

# ABSTRACT BOOK

**27<sup>TH</sup> INTERNATIONAL  
CONGRESS FOR  
CONSERVATION BIOLOGY**

**4<sup>TH</sup> EUROPEAN CONGRESS  
FOR CONSERVATION  
BIOLOGY**



**ICCB  
ECCB  
2015**

**MISSION  
BIODIVERSITY:  
CHOOSING  
NEW PATHS FOR  
CONSERVATION**

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Society for Conservation Biology



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The International Congress for Conservation Biology and European Congress for Conservation Biology (ICCB-ECCB) is a forum for addressing conservation challenges and for presenting new research and developments in conservation science and practice. ICCB-ECCB connects our global community of conservation professionals and is the major networking outlet for anyone interested in conservation.

The meeting theme, Mission Biodiversity: Choosing new paths for conservation, is a response to indications that many traditional methods for conserving biodiversity have proven unsuccessful. It emphasizes that rapid and ongoing biophysical and societal changes affect the way we do science and practice conservation today. At ICCB-ECCB we will ask very different questions than what we asked

years ago. Increasingly we work with people from different disciplines such as computer science, economics, and social science, among others. We face different challenges like new pathogens and invasive species, new drivers of habitat loss (e.g. oil palm in West Africa), and the illegal trade of species and their parts on the internet.

To address these challenges and others, we are developing new methods and tools to use with on-the-ground conservation, like drones and new remote-sensing technology for monitoring and conservation enforcement, and citizen science projects for collecting data and engaging the public. The theme for ICCB-ECCB reflects these changes and our need to keep up with and anticipate changes for better conservation science and practice.



Society for Conservation Biology

## ABOUT THE SOCIETY FOR CONSERVATION BIOLOGY

SCB is a global community of conservation professionals with members working in more than 100 countries who are dedicated to advancing the science and practice of conserving Earth's biological diversity. The Society's membership comprises a wide range of people interested in the conservation and study of biological diversity: resource managers, educators, government and private conservation workers, and students.

SCB publishes the flagship peer-reviewed journal of the field, *Conservation Biology*, and the cutting-edge online journal, *Conservation Letters*. The Society provides many benefits to its community, including local, regional, and global networking, an active conservation-policy program, and free online access to publications for members in developing countries. SCB also administers a postdoctoral program, the David H. Smith Conservation Research Fellowship Program, sponsored by the Cedar Tree Foundation.

potential. It was thus hypothesized that stress caused by anthropogenic pressures and other physiological factors, was a plausible cause for the differential breeding status of tigers. Tiger scat samples were collected and faecal hormone metabolite extraction and analyses were done to understand their stress and reproductive status. Data on stressors viz. prey and anthropogenic disturbance were collected using line transect method, circular plots and camera traps. Hormone analyses results suggested that tigers in Sariska were fertile although far more stressed than that in Panna. To explain which, we examined the status of stressors and found that prey density was high in Sariska, ruling out nutritional stress. However, anthropogenic disturbance was higher in Sariska than Panna, suggesting human induced stress. Moreover, stress levels in different tigers were found to be correlated to different types of anthropogenic disturbances within their home ranges.

## **LINKING CURRENT STATE OF FISH POPULATIONS AND THEIR DIVERSITY TO CHANGES IN ENVIRONMENTAL CONDITIONS OCCURRING IN THE MIDDLE FLOW OF SYRDARYA RIVER (CENTRAL ASIA)**

**Nadir Mamilov**

Institute of biology and biotechnology, al-Farabi Kazakh National University

*Eleonor KOZHABAEVA, Institute of biology and biotechnology, al-Farabi Kazakh National University ; Fariza AMIRBEKOVA, Institute of biology and biotechnology, al-Farabi Kazakh National University ; Nailya IBRAGIMOVA, Institute of biology and biotechnology, al-Farabi Kazakh National University ; Tatyana VANINA, Institute of biology and biotechnology, al-Farabi Kazakh National University ; Anvar MAMILOV, Institute of biology and biotechnology, al-Farabi Kazakh National University ; Farkhad KHABIBULLIN, Institute of biology and biotechnology, al-Farabi Kazakh National University ; Zhasar ADILBAEV, Karatau state wildlife reservation*

