

# Meeting the Triple Threat Crisis

Climate  
Change



Biodiversity  
Loss



Pollution



bri



# Biodiversity Monitoring

- BRI conducts biodiversity surveys worldwide, using **standardized methods** to deliver consistent, reliable, and directly comparable data over time.
- Our **field protocols** for surveys in African range-lands was recently published (Jenkins *et al.* 2026 *Current Protocols* 6: e70434).
- To date, BRI has conducted multiple projects in Zambia, Tanzania, Kenya, and the United States.
- BRI supports country capacity to meet **National Biodiversity Strategies & Action Plans** (NBSAPs).
- BRI emphasizes the IUCN Red List of Threatened Species, like the Southern Ground Hornbill, Bateleur, Martial Eagle, and Secretarybird — **important indicators of ecosystem health** and conservation impact.
- Tracking species provides **measurable outcomes** and supports Climate, Community & Biodiversity (CCB) Standards.



BRI's **Remote Acoustics & Imagery Lab (RAIL)** develops innovative approaches to remotely survey and monitor birds, mammals, and other wildlife around the world. BRI staff are building species classifiers to sort through hours of acoustic and imagery data and identify animals based on their unique vocalizations, shapes, and patterns.



by the numbers

**Camera traps** (African mammals):

**900**

images

**47**

classified species

**11**

IUCN Red List species

**Acoustic recorders** (African birds):

**6,057**

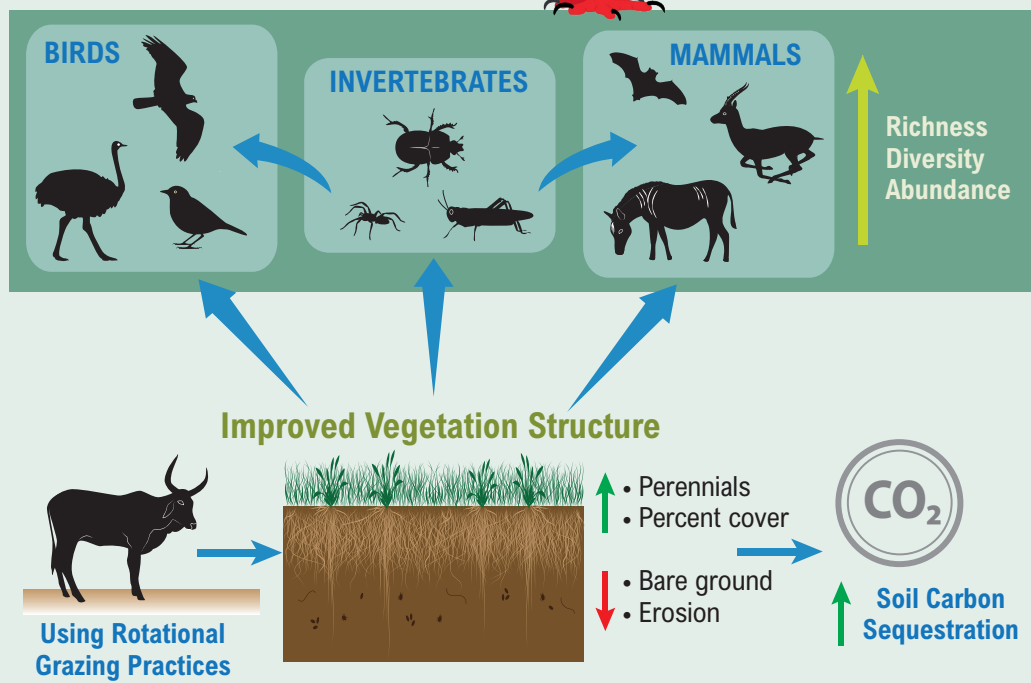
calls

**161**

classified species



Convention on Biological Diversity



## METHODS

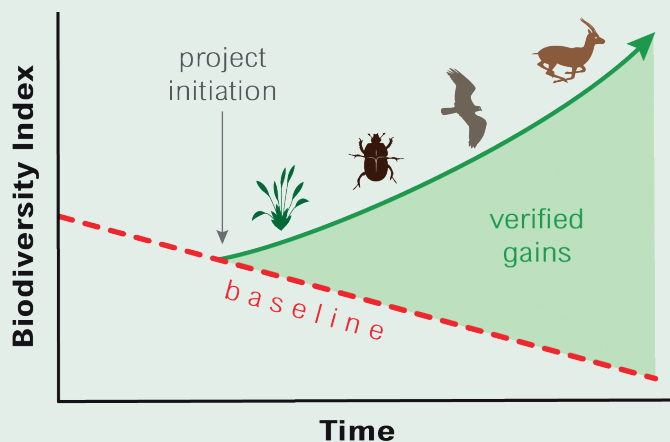


