BioFresh Newsletter

ISSUE No. 7

In this Issue

Impressum

- BioFresh is funded under the 7th EU Framework Programme, Theme 6 (Environment including Climate Change); Contract No.: 226874
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- Release date of this newsletter: November 2013

Dear colleagues, dear readers,

The BioFresh project enters its final period of funding. However, there exist strong commitments by several partners to continue the development of the project's core elements such as the portal, the meta database, the atlas, and the blog. Therefore, I am convinced that BioFresh will serve as a nucleus in forming a global freshwater biodiversity network. The Intermittent River Biodiversity Analysis and Synthesis (IRBAS) as well as the International Water Quality Guidelines for Ecosystems (IWQGES) projects already build on the achievements of BioFresh.

IPBES, The Future Earth Initiative, the Biodiversity 2020 Strategy, and the European WFD are examples of actual policies for developing sustainable solutions for the most pressing global environmental challenges. The success of these policies strongly depends on excellent science, including a solid data base, as well as the willingness to develop synergies among the various directives. Water is, however, more than just a precious resource for human consumption; it is one of the most diverse, complex and dynamic ecosystems globally - a fact that often is neglected. Indeed, the challenges in the near future are enormous. Large water infrastructure projects such as hydropower dams, long-distance water transfers, draining of wetlands, construction of navigation canals and also large restoration projects will all affect freshwaters globally and often irreversibly. The results of BioFresh may support the decision-making processes and help to identify priorities management. Hence, the EU-funded projects BioFresh and REFRESH are leading a joint Science Policy Symposium for Freshwater Life - Water lives - to provide clear recommendations for policy making. Please, do not miss the opportunity to participate and actively contribute to this forthcoming event (more on page 13).

Finally, I would like to thank all people and institutions that have supported the BioFresh project during the past years. It is your motivation and commitment that make the project to a success. I would express my gratitude to Adrian Peres and Martin Sharman from DG Research and Innovation at the European Commission. Their steering and strong promotion of the project are highly appreciated and valued.

On behalf of the coordination team, I would like to wish you happy holidays and all the best for the New Year.

Yours sincerely,

Klement Tockner

BioFresh's new look

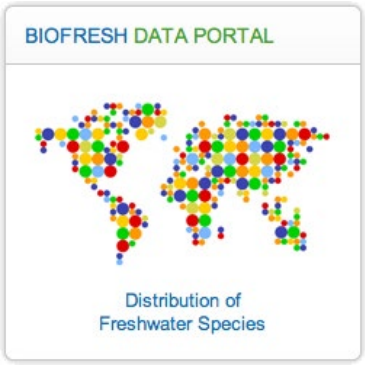
The BioFresh website with a new livery

The BioFresh website at www.freshwaterbiodiversity.eu has undergone a major re-design which was launched online during summer.

During the past year of BioFresh it has become evident that our efforts and results need to be presented in a more convenient way to the public. We decided to restructure the website from a project-focused information source to a knowledge-based information platform where scientists and early-career researchers, conservationists, ecosystem managers and stakeholders as well as the public and other interested parties would find satisfying pieces of information.

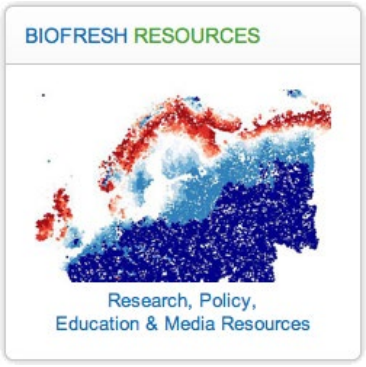
BioFresh considers itself a network of scientists of global freshwater biodiversity. Our webpage now features:

➲ **BioFresh Project:** displays all kinds of information that is related to the EU funded project BioFresh, from our team to our workpackages to the deliverables. Here you will also come upon the project's newsletters, press releases and links to the project's major results (also see below "BioFresh Resources").



➲ **BioFresh Data Portal:** this is the single gateway for freshwater species occurrence data and the "freshwater node" of the Global Biodiversity Information Facility (GBIF). Access to the assembled data allows scientists and planners to discover, examine, analyse and evaluate patterns and threats of freshwater biodiversity at scales relevant to their needs. Note that the portal webpage will be adapted to the new design soon.

➲ **BioFresh Atlas:** the Global Freshwater Biodiversity Atlas is a constantly expanding collection of key maps related to freshwater biodiversity. These include outputs of the BioFresh project and the wider scientific community, and cover state-of-the-art scientific models and conservation planning maps, such as the Freshwater Key Biodiversity Areas. The Atlas currently is in its development phase under a login-protection and will be released for the public in a few weeks.



➲ **BioFresh Resources:** this section presents research, policy, education and media resources. For the research-oriented audience we provide information on key freshwater journals, the top five questions in freshwater research as well as papers and publications that we consider relevant or which are the outcomes of our project work. Further it offers a quick entry point to online teaching and learning resources like manuals or videos (worth checking out is the "Water Lives" video, an experimental art-science-policy communication product), but also includes stories about the life as a freshwater researcher. This part of the website will soon be amended with a "How-to"-series to help students and early-career researchers to find their way through freshwater models and tools. Another section serves policy makers, managers and consultants with policy frameworks, policy briefs and other thought pieces. In the press corner you will find the BioFresh press kit.

➲ **BioFresh Blog:** our widely read blog offers a range of services to promote engagement and discussion (see separate article in this newsletter).

The BioFresh platform is also linked to relevant discussion channels for up-to-date news and comments as Twitter (two Twitter feeds: @biofreshproject, @biofreshdata) or LinkedIn (group: "BioFresh: the network for global freshwater biodiversity") for more in-depth community discussion. Further, we feature a virtual Cabinet of Freshwater Curiosities that will appeal to anyone with a sense of wonder!

