

Biodiversity Benefit Accounting (BioBA)



Launch webinar | February 12, 2026





AGENDA

- Welcome and introduction (5 mins)
- Overview of BioBA guidance and methodology (20 mins)
- Perspectives from practitioners (22 mins)
- Q&A (10 mins)
- Closing and call to action (3 mins)



Biodiversity Benefit Accounting

Guidance for quantifying and evaluating the biodiversity benefits of water stewardship projects



WHAT IS BIOBA?

Guidance for corporate water stewardship practitioners to evaluate the **terrestrial and aquatic biodiversity multi-benefits** associated with water-related projects

Download the BioBA guidance here



<https://ceowatermandate.org/biodiversity/guide>



SPEAKERS



Robin Grossinger
Second Nature
ECOLOGY + DESIGN



Gregg Brill
PACIFIC INSTITUTE IN GLOBAL COMPANY CEO WATER MANDATE



Laura Weintraub
LimnoTech



Naabia Ofosu-Amaah
The Nature Conservancy



Tara Varghese



Juliet Cohen



Emma Marsden



Ellen Herbert, PhD



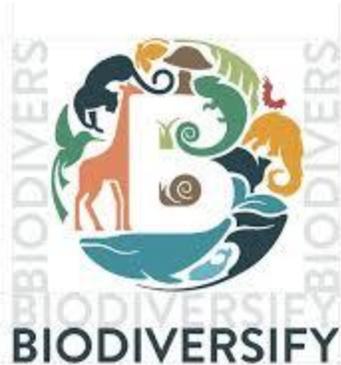
Meghan Ryan

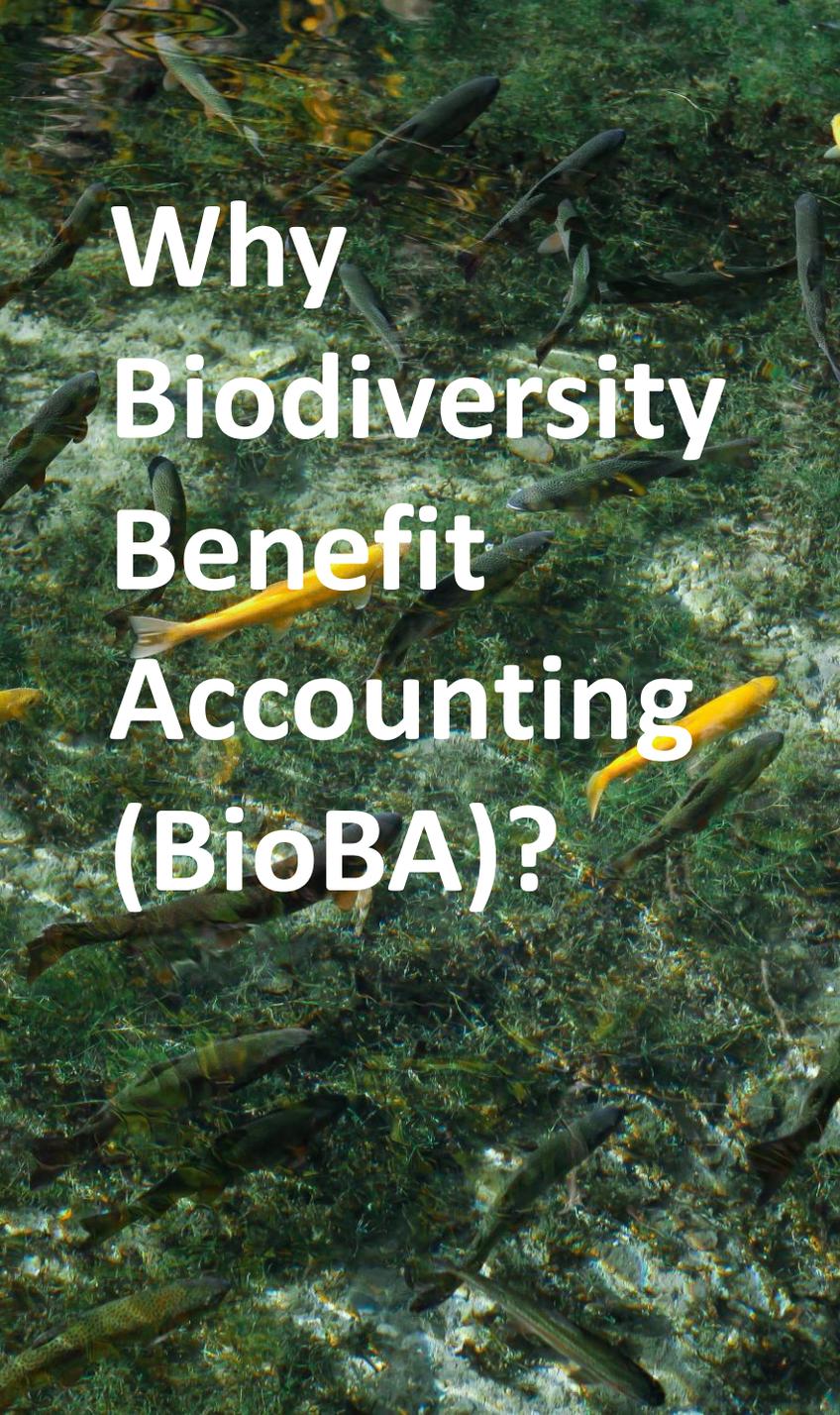


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EXPERT ADVISORY GROUP





Why Biodiversity Benefit Accounting (BioBA)?

State of play

- Biodiversity loss is significant
- Land-use change affecting all ecosystems
- Biodiversity and nature being prioritized

Broadening corporate interest

- Significant role in stewardship of global water resources
- Looking beyond volumetric benefits
- Increased interest in watershed health
- Healthy ecosystems buffer against water-related risks

Complementarity

- Benefit accounting (VWBA, WQBA, NBS)
- Nature Positive Initiative
- ESRS, TNFD, SBTN

Poll Question:
*Where are you in your
biodiversity journey?*



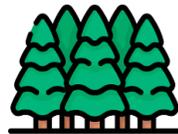
- **Seed:** Haven't started but willing to learn more – that's why I'm in this room



- **Seedling:** Just starting out and finding my feet



- **Sapling:** We have some momentum but looking to go even further



- **Forest:** We're pretty advanced in our biodiversity work and look forward to scaling

