



Forests are being strongly affected in their composition and structure by climate change, pollution and rapidly evolving socio-economic conditions. The study of arthropods is one of the most efficient tools for tracing environmental change in the long term, and provides policy makers with the necessary scientific knowledge for a correct management of natural habitats. This volume presents the results of several arthropod surveys carried out in Sardinia between 2003 and 2008. These field campaigns were promoted by the Italian National Forestry Service, in the framework of the CONECOFOR Programme, and conducted mainly in the Region-owned forests of Marganai and Montimannu in the south-western part of the island. The volume is a follow-up to a first series of taxonomic papers published in Zootaxa special issue 2318 in 2009, and provides the grounds for developing long-term faunistic monitoring programmes within the international networks ICP Forests, CONECOFOR, LTER and Natura 2000.

ISBN 978-88-8314-653-4



9 788883 146534

BIODIVERSITY OF MARGANAI AND MONTIMANNU (SARDINIA)

BIODIVERSITY OF MARGANAI AND MONTIMANNU (SARDINIA)

Research in the framework of the ICP Forests network



CORPO FORESTALE DELLO STATO
CENTRO NAZIONALE PER LO STUDIO E LA CONSERVAZIONE
DELLA BIODIVERSITÀ FORESTALE "BOSCO FONTANA"
- VERONA -



Conservazione **H**abitat **I**nvertebrati
5-2011

BIODIVERSITY OF MARGANAI AND MONTIMANNU
(SARDINIA)
Research in the framework of the
ICP Forests network

A cura di Edited by

GIANLUCA NARDI, DANIEL WHITMORE, MARCO BARDIANI,
DANIELE BIRTELE, FRANCO MASON, LAURA SPADA, PIERFILIPPO CERRETTI

Corpo Forestale dello Stato
Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale
"Bosco Fontana" di Verona

A cura di *Edited by*: Gianluca Nardi*, Daniel Whitmore*, Marco Bardiani*, Daniele Birtele*, Franco Mason*, Laura Spada*, Pierfilippo Cerretti*.

*CNBFVR, Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana" di Verona.

Comitato scientifico *Scientific board*: Paolo Audisio (Sapienza Università di Roma), Marco A. Bologna (Università degli Studi di Roma Tre), Alessandro Minelli (Università di Padova), Enrico Pompei (Corpo Forestale dello Stato, Roma), Augusto Vigna Taglianti (Sapienza Università di Roma).

Coordinamento generale *General coordination*: Franco Mason.

Coordinamento scientifico *Scientific coordination*: Gianluca Nardi.

Redazione *Editing*: Massimo Lopresti, Gianluca Nardi, Mara Tisato.

Traduzione e revisione inglese *Translations and revision of English texts*: Daniel Whitmore.

Progetto grafico *Graphic design*: Mara Tisato.

In copertina *Cover photo*: *Cerambyx cerdo* (by Pietro Niolu).

In retro copertina *Back cover*: Map showing LTER-like sites in Europe (<http://www.lter-europe.net/sites-platforms>).

Foto di copertina e delle pp. *Cover photo and photos pp.*: 258, 546, 547 (figs 6–7), 675, 683 (fig. 4), 693, 695, 696, 697, 701, 762, 793 (fig. 2), 832, 841, 844, 845, 847, 848, 850, 868, 874, 875, 878 copyright by Pietro Niolu.

Esempio di citazione del singolo contributo *Citation example of single contributions*:

Rocchi S., 2011. Contribution to the knowledge of the Hydrophiloidea of Sardinia (Coleoptera: Hydrochidae, Hydrophilidae, Sphaeridiidae, Spercheidae), pp. 287–311. In: Nardi G., Whitmore D., Bardiani M., Birtele D., Mason F., Spada L. & Cerretti P. (eds), Biodiversity of Marganai and Montimannu (Sardinia). Research in the framework of the ICP Forests network. Conservazione Habitat Invertebrati, 5. Cierre Edizioni, Sommacampagna, Verona.

Citazione del volume *Citation of the volume*:

Nardi G., Whitmore D., Bardiani M., Birtele D., Mason F., Spada L. & Cerretti P. (eds), 2011. Biodiversity of Marganai and Montimannu (Sardinia). Research in the framework of the ICP Forests network. Conservazione Habitat Invertebrati, 5. Cierre Edizioni, Sommacampagna, Verona, 896 pp. + 1 map.

© Copyright 2011 – Centro Nazionale per lo Studio e la Conservazione della Biodiversità Forestale "Bosco Fontana" di Verona.