If you want to be part of the BioFresh network of global freshwater biodiversity we offer numerous ways to contribute and to join in taking freshwater biodiversity science, conservation and management to a new level: one aspect of the BioFresh vision is to make biodiversity data freely and openly available. If you are a data holder you can support this vision by publishing your primary biodiversity data on the BioFresh portal. You can further publish specific information about a dataset you hold in the BioFresh metadatabase, making the existence of your dataset visible for discovery and strengthening your collaboration possibilities with scientists working in the same area. Another option is to feature your geographic results and maps in the BioFresh Global Freshwater Biodiversity Atlas. As well as contributing to the development of freshwater biodiversity science, you will increase the visibility of your data and generate more recognition for the hard work that combining such datasets entails BioFresh provides full acknowledgement of contributors to the data portal and atlas and provides clear citation guidelines.

A second dimension of our vision is to increase the speed of scientific exchange among freshwater biodiversity scientists and our policy impact. By contributing posts, comments and tweets to our online services you will help build the vitality of our network and science. At the same time you will add a progressive 'digital native' dimension to your scientific publications!

More information about the BioFresh network of global freshwater biodiversity and how to get involved can be found at:

➲ www.freshwaterbiodiversity.eu

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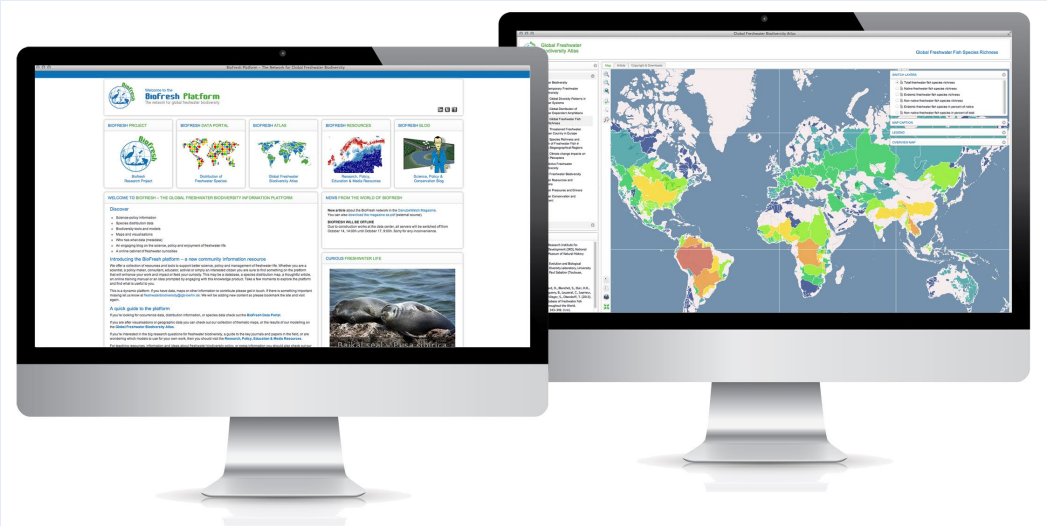

The BioFresh platform entry page (left) and a first view on the BioFresh Global Freshwater Biodiversity Atlas (right).

BioFresh data acquisition fund

A European database of caddisflies – from vision to reality

As reported in our Newsletter 3 (October 2011) BioFresh supported the collection of Trichoptera (caddisfly) occurrence data from all over Europe through its contingency fund for mobilising freshwater biodiversity data. The data collection is often referred to as DAET – "Distribution Atlas of European Trichoptera". The project was initiated by members of the BioFresh BOKU team (Austria) and coordinated by Peter Neu (Germany). Additional funding was granted by the University of Duisburg-Essen (UDE, Germany).

The insect group

There are about 1,500 caddisfly species in Europe. They are an ecologically diverse insect order, inhabiting all kinds of habitats (from springs to large rivers, from standing water bodies to brackish waters) making them good indicators to answer a variety of ecological questions and status assessment of freshwaters.

In our project we mainly considered data of Trichoptera imagines, which is an issue of quality control (not all larvae can be identified without fail; for some species larval descriptions are missing). Only data from adults guarantee reliable information and allow a clear picture of the current distribution patterns. Unfortunately, this automatically reduces the number of usable datasets as samples based on larval information (e.g. all WFD monitoring data) need to be excluded.

The vision

Much is known about occurrences of terrestrial animals, but notable distributional data of freshwater species is missing. Comprehensive collections on the distribution of freshwater insects are completely lacking. Our vision was to generate a database of European caddisfly records to (1) investigate species distribution patterns, (2) contribute to exploring the species' ecology, (3) allow displaying digital distribution maps, (4) offer free access to distribution data through the BioFresh data portal (including search and filter options), (5) model current and future distributions under climate change scenarios and finally (6) build an IUCN Red List of threatened species.

The approach

First of all we set up a coordination team, compiled a list of relevant Trichoptera experts willing to contribute and generated a template for data collection including a validated species list. In a second step we searched for additional data via the World Wide Web and literature, which were then digitised through the BioFresh team (FIN, Philippines) and the coordinator. All collected data were compiled in a database and finally quality controlled by Prof. Hans Malicky (Austria) together with Wolfram Graf (BOKU BioFresh team) and Peter Neu.

Figure 1: Imago of *Limnephilus lunatus*. Photo: Wolfram Graf/Astrid Schmidt-Kloiber.

