



THREATENED FRESHWATER SPECIES AND CRITICAL SITES FOR THEIR CONSERVATION THROUGHOUT THE WESTERN AFRICA REGION

This work was funded by the Critical Ecosystem Partnership Fund. It is a joint initiative of the French Development Agency, Conservation International, the European Union, the Global Environment Facility, the Government of Japan, and the World Bank. Its fundamental objective is to ensure that civil society is engaged in biodiversity conservation.

THE ISSUES

Western Africa is rich in freshwater biodiversity and has high regional endemism, supporting the entire global populations of many threatened freshwater species including fishes, molluscs, dragonflies, crabs, shrimps and aquatic plants (Figure 1). A recently published report by IUCN builds on a baseline assessment of the regional status of freshwater biodiversity in 2009 and an assessment of freshwater Key Biodiversity Areas (KBAs) in 2015. The conservation status of freshwater species is found to be declining, but strikingly there is a lack of sufficient monitoring data to reveal conservation trends, with many species not having been monitored or observed for several years or decades. This policy brief identifies the most threatened species, key threats to those species, and makes recommendations for the identification and conservation of critical sites (KBAs) for their conservation. The information presented in the report, summarised here, can be used by governments, conservation practitioners and researchers to help protect and conserve the unique freshwater biodiversity of western Africa through sustainable regional development. **Freshwater species richness in the western Africa region.**

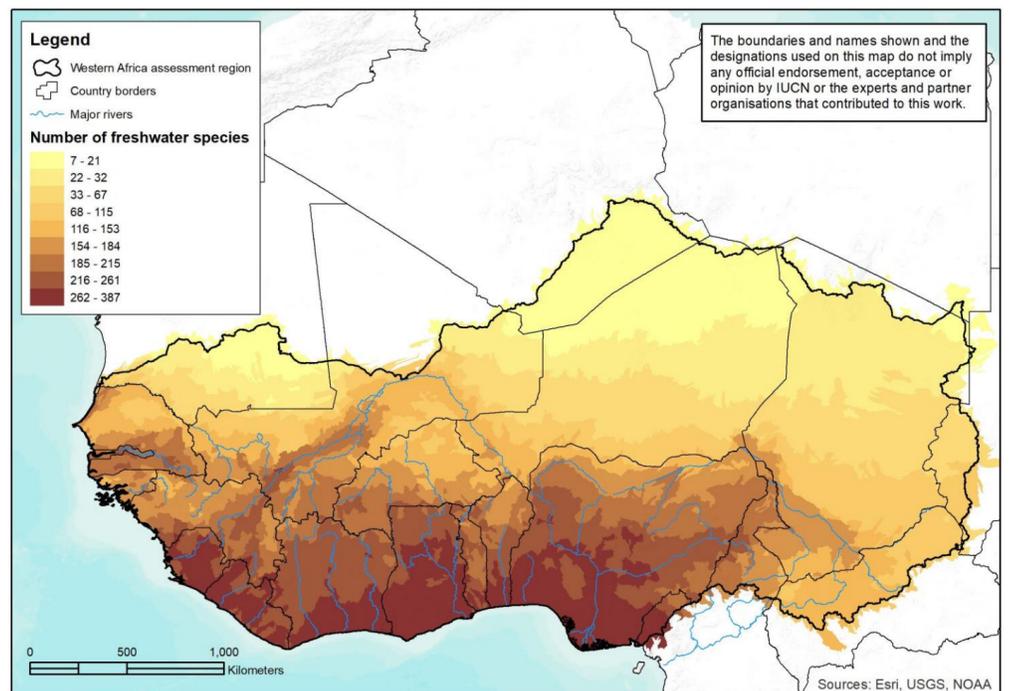


Figure 1. Freshwater species richness in the western Africa region¹. Individual maps by taxonomic group and for threatened species only are presented in the full report.