OVERVIEW OF BIOBA





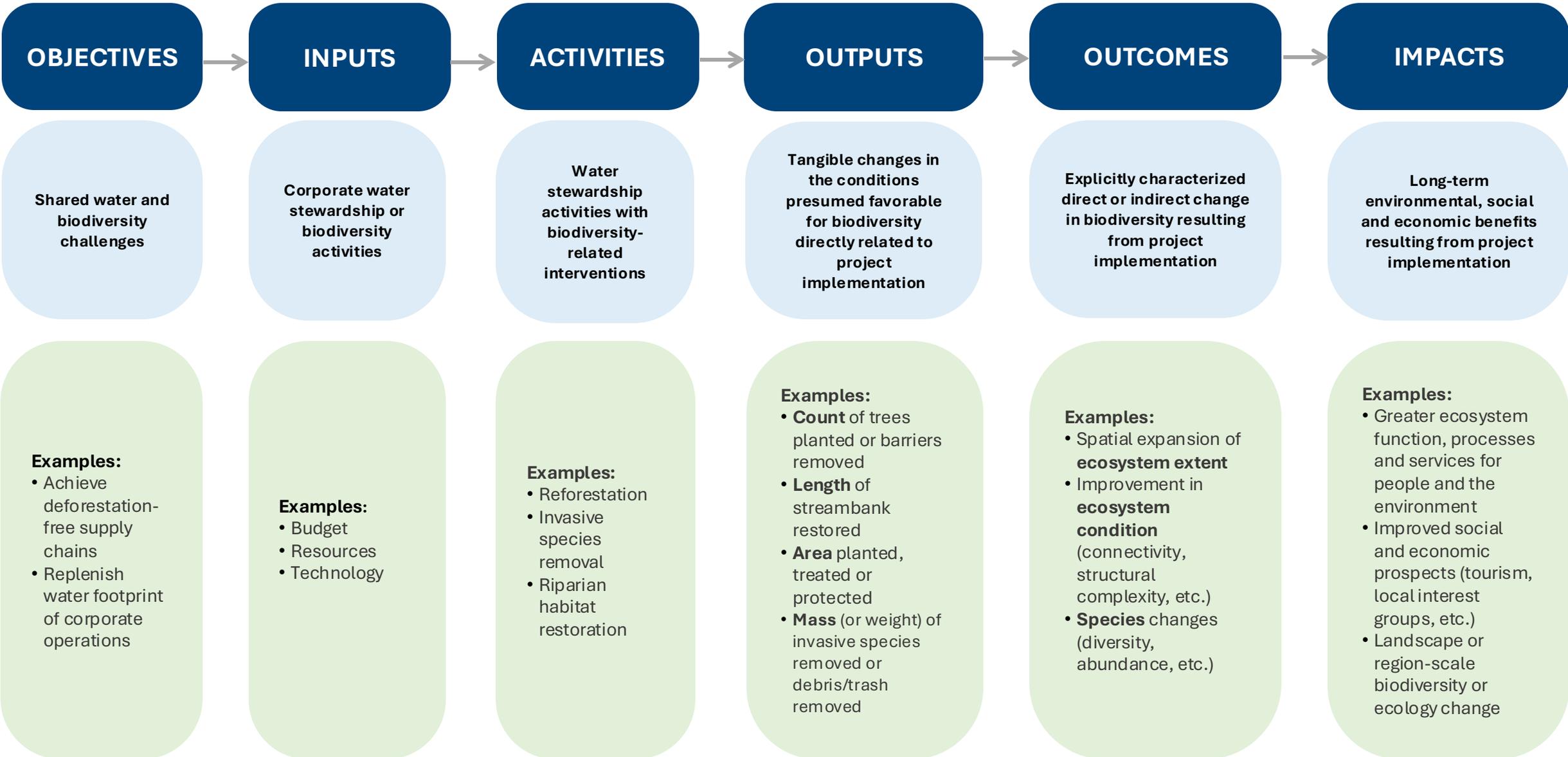
PRIMARY OBJECTIVES OF BIOBA

Provide businesses and project partners investing in corporate water stewardship with clear guidance on how to:

1. **Identify** biodiversity objectives for corporate water stewardship projects
2. **Plan** for implementing biodiversity-aligned projects,
3. **Select** appropriate indicators, metrics and methods to evaluate the biodiversity benefits of corporate water stewardship projects
4. **Communicate** the biodiversity benefits of corporate water stewardship and biodiversity projects



BioBA Impact Pathway





7-STEP BioBA PROCESS

1

IDENTIFY

Identify projects with potential biodiversity benefits

2

DEFINE

Work with ecology experts and stakeholders to define biodiversity objectives

3

PLAN

Develop a project plan aligned with the biodiversity objectives

4

IMPLEMENT

Implement project activities and collect data

5

QUANTIFY

Quantify outputs from activity implementation

6

EVALUATE

Evaluate outcomes from activity implementation

7

COMMUNICATE

Communicate biodiversity benefits



Step 1: Identify projects with accountable biodiversity benefits

- Applicable projects should have potential to address biodiversity and shared water challenges
- BioBA includes a table of relevant project types
- 8 considerations for project applicability

Determine appropriate level of benefit accounting

- Completed projects → outputs only
- In-progress projects → outputs or outcomes
- New projects → outputs or outcomes

1

IDENTIFY

Identify projects with potential biodiversity benefits



Step 2: Define the project's biodiversity objectives

- Engage early with local ecological experts and stakeholders
- Set project objectives using S.M.A.R.T. approach
- Confirm relevance to project implementation status

Specific: Clearly state intended biodiversity benefits of project

Measurable: State how outputs will be quantified and outcomes will be evaluated

Achievable: Consider the work planned, capacity, resources and time limit of project

Relevant: Confirm the project's activities aim to achieve desired biodiversity benefits

Time-bound: Indicate timeframe to achieve objective and consider ecologically relevant timescales (vegetation growth rates, seasonal migration patterns)

2

DEFINE

Work with ecology experts and stakeholders to define biodiversity objectives



Step 3: Develop a project plan aligned with biodiversity objectives

- Document how the project will be executed
 - Project scope, objectives, schedule, budget, tasks, resources and deliverables
- Other elements to consider when developing the project plan
 - Stakeholder engagement, baselining, monitoring approach, communication, resources, spatial scale, potential challenges and risk management
- Refine the project plan as needed
 - Lessons learned during implementation
 - MEL (monitoring, evaluation and learning) phases of the project
 - Evolution of the project budget
 - Changes in the ecosystem (e.g., wildfire)

3

PLAN

Develop a project plan aligned with the biodiversity objectives



Step 4: Implement Project Activities and Collect Data

- Implement project
- Collect and manage data using best practices
- Share implementation progress with project team

Important consideration for implementation:

- Use on-the-ground expertise
- Consider seasonal and ecological timing
- Monitor at appropriate spatial scale
- Accept uncertainty and use adaptive implementation strategies
- Prioritize activities based on objectives, potential for benefits and feasibility

4

IMPLEMENT

Implement
project activities
and collect data



Step 5: Quantify Outputs From Activity Implementation

- **Outputs:** tangible, direct results associated with project implementation that are presumed or quantified to beneficially affect the conditions favorable for biodiversity
- Guidance provides **example** metrics and methods for quantification

Output	Example
Count	Number of invasive plants removed; number of native trees planted; number of barriers removed
Length	Length of streambank stabilized; change in depth of inundation
Area	Area treated or managed; area planted, seeded, or revegetated; area protected or conserved; area inundated
Mass/Weight	Weight of trash removed; weight of invasive species removed

5

QUANTIFY

Quantify outputs from activity implementation





Step 6: Evaluate Biodiversity-related Outcomes

- **Outcomes** - direct or indirect changes (trends) in biodiversity resulting from project implementation; outcomes are the aggregates of outputs and other ecological and/or biophysical variables.
- Guidance provides **example** metrics and potential methods for evaluation

Outcome	Summary
Ecosystem extent	Spatial area or geographic boundaries wherein which an ecosystem exists.
Ecosystem condition	State or health of an ecosystem, including its structure, function, and composition.
Species	Change in the flora and fauna within a given ecosystem and their overall health and viability.