BRI projects are driven by an explicit theory of change that links conservation actions to measureable ecological outcomes. For example, changes to grazing practices can influence biodiversity at different levels — including vegetation, invertebrates, birds, and mammals — which can be tracked using a variety of field methods.



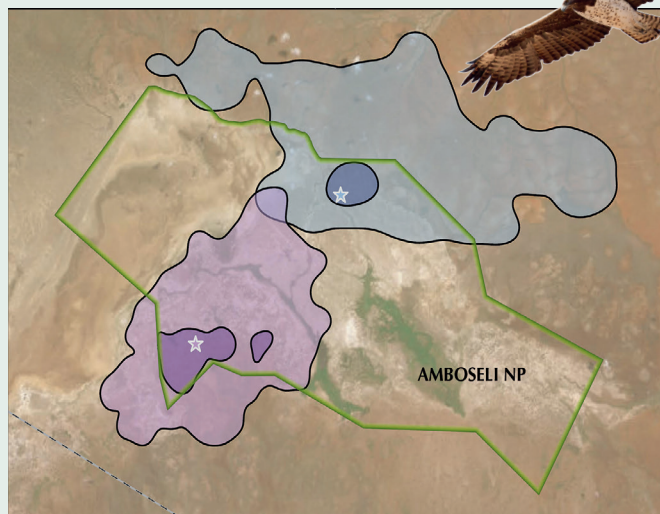
## Biodiversity Credits

- Biodiversity or nature credits create a way to fund conservation by providing a system to **measure, verify, and finance positive outcomes** for biodiversity and ecosystem health.
- These credits can represent different approaches, from compensating for biodiversity impacts to financing **conservation, restoration, and long-term stewardship** of ecosystems.
- BRI is helping shape this emerging field, drawing on more than three decades of conservation science and experience to **develop credible biodiversity credit approaches**, including work in Kajiado, Kenya.



### Kajiado Rangelands Carbon Project, Kenya

BRI is developing biodiversity credits in Kajiado County, Kenya. Building on our existing carbon project, we measure biodiversity gains through indicators such as plants, invertebrates, mammals, and birds, including the Endangered Martial Eagle. These verified gains will create a durable source of support for community-led conservation.

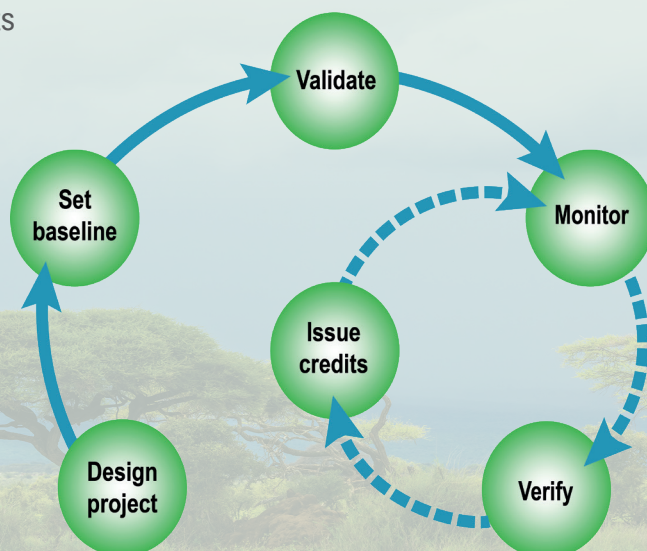


Home ranges and core use areas of two adult Martial Eagles captured and tagged in Amboseli National Park, Kenya. Tagging provides critical insights on the movements and habitat use of endangered raptors and other species.