The achievements

- 67 contributors
- 104 submitted data templates
- 1,511 species and 79 sub-species
- 13,335 digitised datasets
- 563,247 datasets
- 411,077 adult datasets

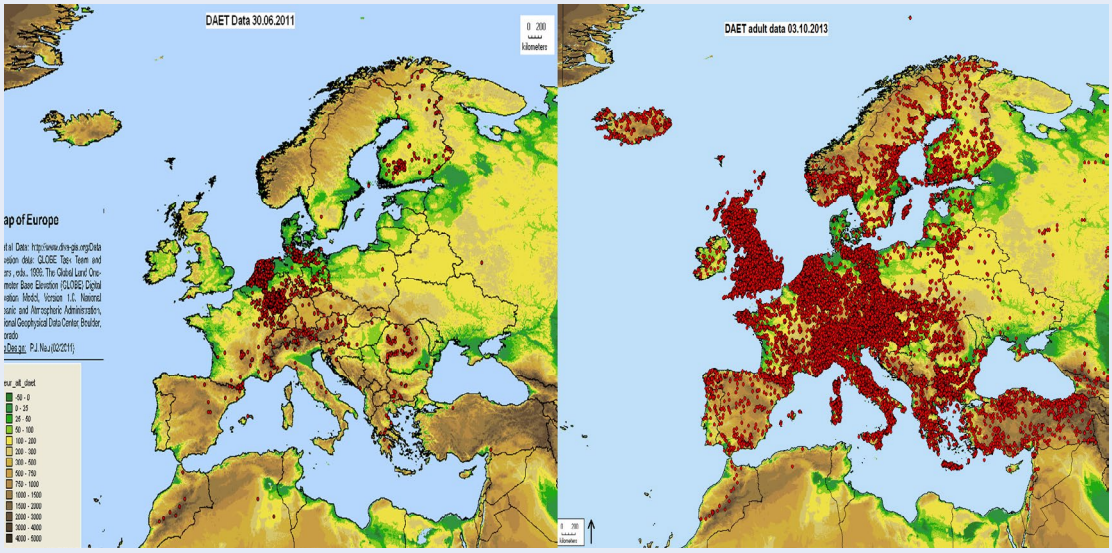

Figure 2: Map of occurrence records that were available in June 2011 (left) and map of records in October 2013 (right).

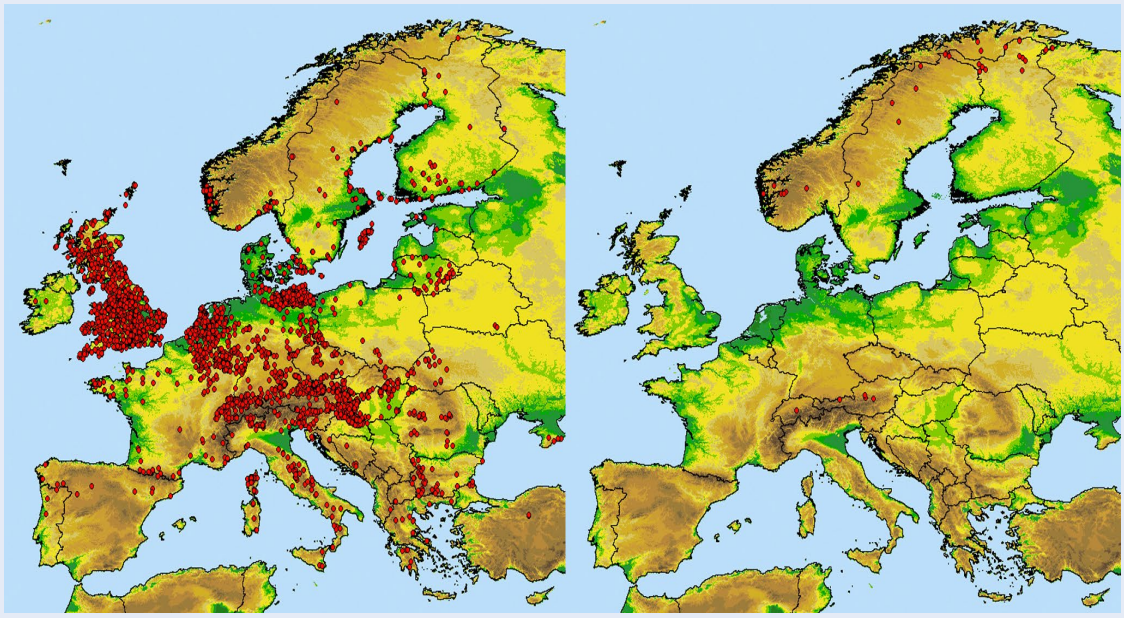

Figure 3: Distribution patterns of *Limnephilus lunatus* (left) and *Limnephilus algosus* (right).

We started the project in April 2011, by October 2013 we have now obtained more than 550,000 datasets (see box and Figure 2). Currently the data are undergoing a second quality control. Selected species will be available on the BioFresh data portal in the near future. All data will finally be published on the portal by the end of the project at the latest.

Figure 3 shows the distribution of *Limnephilus lunatus*, a species very widespread across Europe, and *Limnephilus algosus*, which is limited to alpine regions and to northern Europe. Looking at the map of *Limnephilus lunatus* the areas where we still have data deficits become visible, for example the south-west as well as the eastern European regions where this species is supposed to occur. This example also shows the difficulty to differentiate between real absences and data deficiency.

The analyses

The compiled database is not only a source of information for the species' distributions, it also sheds light on ecological characteristics, e.g. the altitudinal ranges of species or the flight periods. Currently we are analysing these kinds of patterns also taking into consideration the different years of occurrences (e.g. values before and after 1970).

