

**BOOK OF ABSTRACTS**  
**10<sup>TH</sup> WORLD CONGRESS OF HERPETOLOGY**  
**5–9 August 2024**

**Compiled by**  
**Indraneil Das**



**World Congress of Herpetology (WCH)**



**Institute of Biodiversity and Environmental Conservation**  
**Universiti Malaysia Sarawak**

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Sarawak, Malaysia

2024

## COMPILER'S NOTES

The 10th World Congress of Herpetology is being held at the Borneo Convention Centre Kuching, in the State of Sarawak, Malaysia, 5–9 August 2024. The Congress is organised by the World Congress of Herpetology (<https://www.worldcongressofherpetology.org>) and the Institute of Biodiversity and Environmental Conservation (<https://www.ibec.unimas.my>), Universiti Malaysia Sarawak. The event is supported by Business Events Sarawak, Ministry of Tourism, Creative Industry and Performing Arts Sarawak, Sarawak Forestry Corporation, Sarawak Biodiversity Centre, AGARK DGHT, the Institute of Agriculture, University of Tennessee (UT AgResearch) and the Society for the Study of Amphibians and Reptiles.

A total of 1,481 abstracts of oral and poster papers were received at the website of the Congress (<https://2024wch10.com>), through an online conference management system (KonferenceX Content Management System), or came in via email. Only those submitted by registered delegates were included in this book of abstracts. Poster presentations include the full spectrum of herpetological topics, including subject material corresponding to Symposia. Also included are abstracts of Plenary Lectures, Special Presentations and Official Side Events.

Abstracts were formatted and lightly edited for content and style but did not undergo a full peer review. Any new taxon descriptions or other nomenclatural acts contained in this book of abstracts and programme should not be considered published in the sense of Article 8 of the International Code of Zoological Nomenclature (1999).

We welcome all delegates to the beautiful city of Kuching, Sarawak and to the 10th World Congress of Herpetology.



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Kuching, Sarawak

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ASVs that corresponded to bacteria with potential bd inhibitory characteristics. All the samples contained potentially anti-Bd bacteria isolates, which corresponds to 7% of the ASV in our data set.

#### **A-0230 (Oral)**

### **Peninsula Effect on Amphibian Biogeography and Conservation: Insights from the Malay Peninsula**

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For over four decades, biogeographers have investigated the peninsula effect, positing a decline in species richness from the mainland's base to the distal tip of a peninsula. Despite more than 90 global studies, results have been inconsistent across peninsulas, rendering the theory vague. This study aims to examine the peninsula effect on amphibians on the Malay Peninsula. We compiled previous amphibian distribution data, conducted field surveys, and assembled comprehensive species-range-based distribution data. These data were mapped using spatial resolutions of 100 km, 75 km, 50 km, 25 km, and 15 km square grids. Spatial analysis involved alternative biodiversity metrics such as taxonomic diversity, endemism, and phylogenetic diversity. Distribution data were modelled to predict potential distributions under past and future climatic scenarios. The compiled data augment the total of 169 species reported from the Malay Peninsula, a substantial increase compared to previous reports by Inger and Voris (2001). Results show a mixture of inverse and positive peninsula effects, with increasing species richness from both the base-to-tip and tip-to-base of the Malay Peninsula. Spatial analysis revealed that these mixed peninsula patterns correspond to richness hotspots shaped by previous hypotheses of peninsula geometry, habitat diversity, and climates. Predictions under past-present-future climatic scenarios demonstrated similar mixed peninsular patterns, with significant distributional shifts and movements of amphibians. Overall, insights from this assessment indicate that the peninsula effect on amphibians progressed through four stages of causal mechanisms: historical events, stochastic processes, recent deterministic processes, and anthropogenic disturbances in this peninsula. The insight from this investigation might provide a better understanding of the species diversity and biogeography of the peninsula and be better applied to large-scale biodiversity conservation and management.

#### **A-0231 (Oral)**

### **Island Isolation Effect on Morphology, Evolution, and Biogeography of the Genus *Bronchocela* Kaup, 1827 (Reptilia: Agamidae) in Indonesia**

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Isolation is the main factor in insular biogeography. Here, we try to understand the insular biogeographical phenomenon of the morphologically highly variable arboreal lizard genus *Bronchocela* across the Indonesian Archipelago. To determine the effects of geographical island isolation on the morphological structure of the populations, 520 museum specimens were examined across the Archipelago. Both univariate and multivariate analyses were conducted on morphometric characters. We screened two mitochondrial markers comprising 16S rRNA and ND2, with intervening nuclear loci (CMOS) to obtain a robust phylogenetic hypothesis. Based on both morphology and genetics, we delimit potential biogeographic boundaries of the species composition. The previously widely distributed *B. cristatella* is considered a species complex with at least three distinct species. The phylogeny of mitochondrial and nuclear DNA using maximum likelihood and Bayesian Inference revealed at least six major evolutionary lineages of *Bronchocela* within the Indonesian Archipelago. This level of variation has probably been underestimated because of the high levels of morphological similarity brought about by the arboreal lifestyle. Our results also show the significant influence of the larger islands supporting larger-bodied lizards compared to the smaller islands, agreeing with the island theory. The coalescent-based BEAST time-analysis yielded a phylogenetic tree with two major clades. The basal clade of *Bronchocela* consists of *B. burmana* and its ancestral taxa, mostly confined to the Malay Peninsula. The geological time-scaled maximum clade credibility tree indicated that the genus *Bronchocela* evolved in the early Miocene epoch (~18.7 MYA) and started rapid speciation in the late Miocene. Our results provide new insights into insular isolation in a previously unstudied region, and it implies that the distribution pattern of *Bronchocela* has been largely shaped by pre-Pliocene dispersal followed by deep vicariance events. We further demonstrate that Pliocene climatic changes can profoundly affect species diversification and demography in these forest species.

#### **A-0232 (Poster)**

### **Honest Signaling of Antipredator Behavior in a Lacertid Lizard, *Takydromus tachydromoides***

Gumma Kubo and Akira Mori

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Several lizard species exhibit a behavior called arm-waving, where they rotate or wave their forearms as an anti-predator display. This behavior has a pursuit-deterrent function on predators by indicating the lizard's escape performance or the perception of the predator. Therefore, this behavior is assumed to be an honest signal showing the physiological state of the lizard. To verify this assumption, a field study was conducted with *Takydromus tachydromoides*, a small lacertid lizard endemic to Japan. *T. tachydromoides* has been known