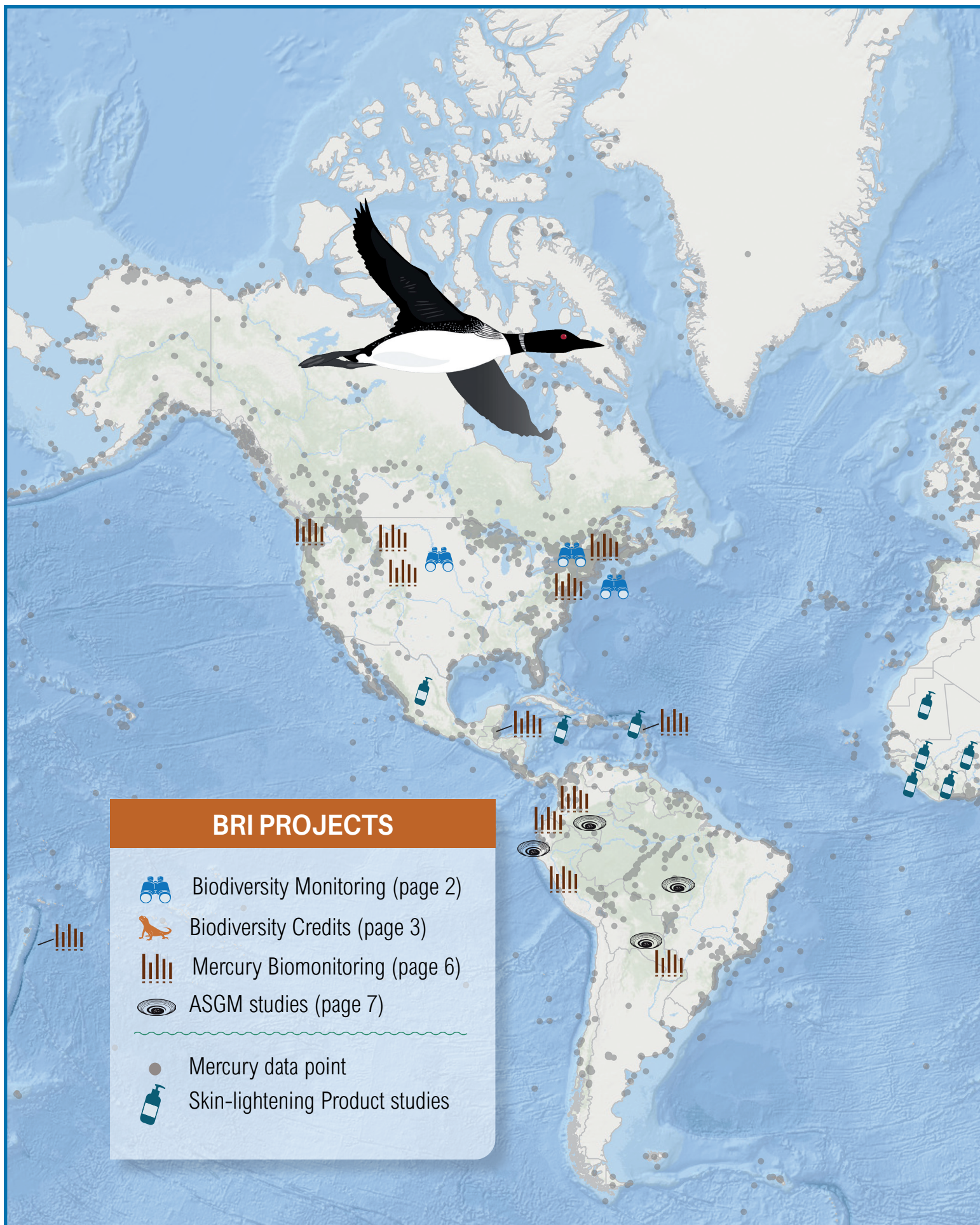
BIODIVERSITY

**A number of biodiversity credit frameworks are emerging, each with different approaches to measurement and verification. BRI is currently exploring Verra's Nature Framework for its Kajiado project.**

Under this framework, projects establish a baseline for ecosystem condition, define conservation actions, and demonstrate measurable improvements beyond what would have occurred without funding.



