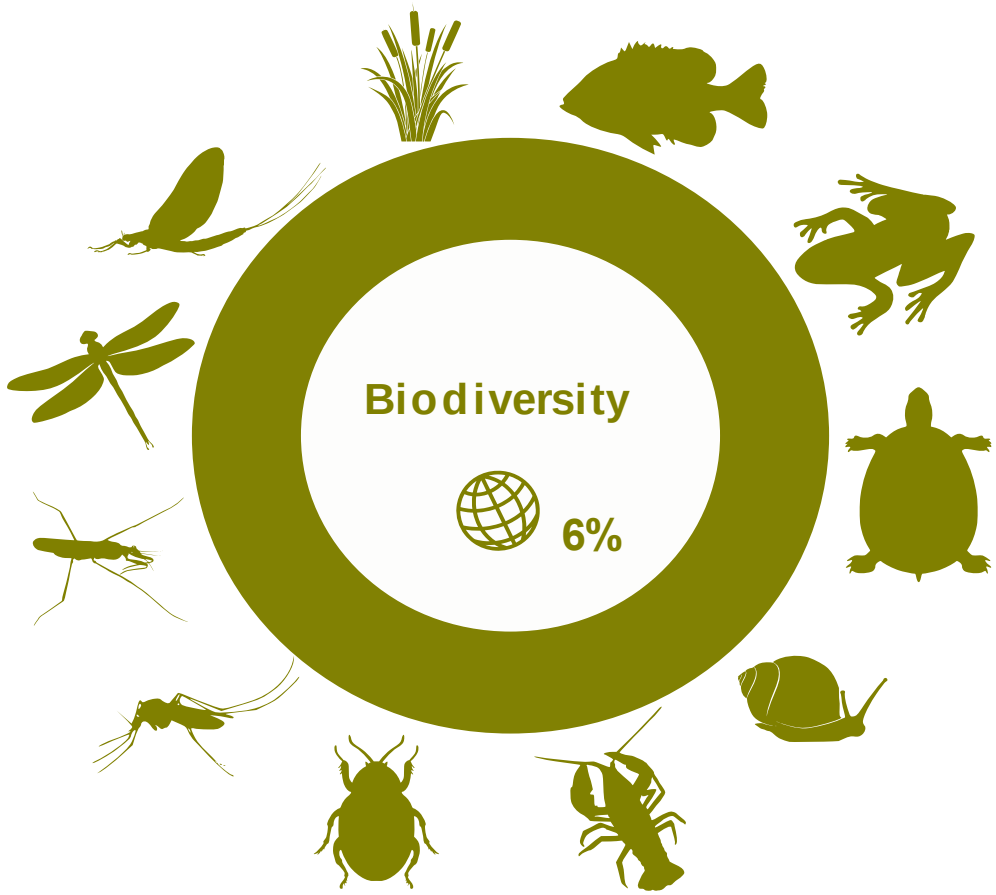