Ecological disaster in the main part of the Syrdarya River basin in the last decades of XXth century applied some governmental measures after that, in order to stabilise hydrological regimes of the Syrdarya River. In 2002-2014 we have conducted a series of field studies evaluating the state of habitats and diversity of fish populations in the part of the Syrdarya River situated within borders of the Republic of Kazakhstan. There were observed strong interannual variations in water salinity, concentration of biogenic elements (C, N, P, S) and metals (Cu, Fe, Pb) in water samples. Ionic composition of sediments in Syrdarya River was also differed substantially from the inflows and rivers in basin of the Balkhash Lake. Diversity of fishes was much lower than it was expected according to the known lists. There were not detected fringebarbel sturgeon, Syrdarya sturgeon, Aral salmon, pike asp and sharpray. The main species in commercial fishery are roach, sabrefish, carp, asp, pike perch,

snakehead and wels. Histological studies on fish detoxication systems such as liver, gills and kidneys have revealed different levels of damages suggesting significant level of environmental heterogeneity. Indigenous for the Syrdarya River species such as bearded stone loaches, aral spined loach, and ruff were not able to adopt to changed habitats, and thus were substituted in the river with some alien species. Water resources in most of the inflows are used completely by rural populations and cities and do not reach the main stream of Syrdarya River. It explains substantial differences in composition of ichthyofauna between Syrdarya River and its inflows. The main background species inhabiting inflows of the river are sattu snowtrout, Turkestan gudgeon, Tashkent riffle bleak, terskyi stone loach, Kuschakewitsch loach, Aral spined loach. Current level of the use of water resources in the region threatens sustainability of many indigenous fish species and their conservation.

## **SICILY AS THEORETICAL MODEL TO STUDY THE POTENTIAL IMPACT OF GENETICALLY MODIFIED PLANTS IN A HOTSPOTS OF BIODIVERSITY**

**Barbara Manachini**

University of Palermo

*Giuseppe BAZAN, University of Palermo ; Rosario SCHICCHI, University of Palermo*

In Europe, especially in Italy, different considerations are necessary when potential GMPs are to be grown. In particular high biodiversity areas such as Sicily should have a more detail plans of potential benefits and risks assuring the conservation of biodiversity and endemic species. Sicily is one of the most relevant biodiversity hotspots in the Mediterranean area, with a vascular flora of 3252 species and 321 endemic taxa. Considering the latest IUCN categories and criteria, 401 taxa (12.4% of Sicilian flora) are under threat (categories "CR", "EN", "VU"), and 220 more taxa (6.8%) are "Near Threatened". Sicily is also known to have a rich butterfly and coleopteran fauna including endemic and rare species. Agricultural systems, 66% of the area, mainly cereal crops (40%) olive groves (7%), vineyard (6%), citrus groves (5%) and orchards (2%). 25% of these are within the Natura 2000 Network sites. Semi-natural systems account for about 21% of the area. The genus Brassica, Cichorium, Dianthus, Medicago, Prunus e Trifolium have a higher number of rare, endemic species, some of which have a high risk of extinction. Moreover, cultivated trees, as Prunus, have rich heritage of some hundreds ethno-varieties, results of centuries of selection practices of farmers. Sicilian territory will likely continue to have among its characteristics an entirely agricultural vocation, with a greater extension of organic agriculture, even in the presence of forms of integration with other sectors such as tourism and protection. For the above reasons Sicily was chosen as a pilot area to study the potential impact of PGMs on biodiversity. Model is based on the potential GMPs, their, traits, areas grown, potential gene flows,



distance from natural areas. Moreover an ecological approach for selection of non-target Lepidoptera species for ecological risk assessment of PGMs in Sicily, using data collected over a 3-year period, is reported.