To evaluate climate change effects on caddisflies we have started to model species for which we have good coverage and biogeographical knowledge. These analyses are performed by Christine Lauzeral and Sébastien Brosse (UPS, France). Figure 4 (left) shows the modelled current distribution of *Rhyacophila dorsalis* (green areas) compared to the real distribution (red points) based on a bioclimatic envelope of ensemble models (using 10 different calibration sets). On the right side of Figure 4 the future distribution patterns are modelled based on the HADCM3 model. The climate scenarios shown here include the extreme A2a scenario with about 6 degrees temperature increase and the more moderate B2a scenario with about 4.5 degrees of warming. Regardless which scenario might reflect the future best, it becomes evident that the suitable area for the species will shrink and persist only in the northern areas (yellow to green areas).

The remaining aims

The data will be published on the BioFresh data portal accompanied by a data paper in the Biodiversity Data Journal (Pensoft). Several biodiversity maps, e.g. caddisfly hotspots, will be featured in the Global Freshwater Biodiversity Atlas and ecological findings will be added to www.freshwaterecology.info.

We have managed to reach big parts of our goals so far but there is still one ambitious aim ahead of us: the generation of an IUCN Red List of European caddisflies, where we currently investigate funding options.

The acknowledgements

What other than altruism and the will to be a part of a greater whole could have motivated a researcher and data holder to contribute his/her data to our project? In that sense – on behalf of the coordination team – I want to express my sincere thanks to all the data providers for their time and their efforts to contribute to this endeavour. Without them we would have been nothing! Further I want to thank the coordinator Peter Neu for his enormous efforts, the many nights he worked instead of sleeping and his never-ending enthusiasm.

If you want to be part to this project and contribute data please visit the website or contact me.

➲ http://project.freshwaterbiodiversity.eu/index.php/geo-referenced-site-scale-data-of-european-trichoptera-daet

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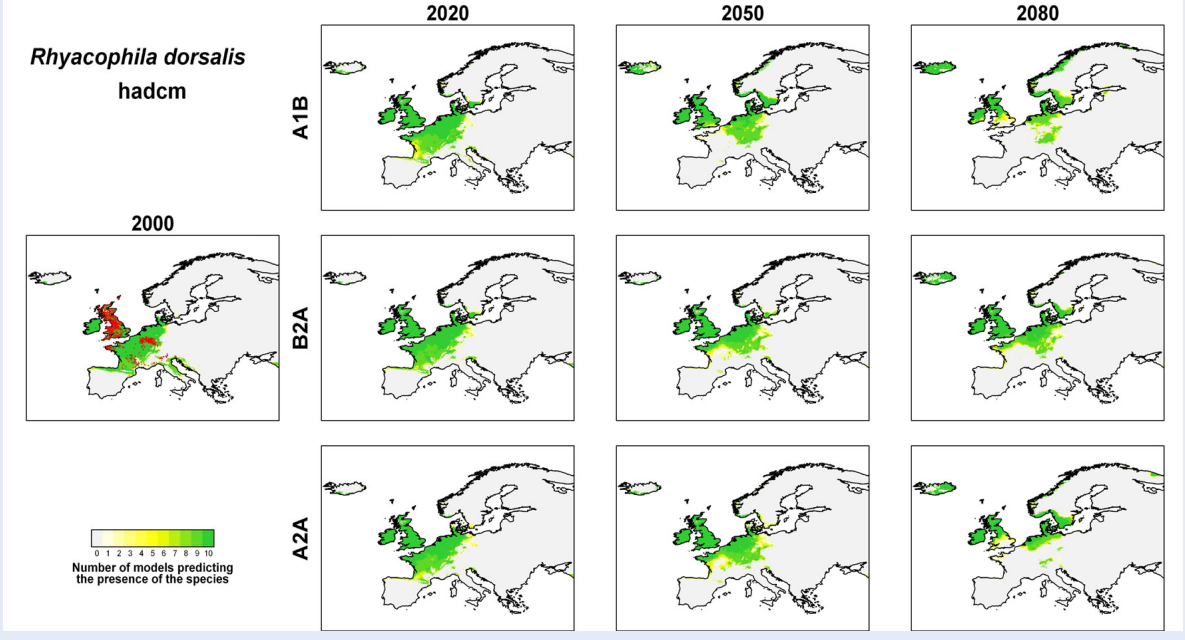

Figure 4: Modelled current (left) and future (right) distribution of *Rhyacophila dorsalis*.

BioFresh work progress

IUCN Red List freshwater biodiversity assessment review workshop for the Eastern Mediterranean

BioFresh team members took part in a IUCN Red list freshwater biodiversity assessmen workshop held 22-26 April 2013 in Azraq Wetland Lodge, Jordan. The workhop was part of the project 'Freshwater Biodiversity Assessment and Conservation Priorities for the Mediterranean Basin Hotspot', which is funded primarily through CEPF (Critical Ecosystem Partnership Fund) and the MAVA Foundation. This project aims to provide information for decision making to benefit conservation of freshwater biodiversity in the Mediterranean Basin. It is focused on species IUCN Red List assessments and the identification of Key Biodiversity Areas (KBAs).

The eastern part of the Mediterranean Basin is the only region within this Hotspot where the conservation status of freshwater biodiversity is unknown. In order to identify Key Biodiversity Areas for freshwater taxa, this large data gap is being filled through the species IUCN Red List assessments reviewed at this workshop.