Independent monitoring and verification convert these gains into biodiversity credits that finance ongoing conservation.



## BRI PROJECTS



Biodiversity Monitoring (page 2)



Biodiversity Credits (page 3)



Mercury Biomonitoring (page 6)



ASGM studies (page 7)

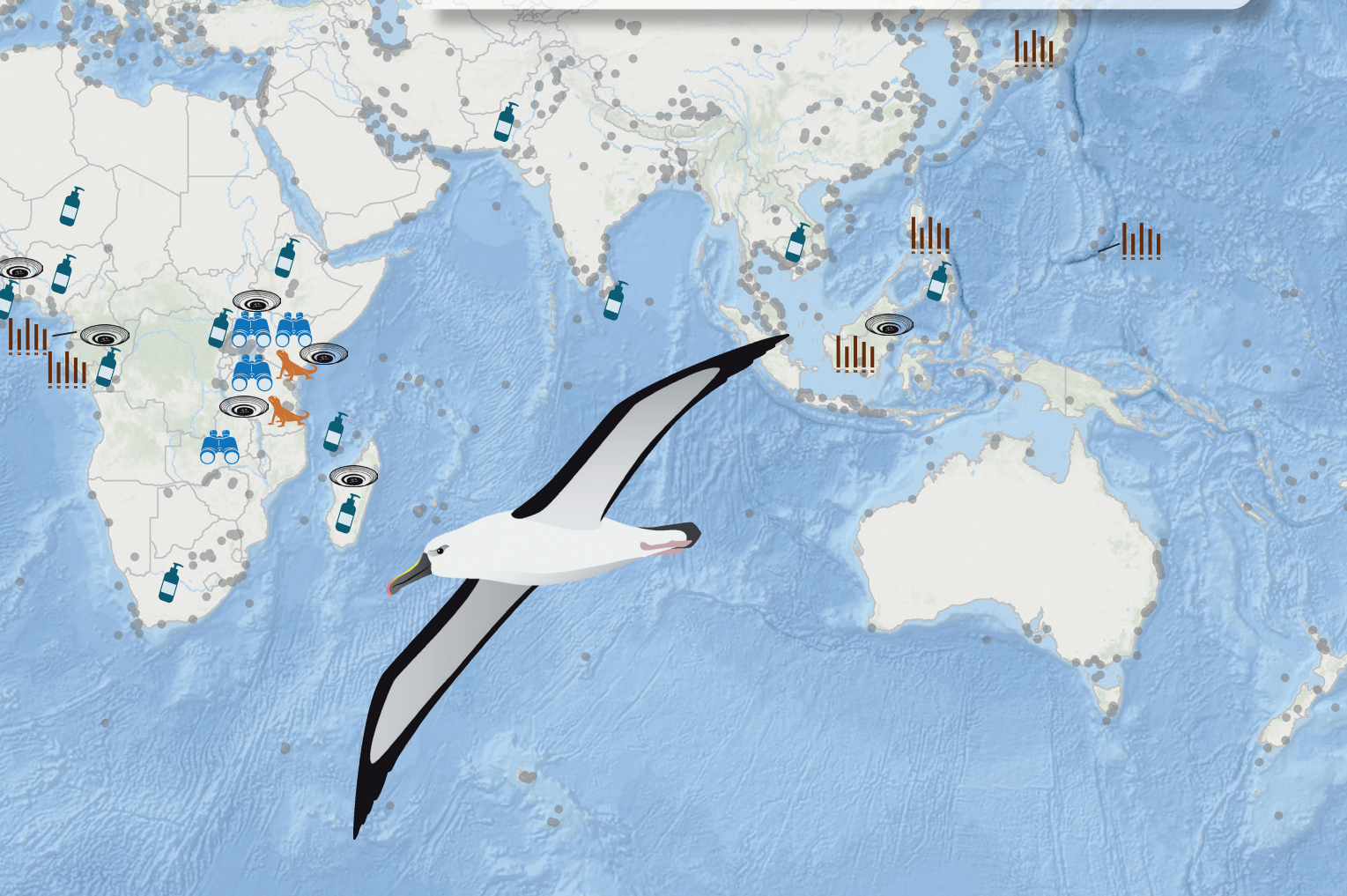


Mercury data point

Skin-lightening Product studies

## Number of mercury samples in the GBMS database (page 6)

|                    | Fish           | Sea Turtles  | Birds          | Marine Mammals | Total          |
|--------------------|----------------|--------------|----------------|----------------|----------------|
| <b>Continental</b> |                |              |                |                |                |
| Africa             | 6,121          | na           | 192            | na             | 6,318          |
| Antarctica         | 0              | na           | 0              | na             | 0              |
| Asia               | 14,093         | na           | 3,794          | 567            | 18,454         |
| Australia          | 323            | na           | 3              | na             | 326            |
| Europe             | 62,321         | na           | 7,712          | 220            | 70,253         |
| North America      | 191,346        | na           | 50,449         | na             | 241,795        |
| South America      | 38,126         | na           | 356            | 95             | 38,577         |
| <b>Oceanic</b>     |                |              |                |                |                |
| Antarctic          | 1,228          | na           | 6,305          | 1738           | 9271           |
| Arctic             | 1,808          | na           | 7,498          | 8,730          | 18,036         |
| Gulf of Mexico     | 8,480          | 557          | 467            | 818            | 10,322         |
| Indian             | 9,662          | 397          | 1,851          | 487            | 12,397         |
| Mediterranean      | 13,720         | 773          | 2,054          | 2,600          | 19,147         |
| Atlantic           | 38,932         | 2,152        | 16,759         | 8,096          | 65,939         |
| Pacific            | 32,201         | 1,128        | 36,987         | 7,347          | 77,663         |
