proteus

Introduction to biodiversity management

Aime Rankin, Associate Programme Officer

Bálint Ternyik, Associate Programme Officer

Repsol

28 SEPTEMBER 2022

AGENDA

- Why is biodiversity important to business?
- Key biodiversity and conservation concepts
- Introduction to the Mitigation hierarchy
- Corporate biodiversity management and key considerations
- The Integrated Biodiversity Assessment Tool (IBAT)
- Interactive exercise for biodiversity management

Why is biodiversity important to business?

Bálint Ternyik, Associate Programme Officer, UNEP-WCMC

Nature under multiple, sustained, accelerating pressures

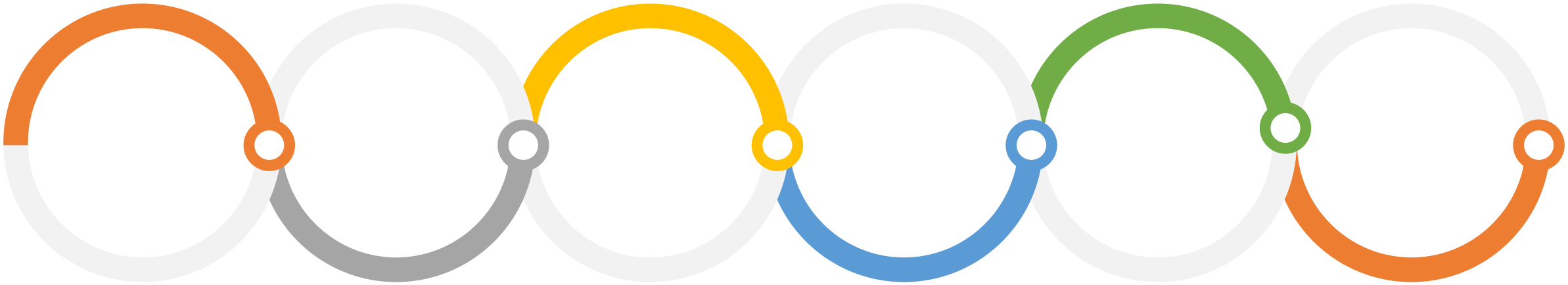
Ecosystem services in decline

Resource extraction intensifying

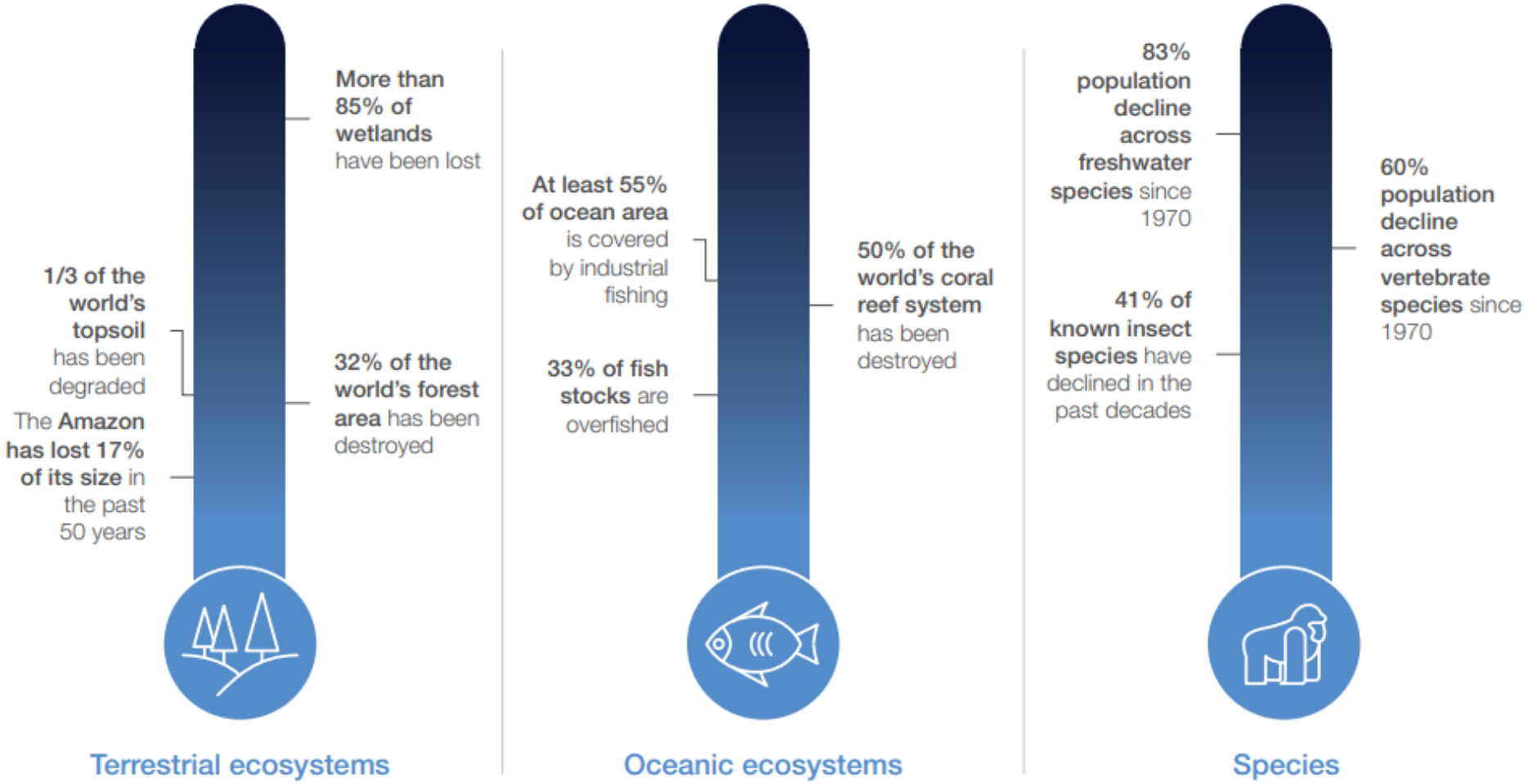
Economic growth drawing down on natural capital

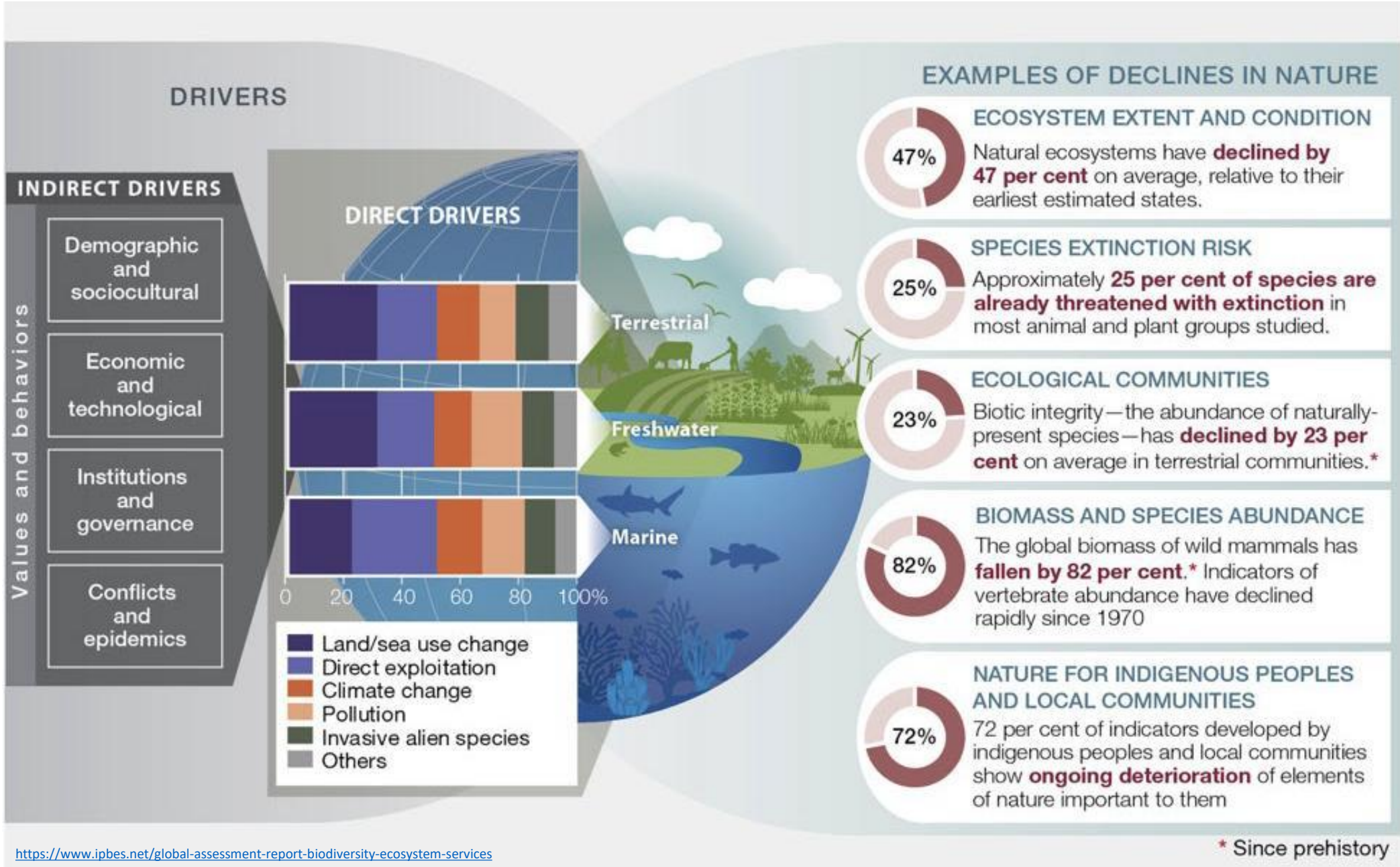
Window of opportunity to address nature and climate crisis closing

Nature loss creating real business risk



HUMAN ACTIVITIES HAVE HEAVILY IMPACTED ON NATURE



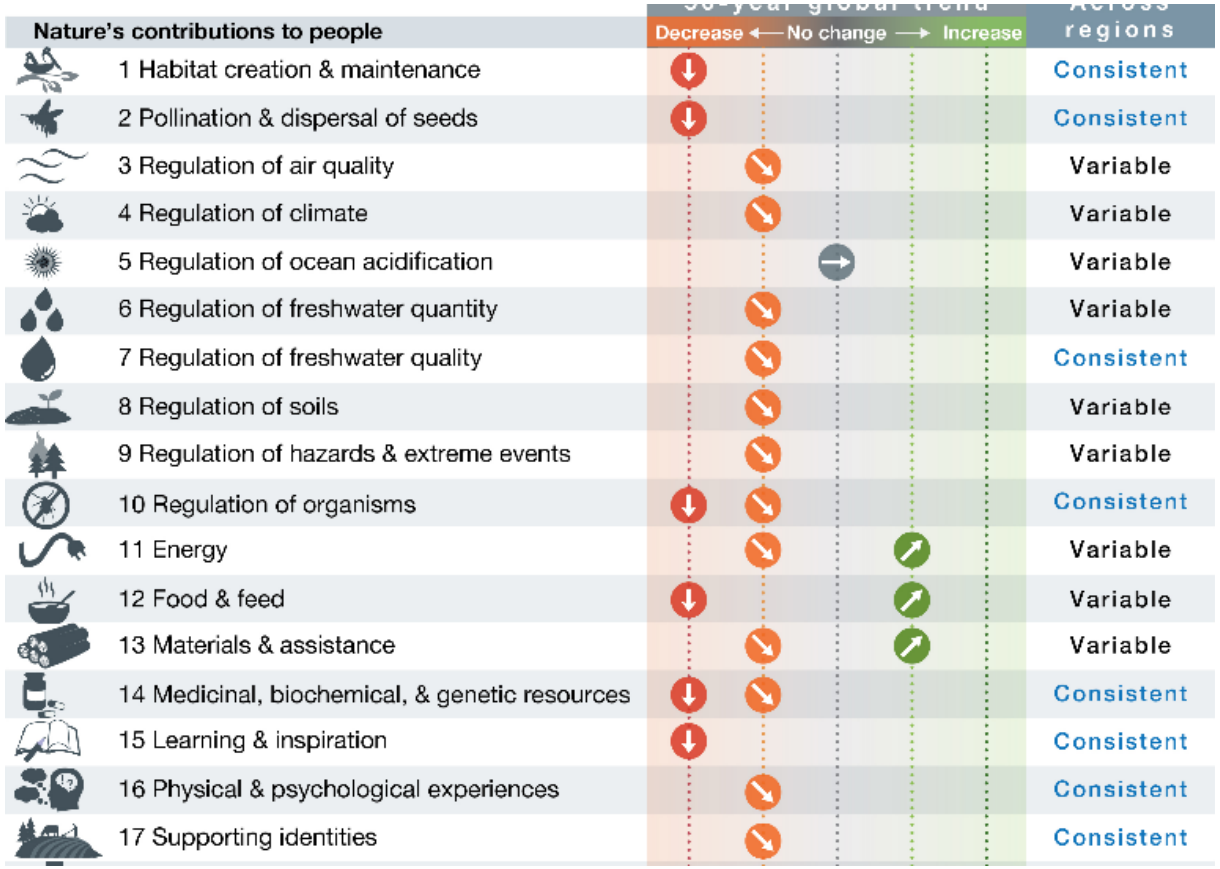


https://www.ipbes.net/global-assessment-report-biodiversity-ecosystem-services

MANY OF THE WORLD'S ECOSYSTEMS SERVICES ARE IN DECLINE

- 17 of 18 categories assessed have undergone decline

- Benefits of nature to people are not easily replaced or replicated when lost



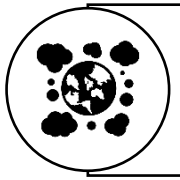
https://www.ipbes.net/global-assessment-report-biodiversity-ecosystem-services

IMPACTS ON BIODIVERSITY FROM O&G

Use of land & freshwater (e.g. direct use, conversion or fragmentation of natural habitats)

Pollution (e.g. emissions of air, soil and water pollutants; solid waste)

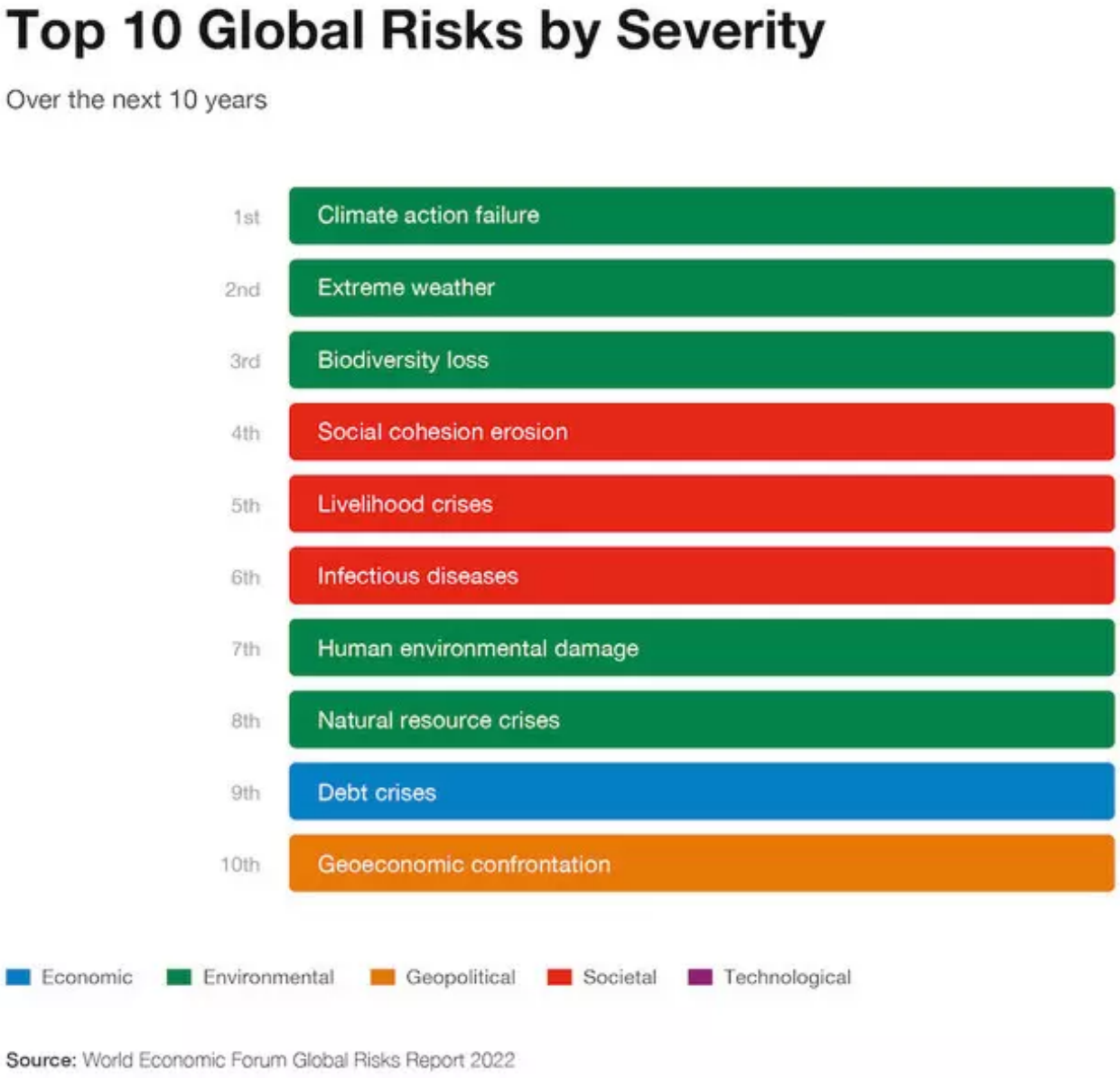
Disturbances (e.g. seismic activity affecting species)