The workshop's first session focused on an introduction to the project and IUCN Red Listing (see www.iucnredlist.org/technical-documents/red-list-training for all official IUCN Red List training documentation and presentations). This was followed by a 'threat mapping' exercise, which involved participants discussing threats to freshwater biodiversity in the region and drawing the location of threats within their geographic area of expertise on blank maps. The reason for this was that the whole workshop should benefit from a better understanding of the type, location and severity of threats across the region. The workshop participants then split into 3 groups based on taxonomic expertise: fishes, molluscs and aquatic plants. The groups reviewed each species IUCN Red List assessment (within the online database Species Information Service – SIS) and map one by one. Note that dragonflies and damselflies are also part of this project, but as there were only 40 species to assess and a limited number of experts it was decided that the review process could be achieved remotely. The final session of the workshop was a report back from each group summarising the outcomes and provisional listings, a group discussion (questions and answers) on the next steps in Red Listing and Key Biodiversity Area identification in the project, and a discussion on regional report contributions.

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IUCN

Participant group photo from left to right: Atheer Ali (fish), Richard Lansdown (plants), Guler Ekmekci (fish), Ümit Kebapçi (molluscs), Hossein Akhani (plants), Kevin Smith (IUCN), Jörg Freyhof (fish), Salih Kavak (plants), David Allen (IUCN), Mary Seddon (molluscs), Catherine Numa (IUCN), Manuel Lima (molluscs) and Halil Çakan (plants). Photo: Kevin Smith.

BioFresh work progress

IUCN workshop on Freshwater Key Biodiversity Areas in Morocco

The Freshwater Biodiversity Unit of the IUCN Species Programme in collaboration with the IUCN Centre for Mediterranean Cooperation organised a workshop bringing together a range of experts on different taxonomic groups and stakeholders to validate Freshwater Key Biodiversity Areas (KBAs) in the North African part of the Mediterranean Biodiversity Hotspot.

During this workshop, held in Marrakech (Morocco) from 3 to 6 September 2013, experts completed and validated information for a network of river or lake catchments previously proposed as freshwater KBAs for this part of the Mediterranean. For each of the more than 40 freshwater KBAs identified in Morocco, Algeria and Tunisia, experts validated the species present on the sites, major threats, priority actions, and potential champions (relevant organisations with a presence in the area) in a position to raise the profile of each KBA site. The information compiled in the workshop is now undergoing further work to complete the data sets for each site. This work aims to provide the foundation for creation of a representative Protected Areas network for freshwater species, as well as providing information on important sites for freshwater biodiversity for decision makers involved in the conservation and sustainable management of freshwater biodiversity in the Mediterranean Basin Biodiversity Hotspot.

This is the second stakeholder KBA workshop where IUCN's methodology for identifying Freshwater KBAs is implemented (the first one was held in Bosnia and Herzegovina in 2012 - see Newsletter No. 6). This activity is part of the "Identification of Important Freshwater Areas" component of the "Mediterranean Biodiversity Assessment II" initiative, and receives support from the Critical Ecosystem Partnership Fund, MAVA Foundation, the Spanish Agency for International Development Cooperation (AECID), BioFresh consortium (EU FP7 project) and FREDIE initiative (Freshwater Diversity Identification for Europe).

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William Darwall
IUCN

Participant group photo from left to right: William Darwall, Mohamed Ghamizi, Mohammed Melhaoui, Savrina Carrizo, Miguel Clavero, Mohamed Noaman, Imtinen Ben Hadj Jilani, Laila Rhazi, Geert de Knijf, Violeta Barrios, Boudjéma Samraoui, Jamel Tahri, Dirk van Damme, Joerg Freyhof, Mohammed Dakki. Photo: Will Darwall.

BioFresh work progress

Multiple stressors group met for final workshop at BOKU in Vienna

From September 24th to 26th 2013, scientists from five BioFresh partner institutions met in Vienna to present and discuss their findings. The group aimed to identify the effects of different environmental stressors on aquatic biodiversity in lakes, rivers, ponds, floodplains and groundwater. Therefore, in a first study, a focus was laid on urban and agricultural land uses. The results are currently prepared for a manuscript, which will show the response patterns of plant and animal diversity in areas differently impacted by land uses. Although the effect of the two surveyed land uses is notable and significant, the scientists found natural environmental parameters such as longitude or latitude to be much stronger descriptors of biodiversity at the European scale. Subsequent analyses at finer spatial scales using smaller regional datasets, however, imply that land use becomes a stronger descriptor in regional datasets. This finding might inform conservation management about the relevant spatial scale of land use management for biodiversity conservation. The study will be expanded in a second step and involve additional stressors, for example, hydromorphological degradation of rivers or eutrophication of lakes. As a main result, the scientists will elaborate a stressor matrix, ranking different stressors of aquatic biodiversity in different ecosystem types and addressing different organism groups (e.g. fish, invertebrates, amphibia, plants).

BioFresh scientists met for a workshop at BOKU in Vienna. Photo: Michael Gerisch.

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BioFresh in Freshwater Biology

Biodiversity is not the all-purpose indicator

The worldwide loss of aquatic biodiversity is alarming and well acknowledged – as are the main pressures that humans impose on the biodiversity of rivers, lakes and other aquatic ecosystems: pollution, physical habitat degradation, land use. These stressors are frequently being reported to constitute major threats of biodiversity, but the question arises how their impacts on biodiversity can be measured. This question drove the BioFresh German partner UDE, to conduct a study on the impact of physical habitat degradation in Central European lowland rivers on the diversity of riverine benthic invertebrate communities. Together with two colleagues, we analysed the changes of several diversity metrics along a gradient of degradation. Unexpectedly, we noted only very little changes of the metric's values along the gradient. Yet, we were able to show that the communities changed notably along the gradient: sensitive species got lost under degradation and were replaced by more tolerant species towards the degraded stressor endpoint. Thus, although biodiversity effects were easily detectable at the level of single species, whole-community measures such as species richness or Shannon's diversity (but also phylogenetic and functional trait diversity) failed to indicate the changes. We conclude that classical biodiversity metrics are not the all-purpose indicators of biodiversity and that such whole community-based indicators should be complemented by others that better account for taxon turnover under degradation.