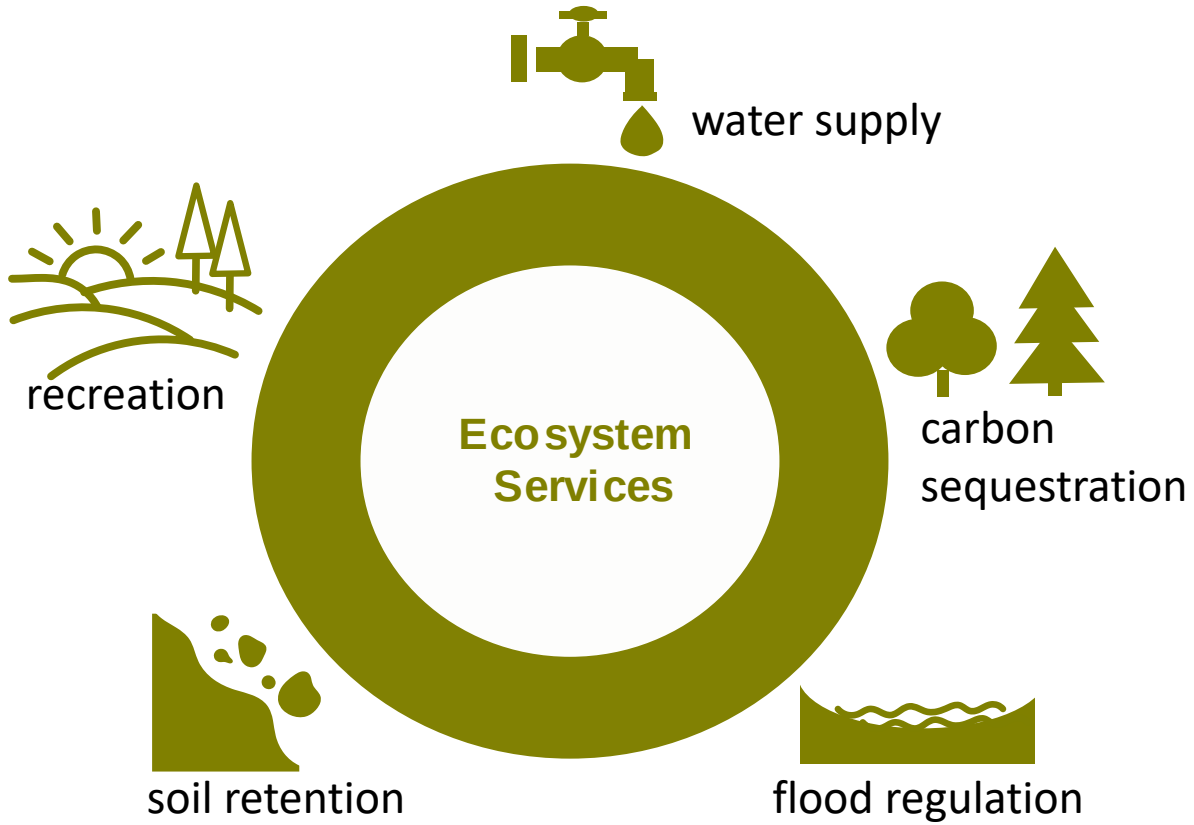
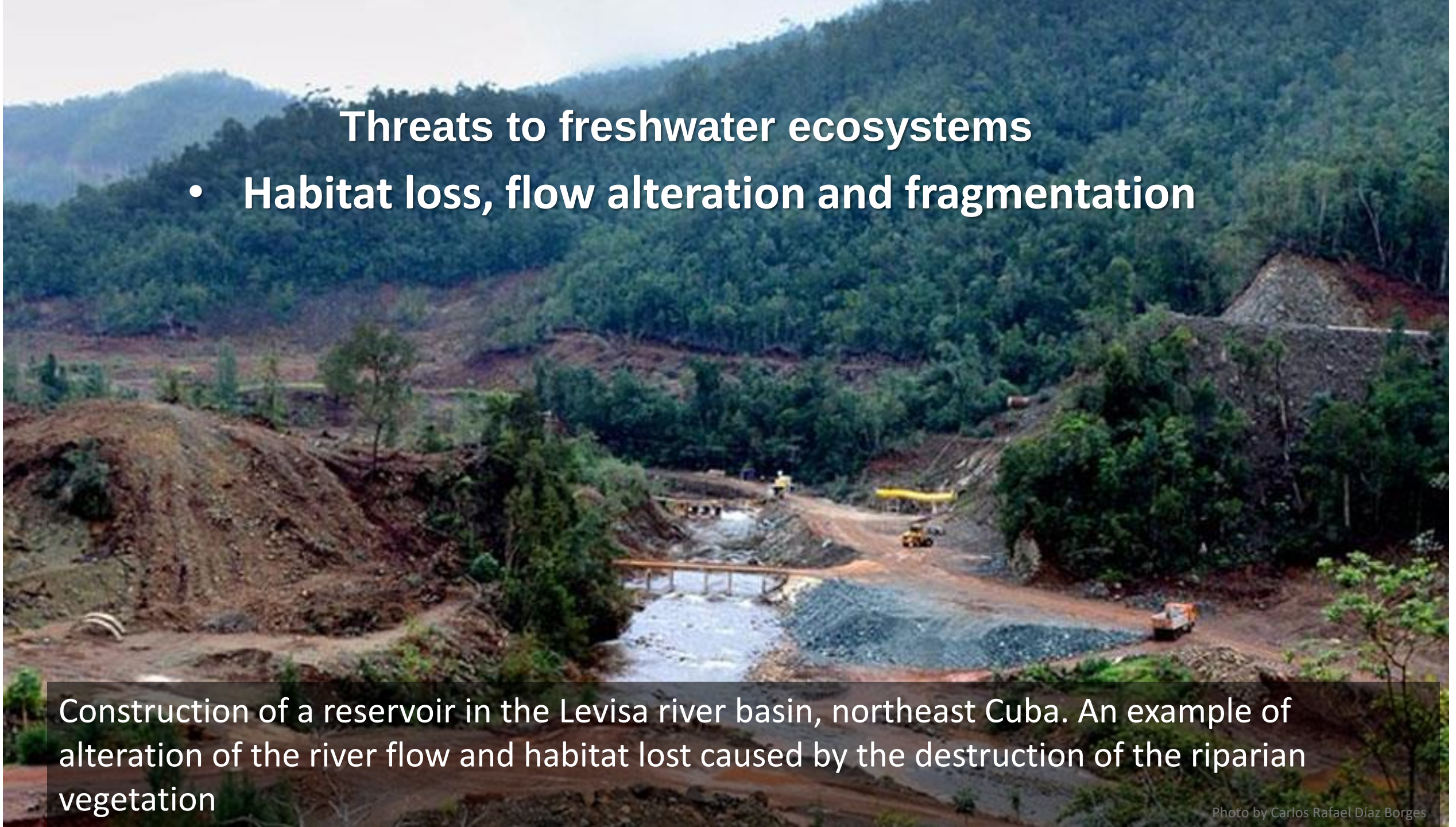
Distribution of freshwater biodiversity across Cuba