ISBN 978-88-8314-653-4



CONTENTS

| | |
|--|---------|
| Forewords | |
| <i>Richard Fischer</i> | pag. 12 |
| <i>Cesare Patrone</i> | » 13 |
| Introduction..... | » 15 |
| <i>Marco Bardiani</i> | |
| Floristic and vegetational features of Monte Marganai (SW Sardinia)..... | » 57 |
| <i>Roberto Angius, Gianluigi Bacchetta, Cristiano Pontecorvo</i> | |
| History of the CONECOFOR study area "SAR1 Marganai" (Iglesias, SW Sardinia): main aspects and values..... | » 133 |
| <i>Cristiana Cocciuffa</i> | |
| Second contribution to the knowledge of the spiders of Sardinia (Arachnida, Araneae)..... | » 137 |
| <i>Alessio Trotta</i> | |
| Oniscidea di Sardegna (Crustacea, Isopoda)..... | » 163 |
| <i>Stefano Taiti, Roberto Argano</i> | |
| New records and remarks on the centipede fauna of endogean habitats of Sardinia (Chilopoda)..... | » 223 |
| <i>Marzio Zapparoli</i> | |
| Dragonflies of Iglesiente (SW Sardinia) and additional records of rare or poorly known species from Sardinia (Odonata)..... | » 243 |
| <i>Sönke Hardersen, Piero Leo</i> | |
| Notes on Gerromorpha, Nepomorpha and Leptopodomorpha from Sardinia (Hemiptera, Heteroptera)..... | » 255 |
| <i>Fabio Cianferoni</i> | |
| I Dermatteri di Sardegna (Dermaptera)..... | » 269 |
| <i>Augusto Vigna Taglianti</i> | |
| Contribution to the knowledge of the Hydrophiloidea of Sardinia (Coleoptera: Hydrochidae, Hydrophilidae, Sphaeridiidae, Spercheidae)..... | » 287 |
| <i>Saverio Rocchi</i> | |
| The Ptiliidae of Sardinia – new records, distribution and zoogeography, with a checklist of Italian species (Coleoptera)..... | » 313 |
| <i>Mikael Sörensson</i> | |
| Contribution to the knowledge of Staphylinidae from southern Sardinia (Coleoptera)..... | » 331 |
| <i>Adriano Zanetti</i> | |

| | | |
|--|---|-----|
| The lamellicorn beetles of southern Sardinia (Coleoptera: Scarabaeoidea) | » | 353 |
| <i>Giuseppe M. Carpaneto, Emanuele Piattella, Giovanni Dellacasa, Marco Dellacasa, Riccardo Pittino, Adriano Mazziotta</i> | | |
| Georissidae, Elmidae, Dryopidae, Limnichidae and Heteroceridae of Sardinia (Coleoptera)..... | » | 389 |
| <i>Alessandro Mascagni, Carlo Meloni (†)</i> | | |
| First contribution to the knowledge of the Dermestidae of Sardinia (Coleoptera) | » | 407 |
| <i>Jiří Háva, Gianluca Nardi</i> | | |
| The Nitidulidae and Kateretidae of Sardinia: recent data and updated checklist (Coleoptera)..... | » | 447 |
| <i>Paolo Audisio</i> | | |
| Silvanidae, Cucujidae e Laemophloeidae di Sardegna: catalogo provvisorio (Coleoptera: Cucujoidea) | » | 461 |
| <i>Enrico Ratti, Gianluca Nardi</i> | | |
| First contribution to the knowledge of the shining beetles of Sardinia (Coleoptera: Phalacridae) | » | 493 |
| <i>Alessio De Biase</i> | | |
| Contribution to the knowledge of the Coccinellidae of Sardinia (Coleoptera) | » | 501 |
| <i>Claudio Canepari</i> | | |
| Meloidae ed Oedemeridae della Sardegna (Coleoptera) | » | 517 |
| <i>Francesca Montalto, Marco A. Bologna</i> | | |
| The Cerambycidae of Marganai and Montimannu (SW Sardinia) (Coleoptera) | » | 543 |
| <i>Gianfranco Sama</i> | | |
| I Coleotteri Crisomelidi nel Demanio di Marganai e nelle zone limitrofe: analisi del popolamento e considerazioni sui metodi di campionamento utilizzati (Coleoptera: Chrysomelidae) | » | 553 |
| <i>Paola D'Alessandro, Maurizio Biondi</i> | | |
| Records of Curculionioidea from the region-owned forest of Marganai and other localities of central-southern Sardinia (Coleoptera: Anthribidae, Attelabidae, Rhynchitidae, Apionidae, Nanophyidae, Brachyceridae, Curculionidae, Raymondionymidae, Dryophthoridae) | » | 581 |
| <i>Enzo Colonnelli, Bartolomeo Giuseppe Osella, Paolo Cornacchia</i> | | |
| I Coleotteri Scolitidi e Platipodidi della Sardegna (Coleoptera: Scolytidae, Platypodidae)..... | » | 609 |
| <i>Enzo Gatti</i> | | |
| The Craneflies of Sardinia (Diptera: Tipulidae) | » | 641 |
| <i>Pjotr Oosterbroek</i> | | |
| Contributo alla conoscenza dei Syrphidae della Sardegna (Diptera) | » | 659 |
| <i>Daniele Birtele</i> | | |
| Chloropidae from southern Sardinia (Diptera: Cyclorrhapha, Acalyptratae) | » | 717 |
| <i>Emilia P. Nartshuk</i> | | |
| The Ephydriidae of Sardinia (Diptera) | » | 733 |
| <i>Tadeusz Zatwarnicki</i> | | |