| <b>Total</b>       | <b>418,366</b> | <b>5,007</b> | <b>134,427</b> | <b>30,698</b>  | <b>588,498</b> |





## Mercury Biomonitoring

BRI is a **global leader** in mercury research, providing the scientific foundation, biomonitoring programs, and data resources needed to assess contamination, track long-term trends, and inform environmental policy.

BRI's mercury work spans:

- Laboratory and analytical expertise.
- Biomonitoring across aquatic and terrestrial species.
- **Capacity building** to support monitoring networks.
- Developing standardized operating procedures for field sampling mercury across a range of taxa.
- **Evaluating effectiveness** of the Minamata Convention and Convention on Biological Diversity (Target 7)

A cornerstone of this work is BRI's Global Biotic Mercury Synthesis (GBMS), a **standardized biomonitoring platform** that compiles mercury concentrations in species from around the globe (Evers *et al.* 2024 *Ecotoxicology* 33: 325–396).



GLOBAL  
MERCURY  
PARTNERSHIP



As part of BRI's ongoing work with the United Nations Environment Programme (UNEP), GBMS is featured on the **World Environment Situation Room** (WESR), making mercury monitoring data more accessible (<https://wesr.unep.org>).

This partnership makes standardized monitoring data easily accessible and helps:

- Identify and **evaluate mercury trends**
- **Meet international reporting** commitments
- Develop **effective strategies to reduce pollution** and protect biodiversity

by the numbers

### GBMS

(Global Biotic Mercury Synthesis)

> **1,000** species

> **588,000** data points

**139** countries & open water



BRI's Toxicology Lab provides expert laboratory and analytical processing for mercury and other contaminants. BRI staff work directly with partners to strengthen lab capacity for monitoring and analysis. As a participant in the National Institute for Minamata Disease (NIMD) proficiency testing program, our lab is accredited and consistently meets international standards for mercury testing.



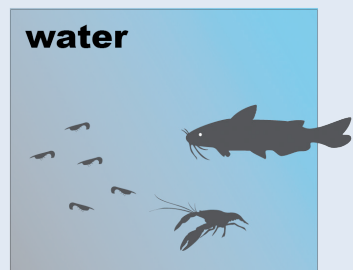
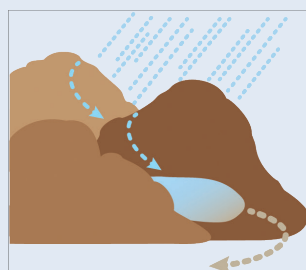
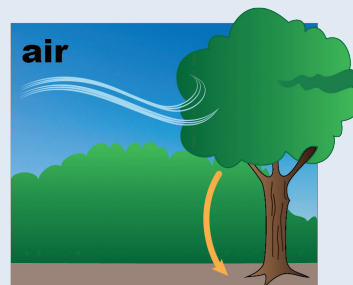
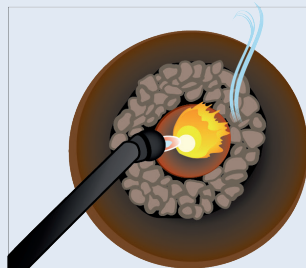
## Artisanal and Small-scale Gold Mining (ASGM)