KEY MESSAGES

- **Western Africa supports a rich diversity of freshwater species many of which are endemic.** We report on the global conservation status of some 1,502 freshwater species, including 555 species of freshwater fishes, 100 species of freshwater molluscs, 307 species of odonates (dragonflies and damselflies), 54 species of freshwater decapods (crabs and shrimps) and 486 species of aquatic plants, drawing on data from the IUCN Red List of Threatened Species™.
- **Freshwater species are highly threatened.** We find that 202 species, or 13% of all native freshwater species in the region, are threatened with global extinction. Some 25% of freshwater fishes and freshwater molluscs are globally threatened, and for the smallest taxonomic group assessed, the decapods, 37% are threatened. Of the aquatic plants and odonates, 4% and 5% are threatened, respectively.
- **The level of threat is increasing.** The Red List Index (RLI) shows an increased extinction risk for 1% of freshwater fishes and 6% of freshwater molluscs, but no change was detected for other groups. However, the Living Planet Index shows a 65% decline in species population abundance in Africa, and an 84% decline in freshwater populations globally.
- **Data on freshwater biodiversity is lacking.** Monitoring is essential for informing management planning and for assessing progress towards meeting targets for biodiversity conservation and restoration. There are, however, no significant long-term programmes for monitoring the state of freshwater biodiversity throughout western Africa. Novel survey techniques such as environmental DNA (eDNA) have huge potential to address this shortfall and need to be adopted within a new regional monitoring programme.
- **Major threats to freshwater biodiversity are identified** as pollution, habitat loss, overharvesting, mining and water management. The most frequently identified threat to freshwater species is pollution from agricultural and industrial effluents and wastewater.
- **Action is needed to halt and reverse declines to freshwater diversity in western Africa.** Conservation actions are recommended in the report for each taxonomic group and for freshwater biodiversity overall.
- **KBAs are identified as sites of global importance for the conservation of biodiversity** but most lack sufficient data to support their confirmation.
- **Irreplaceable populations of threatened species are identified.** Twenty-two river sub-catchments are identified as irreplaceable sites, representing the only localities for thirty-nine globally threatened freshwater species.
- **Freshwater biodiversity is recognised as essential to livelihoods and food security.** Income from fisheries combined with that from agriculture contributes to poverty alleviation for a rapidly growing population.

¹ Source: Compiled by the authors of the report from IUCN Red List data (2021)

Table 1. Number of freshwater species native to western Africa per Red List Category, by taxonomic group. **Source:** Compiled by the report authors using data from the IUCN Red List (2021).

Category	Fishes	Molluscs	Odonates	Decapods	Plants	All groups
EX	0	0	0	0	3	3
EW	0	0	0	0	0	0
CR	21	11	5	4	9	50
EN	66	9	7	7	5	94
VU	44	4	2	5	3	58
DD	36	8	10	13	15	82
NT	15	5	2	0	2	24
LC	373	63	281	25	449	1191
TOTAL	555	100	307	54	486	1502

Légende :

EX : Eteint
 CR : En danger critique d'extinction
 EN : En danger
 VU : Vulnérable
 DD : Données insuffisantes
 NT : Quasi menacé
 LC : Préoccupation mineure



Figure 2: Percentage of freshwater species native to western Africa per Red List Category, by taxonomic group. **Source :** Compiled by the authors using data from the IUCN Red List (2021)

SPECIES

13% of all western African freshwater species are globally threatened with extinction.

Western Africa contains **1,502** freshwater species including **555** species of fishes, **100** species of molluscs, **307** species of odonates, **54** species of decapods and **486** species of aquatic plants. Two hundred and two species (**13%**) are globally threatened with **50** species (**3%**) Critically Endangered (CR), **94** species (**6%**) Endangered (EN) and **58** species (**4%**) Vulnerable (VU). The most threatened are the fishes and molluscs (**25%** of each group is threatened) and decapods (**37%** threatened) (Table 1 and Figure 2).