Reference: Feld, C.K., De Bello, F. & Dolédec, S. (2013): Biodiversity of traits and species both show weak responses to hydromorphological alteration in lowland river macroinvertebrates. Freshwater Biology. (doi:10.1111/fwb.12260).

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BioFresh in Molecular Ecology

Postglacial colonization of Europe: the role of local dispersal from in situ northern microrefugia

One of the BioFresh challenges is to document and understand patterns of diversity in the aquatic realm. Dispersal is a key mechanism but its role in shaping diversity patterns is difficult to evaluate. In groundwater, large geographic ranges of presumably good dispersers are increasingly suspected to consist of assemblages of cryptic species with narrow ranges. Moreover, a large species range, even when confirmed by molecular evidence, tells us little about the spatiot-emporal dynamics of dispersal. In a paper recently published in Molecular Ecology, we combined phylogenetic inferences, species delineation methods and Bayesian phylogeographic diffusion models to test for the likelihood of postglacial colonisation from distant southern refugia among five groundwater morphospecies of *Proasellus* (Isopoda, Asellidae). Three main results emerged from this study. First, there was considerable spatio-temporal heterogeneity in dispersal rates, suggesting that short-time dispersal windows were instrumental in shaping species ranges. Second, species showed contrasting colonisation dynamics: only one species, *Proasellus cavaticus,* experienced a recent, presumably postglacial, range expansion (Figure 1). Third, postglacial colonisation was from multiple microrefugia located along the Jura and Alpine foothills. Our results challenge the view of southern Europe as a refuge and source area of European biota.

Reference: Eme D., Malard F., Konecny-Duprée L., Leféburе T. and Douady C.J. (2013). Bayesian phylogeographic inferences reveal contrasting colonization dynamics among European groundwater isopods. Molecular Ecology, 22: 5685–5699

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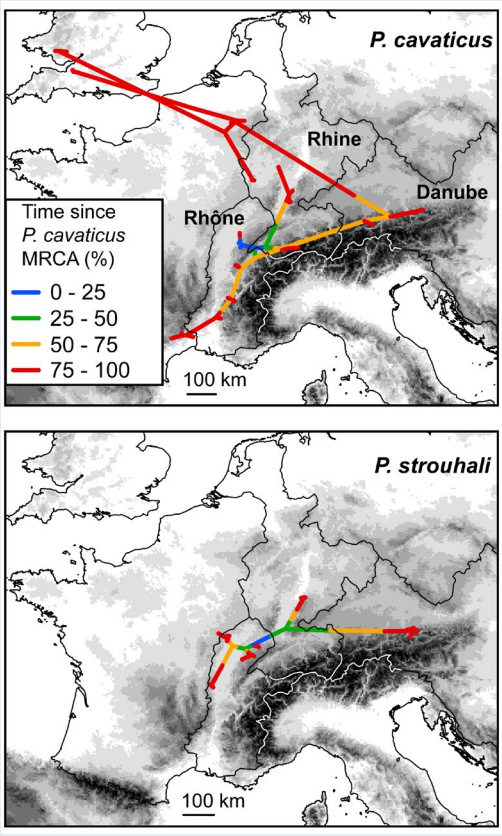

Figure 1: Range dynamics of the groundwater isopods *Proasellus cavaticus* (upper panel) and *Proasellus strouhali* (lower panel). Branches of the maximum clade credibility tree are projected on an elevation map, and colours represent the relative age of branches (BEAST analysis based on COI, 16S and 28S genes with a linked topology). Time is expressed as percentage of the age of *P. cavaticus* most recent common ancestor (MRCA). *P. cavaticus* experienced a recent (red lines), presumably postglacial, range expansion whereas *P. strouhali* already had acquired much of its distribution range presumably prior to the *Pleistocene* (blue, green and orange lines). Map: modified after Eme et al. 2013.

BioFresh in Applied Ecology

Climate change and biodiversity: "good news" from riverine fishes

Results of a recent study led by IRD BioFresh partner and focusing on freshwater fishes extinction rates in rivers strongly contrasts with previous alarming predictions of huge future extinctions due to on-going climate change. More importantly the study shows that current anthropogenic threats generate extinction rates in rivers far greater than natural and climate change expected extinction rates, highlighting the need for urgent and effective conservation measures to reduce the impacts of present-day anthropogenic drivers of riverine fish extinctions.

Current models estimating the impact of global climate change induced habitat loss on biodiversity usually project high percentages of species "committed to extinction" on an uncertain timescale.