Importance of freshwater ecosystems


Threats to freshwater ecosystems
• Habitat loss, flow alteration and fragmentation
Construction of a reservoir in the Levisa river basin, northeast Cuba. An example of alteration of the river flow and habitat lost caused by the destruction of the riparian vegetation
Photo by Carlos Rafael Díaz Borges

Threats to freshwater ecosystems

- **Contamination**

River Luyanó, Havana, Cuba. Photo: https://www.granma.cu/file/img/2018/12/medium/f0127183.jpg

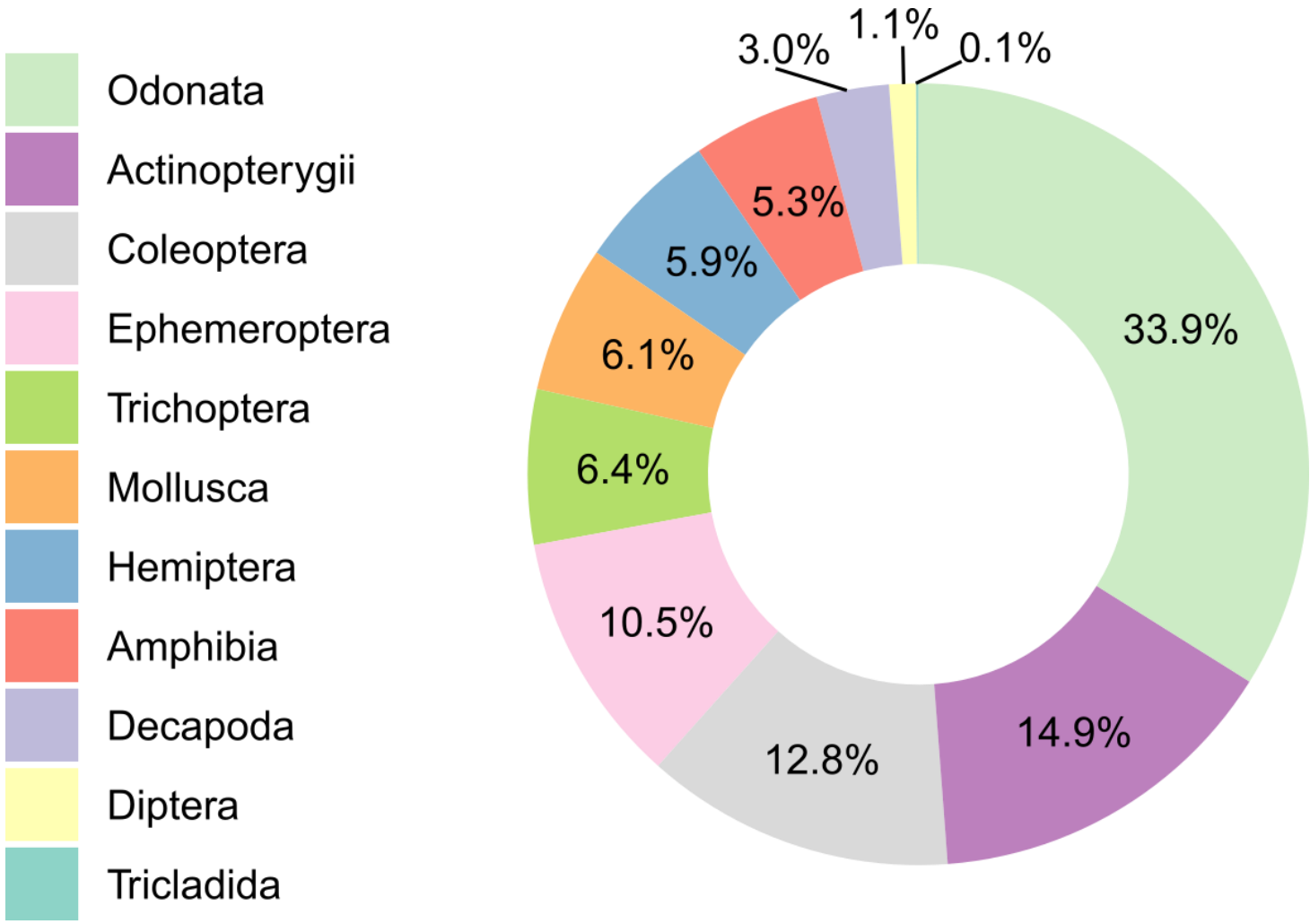
Catfish (“Die Raubwelse”) *Clarias gariepinus* (Teleostei: Clariidae) at the source of Hatiguanico river, National Park Ciénaga de Zapata, Cuba. Photo: Y. Torres-Cambas