Climate change (e.g. emission of greenhouse gases by operations, machinery, vehicles)

NATURE LOSS AS BUSINESS RISK IS WELL RECOGNISED

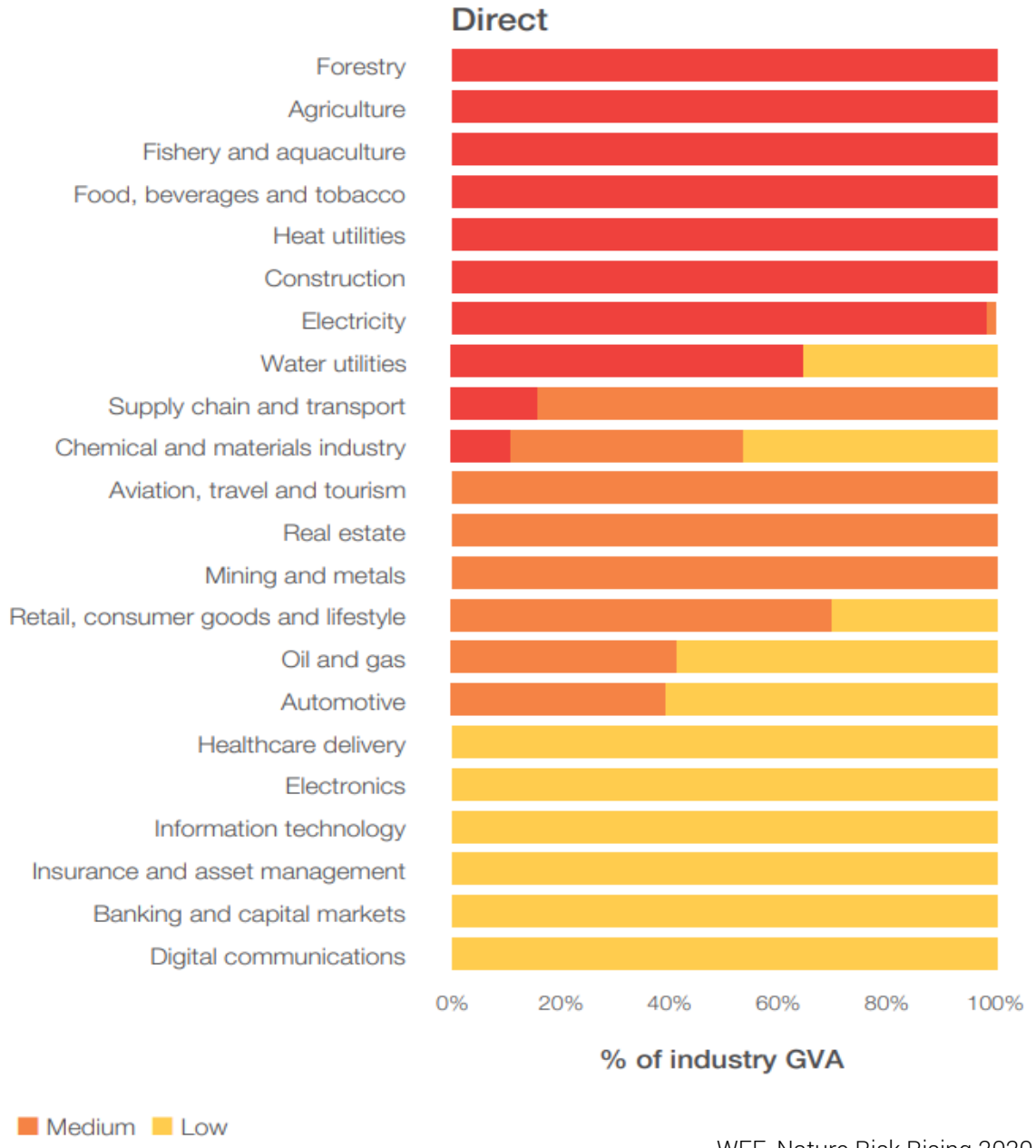
- All businesses **impact and depend on biodiversity** directly and through their supply chains
- Global biodiversity loss affects key areas of risk for any business:
  - **Physical** inc. acute and chronic
  - **Transition** inc. policy, legal and market changes
  - **Systemic** inc. natural system breakdown



THIS TRANSLATES TO POTENTIAL DISRUPTION FOR BUSINESSES

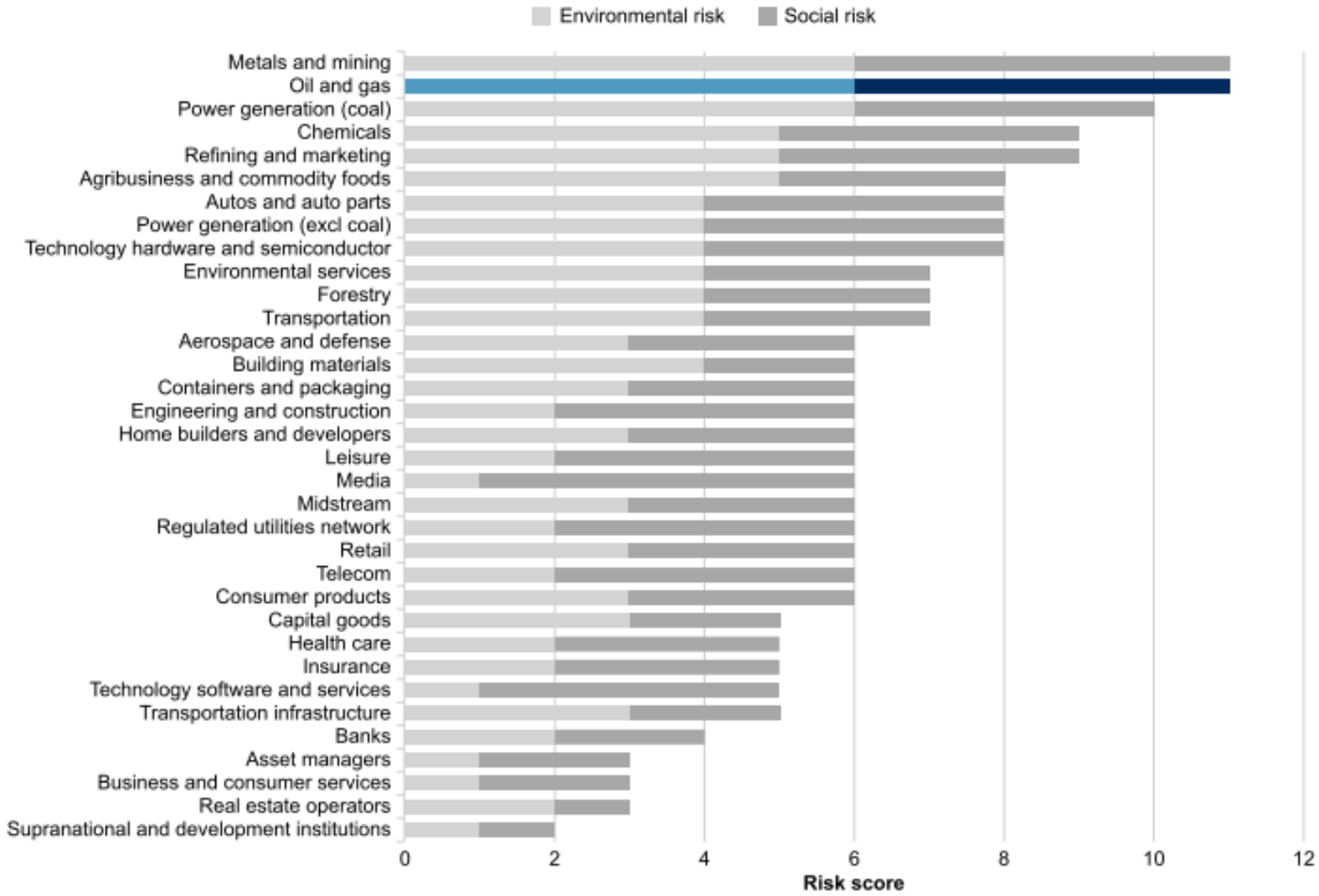
$44 Trillion at risk

(50% of Global GDP)



WEF, Nature Risk Rising 2020

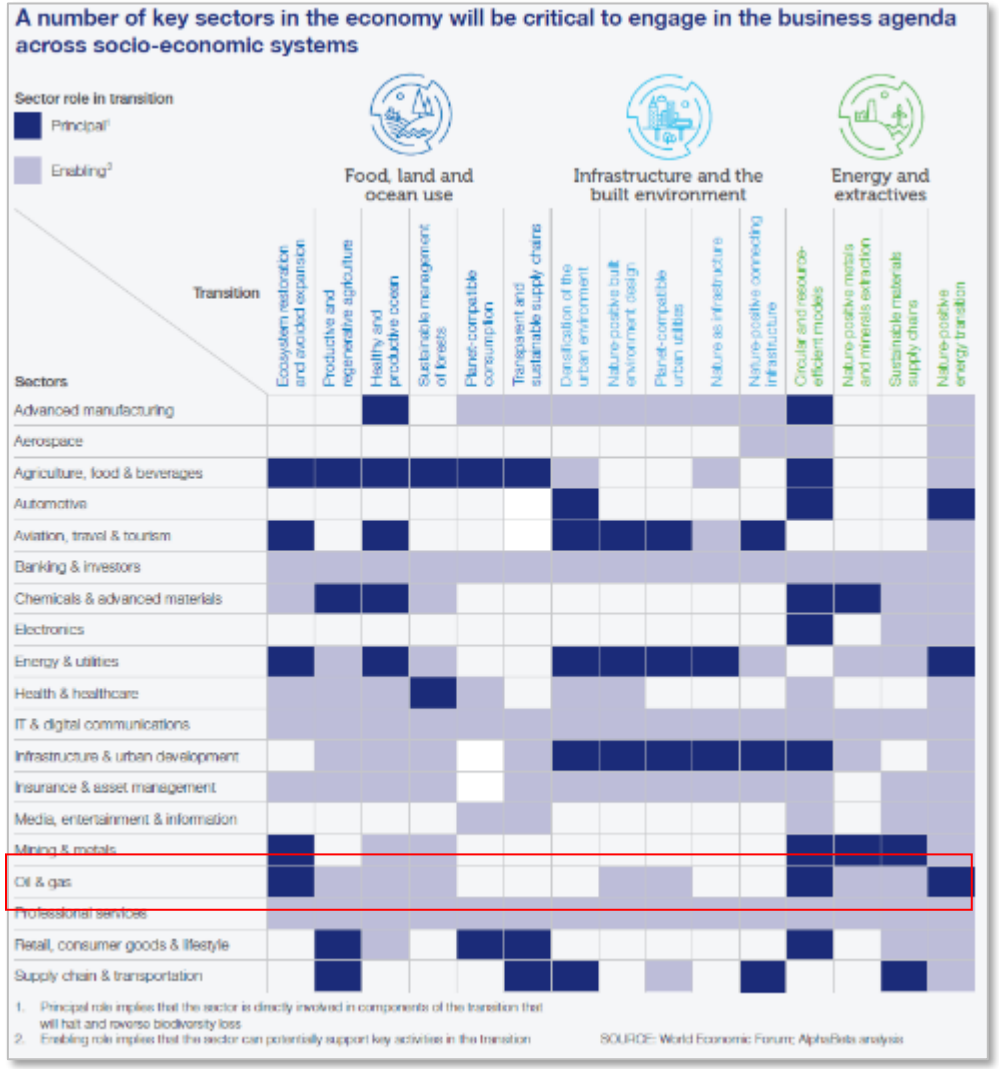
ESG SECTOR RISK ANALYSIS



Source: S&P Global Ratings.

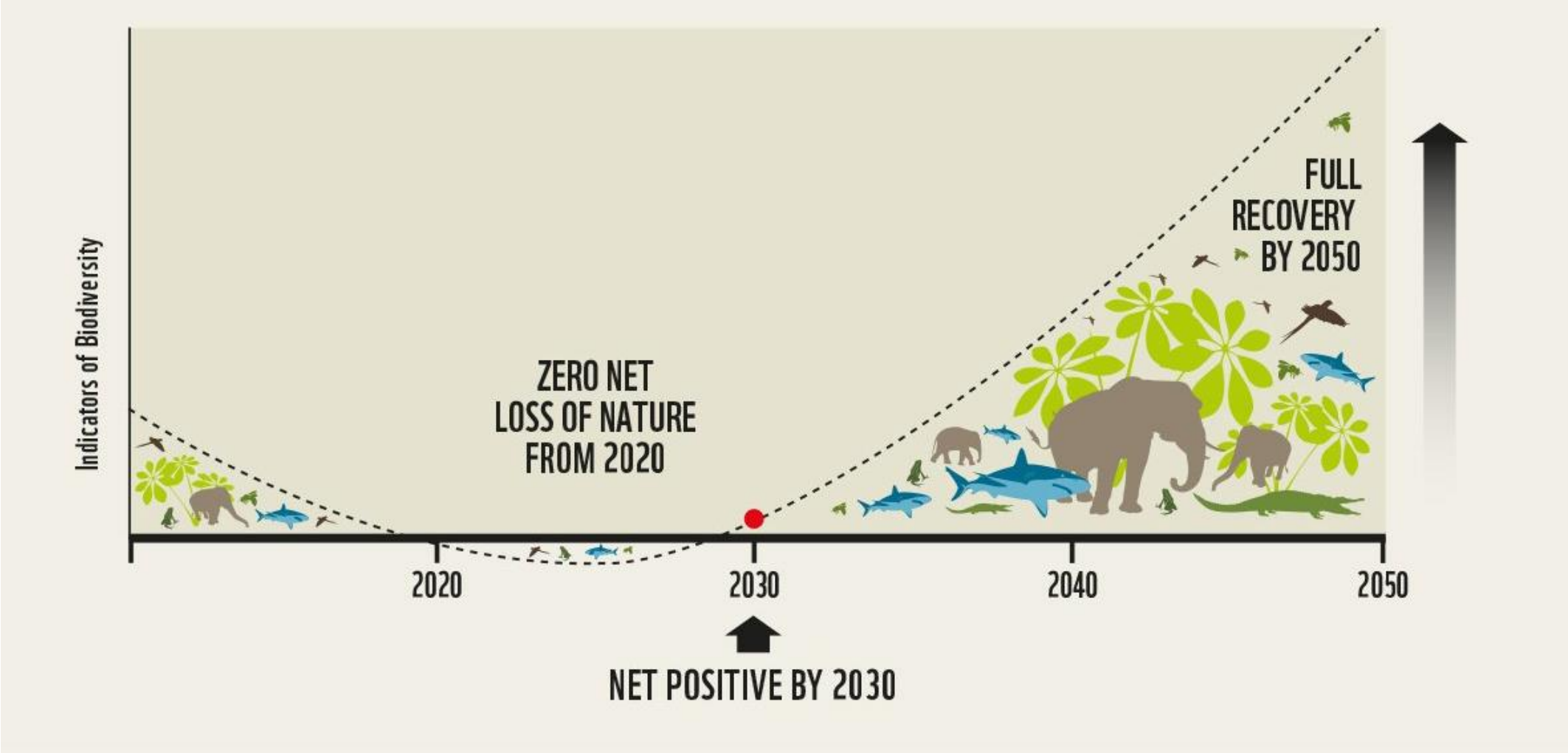
THE OIL & GAS SECTOR REQUIRE CRITICAL TRANSITIONS

- Three systemic transitions are identified as critical for oil & gas
- Emerging business opportunities for the energy sector could create over $(USD) 3.5 trillion of annual value and 87 million jobs by 2030



Source: World Economic Forum (2020)