6

EVALUATE

Evaluate outcomes from activity implementation



Appendix 4 – Methods to Evaluate Outcomes

Supplement to Step 6



EVALUATE

Evaluate outcomes from activity implementation

Example project activities	Example assessment methods			Example tools and guides
	Ecosystem structure	Ecosystem composition	Ecosystem function	
Habitat and intervention types: Aquatic, riparian and wetland restoration or conservation				
In-stream barrier removal	<p>Hydrologic alteration assessment (Richter et al., 1996)</p> <p>Longitudinal connectivity assessment (Cote et al., 2008; Wohl, 2017)</p>	<p>Fish community monitoring (Karr 1981; Burckhardt et al., 2010; Gardner et al., 2013)</p> <p>Macroinvertebrate community monitoring (Mahan et al., 2021; Sallenave, 2023)</p>	<p>Fish passage assessment (Tummers et al., 2016; Washington Department of Fish and Wildlife, 2019)</p> <p>Periphyton biomass monitoring (Gaiser, 2009; Huang et al, 2018)</p>	<p>Gulf of Maine Council on the Marine Environment: <i>Stream Barrier Removal Monitoring Guide</i></p> <p>The Nature Conservancy: <i>Indicators of Hydrologic Alteration Software</i></p> <p>American Rivers/Trout Unlimited: <i>Exploring Dam Removal: A Decision Making Guide</i></p> <p>US EPA: <i>Rapid Bioassessment Protocols For Use in Streams and Wadeable Rivers</i></p>
Dam reoperation	<p>Hydrologic alteration assessment (Richter et al., 1996)</p> <p>Stream temperature monitoring (Thompson, 2005; Leach et al., 2023)</p>	<p>Fish community monitoring (Karr, 1981; Burckhardt et al., 2010)</p> <p>Macroinvertebrate community monitoring (Mahan et al., 2021; Sallenave, 2023)</p>	<p>Downstream habitat quality assessment (Poff et al., 1997; Leibowitz et al., 2019)</p> <p>Fish passage assessment (Tummers et al., 2016; Washington Department of Fish and Wildlife, 2019)</p>	<p>The Nature Conservancy: <i>Indicators of Hydrologic Alteration Software</i></p> <p>US EPA: <i>Rapid Bioassessment Protocols For Use in Streams and Wadeable Rivers</i></p>
Floodplain reconnection	<p>Hydrologic alteration assessment (Richter et al., 1996)</p> <p>Wetland delineation (Environmental Laboratory, 1987)</p>	<p>Avian survey (Ralph et al., 1995; Canterbury et al, 2000; Conway, 2011; Wilson et al., 2019)</p> <p>Vegetation composition surveys (USDA, 1999);</p> <p>Floristic quality assessment (Lopez and Fennessy, 2002; Freyman et al., 2015)</p>	<p>Peak flow attenuation assessment (Federman et al., 2013; Roni et al., 2019)</p>	<p>The Nature Conservancy: <i>Indicators of Hydrologic Alteration Software</i></p> <p>American Rivers: <i>Reconnecting Rivers to Floodplains</i></p> <p>American Fisheries Society: <i>Monitoring Stream and Watershed Restoration</i></p> <p>Universal FQA Calculator</p>

- Appendix 4a: Evaluating Ecosystem Extent: **general** methods and considerations
- Appendix 4b: Evaluating Ecosystem Condition: **example** methods based on categories of project activities
- Appendix 4c: Evaluating Species: **example** methods based on categories of project activities
- List of references



Step 7: Communicate Biodiversity Benefits

- Communicating biodiversity benefits requires nuance and caution
- Key differences between claims and reporting
- How to communicate outputs or outcomes over time