ASGM exposes fragile ecosystems, Indigenous peoples, and local communities to severe mercury contamination (Etui *et al.* 2024 *Ecotoxicology* 33: 484–504).

Currently, 45 countries participate in planetGOLD initiatives. New projects under GEF-9 will expand this scope by incorporating comprehensive Biodiversity Assessments directly into site management and policy frameworks.

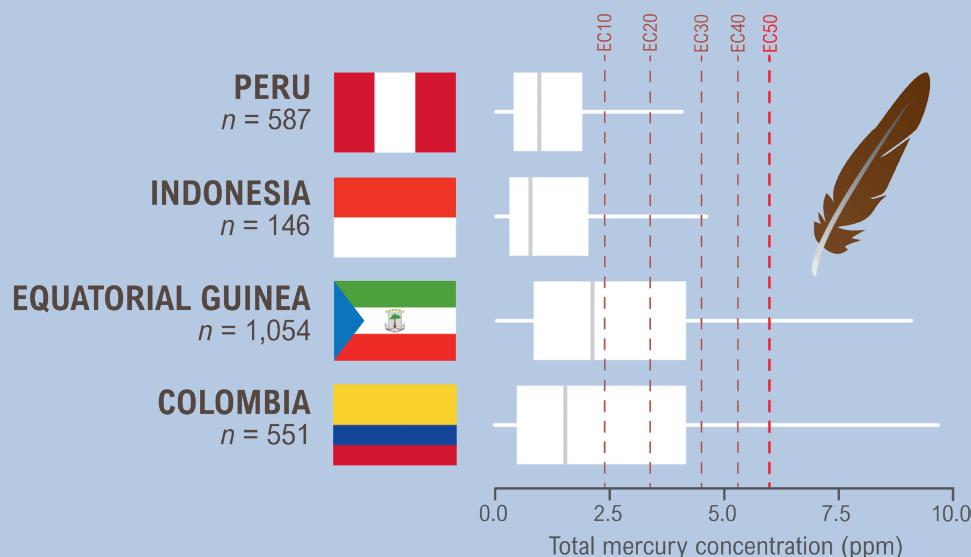
BRI supports governments and partners across Africa, Asia, and South America by applying a systematic, science-based approach to mercury risk reduction. In particular, BRI staff:

- Design and lead **biomonitoring activities** targeting critical taxa to quantify mercury contamination across ecosystems.
- Produce Mercury Monitoring and Evaluation Plans alongside **adaptable threat assessment frameworks** to prioritize high-impact interventions.
- Develop **tailored theories of change to evaluate local conditions** and identify the most effective routes for reducing mercury use (Aldous *et al.* 2024 *Ecotoxicology* 33: 506–517).
- Support partners to **build institutional capacity, strengthen local governance**, and shift perceptions around mercury risks.



- Explore and quantify **phytoremediation** of mercury at ASGM sites.
- Restore degraded ASGM sites and evaluate project outcomes by **quantifying links and impacts** of mercury contamination and ecosystem recovery.

MERCURY



By analyzing thousands of feather samples from active ASGM zones, BRI delivers the critical data needed to confront the triple threat crisis.

Tracking mercury concentrations across space and time reveals long-term ecosystem health trends and guides targeted environmental action.

Sayers *et al.* 2023 *Ecotoxicology* 32: 1096–1123.



**BRI**  
**Biomonitoring**  
**by the numbers:**

**33** projects  
**23** countries  
**1,130** species

**BRI advances the understanding of biodiversity and ecosystems by  
conducting independent science that informs decision-making  
and supports the conservation and health of the global environment.**

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