GLOBAL GOAL FOR NATURE: NATURE POSITIVE BY 2030

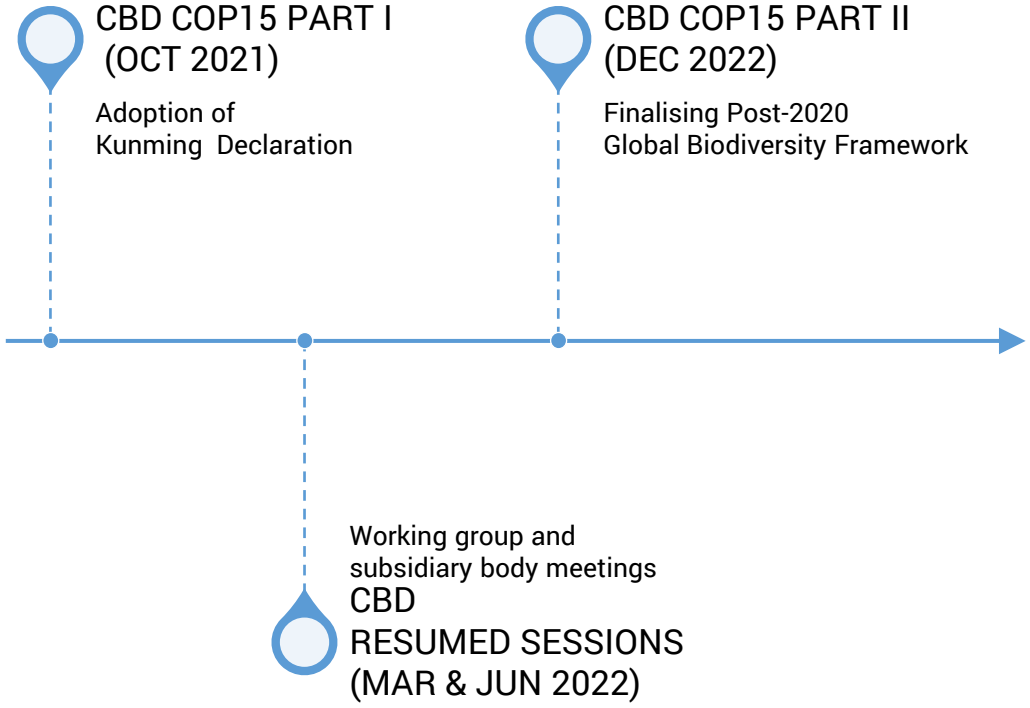


THE CONVENTION ON BIOLOGICAL DIVERSITY

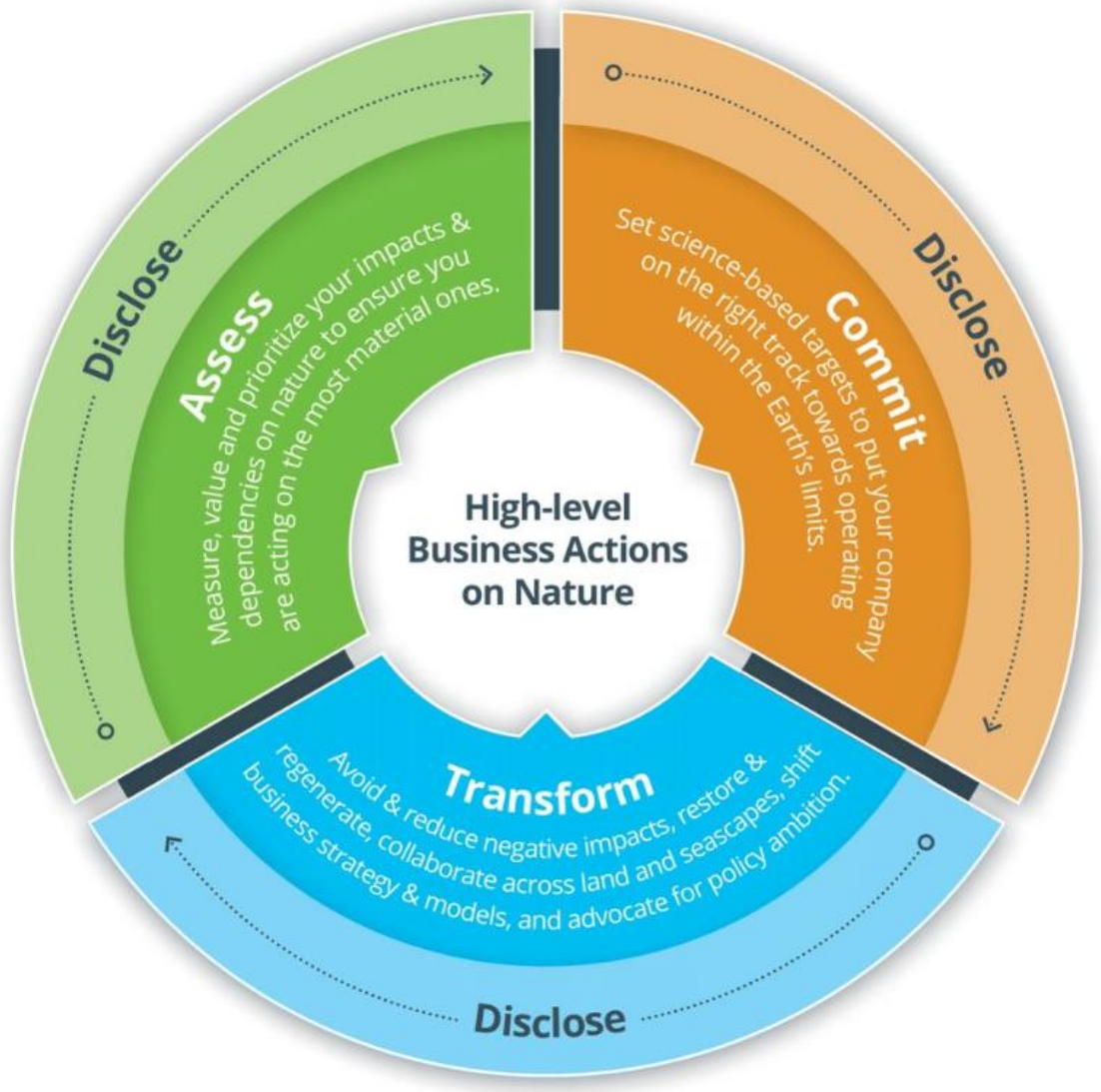
Post-2020 Global Biodiversity Framework

- 21 targets and 10 ‘milestones’ for 2030
- ‘Living in harmony with nature’ by 2050
- Draft Target 15
  - Businesses to measure and report dependencies and impacts
  - Reduce negative and increase positive impacts
  - Full sustainability of extraction and production practices

25 YEARS Convention on Biological Diversity
SAFEGUARDING LIFE ON EARTH



BUSINESS FOR NATURE'S HIGH-LEVEL ACTIONS



GOOD BIODIVERSITY MANAGEMENT…

…leads to many benefits for business

- Maintained access to finance
- Continued supply of resources
- Resilient operations
- Supporting regulatory compliance
- Increased/maintained reputation & licence to operate

Key Biodiversity Concepts

Aime Rankin, Associate Programme Officer, UNEP-WCMC

WHAT IS BIODIVERSITY?

"Biological diversity means the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems…; this includes diversity within species, between species and of ecosystems."

(Convention on Biological Diversity 1992)

Genes (diversity within species)

Species (diversity between species)

Ecosystems (diversity of ecosystems)

WHAT IS A SPECIES?

“Groups of actually or potentially interbreeding natural populations, which are reproductively isolated from other groups.”

(Mayr 1942)

- Species are seen as the fundamental units of conservation.
- Provides a way of quantifying biodiversity, and its loss.
- Many conservation strategies and international Multilateral Environmental Agreements (CITES, CMS) are focused on species.

WHAT IS A SPECIES RANGE?

"The environmental conditions or geographic area within which a species occurs"

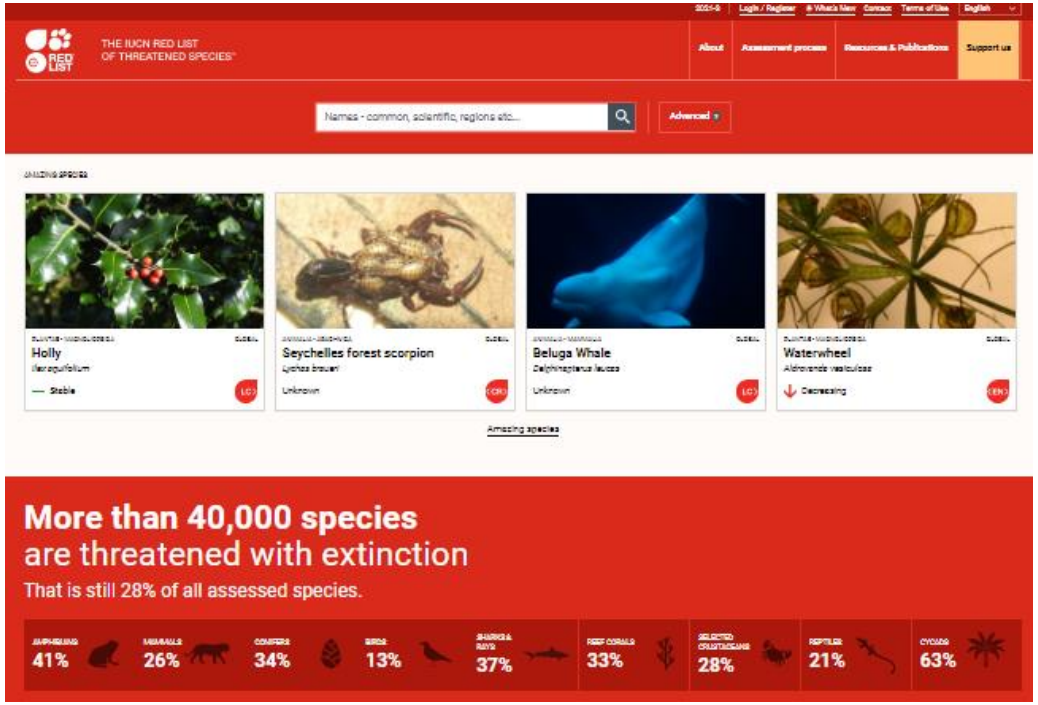
(Oxford Dictionary of Ecology, 2010)

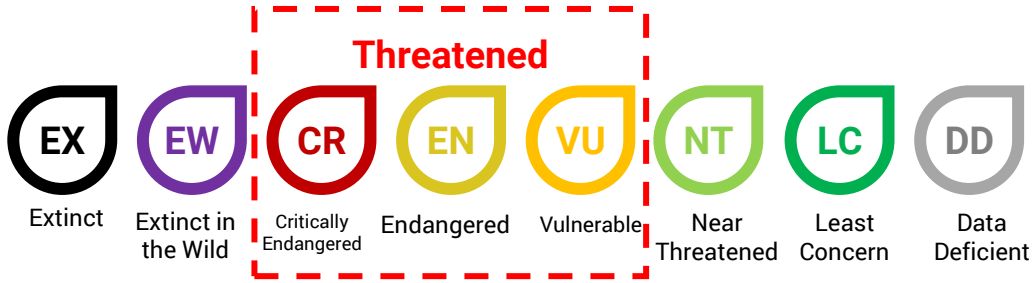
Bornean Orangutan

Pongo pygmaeus

ABSTRACT

Bornean Orangutan *Pongo pygmaeus* has most recently been assessed for *The IUCN Red List of Threatened Species* in 2016. *Pongo pygmaeus* is listed as Critically Endangered under criteria A4abcd.



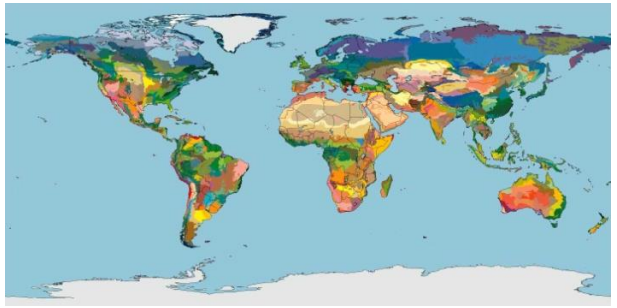


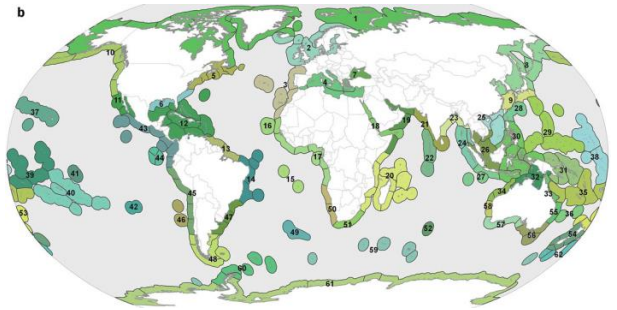
WHAT ARE HABITATS AND ECOSYSTEMS?

Habitat: The place or type of site where an organism or population naturally occurs.

Ecosystem: A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

(Convention on Biological Diversity 1992)



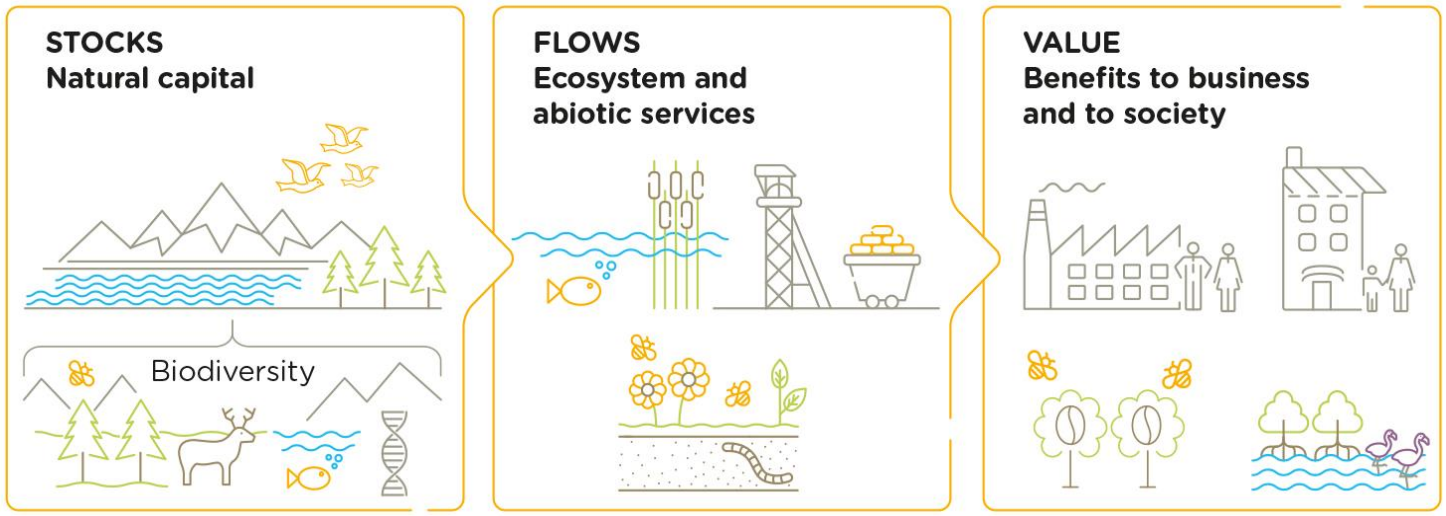


WHAT ARE ECOSYSTEM SERVICES?

"Benefits people obtain from ecosystems."

(Millennium Ecosystem Assessment 2005)

Ecosystem services link the environment to people



Biodiversity underpins ecosystem services

ECOSYSTEMS THROUGH TO BENEFITS

Flow from Ecosystem to Society Benefit

boreal forest	*Ecosystem*	coral reef
trees, animals, soil	*Ecosystem Component*	coral, reef organisms, fish
photosynthesis	*Ecosystem Process*	reef building by corals
tree growth	*Ecosystem Function*	reduction of wave energy
timber (provisioning services)	*Ecosystem Service*	coastal protection (regulating service)
materials for construction	*Benefits*	safety of coastal community

Key conservation concepts

Bálint Ternyik, Associate Programme Officer, UNEP-WCMC

CORE CONSERVATION CONCEPTS

Protected areas

Areas that are afforded legal or other effective protection

Areas important for biodiversity

Areas that are identified on the basis of biodiversity values, often using standardised assessment criteria

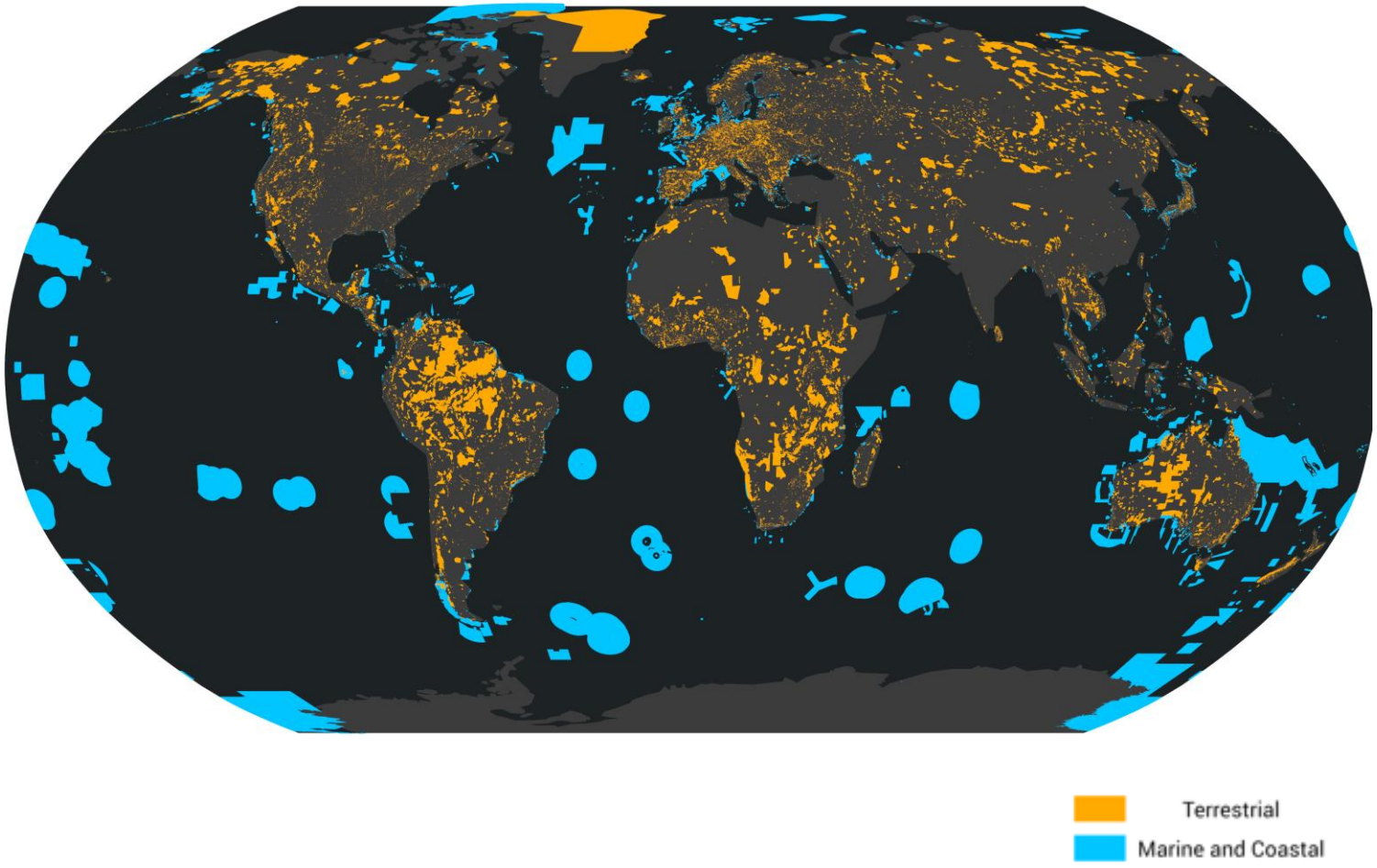
Threatened species

Species likely to become extinct within the foreseeable future throughout all or part of its range

WHAT ARE PROTECTED AREAS?