## **RELIABILITY AND REFINEMENT OF THE HIGHER TAXA APPROACH FOR BEE RICHNESS AND COMPOSITION ASSESSMENTS**

**Yael Mandelik**

The Hebrew University of Jerusalem  
*Itai VAN RIJN, The Hebrew University of Jerusalem ; Thomas NEESON, The Hebrew University of Jerusalem*

Limited resources and taxonomic expertise in biodiversity surveys often lead to the application of the Higher Taxa Approach (HTA), i.e. the identification of specimens to genus or higher taxonomic levels rather than to species. The reliability of the HTA varies significantly among studies, yet the factors underlying this variability have rarely been investigated. Bees are an ideal model taxon for testing the HTA because they are highly diverse, challenging to identify and there is widespread interest in their role as native pollinators, driving demand for efficient diversity assessment tools. Using extensive bee data sets collected across three biomes and various habitats, we assessed the performance of the HTA in reflecting bee species richness and composition patterns at local scales, factors affecting this performance, and ways to improve it. The performance of the HTA varies considerably among biomes, taxonomic levels (genus and sub-families) and diversity measures (species richness and composition). The number of species per higher taxon was a main factor influencing this performance, while to co-occurrence of taxonomically related species had no significant influence on the performance of the HTA. Further subdividing genera by body size contributed to the performance of the HTA. The considerable variability found in the performance of the HTA in representing local-scale richness and composition patterns of bee species dictates caution in implementing this tool in bee surveys. When possible, an a priori evaluation of the expected performance of the HTA should be done, focusing on species distributions within higher taxonomic levels and the species/higher taxa ratio. Integrating morphological characteristics (such as body size) that consistently sub-divide genera will improve HTA's performance. Our results are likely applicable to other small-bodied and species-rich groups and contribute to the cost-effectiveness of biodiversity surveys.

## **RESPONSE OF TREE COMMUNITIES AND ABOVEGROUND CARBON STORAGE TO RAINFOREST FRAGMENTATION**

**Anand Mandyam Osuri**

Tata Institute of Fundamental Research

*Mahesh SANKARAN, Tata Institute of Fundamental Research*

Fragmentation is among the most pervasive forms of human disturbance to forests across the tropics. While fragmentation is known to drive marked shifts in the composition of biological communities, there is limited understanding of resultant effects on ecosystem functioning and services. Here, we examine the effects of fragmentation on rainforest tree communities and aboveground carbon storage in a landscape comprising fragmented and contiguous rainforests in the Western Ghats of peninsular India. Using analyses of plant functional traits, we identify potential mechanisms by which fragmentation affects carbon storage, and assess the relative importance of these different mechanisms in governing aboveground carbon storage in forest fragments. Our results reveal that fragments store ~40% less carbon per unit area than contiguous rainforests, with reduced forest stature emerging as an important factor contributing to carbon losses. First, there were shifts in tree allometry, with trees in fragments not growing as tall for given basal diameter as conspecifics in contiguous forests. Additionally, fragmentation favoured tree communities dominated by small-seeded species, presumably due to shifts in the assemblage of seed dispersers. Because small-seeded species tend to be shorter than larger-seeded species – a pattern we observed not just in the tree community in this study but also more generally across other tropical forest tree species – such compositional shifts may generally be expected to reduce forest stature and carbon storage. These results imply that the ability of tropical forests to store carbon may be influenced by processes such as seed dispersal, and reduce when large vertebrate seed dispersers decline in forests which are fragmented or otherwise disturbed. Thus, conservation efforts to prevent defaunation and improve connectivity at broader landscape scales are also likely to enhance aboveground carbon storage in fragmented tropical forests.

## **133-ENGAGEMENT OF MUSLIM LEADERS FOR CONSERVATION AND SUSTAINABILITY ACTIONS IN INDONESIA**

**Fachruddin Mangunjaya**

Universitas Nasional

Muslim activists have been leading biological conservation efforts in Indonesia and urging influential Islamic scholars and clerics to collaborate with them. The Indonesian Clerics Council (Majelis Ulama Indonesia [MUI]) was established a special unit called the Institute of Honoring Environmental and Natural Resources (PLH-SDA) MUI in 2011. Since that time, the PLH-SDA MUI have been working together with government and environmental conservation NGOs to raise environmental awareness and promote conservation activities through edicts and aid. MUI has released four edicts related



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1017 O St. N.W.  
Washington, D.C. 20001  
202-234-4133

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