraggio del Lago di Piediluco: fitoplancton e biomarkers in organismi planctonici. Relazione finale. Provincia di Terni.
- Marchetto, A., Rogora, M., Boggero, A. et al. (2009) Response of Alpine lakes to major environmental gradients, as detected through planktonic, benthic and sedimentary assemblages. *Advances in Limnology*, 62, 419–440. DOI:1612-166X/05/0060-0001
- Mason, F., Cerretti, P., Tagliapietra, A., Speight, M.C.D. & Zapparoli, M. (2002) Invertebrati di una foresta della Pianura Padana. Bosco della Fontana - Primo contributo. Gianluigi Arcari Ed., Mantova, 176 pp.
- Mazza, G. (2008) La conservazione di specie e habitat degli ambienti umidi del Parco Nazionale delle Foreste Casentinesi, Monte Falterona e Campigna: repertorio della fauna acquatica e semiacquatica rara e minacciata. Technical report for the National Park, 112 pp.
- Mazza, G. (2009) La conservazione di specie e habitat degli ambienti umidi del Parco Nazionale delle Foreste Casentinesi, Monte Falterona e Campigna: repertorio della fauna acquatica e semiacquatica rara e minacciata. Technical report for the National Park, 117 pp.
- Mazza, G., Terzani, F. & Rocchi, S. (2008) Ricerche floro-faunistiche in alcune zone umide del Parco Nazionale delle Foreste Casentinesi, Monte Falterona e Campigna (Toscana, Emilia-Romagna). *Quaderni della Stazione Ecologica del Civico Museo di Storia naturale di Ferrara*, 18, 37–88.
- Morabito, G., Boggero, A., Rogora, M., Tartari, G.A., Tornimbeni, O., Mosello, R., Bozelli, R.L. & Manca, M. (2007-2008) Limnologia d'alta quota in Val d'Aosta: il Lago Combal. *Revue Valdôtaine d'Histoire Naturelle*, 61–62, 307–322.

- Morabito, G., Panzani, P. & Ruggiu, D. (1999) Popolamenti planctonici. Indagini sul fitoplancton. In: Ricerche sull'evoluzione del Lago Maggiore. Aspetti limnologici. Programma quinquennale 1998-2002 (Campagna 1998). (ed. by Commissione Internazionale per la protezione delle acque italo-svizzere), pp. 43–45.
- Morabito, G., Ruggiu, D. & Panzani, P. (2001) Trends of phytoplankton characteristics and their communities in pre- and post-liming time in Lake Orta (1984-1998). *Journal of Limnology*, 60(1), 91–100. DOI:10.4081/jlimnol.2001.91
- Morabito, G., Sili, C., Panzani, P. & Oggioni, A. (2009) Dinamica stagionale e distribuzione orizzontale di fitoplancton, carbonio organico e batterioplancton. Struttura dei popolamenti fitoplanctonici. In: Ricerche sull'evoluzione del Lago Maggiore. Aspetti limnologici. Programma quinquennale 2008-2012 (Campagna 2008). (ed. by R. Bertoni), pp. 53–66. Commissione Internazionale per la protezione delle acque italo-svizzere.
- Moroni, A. (1962) I laghi della Val Parma. L'Ateneo Parmense, Monografia 8, 129 pp.
- Nocentini, A.M. (1989) Researches on the zoobenthos. *Memorie dell'Istituto italiano di Idrobiologia*, 46, 173–196.
- Nocentini, A.M., Boggero, A., De Margaritis, G. & Gianatti, M. (2001) First phase of macroinvertebrate repopulation of Lake Orta (Buccione Basin) after liming. *Journal of Limnology*, 60, 110–126. DOI:10.4081/jlimnol.2001.110
- Oggioni, A. (2010) PALMa - Piante Acquatiche Lago Maggiore. Report CNR-ISE, 02-10, 35 pp.
- Pieri, V., Caserini, C., Gomarasca, S., Martens, K. & Rossetti, G. (2007) Water quality and diversity of the recent ostracod fauna in lowland springs from Lombardy (Northern Italy). *Hydrobiologia*, 585, 79–87. DOI:10.1007/978-1-4020-6418-0\_7
- Provini, A., Ferrari, I., Bartoli, M., Cofone, F., Montalto, A.M., Paris, G., Rossetti, G., Scalzo, A. & Viaroli, P. (1995) Indagini limnologiche sul Lago Cecita (Calabria). VI Workshop Progetto Strategico Clima, Ambiente e Territorio nel Mezzogiorno, 287–300.
- Riccardi, N. & Giussani, G. (2007) The relevance of life history traits in the establishment of the invader *Eudiaptomus gracilis* and the extinction of *Eudiaptomus padanus* in Lake Candia (Northern Italy): evidence for competitive exclusion? *Aquatic Ecology*, 41(2), 243–254. DOI: 10.1007/s10452-006-9061-3
- Riccardi, N. & Rossetti, G. (2007) *Eudiaptomus gracilis* in Italy: how, where and why. *Journal of Limnology*, 66, 64–69. DOI:10.4081/jlimnol.2007.64
- Riccardi, N., Giussani, G., Margaritora, F. & Couchaud, B. (2004) Population dynamics of the pioneer population of *Daphnia parvula* (Fordyce) during the invasion of Lake Candia (Northern Italy). *Journal of Limnology*, 63(1), 44–52. DOI:10.4081/jlimnol.2004.44
- Rossetti, G. & Viglioli, S. (2001) Contributo allo studio di lungo termine del Lago Scuro Parmense (Appennino settentrionale): risultati della campagna limnologica condotta nel 1998. *Atti XIV Congresso Associazione Italiana Oceanologia e Limnologia*, 14, 331–342.
- Rossetti, G., Bartoli, A., Landi, S., Ferrari, I. & Tavernini, S. (2006) Evolution of the zooplankton community in a mountain lake in the last fifty years. *Verhandlungen des Internationalen Verein Limnologie*, 29, 2209–2216.
- Rossetti, G., Bartoli, M., Ariotti, L. & Viaroli, P. (2003) Studio idrobiologico di ambienti acquatici golenali del Parco Fluviale del Po e dell'Orba (Alessandria). *Biologia Ambientale*, 17, 53–64.