“A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.”

(IUCN 2008)



PROTECTED AREAS ARE DESIGNATED AT DIFFERENT LEVELS

National

- Designated under national law
- Different naming schemes exist in every country
- Often grouped according to IUCN management categories

Regional

- Based on regional conventions agreed by governments
- e.g. Natura2000 in Europe
- e.g. Regional Seas conventions (OSPAR, HELCOM Barcelona etc)

International

- Based on international conventions/agreements between many governments
- e.g. World Heritage
- e.g. Wetlands of International Importance (Ramsar)
- e.g. UNESCO Man and the Biosphere

WHAT ARE AREAS THAT ARE IMPORTANT FOR BIODIVERSITY?

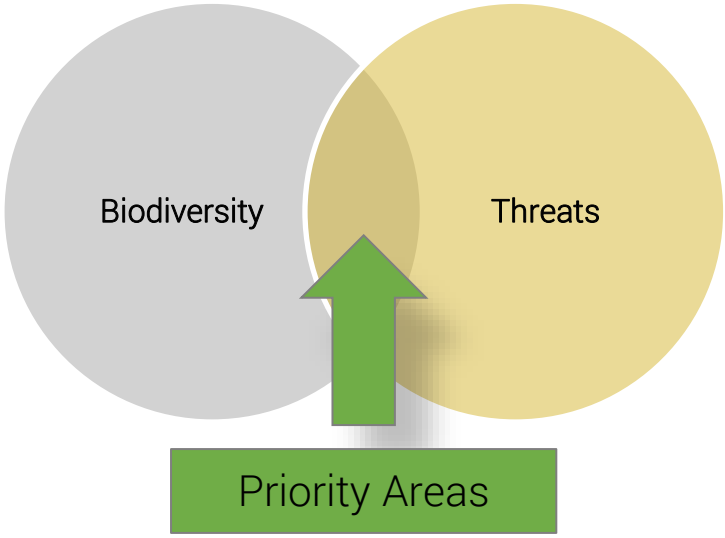
- Can exist at the site or landscape/regional/international scales
- May overlap protected areas, but are not in themselves protected
- KBAs are one among several approaches to designate areas important for biodiversity

Site scale examples

- Key Biodiversity Areas
- Important Bird Areas

Landscape/Regional/International scale examples

- Endemic Bird Areas
- Biodiversity Hotspots
- Global200 Ecoregions

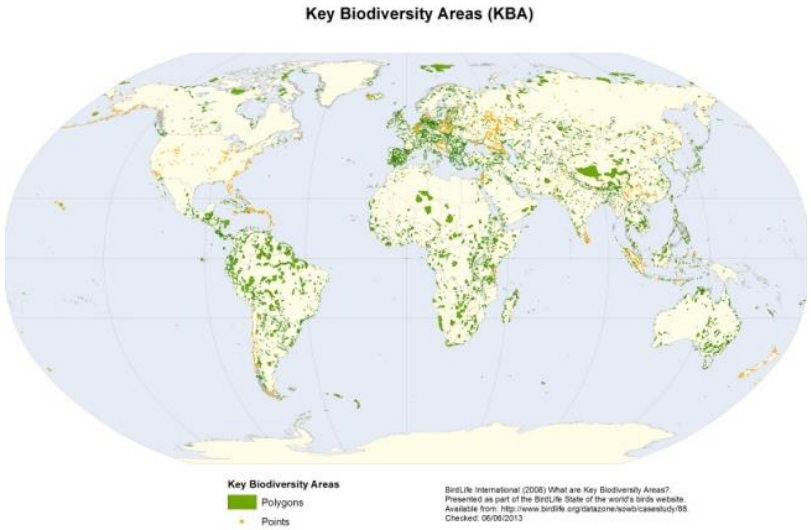


WHAT ARE KEY BIODIVERSITY AREAS?

"Sites contributing significantly to the global persistence of biodiversity."

(IUCN 2016)

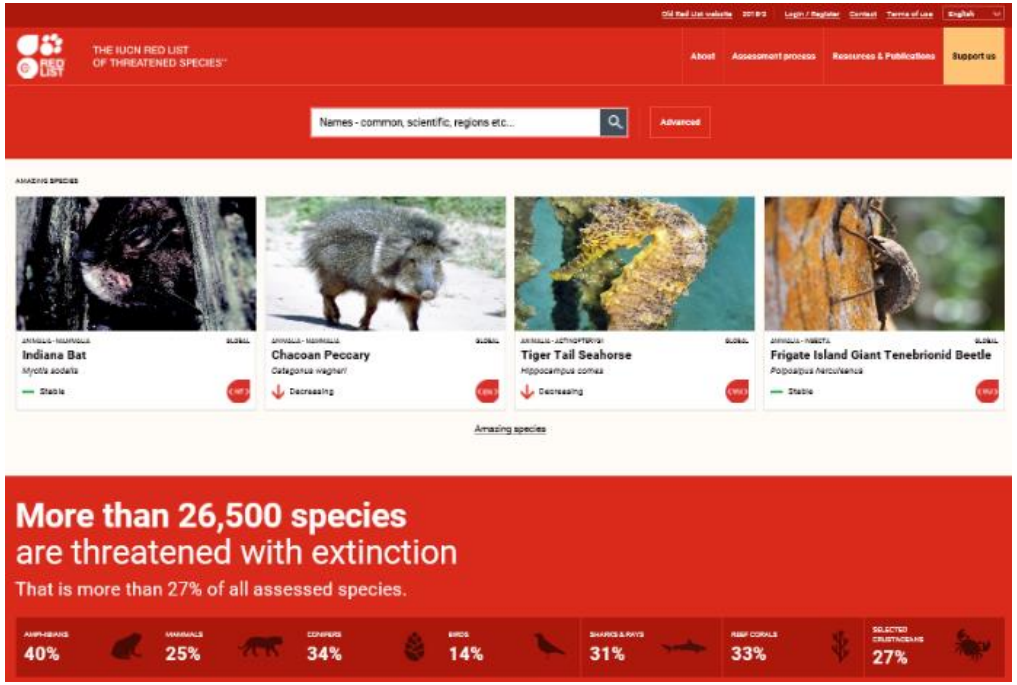
- Originally identified for birds
- Recently expanded to other species groups
- New criteria across taxa and realms promote KBAs as the key biodiversity site designation
- Over 16,000 identified so far

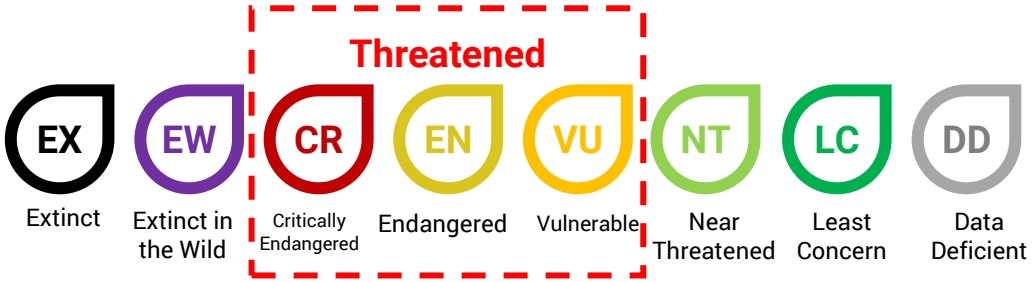


BirdLife INTERNATIONAL · IUCN · asa amphibian survival alliance · CONSERVATION INTERNATIONAL · CRITICAL ECOSYSTEM PARTNERSHIP FUND · gef · GLOBAL WILDLIFE CONSERVATION · NatureServe · RAINFOREST TRUST · rspb giving nature a home · WCS · WWF

IUCN RED LIST OF SPECIES

- Established in 1964 by IUCN
- >147,500 species assessed as of August 2022
- Information on threats, ecological requirements, habitats and conservation actions to reduce or prevent extinctions
- Standardised assessment process to categorise species
- Re-evaluation every ~ 5-10 years
- Three categories of 'Threatened' species: Critically Endangered, Endangered and Vulnerable
- List also includes other categories e.g. 'Least Concern' species

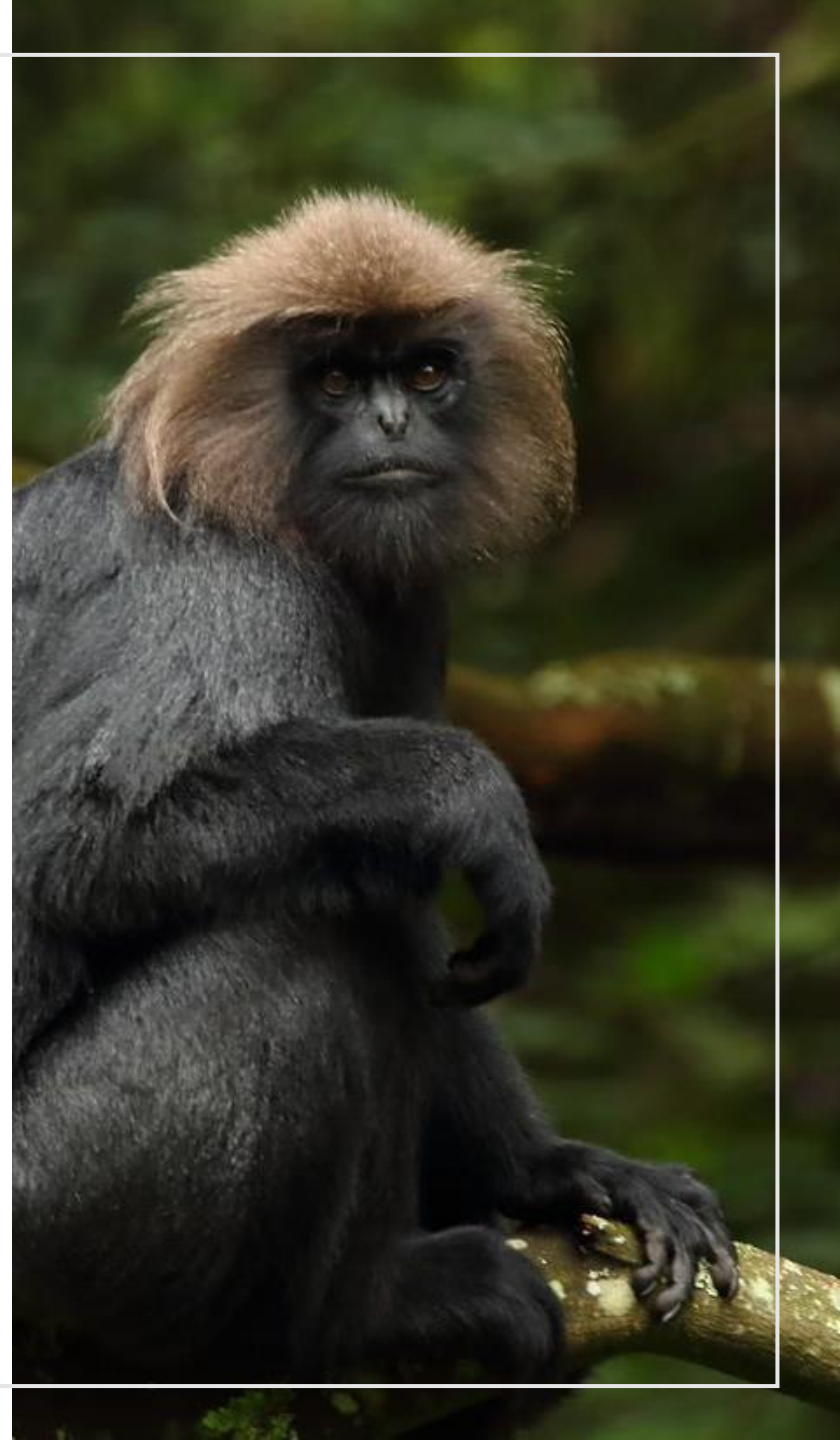




SPECIES OF ‘LEAST CONCERN’

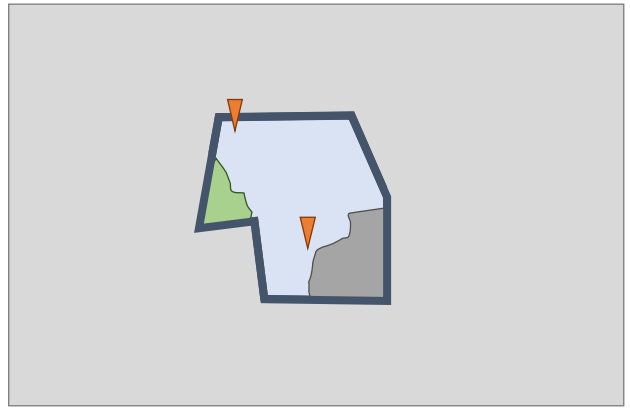
LC

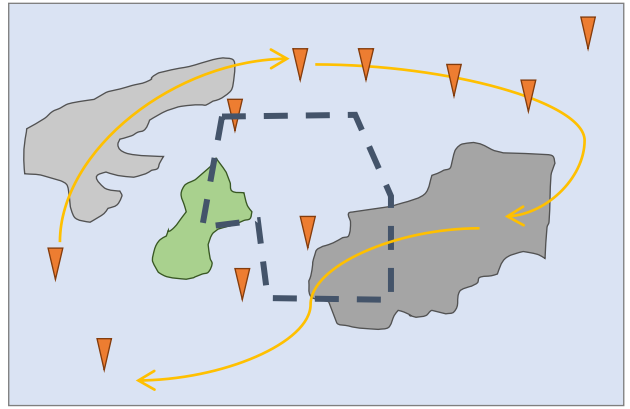
- A taxon that has been evaluated against the criteria and does not qualify as CR, EN, VU or NT at the global level
- Least Concern does not mean unimportant
- Could still be of conservation concern e.g. threatened at the national level, small extent of occurrence
- Potential considerations
  - Legal Protection
  - Global vs National Red List category
  - Relevancy to Critical Habitat e.g. migratory and congregatory species
  - Change in status



BIODIVERSITY IS SPREAD ACROSS THE WIDER LANDSCAPE OR SEASCAPE

- Biodiversity and Ecosystem Services do not respect arbitrary operational boundaries
- It is critical to consider Biodiversity and Ecosystem Service impacts in their broader spatial context
- All project lifecycle stages present potential impacts and dependencies on Biodiversity and Ecosystem services

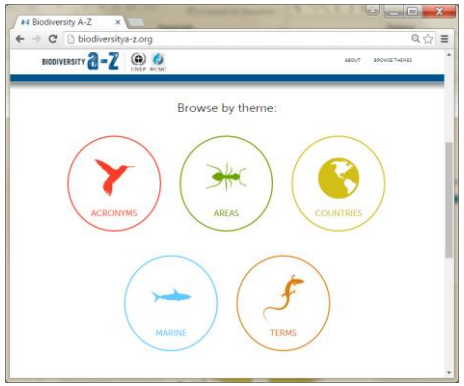


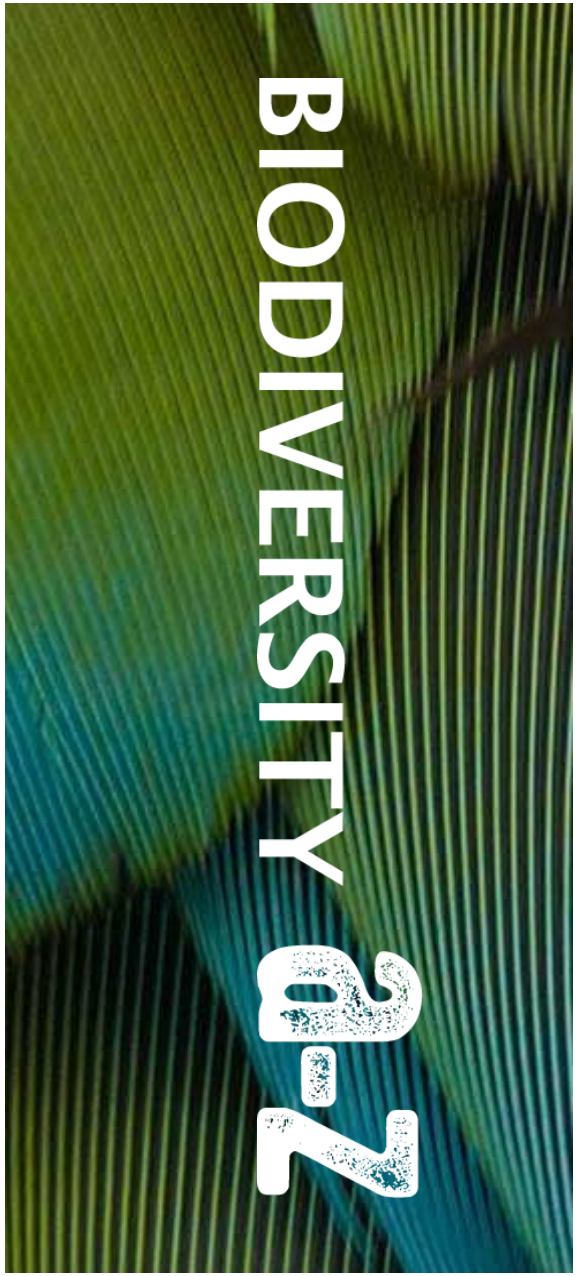


BIODIVERSITY A-Z

Online resources intended to support business users (specialists and non-specialists)

- Areas important for biodiversity
- Glossary of biodiversity terms
- Marine-specific glossary
- Acronym buster
- Countries module





Break

MENTI QUIZ

Welcome back!