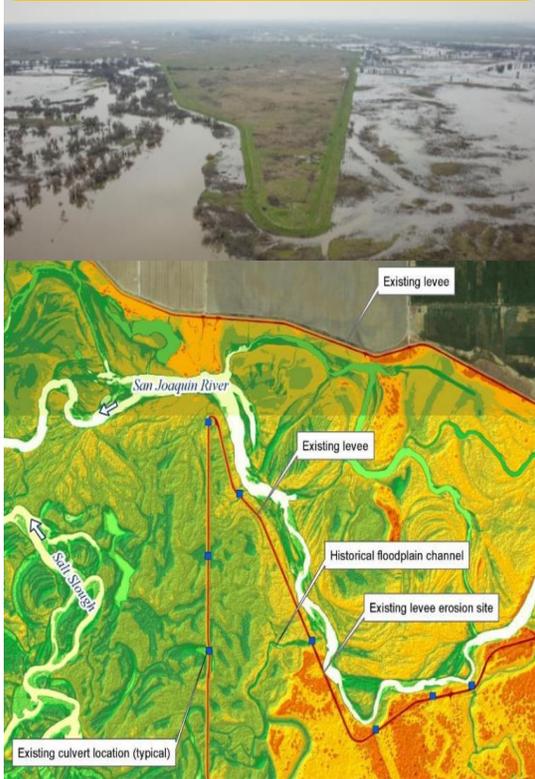
COMMUNICATE

Communicate
biodiversity
benefits

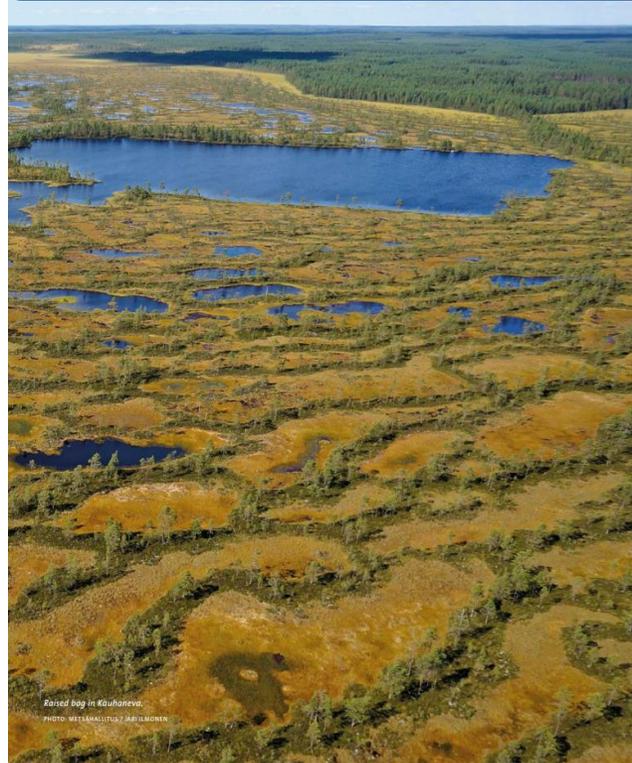


BioBA Case Studies

Floodplain Restoration, USA



Peatland Restoration, Finland



Traditional agriculture, Mexico



Water Stewardship & Biodiversity, South Africa



PRACTITIONER PERSPECTIVES





PRACTITIONER PERSPECTIVES



Naabia Ofosu-Amaah



Tara Varghese

Global Water Stewardship
Lead



Juliet Cohen

Director, Environmental Sustainability,
Water and Biodiversity



Emma Marsden

Technical Manager, Nature
Positive Initiative Secretariat



Ellen Herbert

Senior Scientist, Sustainability and
Nature Based Solutions



Meghan Ryan

Director, Natural Climate
Solutions Strategy





PRACTITIONER PERSPECTIVES



Tara Varghese

Global Water Stewardship Lead





Integrating our Water x Biodiversity Programs



Water Stewardship Target

We aim to replenish more water than we consume and help improve water quality and ecosystem health in the communities where we operate

In 2024, Google replenished **~4.5B gallons** of water through **112 projects** in **68 watersheds**. **~40%** have an ecosystem restoration component.

Nature & Biodiversity Program

- Onsite Habitat Creation
- Site Operations & Management

By the end of 2024, Google had created/restored **~74 acres of habitat** and planted **~5,200 native trees** on our campuses.



Photo by Melissa Steller for American Rivers



The Case for Integrated Design

BioBA bridges critical gaps by standardizing metrics, uncovering ecological value, and embedding essential biodiversity indicators into water stewardship project design



Fragmentation

Lack of standardized metrics prevented cross-industry comparison of nature benefits



Invisible Value

Ecological co-benefits of water projects often went unrecorded and undervalued



Missing Indicators

Key biodiversity indicators were missing from the water project's design and implementation

Learn more: sustainability.google
Questions: taravarghese@google.com

Photo by BienenSchweiz





PRACTITIONER PERSPECTIVES



Juliet Cohen

Director, Environmental
Sustainability, Water and
Biodiversity





Levee breaching, floodplain inundation and restoration in the Great Valley Grasslands State Park

San Joaquin Valley, CA

Cox Enterprises project partner: American Rivers and other federal, state, and NGO partners



Goals Update

Ambition statement: To be good stewards of our planet by inspiring positive environmental change.

	 Carbon & Climate	 Water	 Circularity & Waste	 Habitat & Species
Long-term ambition (2050)	Net zero to support science aligned targets	Water positive with focus on high-risk watersheds	Zero waste to landfill and contribute to a more circular economy	Protect, restore, or sustainably manage more land than we use
Targets to get there (2034)	<p>Reduce Scope 1, 2, 3 GHG emissions by 1 million MT</p> <p>80% of electricity used in our own operations is sourced from renewable energy</p>	<p>Replenish 1B gallons of water usage, starting with high-risk watersheds</p> <p>Reduce 100M gallons of water usage starting with priority facilities</p> <p>Contribute to the improved health of 10 high-risk watersheds where we operate</p>	<p>Divert 1B pounds of waste into the circular economy</p> <p>Recover 1M pounds of materials from high-risk habitats where we operate to support circularity</p>	<p>Protect, restore, or sustainably manage an area of land equivalent to 40% of our footprint</p> <p>Monitor, assess, and contribute to the improved health of 10 priority ecosystems and habitats where we operate</p>
Enablers	Technology (including pilots of emerging tech), education and value chain engagement, will be key enablers in achieving our target and long-term ambitions			

Great Valley Grasslands Floodplain Restoration: Optimizing water stewardship for biodiversity benefits



Identify, Define, Plan

- Replenish 1BG starting with high-risk watersheds & Protect, restore, or sustainably manage more land than we use
- Rely on scientific/conservation community to define biodiversity objectives: reconnected floodplain, improved habitat for fish and wildlife
- Project planning with hydrologic report, biological assessment, design drawings, long term management, monitoring plan

Implement, Quantify outputs

- Breach levees with notches to increase flooding and rate of erosion
- Remove culvert to allow flood waters to spread across the landscape and infiltrate
- Outputs: length of levee removed, lack of culvert material, days of inundation, water depth
- Methods of quantification: ground and aerial photography, measuring wheel, tools to measure groundwater level

Evaluate outcomes, Communicate

- Outcomes: increased wetland and grassland habitat, improved ecosystem structure, composition, and function
- Methods of evaluation: assess channel complexity indices, evaluate vegetation composition, evaluate specific species
- Communication began with reporting intended impacts recognizing our status as a partial funder. Claims will follow with evidence-based outcomes dependent on project monitoring.