The “Wallacean shortfall” in biodiversity conservation

https://commons.wikimedia.org/wiki/File:Alfred_Russel_Wallace_engraving.jpg

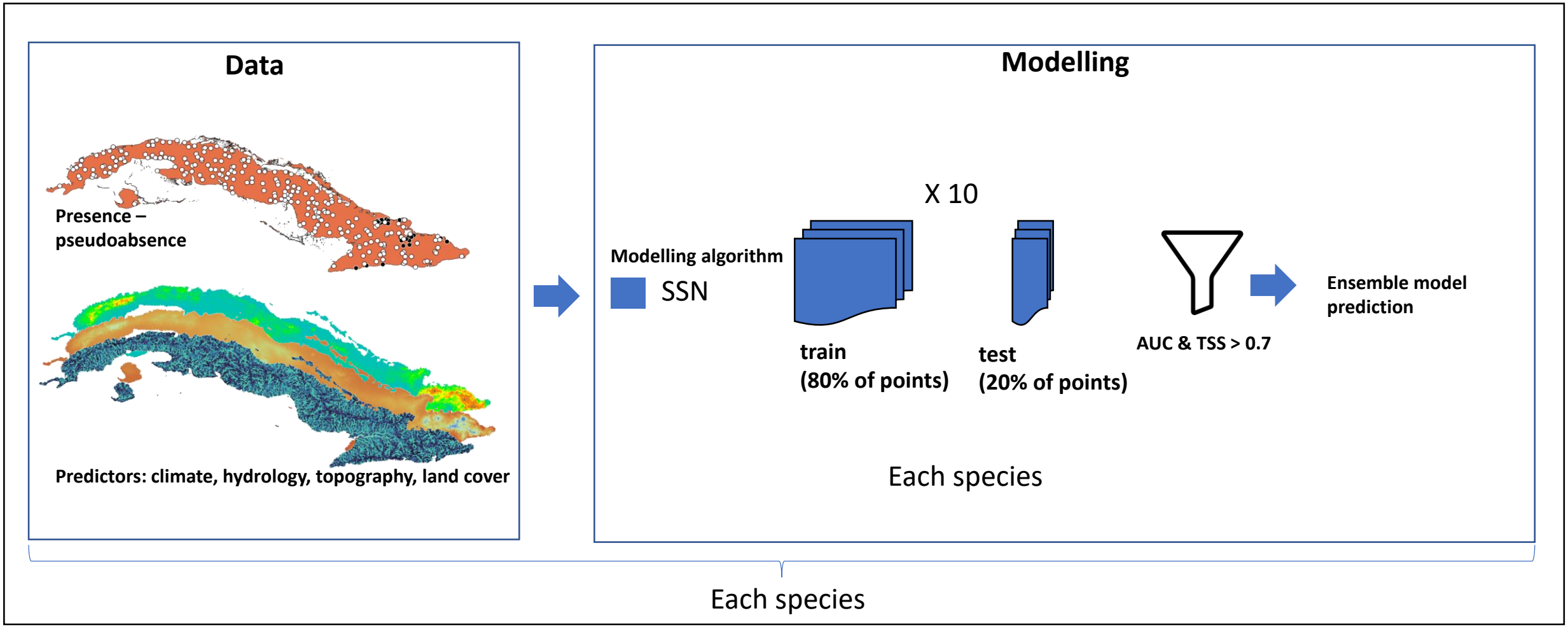
Alfred Russel Wallace (1823 - 1913)

“Lack of knowledge about the geographical distribution of species” (Lomolino 2004)