Go to www.menti.com and use the code **1986 9473**

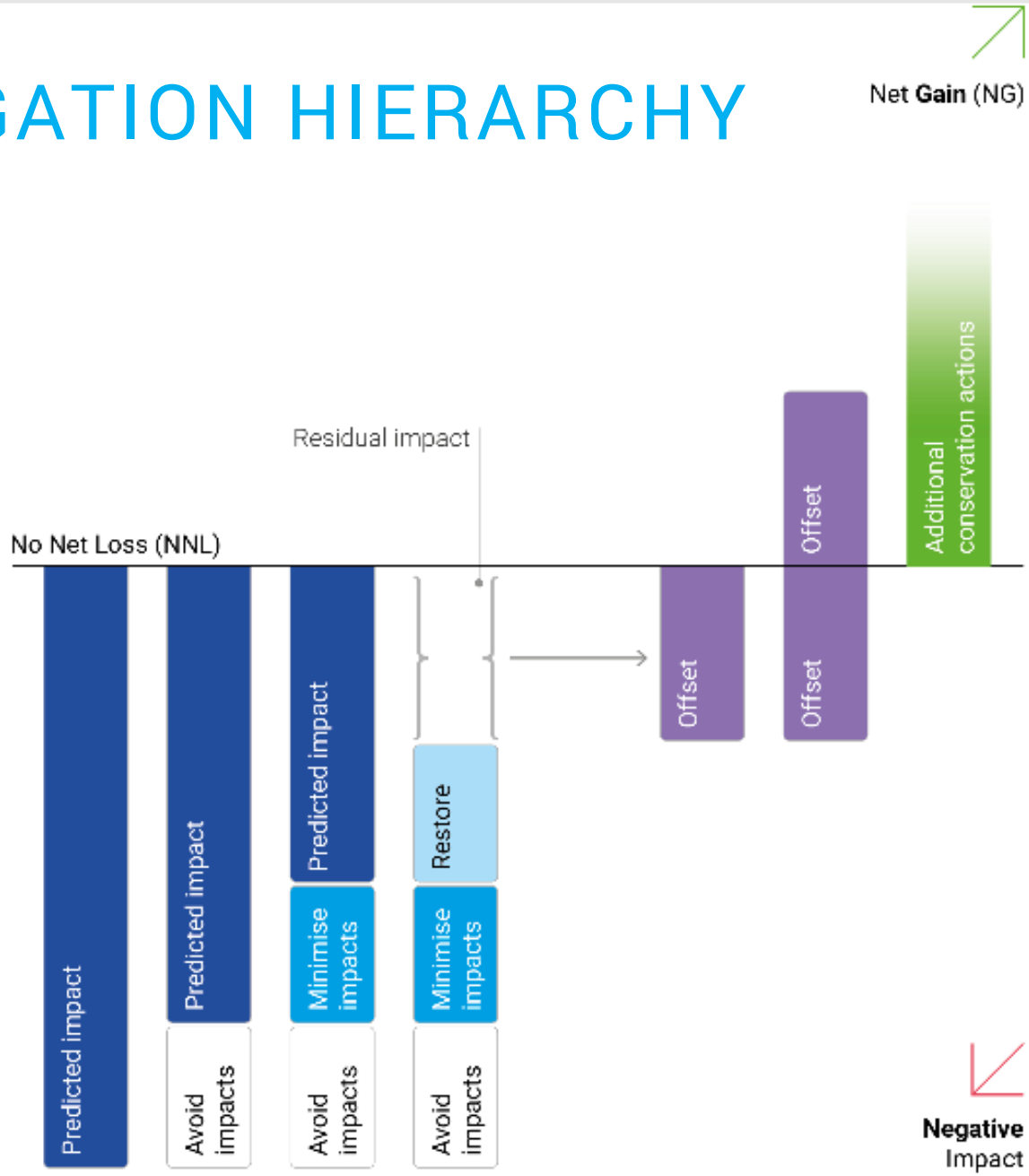
Mitigation Hierarchy

Bálint Ternyik, Associate Programme Officer, UNEP-WCMC

APPLICATION OF THE MITIGATION HIERARCHY

Sequential steps to minimise negative impacts on biodiversity.

ACAs refers to a wide range of interventions intended to be positive for biodiversity and ecosystem services (BES).



THE MITIGATION HIERARCHY

Avoidance	• …to prevent adverse impacts on biodiversity
Minimisation	• …to reduce the duration, intensity, significance and/or extent of impacts
Restoration	• …to repair, remedy, remediate habitats, biodiversity values, and/or ecosystem services.
Offset	• actions applied to areas not impacted by the project, that compensate for significant, adverse project impacts

Site selection

- Relocate a project site to avoid an area of high biodiversity
- Re-routing pipelines

Project design

- Directional drilling
- Siting of drilling pads

Scheduling

- Avoid breeding seasons
- Schedule seismic outside of migration seasons
- Prohibit night transportation

Physical controls

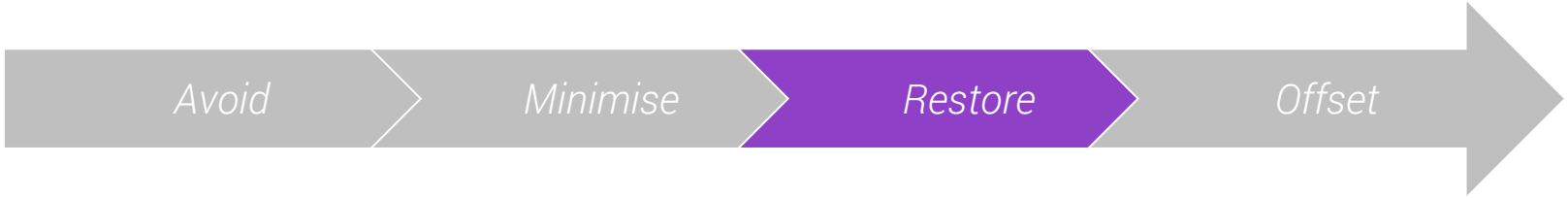
- Installing culverts
- Using bird flight diverters on transmission lines

Operational controls

- Managing staff behaviour
- Managing access to areas

Abatement controls

- Implement waste management
- Invasive species management



Revegetation

- Retaining topsoil and its original seedbank
- Invasive species control measures

Habitat enhancement

- Building artificial nests
- Spreading grass cuttings from undisturbed habitat

Considerations

Might:

- not be possible for certain features
- have lower certainty of success
- be scientifically uncertain
- financially uncertain
- require expert consultation
- require long-term intervention
- require significant monitoring effort

Restoration offsets

- Reintroduction of priority species in degraded habitat
- Building artificial reefs as nursing grounds

Protection offsets

- Developing alternative livelihoods for communities to prevent ongoing degradation of threatened forests

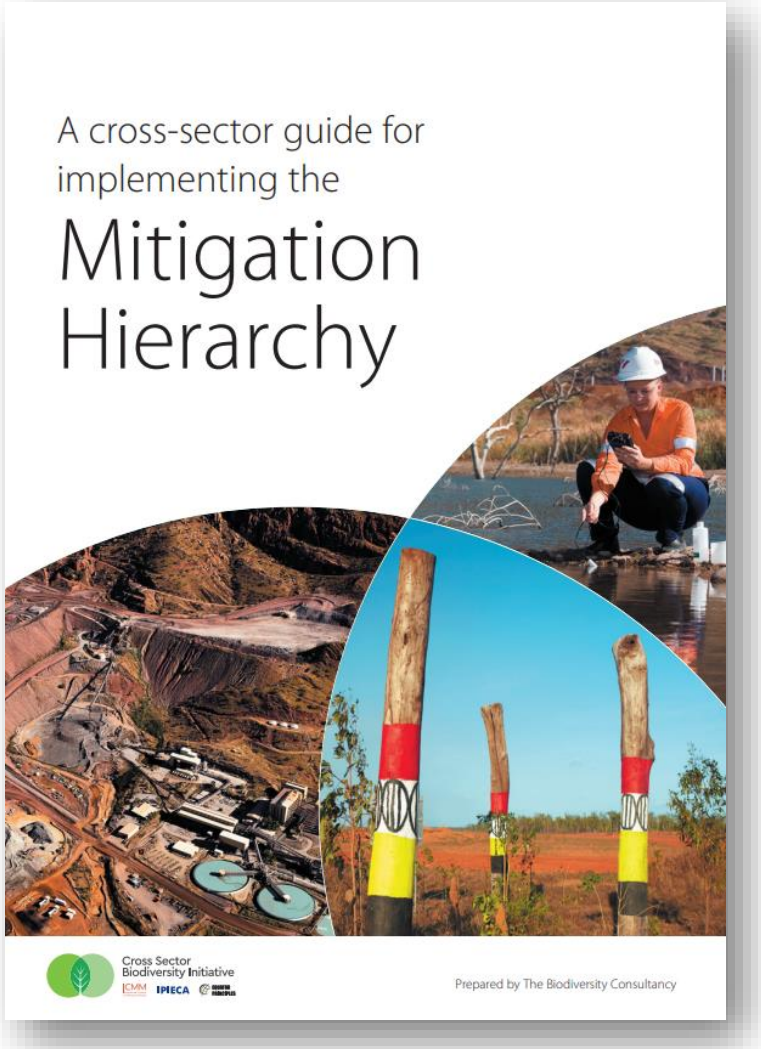
Considerations

- Possibility/ feasibility needs to be assessed
- Is the offset equivalent to the previous habitat?
- Outcomes need to be specified (and ideally quantified)
- Appropriate stakeholder consultation
- Will it last at least as long as the project impact?

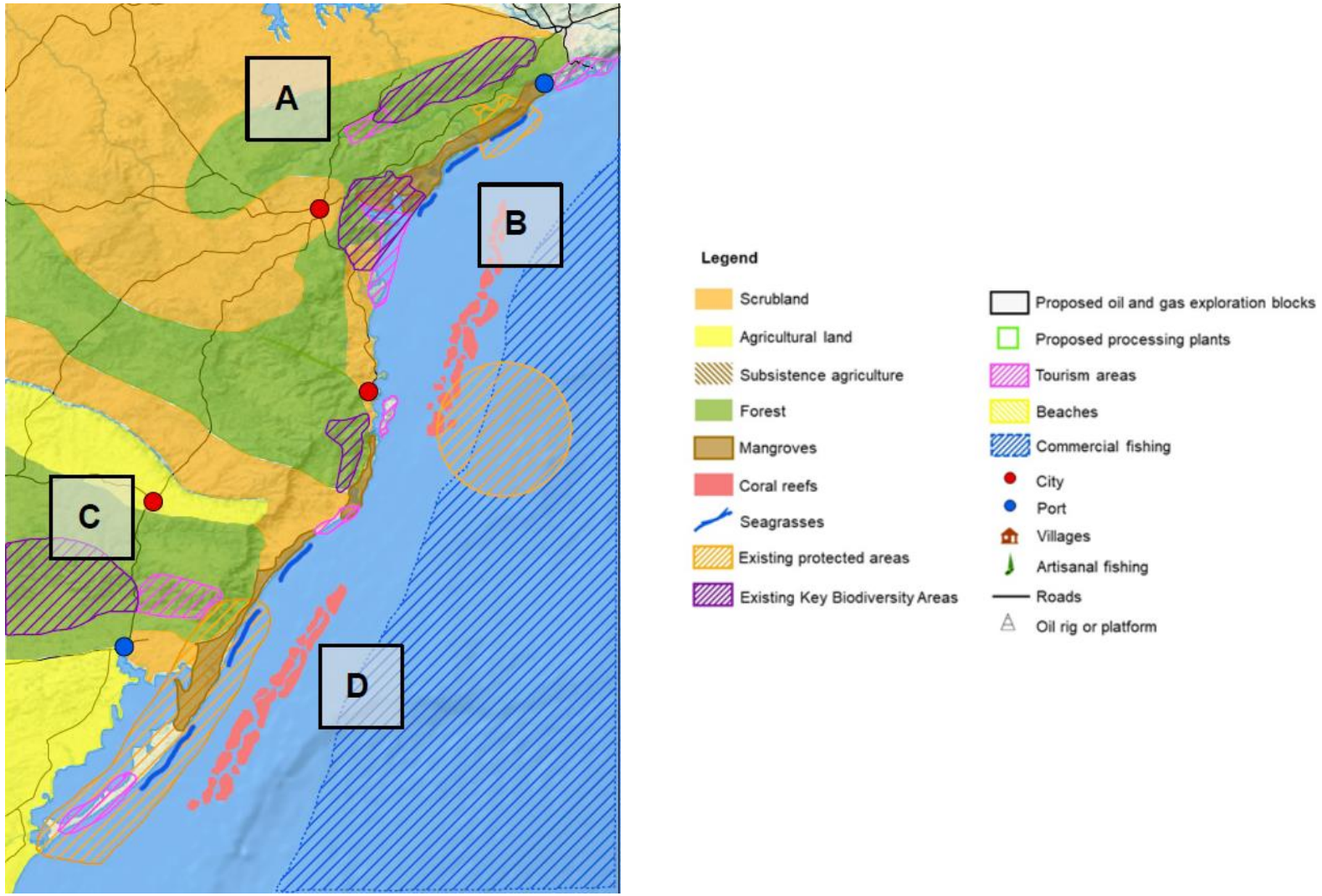
BEST PRACTICES

Cross Sector Biodiversity Initiative's (CSBI) "Cross-Sector Guide for Implementing the Mitigation Hierarchy"

- Definitions of the four steps
- Guidance for determining and demonstrating biodiversity loss or gain as a result of mitigation efforts
- Practical measures for predicting and verifying biodiversity conservation outcomes over time



APPLICATION OF THE MITIGATION HIERARCHY EXAMPLE



SCREENING:

Habitats


Scrubland


Agricultural land


Forest


Mangroves


Coral reefs


Seagrasses

Environmental and socio-economic features


Artisanal fishing

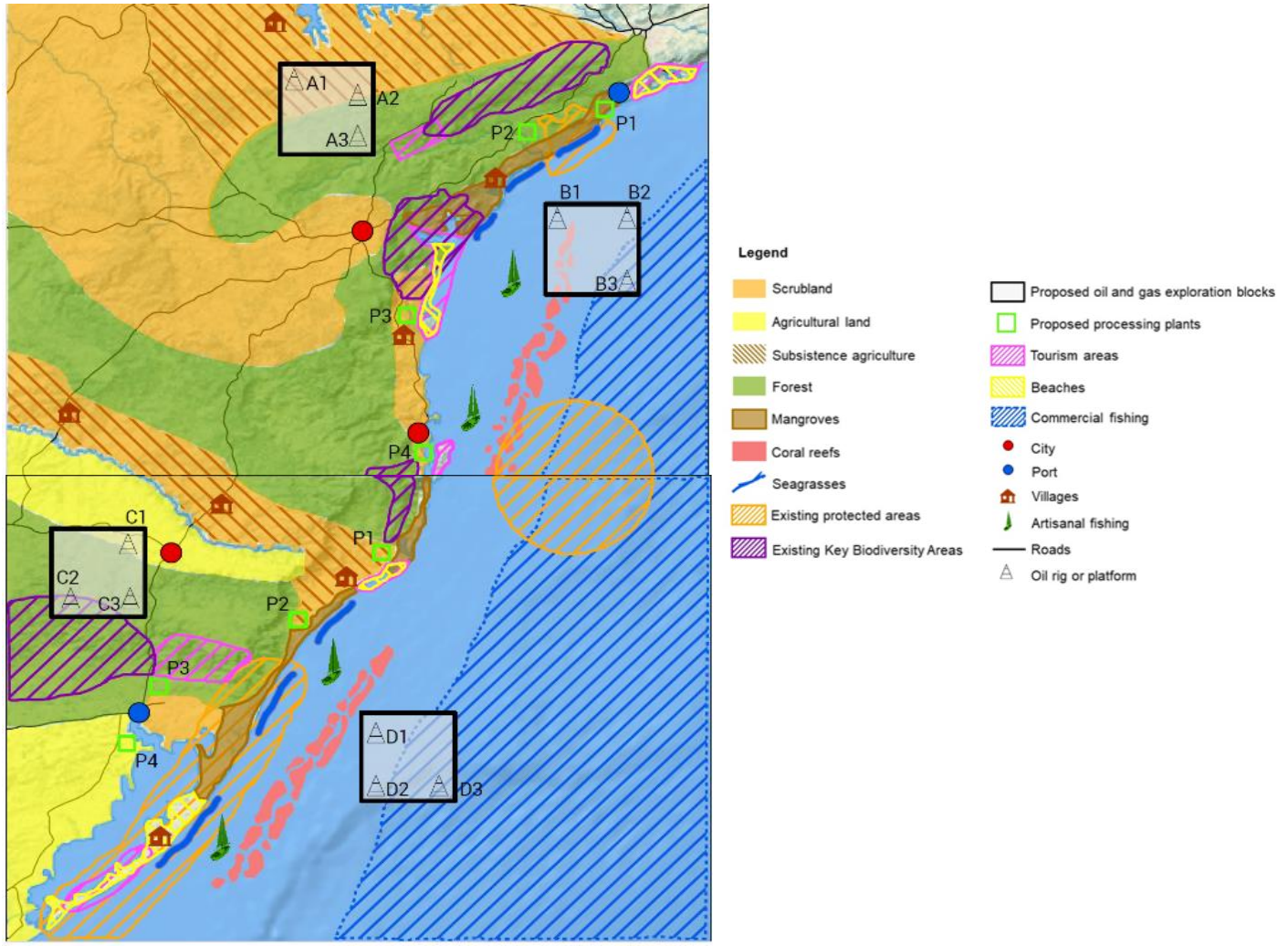

Beaches


Subsistence agriculture


Villages


Potential drilling platforms


Processing plants



SCOPING AND BASELINE

Madagascar pond-heron

© Amy E McAndrews

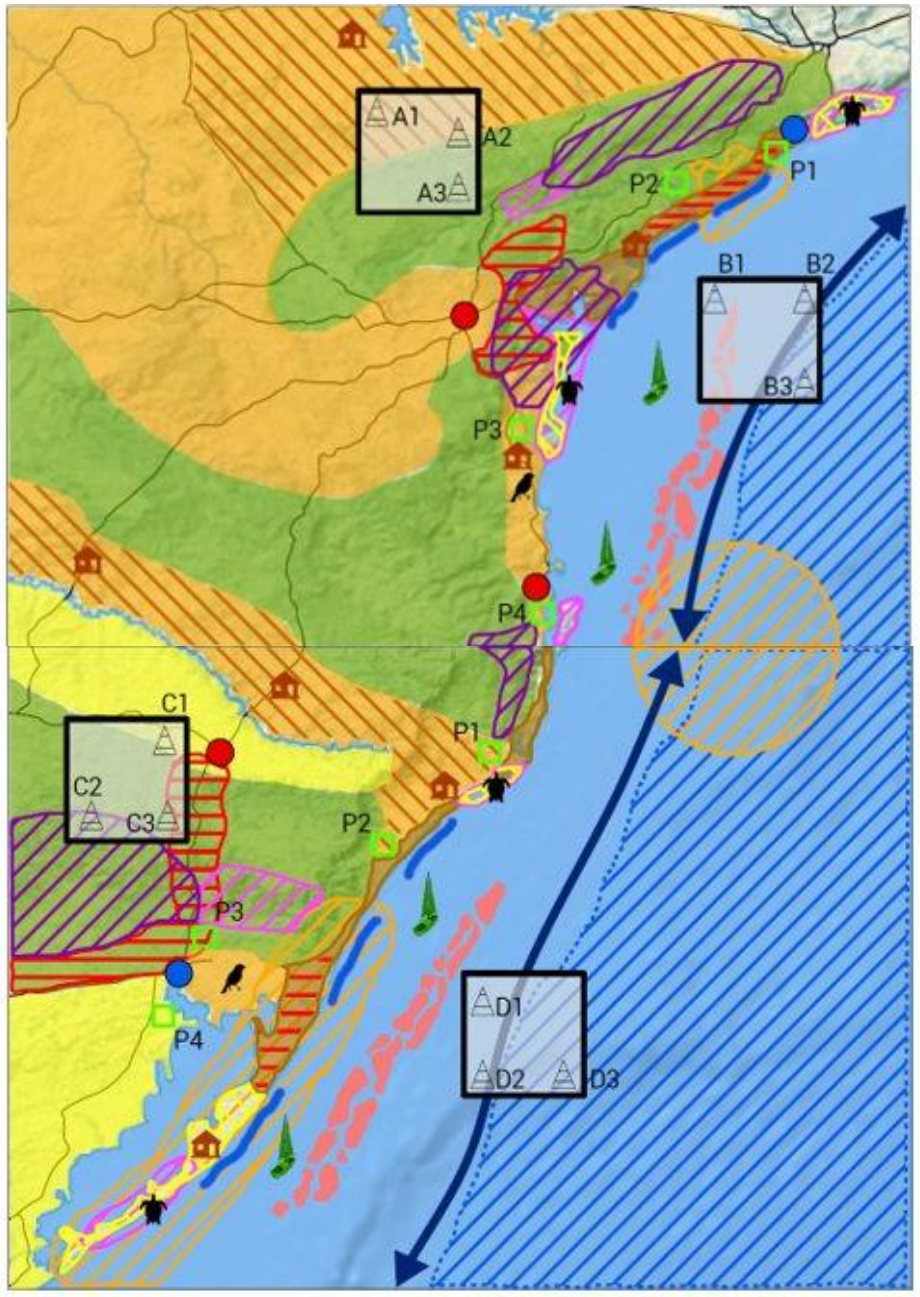
Hawksbill turtle nesting

© Ian Locock

Whale migration route

Degraded forest

Degraded mangrove



MITIGATING IMPACTS

Avoid: relocate onshore processing plant and pipelines away from breeding grounds and flyways

Avoid: re-route pipelines through already developed parts of the beach, avoiding turtle nesting sites

Madagascar pond-heron

Hawksbill turtle nesting

Whale migration route

Minimise: seasonal and temporal restrictions on construction (whale density/presence measured using acoustic detectors)

Offset: developing alternative livelihoods for communities through tourism to prevent ongoing degradation of forest

Degraded forest

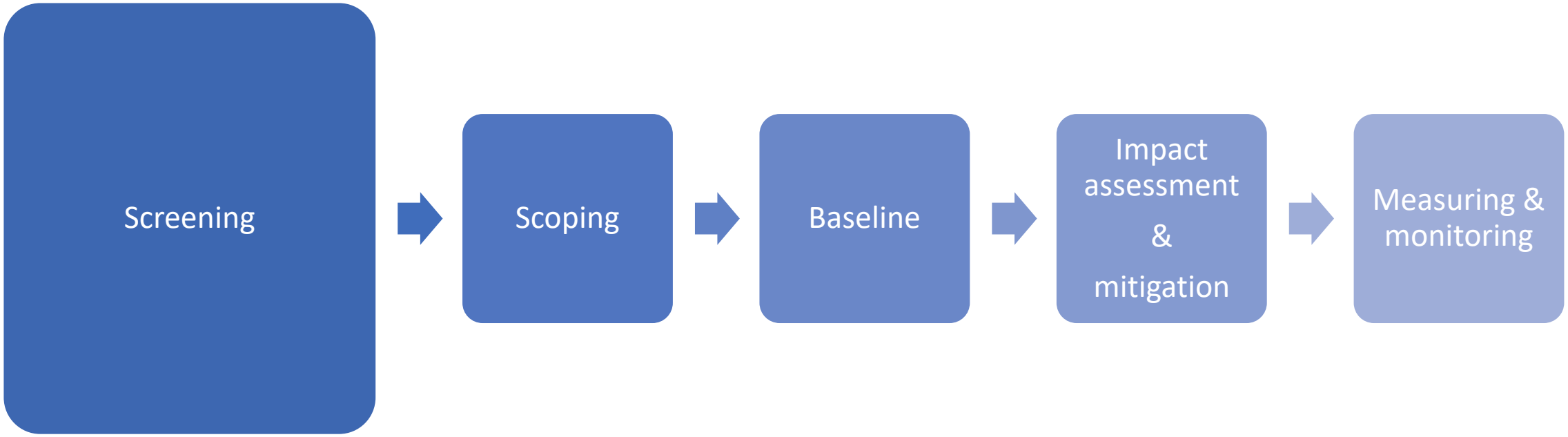
Degraded mangrove

Restore: community led mangrove restoration project. Increasing communities' resilience to climate change and empower women

Biodiversity Management Considerations

Aime Rankin, Associate Programme Officer, UNEP-WCMC

STAGES OF BIODIVERSITY MANAGEMENT



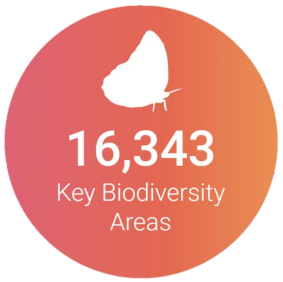
INTEGRATED BIODIVERSITY ASSESSMENT TOOL (IBAT)

A web-based map & reporting tool that provides fast, easy & integrated access to critical biodiversity information

- The source of the most globally authoritative biodiversity data:
  - The World Database on Protected Areas
  - The World Database of Key Biodiversity Areas
  - The IUCN Red List of Threatened Species

- A link between the private sector and biodiversity conservation. Incorporate biodiversity considerations into project planning, risk screening and management decisions

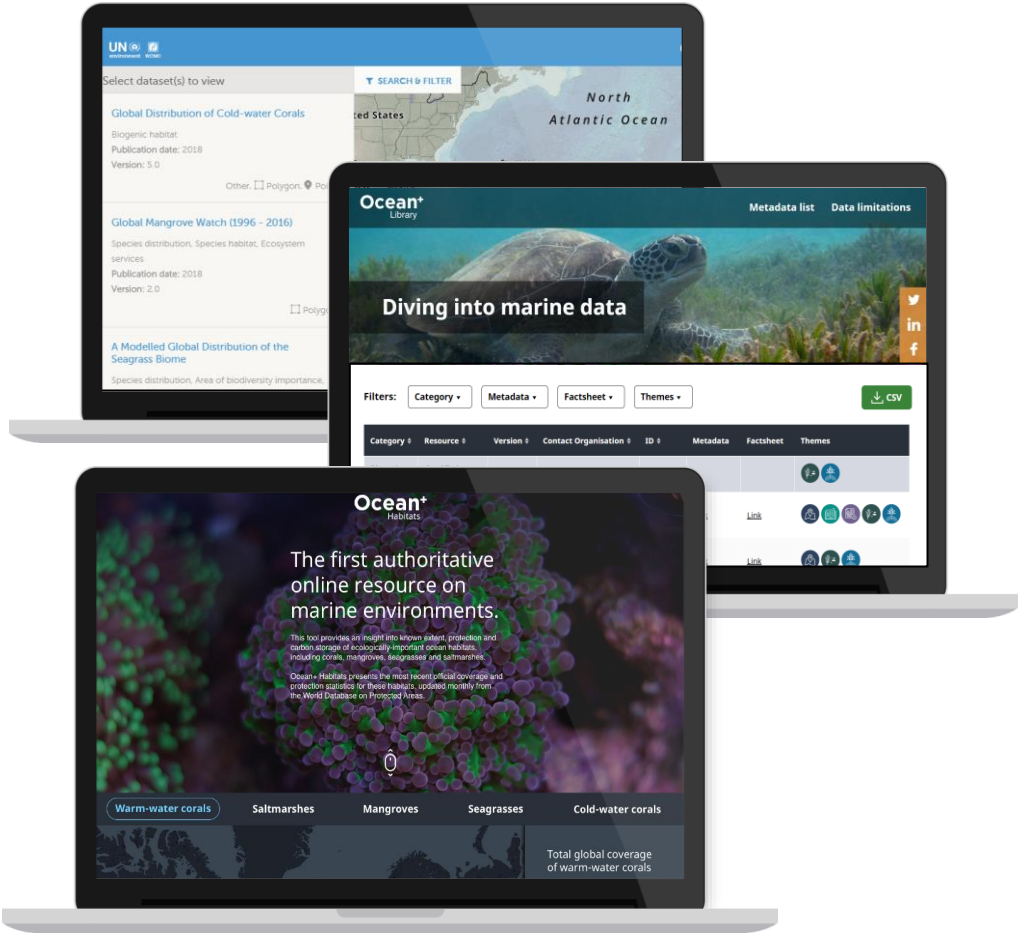
- First step in identifying biodiversity features. Followed by ground truthing and collecting site-level data



Ocean+

UN environment programme | WCMC | proteus

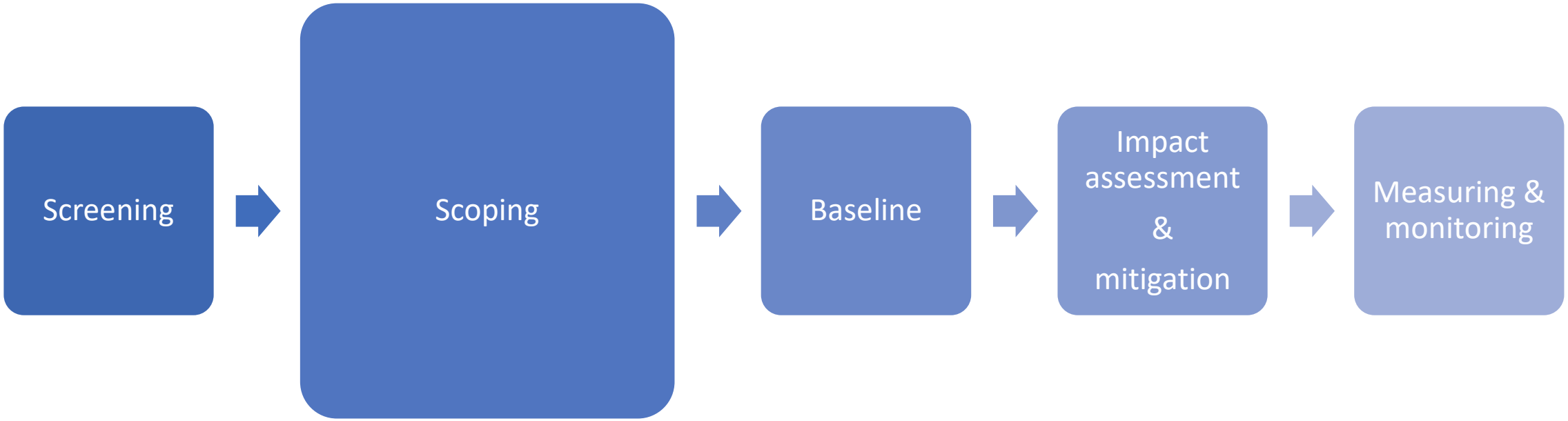
- Umbrella initiative for UNEP-WCMC's marine work, supported by Proteus
- Inventory of nationally-validated spatial data on ocean habitats, informing development and reporting
- Supporting capacity development by identifying needs and overcoming gaps
- Data can support initial biodiversity screening, but must be supported by the collection of site-based data to inform the baseline



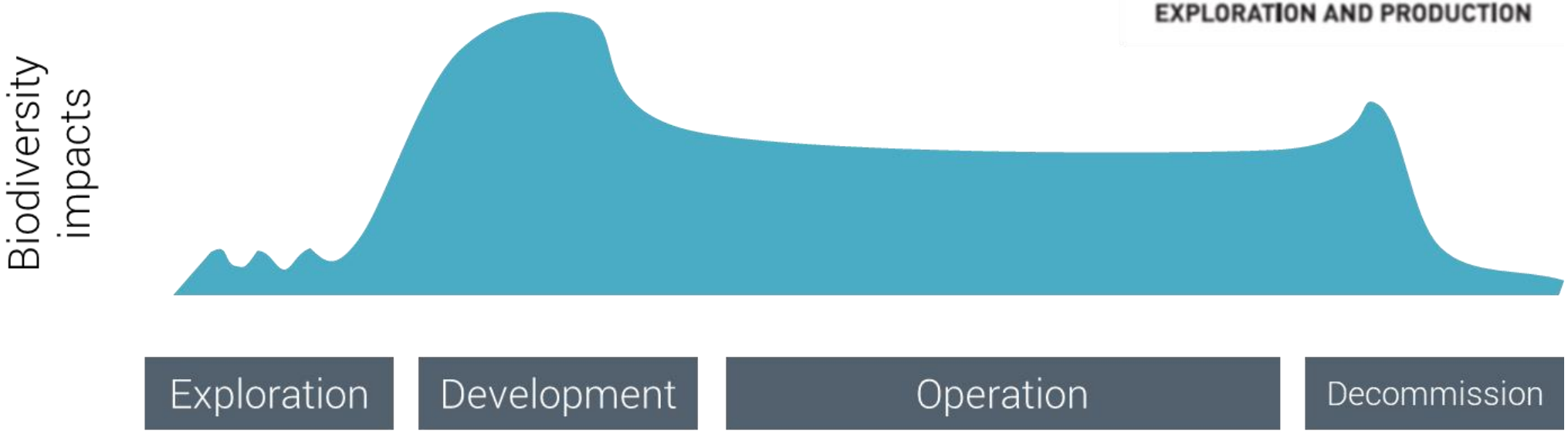
DETERMINING BIODIVERSITY FEATURES

Biodiversity feature	Implications for biodiversity management
Protected Areas	Consider the boundaries, purpose/objectives, management plan, management effectiveness and resources. • Can the project design avoid impacts completely? • Is a protected area a candidate for implementing an offset?
Key Biodiversity Areas	What are the trigger species, how are these impacted by the project, what is the current state of the KBA? • Can impacts on the KBA be avoided? • How might impacts on trigger species outside the KBA affect the KBA itself? • Can the KBA be enhanced as part of the mitigation measures?
Habitats	What is the distribution and types of habitat (habitat classification), status or condition of the habitat, habitat designation (if applicable) and connectivity and function of the habitat. • Will mitigation measures be appropriate for all impacted habitat types?
Species	Include targeted species groups, global status of the species, distribution and abundance, conservation status (e.g. IUCN Red List Endangered) • Are mitigation measures appropriate for the seasonal and natural variability and underlying trends in population changes?
Key ecosystem services	Identify key ecosystem services – their type, the users and beneficiaries, and the value • How will project impacts on ecosystem services impact on local communities? • Will offsets and restoration activities change the access of communities to services?

STAGES OF BIODIVERSITY MANAGEMENT



THE SCALE OF IMPACT CHANGES THROUGHOUT THE PROJECT LIFECYCLE



THE SCOPE OF IMPACTS NEEDS TO BE DEFINED

Direct	Indirect / induced	Cumulative
• Direct result of project activities	• Knock on effects of project activities	• Combined effect of multiple actors

DEFINING THE AREA OF INFLUENCE: DIRECT IMPACTS

Key findings:

- AoI depends on pressures associated, habitat type operated in and type of impact considered
- 5km buffer likely to cover the impacts of terrestrial oil and gas
- A minimum buffer of 20km should be applied in marine environments for oil and gas operations, but extended if there is high potential for noise disturbance.