PRACTITIONER PERSPECTIVES



Emma Marsden

Technical Manager, Nature
Positive Initiative
Secretariat



**NATURE
POSITIVE
INITIATIVE**



Building consensus on state of nature metrics

Emma Marsden, Nature Positive Initiative Secretariat

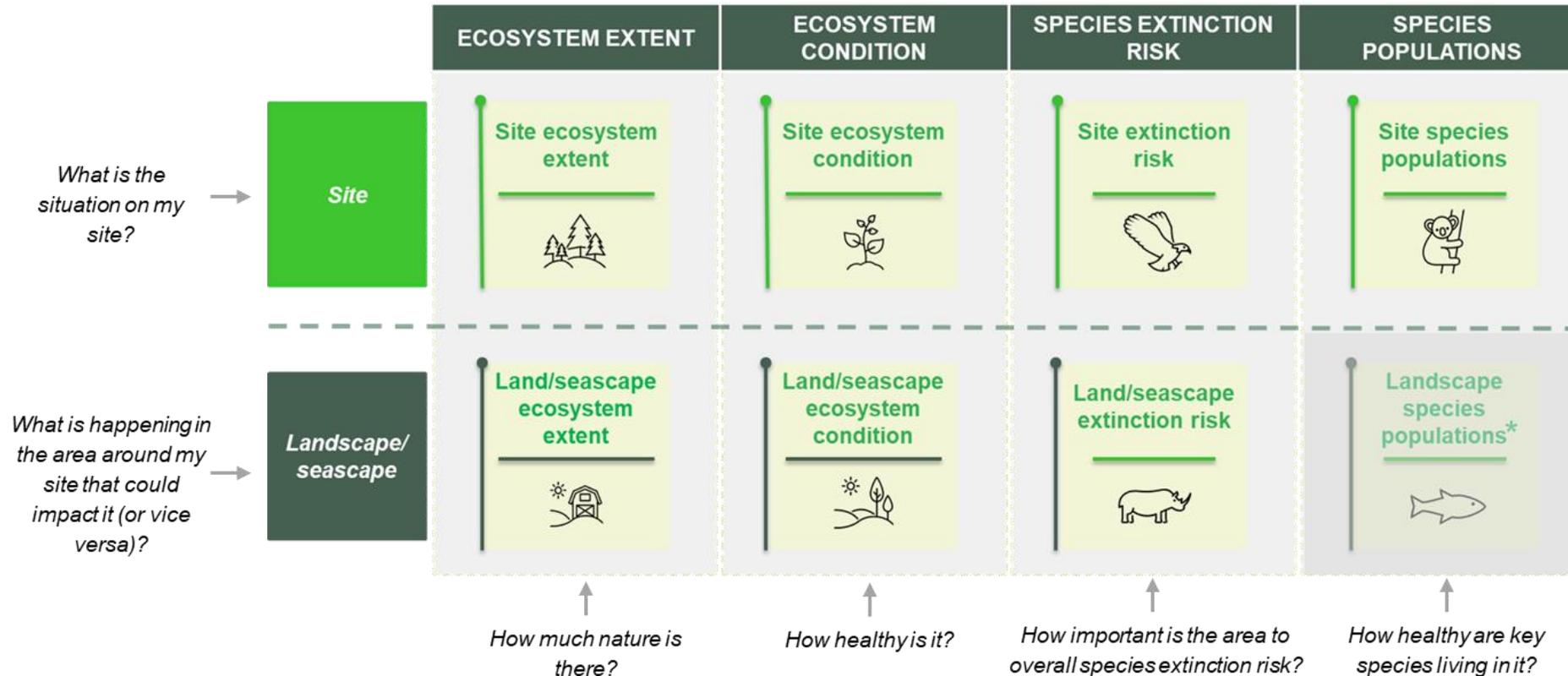


Building consensus on a universal set of metrics

Goal

The Nature Positive Initiative's goal is to build consensus on a set of measurable indicators and metrics that capture the effectiveness of our efforts to halt nature loss and set it on a path to recovery, thereby delivering nature-positive outcomes.

The metrics are designed to be embedded in a consistent manner within existing frameworks and standards.



"The state of nature metrics are a foundational layer upon which impact drivers and TNFD's LEAP process sit."

- Tony Goldner, Executive Director, TNFD



A key next step [for GRI] is integrating state of nature measurement, which is why we are pleased to be part of this project."

- Harold Pauwels, Standards Director, GRI



"These metrics will, we hope, fold straight into the measurement architecture already developed by SBTN for corporate target setting."

- Erin Billman, Executive Director, SBTN



"Once finalized, these metrics will be integrated into WBCSD's Nature Action Portal."

- Peter Bakker, President & CEO, WBCSD

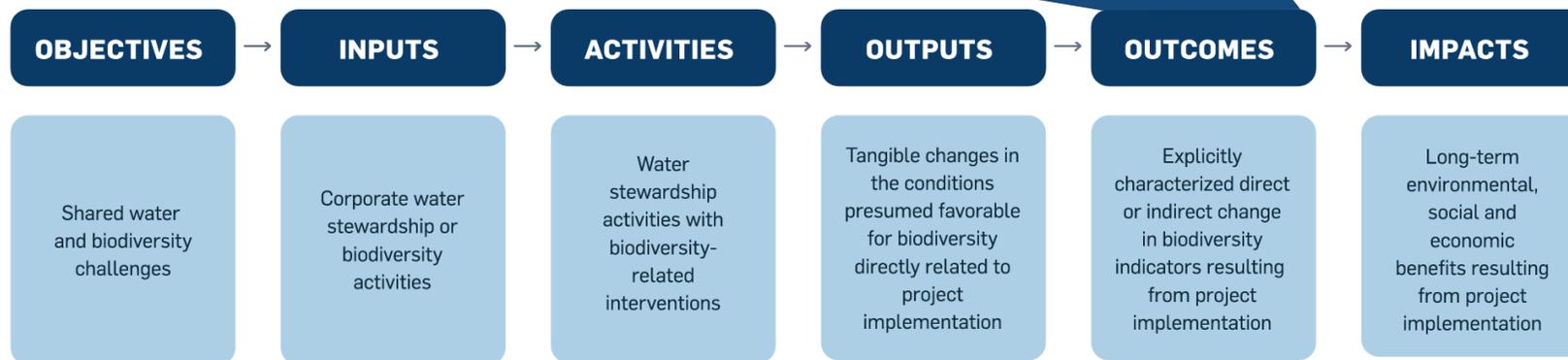


Building consensus on a universal set of metrics

BioBA for state of nature metric measurement

	ECOSYSTEM EXTENT	ECOSYSTEM CONDITION	SPECIES EXTINCTION RISK	SPECIES POPULATIONS
Site	Site ecosystem extent 	Site ecosystem condition 	Site extinction risk 	Site species populations
Landscape/seascape	Land/seascape ecosystem extent 	Land/seascape ecosystem condition 	Land/seascape extinction risk 	Landscape species populations

Align to



Be sure to check out:

Appendix 4: Methods to Evaluate Outcomes

for details and guidance on how to apply these metrics in freshwater systems

Consultation now live



A final opportunity to input on the proposed aligned state of nature metrics, open until **24 March**.

The consultation survey includes a question on applying the metrics in freshwater systems that we would love your perspectives on!

NATURE POSITIVE INITIATIVE



Available now: Get your free copy of the e-book 'Becoming Nature Positive'

naturepositive.org/book



New film! The Becoming Nature Positive documentary is now available. Get in touch to arrange a screening.

naturepositive.org/film



July 2026: Join us for the second Global Nature Positive Summit

naturepositive.org/events/summit



PRACTITIONER PERSPECTIVES

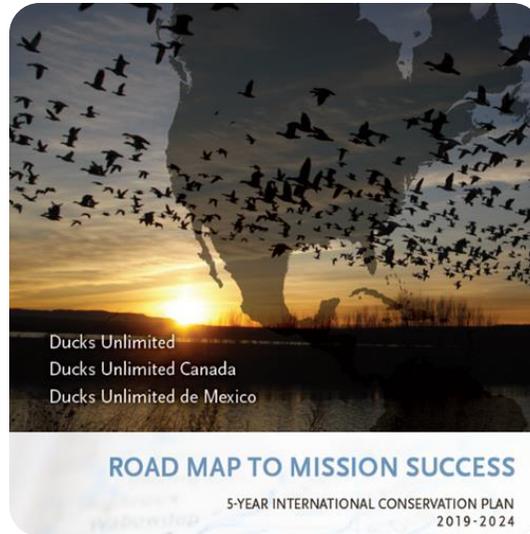
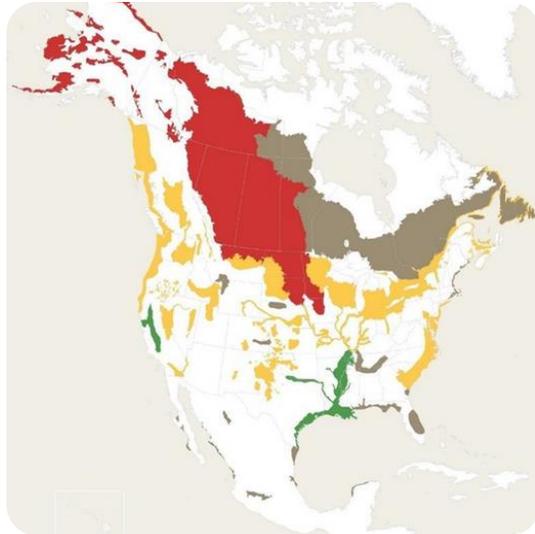