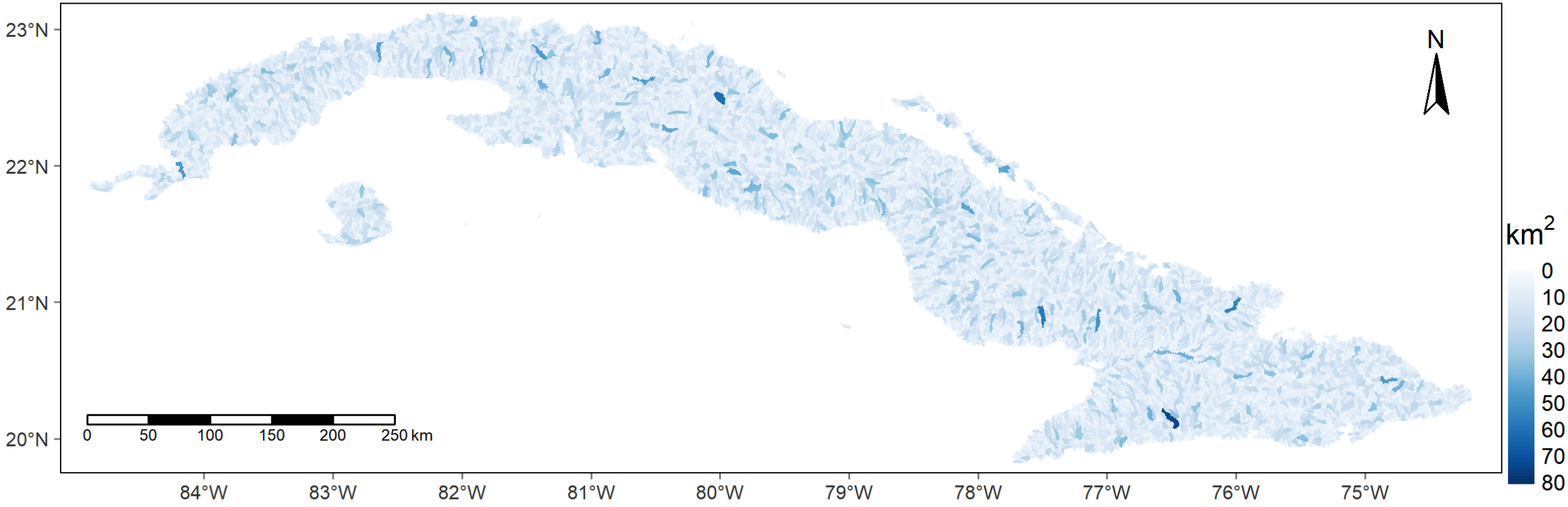


Dataset of freshwater macroinvertebrate and vertebrate species occurrences. Source: scientific literature, unpublished field records, museum collections, online databases.

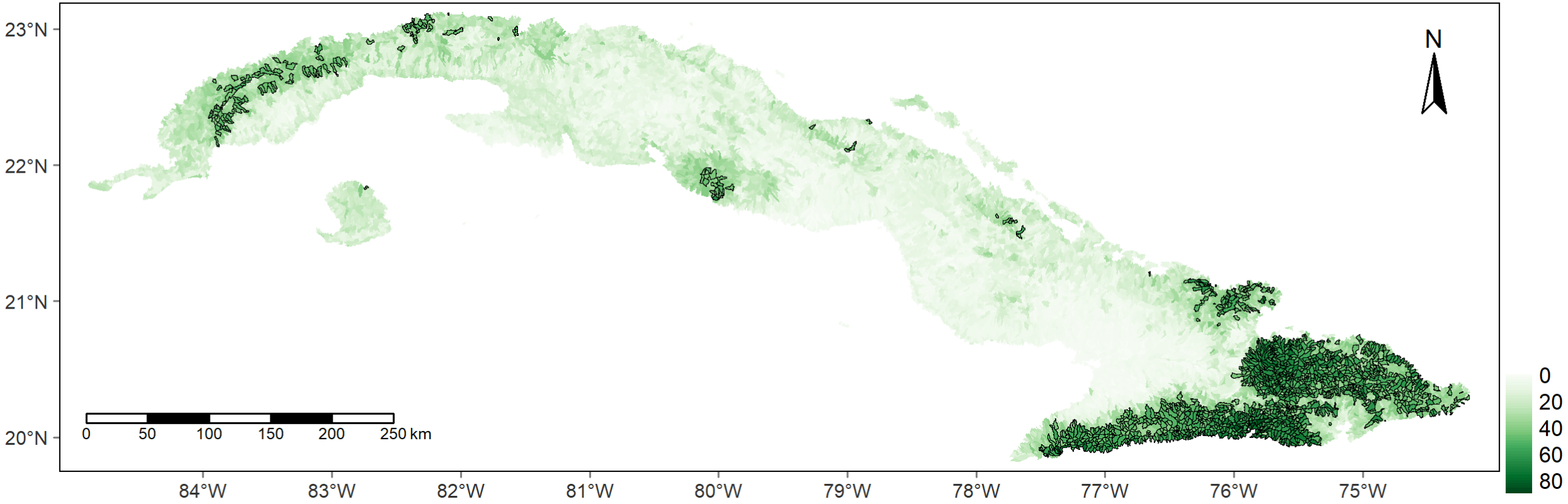
Species distribution modelling



Species distribution modelling workflow. SSN: Spatial Linear Stream Networks. Number of species: 131 (Ephemeroptera: 15, Odonata: 42, Hemiptera: 7, Trichoptera: 10, Coleoptera: 21, Decapoda: 4, Mollusca: 9, Actinopterygii: 18, Amphibia: 5).



Sub-basins (n = 15242) extracted with GRASS GIS and used as spatial units in all analysis



Richness of freshwater species across Cuba predicted with a Spatial Linear Stream Networks Model. Top 10 species richness sub-basins are outlined.