Conservation Recommendations
based on the
Freshwater Suvey
VW Summer School Oct/Nov 2023

By far the biggest problem is the siltation and pollution brought into the lakes and swamps by the Akagera River. Some of the lakes are in a very critical condition concerning oxygen levels and the amount of fine mud in the water body (we did not measure environmental toxins). The effect of the Akagera River could best be seen by comparing the fish catches on Lakes Rwanyakizinga (no direct contact to the Akagera River) and Mihindi (direct contact). Also, the sheer amount of water beetles appearing from L. Rwanyakizinga during a night catch was not parallelled in any other lake.

The "Nile Akagera upper catchment integrated pollution management plan" published in 2020 by REMA needs to be taken seriously (in the literature folder of the google drive).

- equip Lake Rwanyakizinga with a permanent patrol boat to stop illegal fishing there; this lake is by far the most species and specimen rich lake with a high number of endemics; there were gill nets positioned in the water at the eastern side of Lake Rwanyakizinga, indicating that fishermen cross the extensive papyrus swamps between the river and the lake in order to fish.
- approach REMA with the urgency for a countrywide land use change (terrace farming, less pesticides, protection buffer along all rivers and streams (10m "no use" zones each side, no agriculture, no car washing, no laundry, no fish pond digging, no cattle watering, no building, etc.)),
- monitor oygen levels and environmental toxins in the lakes,
- protect habitats of the endemic fish species of *Haplochromis*, which were only discovered during this survey (see fish report)
- map, monitor and protect habitat (papyrus swamps with clear running water) of the globally threatened Papyrus Wisp (Odonata *Agriocnemis palaeforma*)
- survey for rheophilic Odonata species not caught during this trip (species belong to the families Gomphidae and Chlorocyphidae) and for species not yet recorded in the park but outside (see Odonata report)
- collect data on fish catches of *Bagrus docmak*, *Labeo* and *Labeobarbus* from the fishermen at the landing site of Lake Ihema (the latter was not recorded at all in this survey and the former species in very low numbers)
- protect smaller, somewhat isolated waterbodies in and outside the park for native fishes, e.g. small barbs of the genus *Enteromius* and the killifish *Lacustricola centralis* (common in the wetlands at the southern gate and the papyrus shorelines of Lake Rwanyakizinga),
- control fires and only burn small areas at once in controlled burning regimes (the number of reptiles was unusually low, and we consider this a potential result of too frequent and too large scale fires)

The table gives an overview on the globally threatened species according to the IUCN Red List of Threatened Species. The missing of the three *Labeobarbus* species is worrying. The final identification of *Oreochromis variabilis* will be available beginning 2024.

Taxon	Species	Species	global RL status	Survey Oct/Nov 2023
Dragonfly	*Agriocnemis palaeforma*	Papyrus Wisp	VU	found
Fish	*Labeo victorianus*	Ningu	CR	low abundance
Fish	*Labeobarbus acuticeps*		NT	not found
Fish	*Labeobarbus claudinae*		VU	not found
Fish	*Labeobarbus ruandae*		NT	not found
Fish	*Oreochromis variabilis*	Victoria Tilapia	NT	probably collected, work in progress
Fish	*Synodontis ruandae*		VU	caught in the Akagera River outlets of Lakes Ihema and Mihindi
Plant	*Ansellia africana*	Leopard Orchid	VU	not found
Plant	*Aldrovanda vesiculosa*	Waterwheel	EN	not found
Plant	*Murdannia stricta*		EN	recorded earlier by Q. Luke
Plant	*Rhamnus mildbraedii*		CR	most likely extinct
Plant	*Xyris valida*		NT	not found
Plant	*Centemopsis longipedunculata*		DD	not found