Ellen Herbert

Senior Scientist, Sustainability
and Nature Based Solutions



DUCKS UNLIMITED'S CONSERVATION MISSION

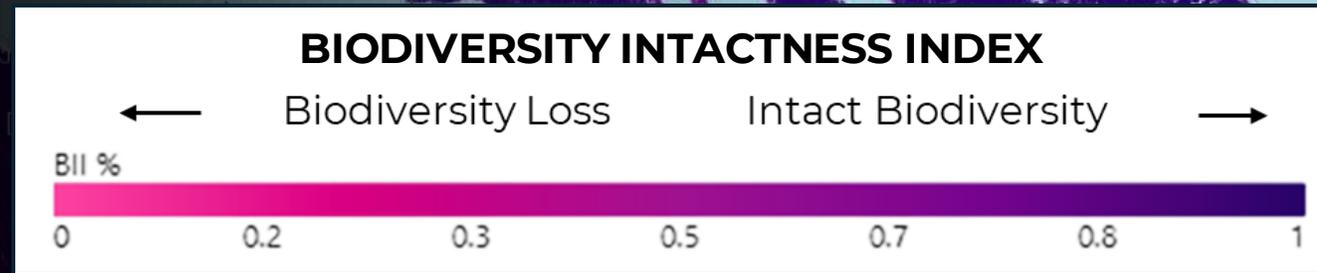


Ducks Unlimited conserves, restores, and manages wetlands and associated habitats for North America's waterfowl. **These habitats also benefit other wildlife and people.**

We are guided by science-based strategies that span international borders, recognizing the migratory nature of millions of North American bird species.

Biodiversity and DU Priorities

- DU conservation priority areas overlap strongly with areas of greatest biodiversity loss
- Wetlands are among the most biodiverse habitats, covering only 6% of the landscape over 40% of all plant and animal species rely on them
- These areas offer ample opportunity for water stewardship
- For our corporate partners, water, closely followed by biodiversity, are the most sought after ecosystem services

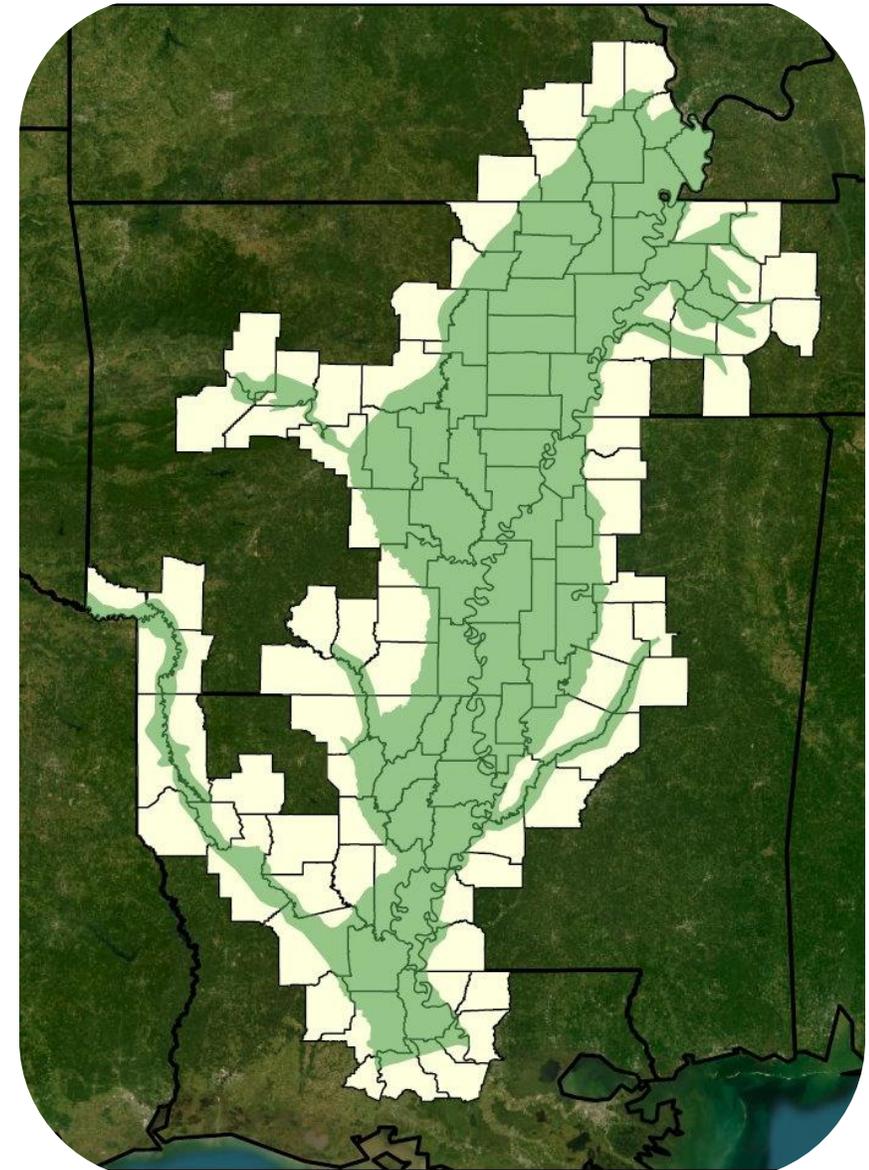
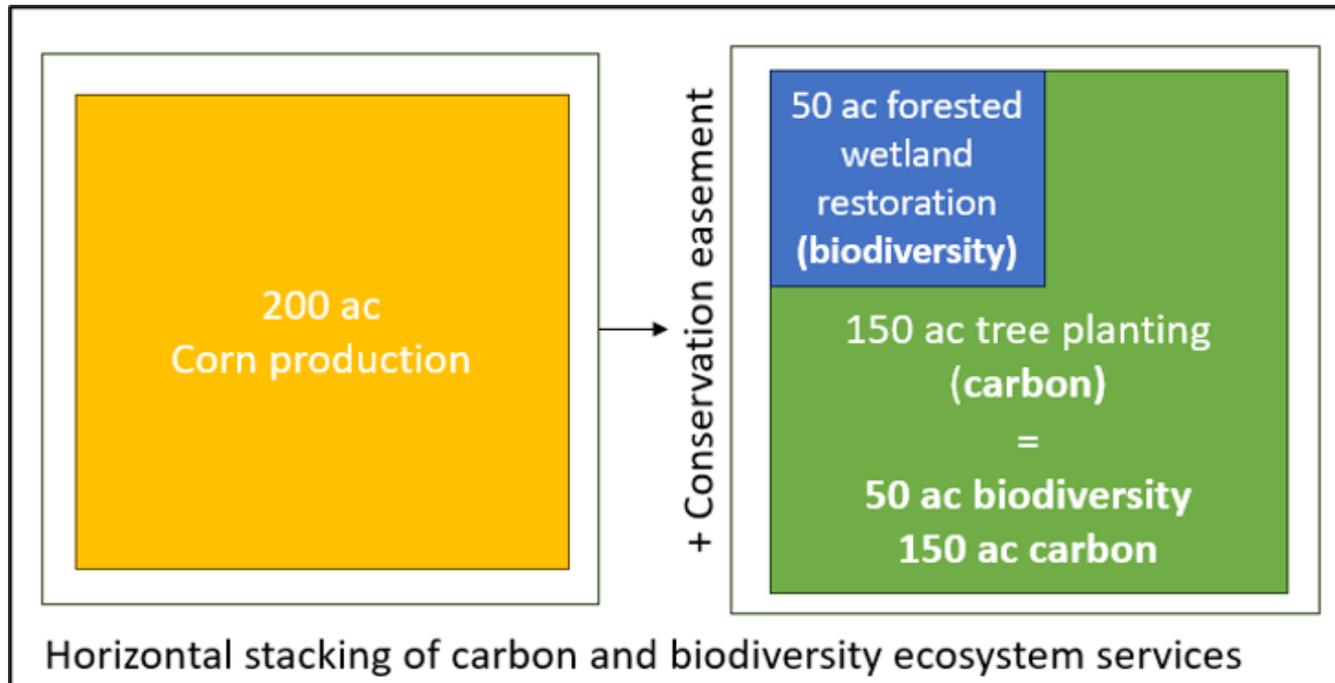