| | | |
|--|---|-----|
| Records on Muscidae from central-southern Sardinia, with particular regard to the region-owned forests of Marganai and Montimannu (Diptera)..... | » | 749 |
| <i>Daniele Avesani</i> | | |
| Neuropterida dell'Iglesiente (Sardegna sud-occidentale) (Raphidioptera, Neuroptera)..... | » | 759 |
| <i>Laura Loru, Agostino Letardi, Roberto A. Pantaleoni</i> | | |
| Remarks on some families of leaf-mining Microlepidoptera from central-southern Sardinia, with some ecological considerations (Lepidoptera: Nepticulidae, Bucculatricidae, Gracillariidae)..... | » | 767 |
| <i>Paolo Triberti, Sonia Braggio</i> | | |
| Macrolepidoptera Heterocera recorded from the Marganai mountains and neighbouring areas in southern Sardinia (Lepidoptera)..... | » | 783 |
| <i>Andrea Iuli, Alberto Zilli</i> | | |
| I Lepidotteri diurni della Foresta Demaniale di Montimannu (Sardegna sud-occidentale) (Lepidoptera: Hesperioidea, Papilionoidea)..... | » | 799 |
| <i>Piero Leo</i> | | |
| Records of skippers and butterflies from the Marganai mountains and surroundings (SW Sardinia) (Lepidoptera)..... | » | 813 |
| <i>Manuela Pinzari, Alberto Zilli</i> | | |
| Short notes..... | » | 819 |
| Arachnida | | |
| 1. Acari, Ixodida..... | » | 822 |
| <i>Albertina Iori, Stefano De Felici</i> | | |
| 2. Pseudoscorpiones..... | » | 824 |
| <i>Giulio Gardini</i> | | |
| 3. Scorpiones, Euscorpiidae..... | » | 827 |
| <i>Valerio Vignoli</i> | | |
| Insecta | | |
| 4. Coleoptera, Cleridae..... | » | 829 |
| <i>Paolo Cornacchia</i> | | |
| 5. Coleoptera, Elateridae..... | » | 832 |
| <i>Giuseppe Platia</i> | | |
| 6. Coleoptera, Helophoridae..... | » | 835 |
| <i>Robert B. Angus</i> | | |
| 7. Coleoptera, Scydmaenidae..... | » | 837 |
| <i>Giorgio Castellini</i> | | |
| 8. Coleoptera, Staphylinidae Pselaphinae..... | » | 839 |
| <i>Roberto Poggi</i> | | |
| 9. Coleoptera, Tenebrionidae Lagriinae Lagriini..... | » | 840 |
| <i>Piero Leo, Laura Spada</i> | | |
| 10. Diptera, Anisopodidae..... | » | 843 |
| <i>Jean-Paul Haenni</i> | | |

| | | |
|---|---|-----|
| 11. Diptera, Bombyliidae | » | 843 |
| <i>Daniele Birtele</i> | | |
| 12. Diptera, Calliphoridae..... | » | 852 |
| <i>Knut Rognes</i> | | |
| 13. Diptera, Canacidae Tethininae | » | 857 |
| <i>Lorenzo Munari</i> | | |
| 14. Diptera, Drosophilidae..... | » | 858 |
| <i>Gerhard Bächli</i> | | |
| 15. Diptera, Limoniidae..... | » | 862 |
| <i>Sigitas Podenas</i> | | |
| 16. Diptera, Milichiidae | » | 866 |
| <i>Irina Brake</i> | | |
| 17. Diptera, Mydidae | » | 868 |
| <i>Daniele Birtele</i> | | |
| 18. Diptera, Sciomyzidae | » | 869 |
| <i>Lorenzo Munari</i> | | |
| 19. Diptera, Sepsidae..... | » | 871 |
| <i>Lorenzo Munari</i> | | |
| 20. Diptera, Trichoceridae..... | » | 872 |
| <i>Andrius Petrašiūnas</i> | | |
| 21. Hymenoptera, Formicidae..... | » | 873 |
| <i>Fabrizio Rigato, Ilaria Toni</i> | | |
| INDEX..... | » | 883 |