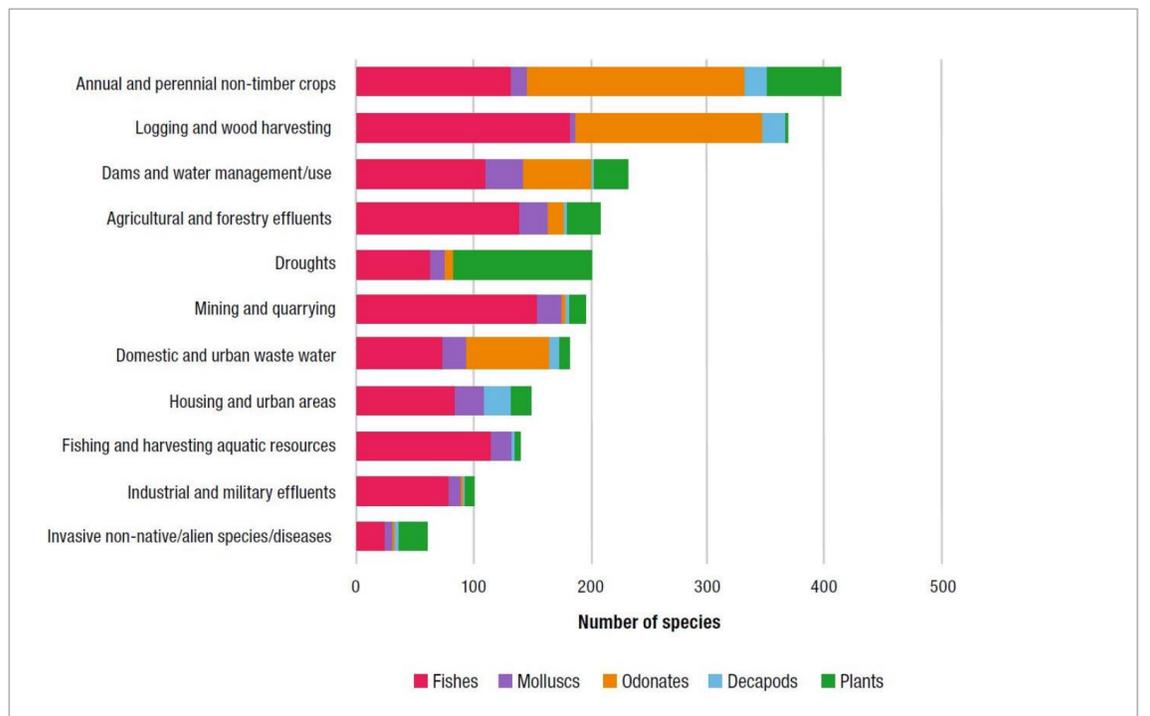


Figure 3: Major threats to freshwater biodiversity in West Africa.

The IUCN Red List Index (RLI), used to measure trends in the overall extinction risk of groups of species, is in decline for freshwater species, meaning the risk of species extinctions is increasing. The extinction risk increased for 1% of freshwater fishes and 6% of freshwater molluscs during the previous 10 years. This trend is likely a significant underestimate owing to a lack of monitoring over the past decade.

MAJOR THREATS

The major threats to freshwater biodiversity include pollution, habitat degradation, harvesting, agriculture and aquaculture, climate change, drought, mining and water management (Figure 3). Some threats have disproportionate impact on specific taxonomic groups, such as mining on fishes or drought on plants. The most frequently identified threat to freshwater species is pollution from effluents (agricultural and industrial effluents combined) and wastewater (domestic, urban, industrial and military effluents combined).

