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EDITORIAL
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Concluding remarks on the 42nd Congress of the Italian Biogeography Society (SIB) Trieste, Italy, 22-25 June 2022

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Concluding this Congress requires first to consider the title chosen by the SIB Council for this occasion "**Biodiversity in Italy at the check-up**" (https://dryades.units.it/SIB2022), a topic of absolute scientific and social importance that is critical in the light of the great environmental and climatic changes that have occurred in the recent decades. It is a theme where the community of Italian biogeographers is called to evaluate the extent of change, consider its ecological and geographical features, and attempt to estimate the risk to which plant and animal populations, species, and communities are subjected.

Furthermore, as it should be for every congress appointment, we also sought to weigh up the state of health of the society, measured both on the level of participation of its members and on its ability to draw the attention of citizens and politics to a value, that of biodiversity, which requires growing levels of awareness and social commitment. The organizational scheme of the congress met both needs, proposing alongside the scientific sessions a Round Table on the state of the art and the prospects of Biodiversity Databases in Italy. The choice of the city of Trieste as the congress venue was planned before the COVID-19 pandemic outbreak and its heavy impact on the life and activities of citizens, and therefore it was not at all obvious that an in-person conference could achieve an adequate level of participation. However, the response from Italian biogeographers was fairly good and the conference was able to take place with the participation of 40 people, the presentation of 27 scientific contributions distributed in five communication sessions and a Round Table with six talks.

The effects of the pandemic have most likely manifested themselves in a much more significant way in the two years of preparation, imagined in the theme of the congress, limiting the possibility of field research aimed precisely at verifying through ad hoc monitoring the state of biodiversity in areas and sites investigated in past, functional to diachronic comparisons. It is therefore no wonder that not all the presented talks in Trieste were strictly consistent with the announced theme. Nonetheless, most of the participants dealt with the theme of changes in

biodiversity, with different targets and approaches.

The issue of infrastructures for biodiversity has been the subject of particular attention, starting with the examination of the role played by Natural History museums as irreplaceable guardians of historical collections (Latella & al. “Museums repositories of biodiversity”), identified as an important resource to be supported within the Italian National Recovery Plan (Vomero “Biodiversity. Prospecting the role of nature museums in the Italian recovery plan”) and where the sample digitization processes must be implemented and accelerated (Vomero & Martellos “From CollMap to CollMap 2.0 – Management and follow-up of the Italian project”). The good progress of some projects, such as the digitization of the Herbarium of the University of Pisa, has shown how these historical collections continue to be precious sources of information and floristic and chorological news (Roma-Marzio & al. “Updating floristic knowledge through herbarium digitization: the Herbarium Guadagno and the checklist of the Italian vascular flora”).

An ad hoc Round Table and some communications also provided information on the state of the art and the prospects of databases on biodiversity. The checklists deserve particular mention, starting with the new Checklist of the Italian Fauna (Bologna & al. “The new checklist of the Italian Fauna”), which is being painstakingly updated where the vulnerability of the loss of taxonomic skills emerges with manifest concern, a crucial issue that crosses the entire biodiversity research sector.

The coordination group of the Italian Vascular Flora Checklist presented some diachronic analyses aimed at highlighting the evolution of knowledge about the floristic richness of the various Italian regions (D’Antraccoli & al. “Floristic richness and composition among regions of the Italian vascular flora”) and of Malta (D’Urso & al. “The ‘FAST’ Project as a common action of information, knowledge and contrast to invasive alien species present in Malta and Sicily”). The issue of biological invasions was then addressed in a study on the potential invasiveness of Mimosoideae in Italy (Velasco “Potential spread of invasive Fabaceae (subfamily: Mimosoideae) in Italy predicted from stand vs regeneration species distribution models”). One of the communications, on behalf of a large group of authors, instead presented the state of the art of floristic cartography in northern Italy (Adorni & al. “Floristic cartography in Northern Italy: evaluation of the level of exploration by quadrant”).

Some communications have discussed significant advances in the taxonomic and faunal/floristic knowledge of relatively little investigated taxa such as the Apoidea (Hymenoptera) of the Egadi islands (Catania & al. “The bees (Hymenoptera, Apoidea) of Egadi Islands, new records and the first checklist for the Archipelago (Sicily, Italy)”, the terrestrial isopods in Liguria (Gardini “Faunistics and biogeography of terrestrial isopods (Crustacea, Oniscidea) from Liguria, north-western Italy”) or the genus *Santolina* (Asteraceae) in Italy (Giacò & al. “Taxonomy and distribution of *Santolina* L. (Asteraceae) in Italy: an overview from the early Italian floras to present").

The Ligurian Alps and the Italian islands have also been at the center of faunal and biogeographical evaluations (and discussions) on mammal fauna (Cavagnin & Masseti “A gateway to the western Mediterranean: the biodiversity of the Ligurian Alps, a need for conservation”, Masseti “Verification of the current state of the terrestrial vertebrate data in the Italian islands, in the light of the most recent actions undertaken for their conservation”).

Of a more classic profile was the presentation of a study on Mediterranean species of the *Stenostoma* genus of Oedemerid beetles carried out by integrating morphology and molecular phylogeny (Riccieri & al. “Different biogeographic histories in the Mediterranean-

Macaronesian genus *Stenostoma* (Coleoptera, Oedemeridae)") and always remaining in the strictly biogeographic field, another study examined the species-area relationship in island orchids of the Central-Western Mediterranean (Lussu & al. "Island species-area relationship (SAR) of Orchids in Central West Mediterranean Basin").