- Rossetti, G., Ferrari, I., Giordani, G., Paris, G., Rossi, V. & Viaroli, P. (1996) Primi risultati di uno studio a lungo termine su un lago appenninico (Lago Scuro Parmense). *Atti Congresso Associazione Italiana Oceanologia e Limnologia*, 11, 129–140.
- Rossetti, G., Martens, K., Meisch, K., Tavernelli, S. & Pieri, V. (2006) Small is beautiful: diversity of freshwater ostracods (Crustacea, Ostracoda) in marginal habitats of the province of Parma (Northern Italy). *Journal of Limnology*, 65, 121–131. DOI:10.4081/jlimnol.2006.121
- Rossetti, G., Pieri, V. & Martens, K. (2005) Recent ostracods (Crustacea, Ostracoda) found in lowland springs of the provinces of Piacenza and Parma (Northern Italy). *Hydrobiologia*, 542, 287–296. DOI:10.1007/s10750-004-2566-7
- Rossetti, G., Tireni, F., Viglioli, S. & Ferrari, I. (2003) Ricerche ecologiche in un ambiente acquatico della golena del Po nei pressi di Casalmaggiore. *Studi Trentini di Scienze Naturali, Acta Biologica*, 80, 193–200.
- Rossetti, G., Viaroli, P. & Ferrari, I. (2009) Role of abiotic and biotic factors in structuring the metazoan plankton community in a lowland river. *River Research and Applications*, 25, 814–835. DOI:10.1002/rra.1170
- Ruggiu, D., Panzani, P. & Morabito, G. (1990) Indagini sul fitoplancton. In: *Ricerche sull'evoluzione del Lago Maggiore. Aspetti limnologici. Programma quinquennale 1988-1992 (Campagna 1989)*. (ed. by Commissione Internazionale per la protezione delle acque italo-svizzere), pp. 62–66.
- Spilinga, C., Chiappafreddo, U. & Pirisinu, Q. (2000) *Dreissena polymorpha* (Pallas) al Lago Trasimeno. *Rivista di Idrobiologia*, 39, 145–152.
- Taticchi, M.I., Mantilacci, L., Elia, A.C., Talesa, V., Principato, G.B., Giovannini, E. & Rosi, G. (1990) Stato trofico ed inquinamento in due ecosistemi lacustri. Possibile utilizzazione di dosaggi enzimatici nel monitoraggio ambientale. *Atti IX Congresso Associazione Italiana Oceanologia e Limnologia*, 71–80.
- Taticchi, M.I., Pandolfi, P., Ludovisi, A. & Elia, A.C. (2000) Monitoraggio del Lago di Piediluco: zooplancton e bioindicatori ecologici. *Relazione finale. Provincia di Terni*.
- Tavernini, S., Mura, G. & Rossetti, G. (2005) Factors influencing the seasonal phenology and composition of zooplankton communities in mountain temporary pools. *International Review of Hydrobiology*, 90, 358–375. DOI:10.1002/iroh.200510801
- Tavernini, S., Primicerio, R. & Rossetti, G. (2009) Zooplankton assembly in mountain lentic waters is primarily driven by local processes. *Acta Oecologica*, 35, 22–31. DOI:10.1016/j.actao.2008.07.004
- Tavernini, S., Viaroli, P. & Rossetti, G. (2009) Zooplankton community structure and inter-annual dynamics in two sand-pit lakes with different dredging impact. *International Review of Hydrobiology*, 94, 290–307. DOI:10.1002/iroh.200811124
- Terzani, F. & Cianferoni, F. (2007) Ricerche odonatologiche in Toscana. X. Odonati del Mugello (Odonata). *Onychium*, 5, 1–25.
- Terzani, F., Rocchi, S., Cianfanelli, S., Cianferoni, F., Fabiano, F., Mazza, G. & Zinetti, F. (2012) Invertebrati della Riserva naturale biogenetica di Camaldoli. In: *La Riserva naturale Biogenetica di Camaldoli. 1012-2012. Mille anni di rapporto uomo-foresta* (ed by A. Bottacci), pp. 285–321. CFS/UTB Pratovecchio, Italy.

- Tricarico, E., Mazza, G., Orioli, G., Rossano, C., Scapini, F. & Gherardi, F. (2010) The killer shrimp *Dikerogammarus villosus* (Sowinsky, 1894) is spreading in Italy. *Aquatic Invasions*, 5(2), 211–214. DOI:0.3391/ai.2010.5.2.14
- Viaroli, P., Bondavalli, C., Giordani, G., Paris, G. & Rossetti, G. (1992) Ricerche idrobiologiche in un bacino artificiale della golena del Po (Isola Giarola, Piacenza). *Atti X Congresso Associazione Italiana Oceanologia e Limnologia*, 265–276.
- Volta, P. & Jepsen, N. (2008) The recent invasion of roach (Pisces: Cyprinidae) in a large South-Alpine lake. *Journal of Limnology*, 67(2), 163–170. DOI:10.4081/jlimnol.2008.163