Reducing this uncertainty is particularly important for

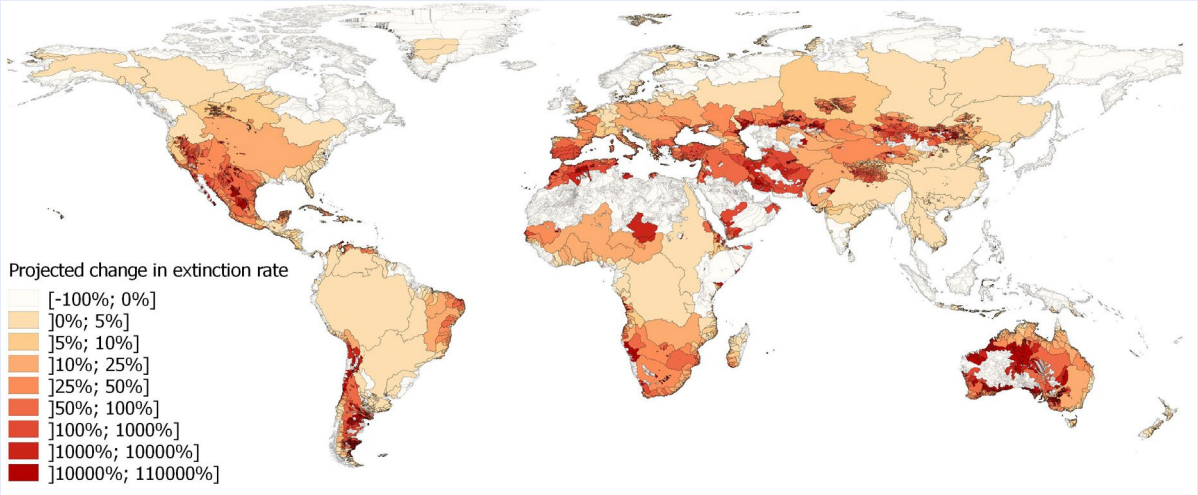

Figure 1: Global patterns of proportional increase or decrease in extinction rates between future and current climatic conditions. Maps: Pablo Tedesco.

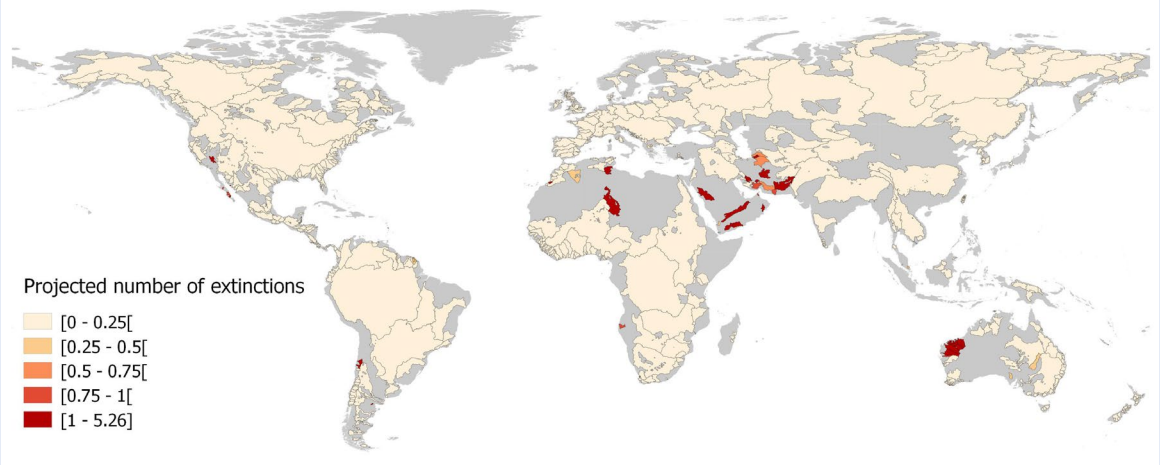

Figure 2: Main projected species richness loss by 2090 for 1010 river drainage basins. Maps: Pablo Tedesco.

conservationists as the lag time between becoming "committed to extinction" and going extinct may range from decades to many millennia and constitutes a window of opportunity to prevent these potential extinctions.

A new paper by IRD and University Paul Sabatier BioFresh partners shows that this limitation can be overcome by using an empirically derived "extinction-area" curve for freshwater fishes and predicts that only few (7%) river basins worldwide (more than 90,000 rivers analysed) should suffer an increase in natural extinction rates from area loss due to climate change by 2090. Rivers projected to experience an increase in extinction rates are located in regions where semi-arid and Mediterranean climates currently occur (i.e. southwest USA, Mexico, southern America, northeast Brazil, northern and southern Africa, southern Europe, western and middle Asia, Australia). Area loss due to climate change in these drainage basins will hasten natural extinction rates by only 1.24 times (median value).

Converting these rates in real numbers for a subset of 1,010 river basins where species lists are known, the authors predict the extinction of 1 to 5 species by 2090 in no more than 20 rivers worldwide. Furthermore, based on well documented fish extinctions from Central and North American rivers over the last century, the authors also show that recent extinction rates are, on average, 150 times greater than natural extinction rates and 130 times greater than projected extinction rates from habitat loss due to climate change.

In their conclusion the authors argue that there still is a chance to counteract actual and future fish species loss by preferentially focusing conservation actions on other important human-driven threats generating ongoing fish extinctions in rivers such as habitat degradation and fragmentation, overexploitation, eutrophication and introduction of non-native species.

Reference: Tedesco PA, Oberdorff T, Cornu JF, Beauchard O, Brosse S, Dürr HH, Grenouillet G, Leprieur F, Tisseuil C, Zaiss R & Hugueny B (2013). A scenario for impacts of water availability loss due to climate change on riverine fish extinction rates. Journal of Applied Ecology, 50: 1105-1115.

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BioFresh - Science Policy Interface dialogue

Building bridges between BioFresh and policy

The BioFresh team met on July 8th with policy officers of the Directorate General Environment (DG ENV) to present BioFresh´s main scientific products, in particular those related to the Key Biodiversity Areas (KBAs) identified under Workpackage 7 (Informing Policy for Conservation Planning). This meeting was part of a set of consultative dialogues involving stakeholders that BioFresh is implementing under its science-policy-interface strategy plan.

Following the concept of Important Bird Areas (IBA), BioFresh is developing a network of freshwater Key Biodiversity Areas, prioritising the important freshwater sites of biodiversity based on different scenarios, performing assessments of these areas for their level of protection within the European network of protected areas, such as the Natura 2000. Furthermore, predictive modelling on species distribution in response to climate change will be used to develop scenarios for a future protected area network.