Montane Meadow Pilot

- Restore degraded wet meadow
- Measure biodiversity uplift
- Generate VWBs



Reforestation and Wetland Restoration Carbon, Water & Biodiversity





PRACTITIONER PERSPECTIVES



Meghan Ryan

Director, Natural Climate
Solutions Strategy



Audubon works across the **Western Hemisphere**, driven by the understanding that what is good for birds is good for the planet. Our approach pairs **unparalleled scientific expertise** with **on the ground action** across:

11

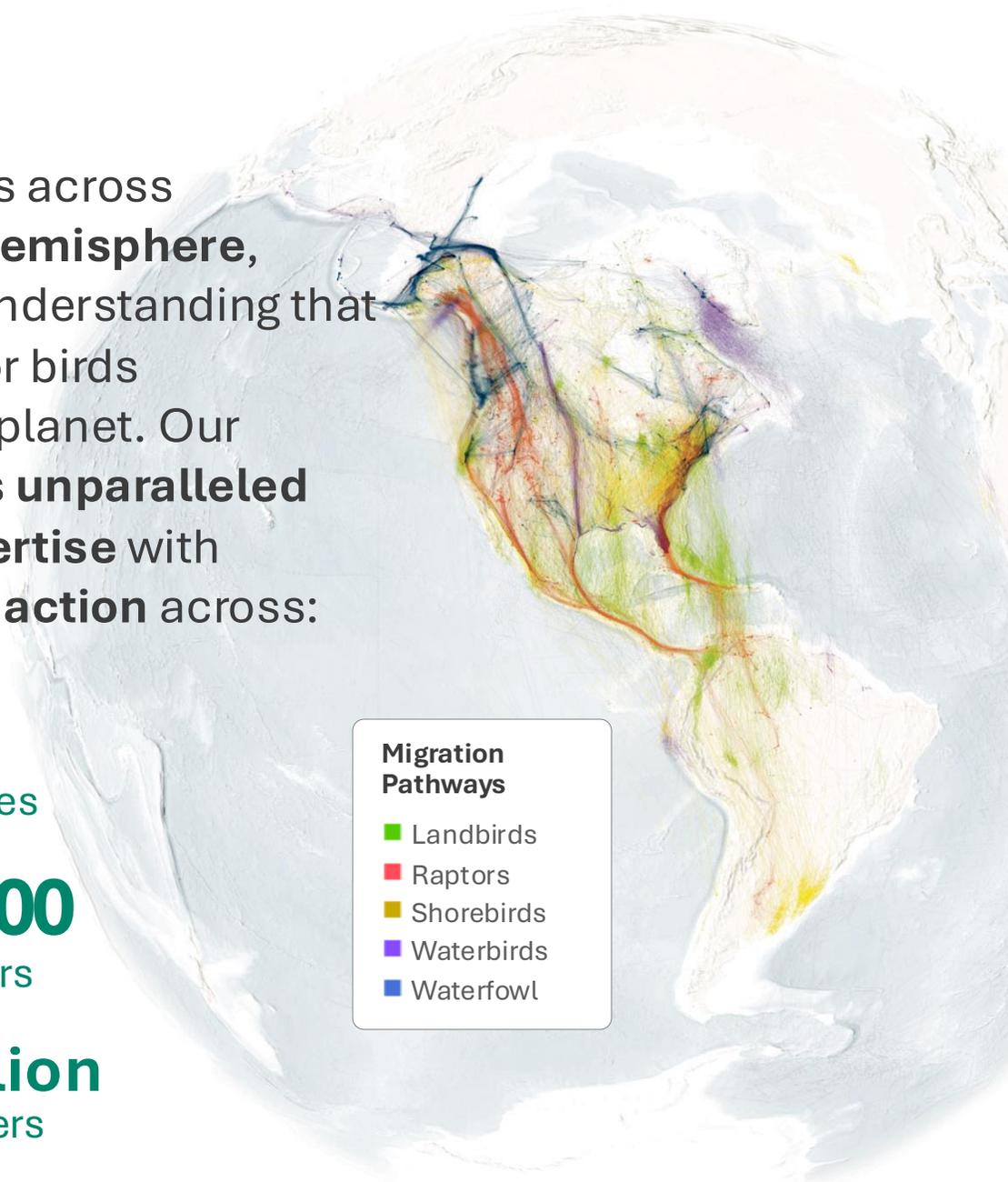
Countries

350,000

Members

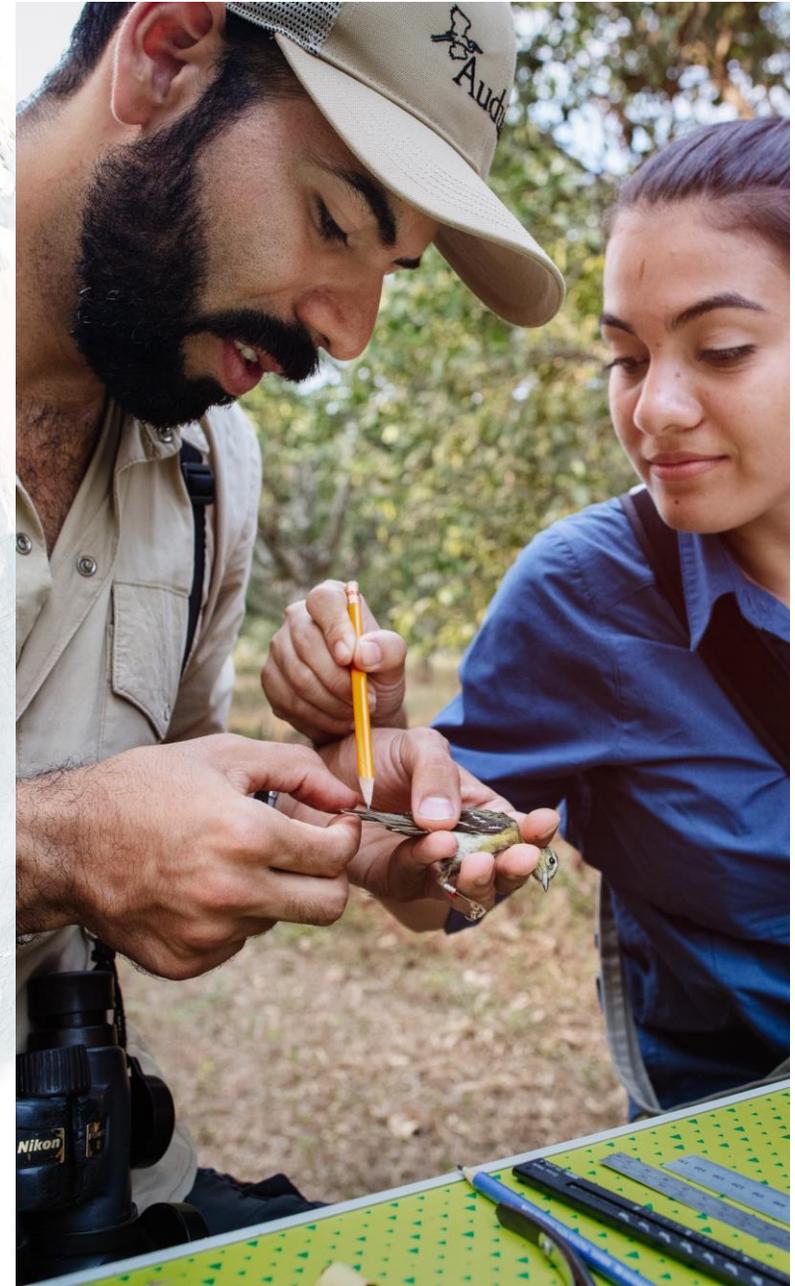
1.9 million

Supporters



Migration Pathways

- Landbirds
- Raptors
- Shorebirds
- Waterbirds
- Waterfowl



Flight Plan: Water for Birds and People

Our Strategy

Protect and Restore freshwater rivers, lakes, and wetlands habitat throughout the Americas that also provide needed clean water resources for people and communities.



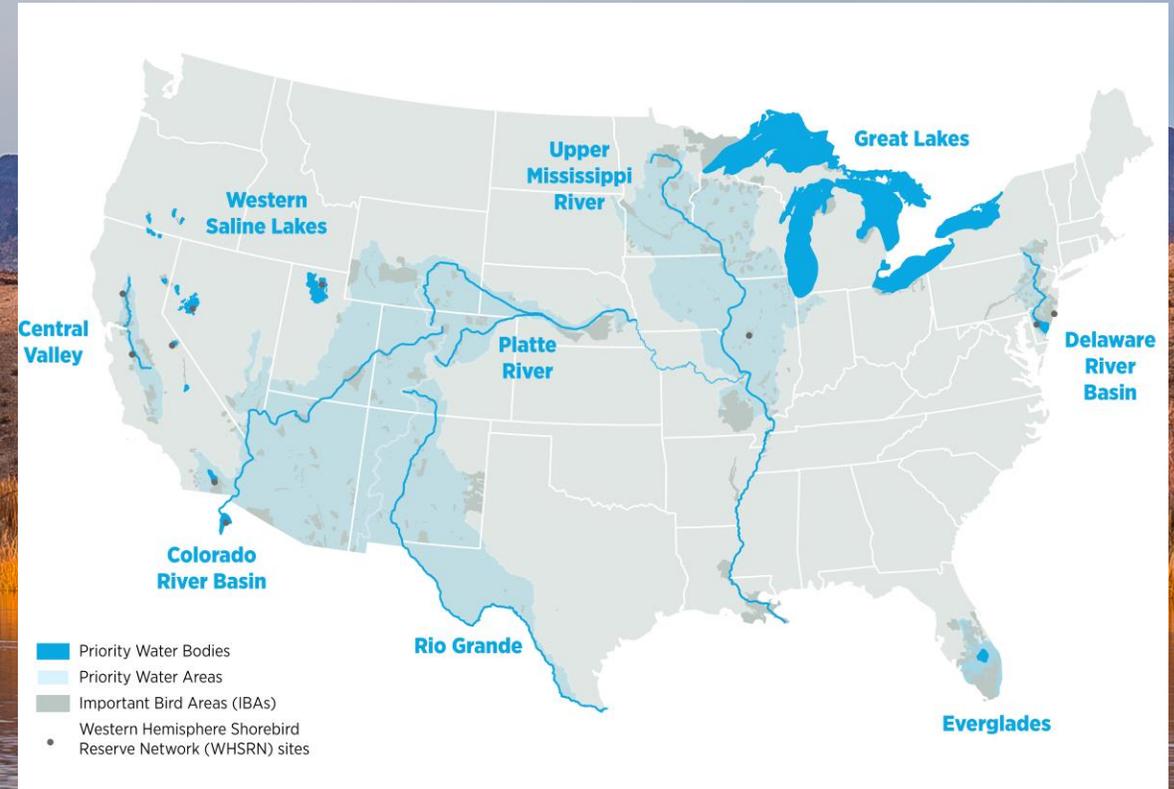
Monitoring & Research



Conservation Implementation



Policy Advocacy



Bird sightings & Birdsong can become Biodiversity Insights



Pied-billed grebe. Photo: Yoming Lin

Audubon's Bird-Friendliness Index (BFI)

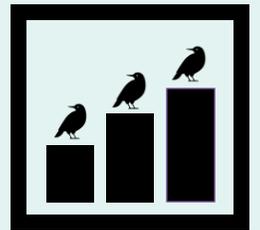
Translates bird observation or acoustic monitoring data
into a metric of bird community health,
a proxy for ecosystem health and biodiversity



ACCURATE



SCALABLE



MEANINGFUL



Learn more about the BFI, referenced in BioBA

Get in touch: meghan.ryan@audubon.org

Q&A

Please pose your questions using the Q&A function at the bottom of your screen.

You can ask general questions or ask specific panelists.



CLOSING AND CALL TO ACTION





CLOSING AND CALL TO ACTION

- BioBA moves biodiversity benefit quantification from aspiration to action
- Lays the foundation for scaling nature-positive action
- Apply BioBA to existing or future projects
- Pilot biodiversity benefit accounting alongside current volumetric benefit quantification, monitoring and reporting efforts
- Stress-test the framework and provide feedback to inform future iterations

BioBA is a starting point. Its value grows as it is applied, tested, and improved together.

Download the BioBA guidance here



<https://ceowatermandate.org/biodiversity/guide>

Contact Us...



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