Table 1. Average and range of AoI from literature for key sectors

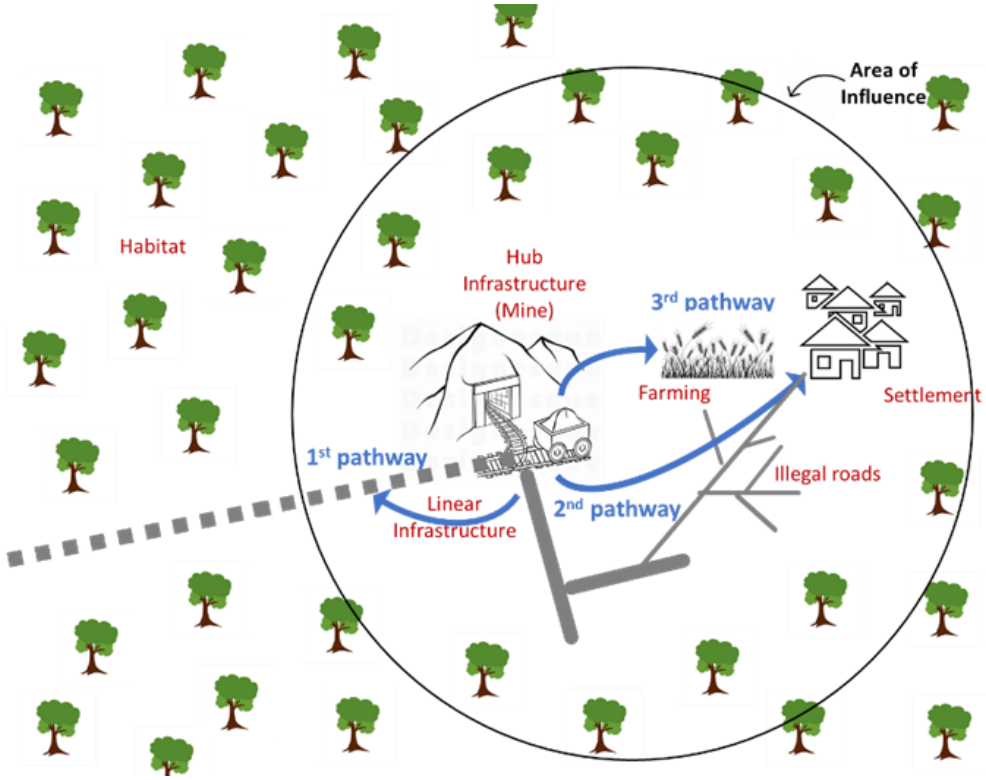
Activity	Average AoI	Lower range	Pressure and context of lower range	Upper range	Pressure and context for upper range
Terrestrial mining	**10.5km**	0.08km	Zinc levels exceeding agriculture water standards	70km	Deforestation
Marine mining	**27.5km**	5km	Presence of heavy metals in seagrass	50km	Sedimentation rates exceeding natural levels
Terrestrial Oil and Gas	**0.9km**	0.015km	Low impact seismic lines on herbaceous plant diversity	5km	Roads and infrastructure on mammal abundance
Marine Oil and gas	**17.5km**	0.1km	Physical damage by anchors	300km	Cessation of whale vocalisation in response to noise from seismic surveys

DEFINING THE AREA OF INFLUENCE: INDIRECT IMPACTS

- Hard to capture in risk assessments. They are also more far-reaching both temporally and spatially than direct impacts.

- Can be defined and triggered by the wider socio-economic and demographic changes associated with the project and not directly by project operations.

- Follow three main pathways
    1) increased access to habitats
    2) population influx
    3) increased viability of other economic activity



SIGNIFICANCE OF IMPACTS IS COMPLICATED TO ESTABLISH

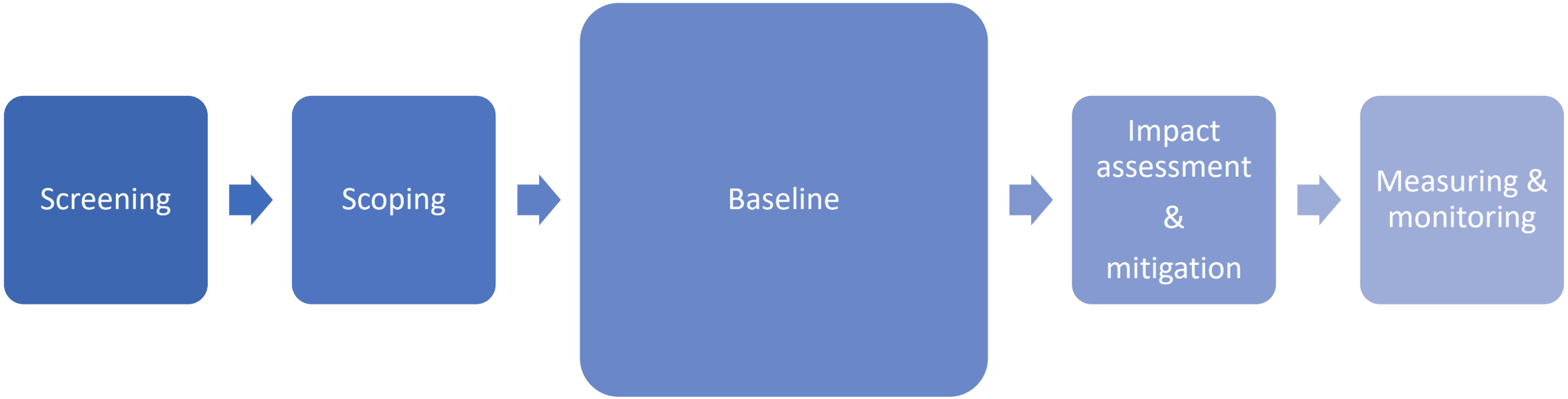
Severity

- Importance of affected biodiversity / ecosystem services
- Scale of impact
- Duration / frequency of impact
- Reversibility of impact

Likelihood

- Accuracy of predictions
- Under what circumstances would it occur
- Adopt the precautionary principle

STAGES OF BIODIVERSITY MANAGEMENT



BASELINE ASSESSMENTS

‘A description of existing conditions to provide a reference (e.g. pre-project condition of biodiversity) against which comparisons can be made (e.g. post-impact condition of biodiversity), allowing the change to be quantified.’

- Establishes status of biodiversity before operations
- Informs impact assessment and mitigation
- Informs primary data collection for long term monitoring and measuring performance (metrics)
- More detailed assessment than screening and scoping

HOW SHOULD A BASELINE BE DEVELOPED?

Biodiversity features identified during scoping

+

Additional biodiversity features within the Area of Influence

Identify the biodiversity baseline study area (area of influence)

→

Identify the scope of the baseline study

→

Review existing information on the biodiversity values

→

Conduct field-based assessment of biodiversity values (if necessary)

→

Integrate the data into a baseline report

Engage stakeholders and experts

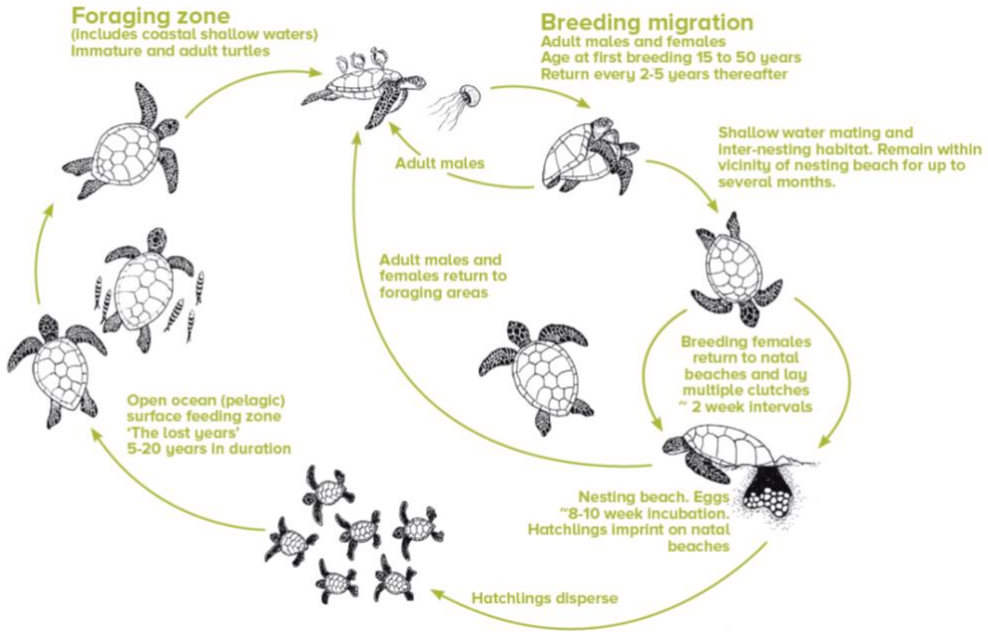
CHALLENGES FOR BASELINES

Transboundary and cumulative impacts:

Species with complex life cycles, large spatial and temporal, mobile offsets required

Public interest and perception:

"Out of sight, out of mind“, mismatch between public and expert perception of threats, leads to inadequate accounting for impacts and offsets



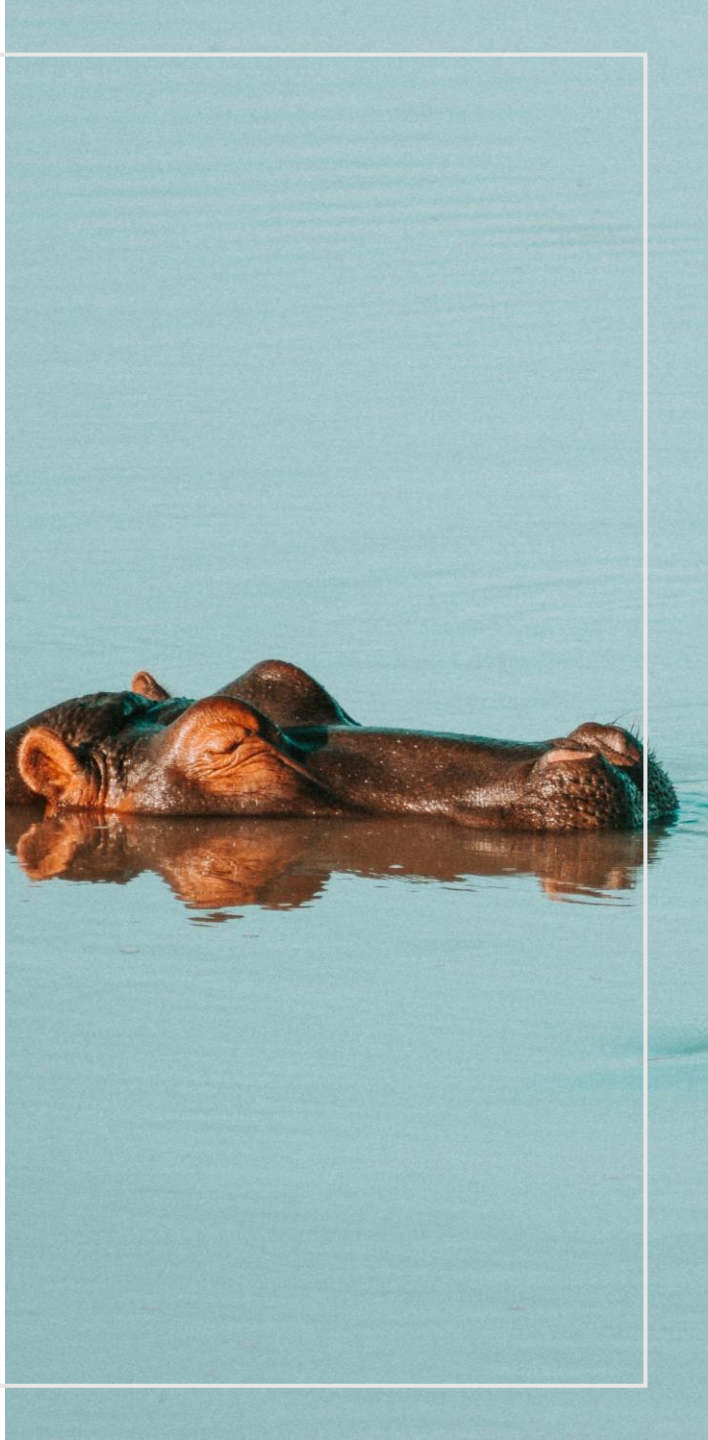
CHALLENGES FOR MARINE BASELINES

Connectivity:

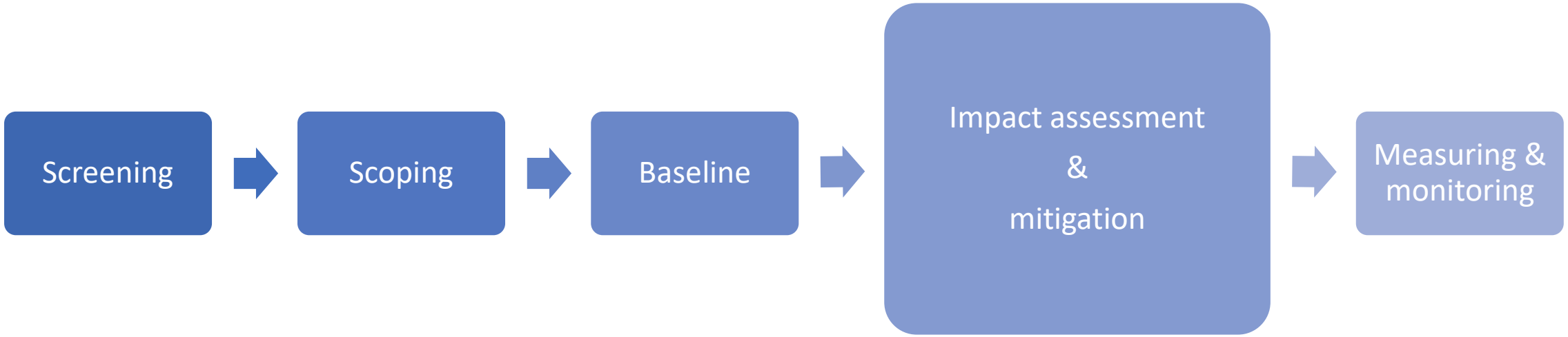
Dynamic and diffuse environment, diffuse impacts (e.g. sound), difficult to tease apart specific development impacts

Data gaps:

Water column species highly mobile; seasonal migrations
Marine species underrepresented in data, lack of data leads to greater uncertainty, collecting marine data is expensive, requires more investment



STAGES OF BIODIVERSITY MANAGEMENT



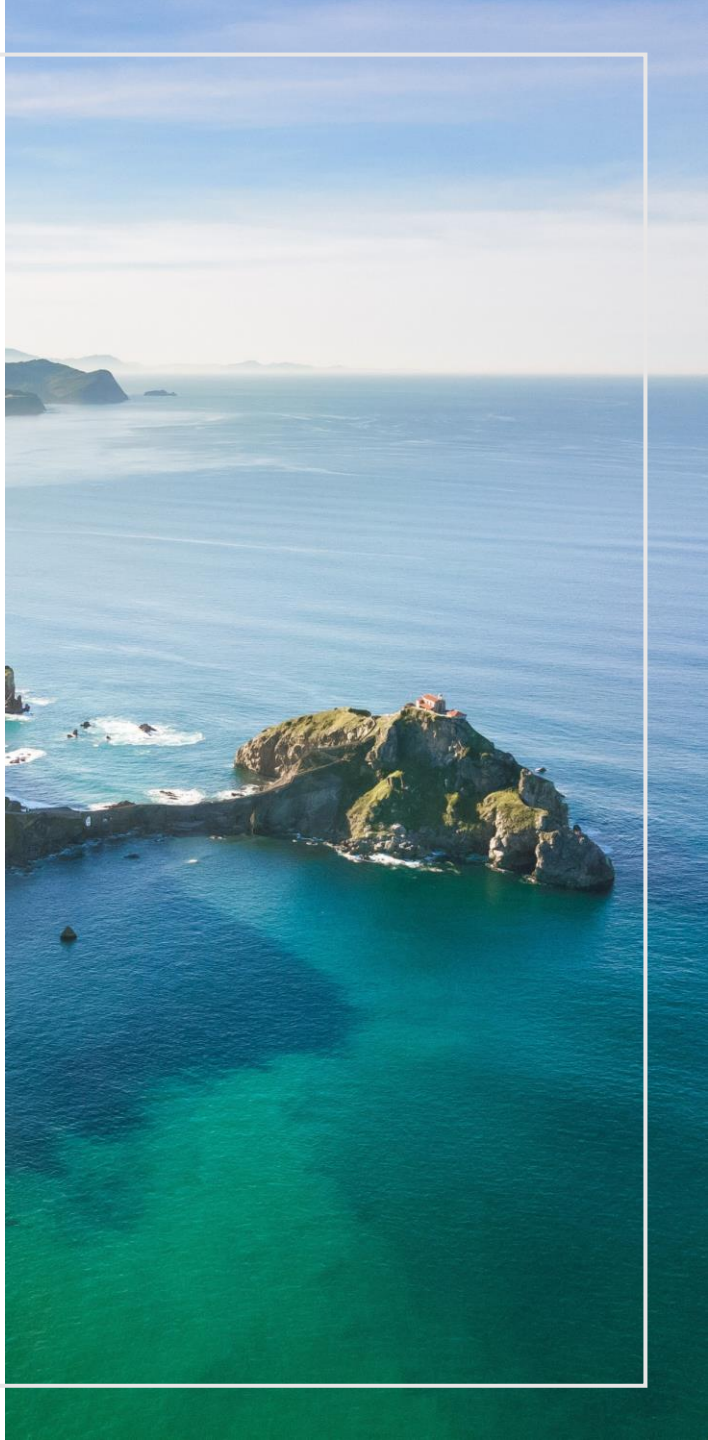
WHAT ARE BIODIVERSITY ACTION PLANS?