Diachronic changes, largely in the direction of a loss or impoverishment of biodiversity, were presented and discussed at various taxonomic and geographical scales, from individual species, endemic or of particular conservation value (Brandmayr & al. "One hundred and sixty-seven years of finds from *Saga pedo* in Italy diachronically revisited", Guerrina & al. "Recent range contraction in *Berardia subacaulis*, an endemic species of the Southwestern Alps") to macrogroups such as aquatic birds (Baccetti & al. "From the 'count of ducks' to the IWC: the wintering of aquatic birds in Italy at the 2020 check-up"), up to entire forest communities (Spada & Schirone "Which biodiversity for the Italian forests?"). This intervention highlighted the risk of biodiversity loss and the impoverishment of open habitat communities associated with the extensive reforestation in continuous progress on the Apennines, underlining a major management and conservation problem.

Also in the entomological field, the importance of a multidimensional approach integrating distribution data, geomorphology and plant associations was underlined (Brandmayr & Colombetta "Carabid communities and landscape at the eastern border of Italy, a database for biodiversity and changes"). The results of this study, conducted in the area of the Italian eastern 'biogeographic threshold', highlight a marked change and impoverishment of the communities of carabid beetles, with a loss of forest species and the transition towards Mediterranean-type associations.

Thanks to the collections and documents preserved in the Natural History Museum of Verona, it has been possible to outline long-term changes in the city's biodiversity, with the turnover and spatio-temporal distribution of alien species and urban biodiversity hotspots (Latella & Andreatta "Three centuries of biodiversity in the city of Verona").

The evaluation of the spatio-temporal dynamics of biodiversity is obviously based on data whose quality varies greatly according to the intensity and quality of the monitoring and/or observations, and in this an increasingly important role is played by citizen science. Alongside specific projects, in particular the one on the wild cat created within the National Network on Biodiversity (Sforzi & Di Stefano "Participated biogeography: the wild cat project in Italy").

Other presentations made explicit reference to the use of citizen science (Brandmayr & al., Baccetti & al., De Felici & al. "Long and short-term changes in abundance and distribution of butterflies: hints from the Lazio database"). It is evident that the availability of these data is proportional to the popularity of the taxon of interest, where birds are the masters. It is no coincidence that the long-term trends on wintering water birds, resulting from a European project coordinated in Italy by ISPRA (Baccetti & al.), show particularly high levels of robustness and reliability. Most of the species monitored showed short-term fluctuations and, in the long term, substantially positive trends for the majority of the species, but even marked declining trends for some Anseriformes (Bean goose, Common scoter, Goldeneye) and Caradriiformes (Little ringed plover and Fighter). In addition to birds, vascular flora and diurnal butterflies also enjoy a good level of popularity and multi-year observations on these important components of biodiversity, which are able to clearly express the spatio-temporal trends subject to check-up.

A study carried out in Val Venosta on highly diversified dry grasslands highlighted long-term changes in the specific composition (Wellstein & al. "Long-term change of inner-

alpine dry grassland species composition differs between protected and non-protected sites"). The change, including successions, was more evident in unprotected sites, while protected dry grassland sites that still have a managed grazing system maintained satisfactory levels of specific diversity.

At the regional level, Lazio has been the focus of diachronic analyses involving both the vascular flora (Lucchese "Lazio vascular flora: updates and biogeographic considerations") and butterflies (De Felici & al.). In both cases, the geo- and chrono-referenced observations have allowed long and medium-term diachronic comparisons that are comparable even on a local scale and probably represent the mirror of dynamics taking place at an ecosystem and landscape level. The trends observed are unfortunately in the direction of a decline in biodiversity, particularly marked in the hilly areas of the Castelli Romani and in the Roman countryside. Levels of conservation that are still acceptable can be found in the mountainous areas, geographically marginal in Lazio, but with peaks of criticality also in the Ernici Mountains. The main causes of this decline appear logically to be associated with the change in land use, the data do not allow us to evaluate the role of climate change.

The same conclusions are reached by the results of a survey among experts and which generally concern all insects in the Italian territory (Massa & Romano "Results of a survey on the decline of insects in Italy"), highlighting a pressing and worrying level of risk of biodiversity loss.

On this occasion the contribution of marine biogeographers was almost completely absent, except for an interesting study on the algae of the upper Adriatic, presented but not discussed in attendance (Falace & al. "Species loss and long-term decline in taxonomic diversity of macro algae in the northern Adriatic Sea over the last six decades"). The study highlights how the composition of the algal vegetation has changed significantly due to land reclamation, tourism, habitat loss, pollution and climate change that directly or indirectly affect benthic algal communities. The most noticeable change is the significant loss of the once predominant brown fucoid algae in the area.

In a nutshell, these are the results of a conference excellently hosted at the splendid Palazzo Gopcevich in Trieste and well organized by Stefano Martellos, which saw the lively and assiduous participation of biogeographers in a pleasant and relaxed atmosphere of familiarity and concluded with an amazing excursion in Val Rosandra excellently guided and illustrated by Pier Luigi Nimis, as a hosting Professor.

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