These draft scenarios of the protected area networks are of extreme relevance as recommendations for conservation policy implementation and help contribute to achieve the targets within EU policies.

As direct interaction with DG ENV is crucial for integrating science results into policy processes, regular meetings with policy officers at DG ENV are planned to continue during the following months and the last period of the BioFresh project.

Participants:

BioFresh: Jörg Freyhof (IGB), William Darwall (IUCN), Núria Cid and Ana Cristina Cardoso (JRC)

DG ENV: Anne Teller (B2), Karin Zaunberger (B2), and Evdokia Achilleos (C1)

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The BioFresh blog

Our activities

There's been a lot of action on the BioFresh blog lately! Since May, the blog has been getting over 3,000 hits per month, with July taking the prize as our best month ever, just shy of 5,000 views. One major draw for many readers was our special issue on ecosystem services, which kicked off in mid-June. Starting with a review of the concept of ecosystem services by James Erbaugh, the issue featured a tour of EU-commissioned research by Paula Harrison and examples of payments for ecosystem services (PES) in action such as the LIVING RIVERS Foundation.

The issue also weighed in on highly fraught debates over the idea of ecosystem services, which proved a popular subject. In particular, Martin Sharman's July perspective on ethics and the ecosystem services paradigm was a highlight, drawing 1,130 views (and counting) with almost 200 in its first three days alone. Sharman's post challenged the current move toward ecosystem services thinking, arguing that it constitutes a fundamentally immoral policy because it places human benefit over every other consideration, undermining intrinsic value arguments for conservation. He also made the assertion that ongoing biodiversity loss means that conservation is not working, likening it to "deciding that my accelerator is not working because my car is losing speed." His strong stance against ecosystem services arguments drew great interest as well as lively debate, particularly on the LinkedIn Biodiversity Professionals group. Opening up the floor on the ethics of ecosystem services seemed to resonate with our readers and those who connected via LinkedIn; Sharman's critique drew renewed critical attention to this major policy shift, even while it becomes more and more locked-in as a focus of conservation effort. Following up on this, Veronica Strang of the University of Durham's Institute of Advanced Study contributed her insights in a video presentation on water as a focus we can use to develop a new bioethics.

By keying into such current debates, the blog has grown in readership, serving not only to share the scientific work that BioFresh partners are accomplishing, but also to spur on discussion. Focusing on freshwater biodiversity itself also remains popular: the Cabinet of Freshwater Curiosities is going strong, and on the main BioFresh blog, "The mayfly's lifecycle: a fascinating, fleeing story" is still a favorite, two years after it was published. Although its popularity has seemed (perhaps unsurprisingly) to peak each summer, this year there was an explosion of mayfly interest, with 1,690 hits to that post in July alone.

As the blog project draws to a close, we hope to continue both promoting BioFresh science and providing a forum and topics for discussion. James Dalton of the IUCN is contributing a guest perspective on aiming for net positive impact for water, which promises to open up an interesting new area to debate. We are also developing wider public interest pieces, ranging from thoughts on Canadian artist Edward Burtynsky's Water project, to a Cabinet feature on the splashing tetra and a series on the work of young thinkers in biodiversity science and policy.

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BioFresh-REFRESH Symposium

Water lives!

The EU FP7 projects BioFresh and REFRESH organise a joint Science Policy Symposium for Freshwater Life with the aim of bringing together policy makers and stakeholders from the water, energy and conservation sector, NGOs, the scientific community and selected experts to discuss challenges to implementing the 2020 Biodiversity Strategy and the EU Water Framework Directive.

The BioFresh project delivers policy relevant data and results on the current status, trends, pressures and conservation priorities of freshwater biodiversity.

The REFRESH project increases understanding of freshwater ecosystem response to climate and land use change and develops tools to support adaptive management.

The Symposium will be held at the Museum of Natural Sciences (RBINS) in Brussels, January 29 to 30, 2014.

More information about the programme and registration:

➲ www.waterlives.eu

➲ waterlives.committee@freshwaterbiodiversity.eu

– INVITATION –

Water Lives: scientific horizons for biodiversity and water policy

2014 SCIENCE POLICY SYMPOSIUM
to support the implementation of the 2020 Biodiversity strategy and the EU Water Framework Directive

www.waterlives.eu

29-30 January 2014

Museum of Natural Sciences (RBINS), Brussels, Belgium

The EU FP7 projects BioFresh and REFRESH are pleased to invite you to the Science Policy Symposium for Freshwater Life.

Why attend?

The symposium offers the opportunity for stakeholders and scientists to discuss challenges to implementing the **2020 Biodiversity strategy** and the **EU Water Framework Directive** and to explore the mechanisms for better integrating freshwater biodiversity and ecosystem science into policy.

Who should attend?

Policy makers at EU level, stakeholders (administration, business and civil society) from water management biodiversity conservation and related policy sectors (agriculture and energy) at EU and national level, scientific community (including FP7 projects).

What can you expect?

The symposium mixes presentations from different perspectives (including Hans Bruyninckx - CEO of the European Environment Agency (EEA) and contributions from the European Commission) with various interactive elements (e.g. round table dialogues, moderated discussions, panel discussion, poster presentations) to facilitate an intensive exchange between science, policy makers and stakeholders. All participants are warmly invited to actively contribute to the discussions.

For more information about the programme and speakers, please visit our Symposium website and register at **www.waterlives.eu** or contact us at **waterlives.committee@freshwaterbiodiversity.eu**

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BioFresh (Co. 226874) and REFRESH (Co.244121) are funded by the European Commission under the 7th Framework Programme