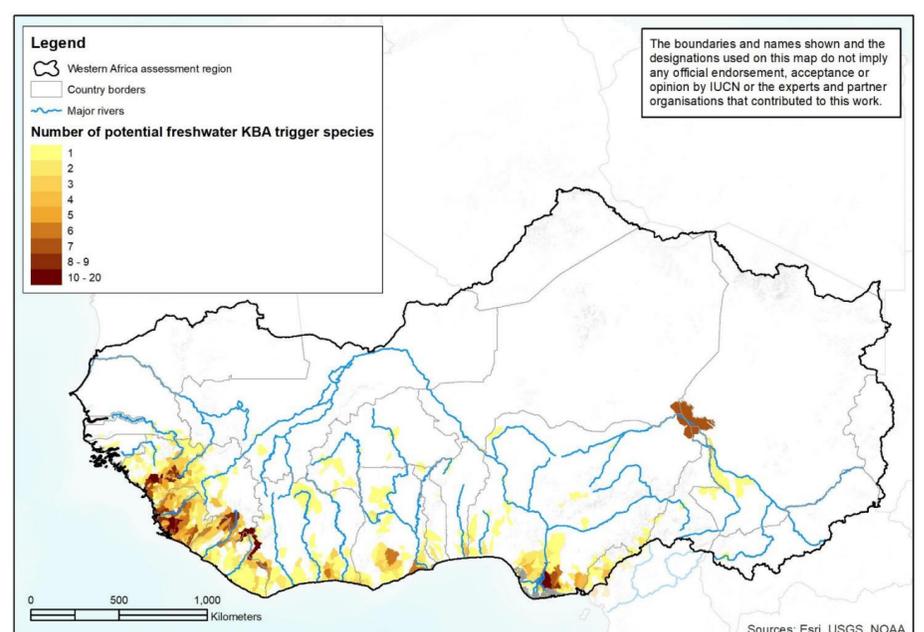


Figure 4: Number of potential KBA trigger species per sub-catchment, based on conservation status, taxonomic classification and range intersection. **Source:** Compiled by the report authors using data from the IUCN Red List (2021).

SITES KEY BIODIVERSITY AREAS

The thirteen freshwater KBAs proposed in the CEPF Ecosystem Profile were revised on the basis of new information and additional river sub-catchments containing potential KBAs identified using data from the latest freshwater species Red List assessments (Figure 4). Stakeholder consultation workshops were held in Sierra Leone, Liberia, Côte d'Ivoire, Ghana, Nigeria and Cameroon bringing together species experts, academics, government and civil society representatives. The river sub-catchments identified as potential KBAs represent critical targets for freshwater species survey, monitoring and conservation action.

POLICY RECOMMENDATIONS

- ❖ **Multilateral Environmental Agreements (MEAs)**, such as the Ramsar Convention on Wetlands and the Convention of Biological Diversity, can now be better informed of the most threatened freshwater species and sites for their conservation, identified here as potential KBAs.
- ❖ **National policies and National Biodiversity Strategy and Action Plans (NBSAPs)** should be strengthened through inclusion of the spatially explicit information on freshwater biodiversity presented in the report.
- ❖ **Environmental safeguards** should be strengthened to control threats, such as water pollution, through protected area management and policy-based actions specifically designed to benefit freshwater ecosystems.
- ❖ **The United Nations Sustainable Development Goals (SDGs)** will benefit through provision of improved metrics, such as RLI and KBAs, for measurement of progress towards Sustainable Development Targets.
- ❖ **Harmonisation of environmental policies**, standardised regional surveys, and incorporation of freshwater biodiversity targets into protected area management will benefit freshwater ecosystems.



SDGs that specifically rely on sustainable management of freshwater ecosystems

MANAGEMENT RECOMMENDATIONS

- **Standardised, repeated surveys** of freshwater biodiversity are essential to providing up-to-date information on the distribution and status of freshwater species over time. Currently such information is often either missing or highly outdated. Sub-catchments identified in this report, such as those potentially containing KBAs, should be priority targets for long-term monitoring.
- **Establish a regional institution** to coordinate transboundary and cross-sectoral management of western Africa's freshwater ecosystems. This would be highly beneficial given the high level of connectivity within freshwater ecosystems and the multiple sources of threat.
- **Protection or management, as appropriate, of key sites of freshwater biodiversity** as identified in the newly delineated KBA network, is essential to ensure freshwater biodiversity is more effectively represented in conservation and development planning.
- **Integrated River Basin Management (IRBM)** is recommended to better coordinate conservation, management and development planning of water, land and related resources across sectors, and to maximise the economic and social benefits.
- **Improved management of harvested and traded species** is needed to avoid over-exploitation and depletion or collapse of stocks.
- **Regional and local stakeholder involvement and participatory** approaches are key to ensuring the legitimacy and the long-term sustainability of conservation actions. Education and awareness raising of the importance of clean and healthy wetland systems to humans and of the value of their unique biodiversity will help stimulate sustainable use and conservation actions.
- **Increased efforts are required to trace pathways of introduction of invasive alien species in freshwater systems** to prevent future introductions, and to manage or, where feasible, eradicate these species. Relevant information can be found in the Global Invasive Species Database (GISD): www.iucngisd.org/gisd, <http://www.keybiodiversityareas.org/> and <https://www.iucnredlist.org/> and also in the report of the study <https://doi.org/10.2305/IUCN.CH.2021.RA.1.f>
- **Active restoration of freshwater ecosystems** is required to halt and reverse the current levels of increasing decline seen across the region.