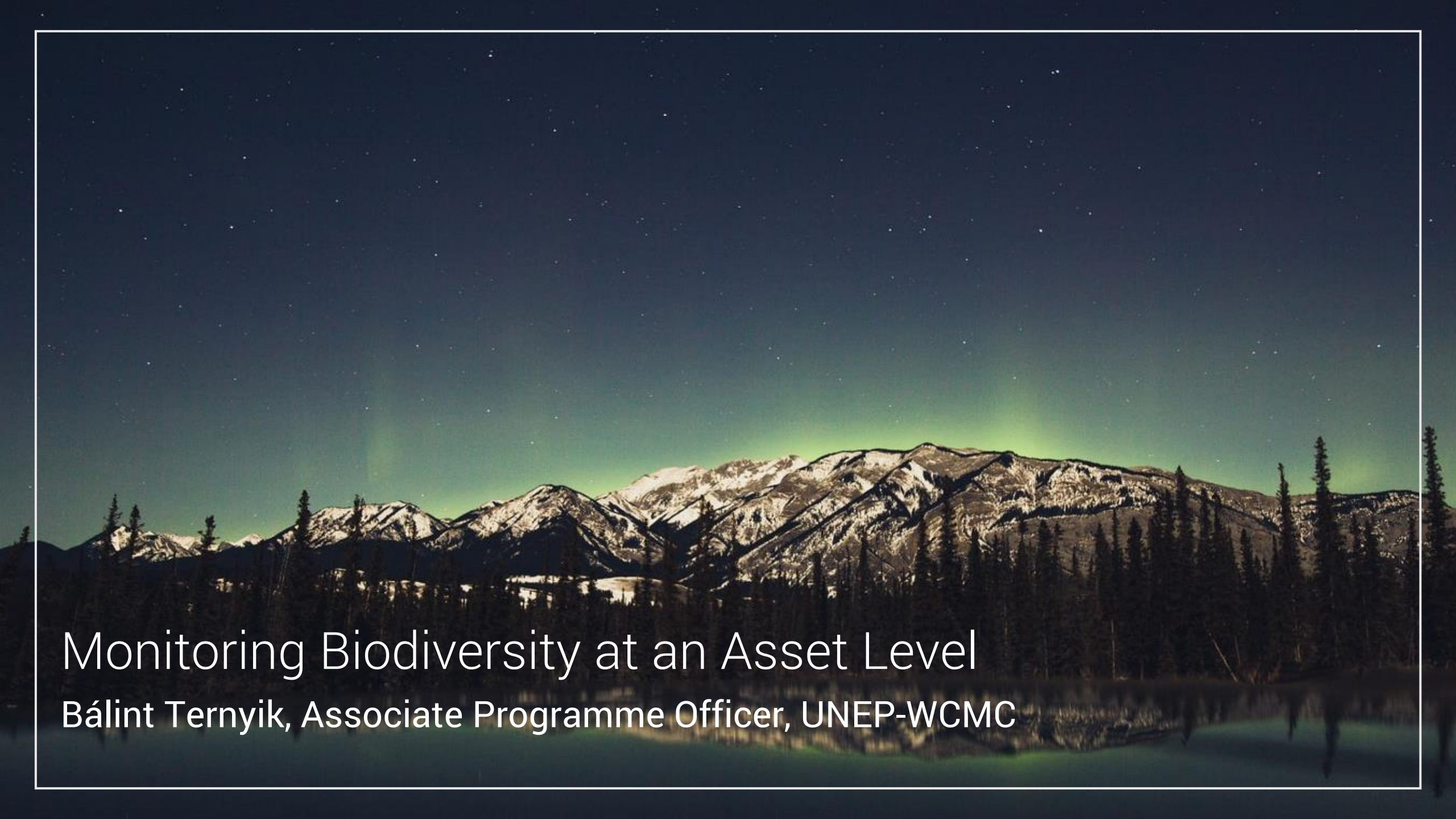
- BAPS are inspired from National Biodiversity Strategies and Action Plans (NBSAPs) which are required by the CBD for parties to protect and restore biodiversity and ecosystems.
- A set of future actions that will lead to the conservation or enhancement of biodiversity.
- Can be implemented at multiple levels.
- IPIECA; A guide to developing biodiversity action plans for the oil and gas sector

WHAT DO BAPS INCLUDE?

Principal elements of BAPs typically include:

- Preparing inventories of biological information for selected species/habitats
- Assessing the conservation status of species within specified ecosystems
- Creation of targets for conservation and restoration
    - what is required to deliver NNL or BNG
    - the Project's mitigation strategy to achieve NNL or BNG
- Forming budgets, timelines and institutional partnerships for implementation

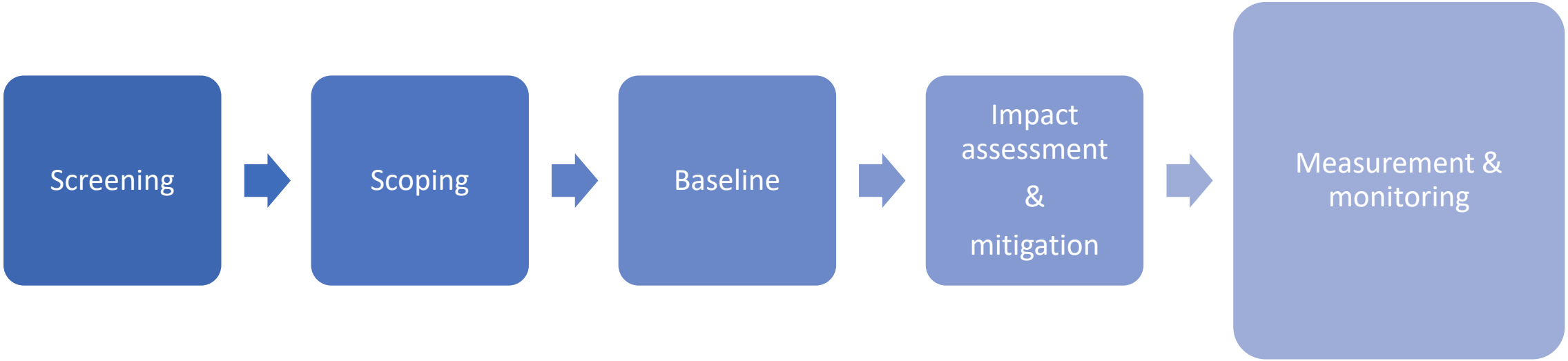




Monitoring Biodiversity at an Asset Level

Bálint Ternyik, Associate Programme Officer, UNEP-WCMC

STAGES OF BIODIVERSITY MANAGEMENT



MONITORING, INDICATORS, AND VERIFICATION

Monitoring	The continuous or frequent standardized measurement and observation of the environment (air, water, land/soil, biota), often used for warning and control
Indicators	A quantitative or qualitative factor or variable that provides a simple and reliable means to measure performance
Verification	The process of establishing the truth, accuracy, or validity of something

WHEN DOES MONITORING TAKE PLACE?

Baseline study area → Scoping → Desk studies → Field studies → Baseline report → **Monitoring**

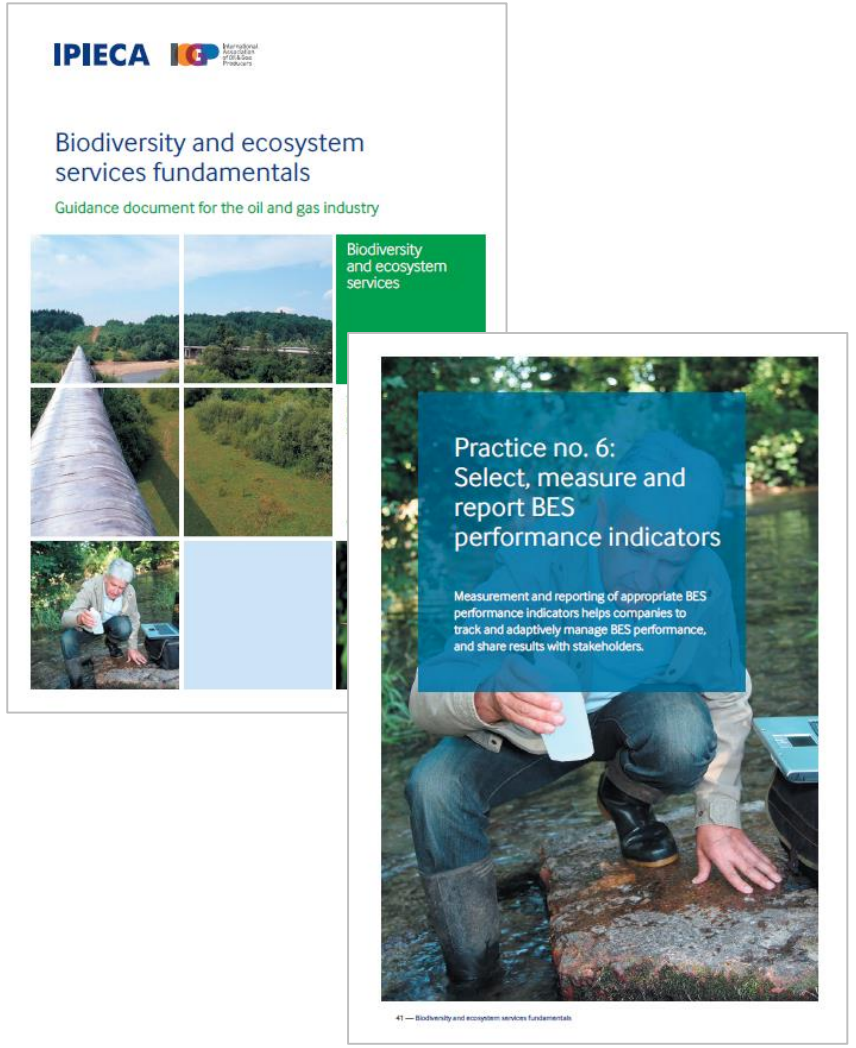
- After Environmental and Social Impact Assessment, project permitting and baseline assessment

- Helps to understand if:
  - Impact predictions were accurate
  - Biodiversity management interventions are being effective

GUIDANCE ON MONITORING

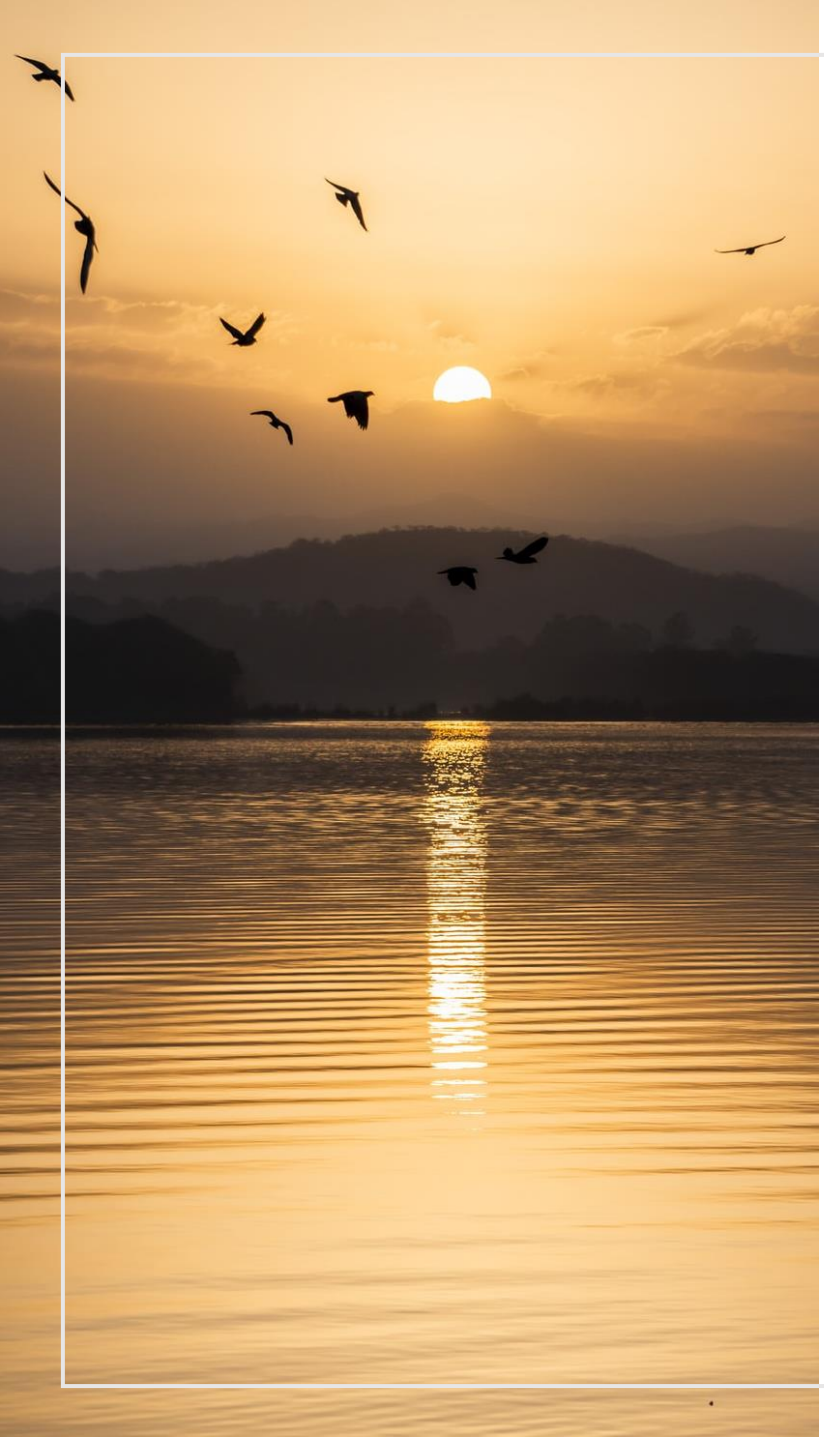
Monitoring should:

- Have a clear objective
- Help identify impacts/risk to biodiversity
- Consider what methods/variables to use
- Use data collected in the field
- Involve data interpretation and report results
- Help inform adaptive management



TRENDS IN CORPORATE BIODIVERSITY INDICATORS

- Increasing demand for credible reporting and disclosure approaches driven by investors, policy makers and businesses
- Different reporting initiatives often meet different information needs
- Enhanced transparency and better reporting & disclosure
- Significant progress made, with broad landscape of metrics, methods and frameworks under development
    - Aligning Accounting Approaches For Nature (Align)
    - Biodiversity Indicators For Site-based Impacts (BISI)
    - Taskforce on Nature-related Financial Disclosure (TNFD)

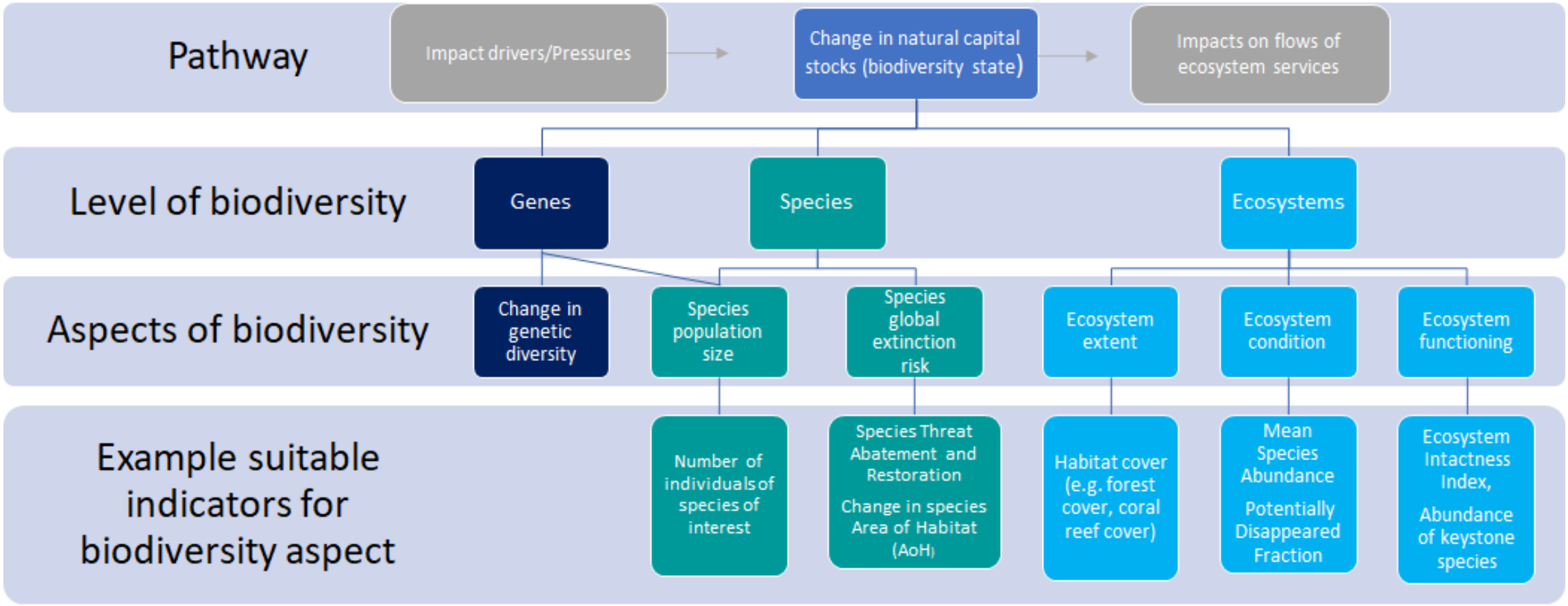


ALIGNING ACCOUNTING APPROACHES FOR NATURE (ALIGN)

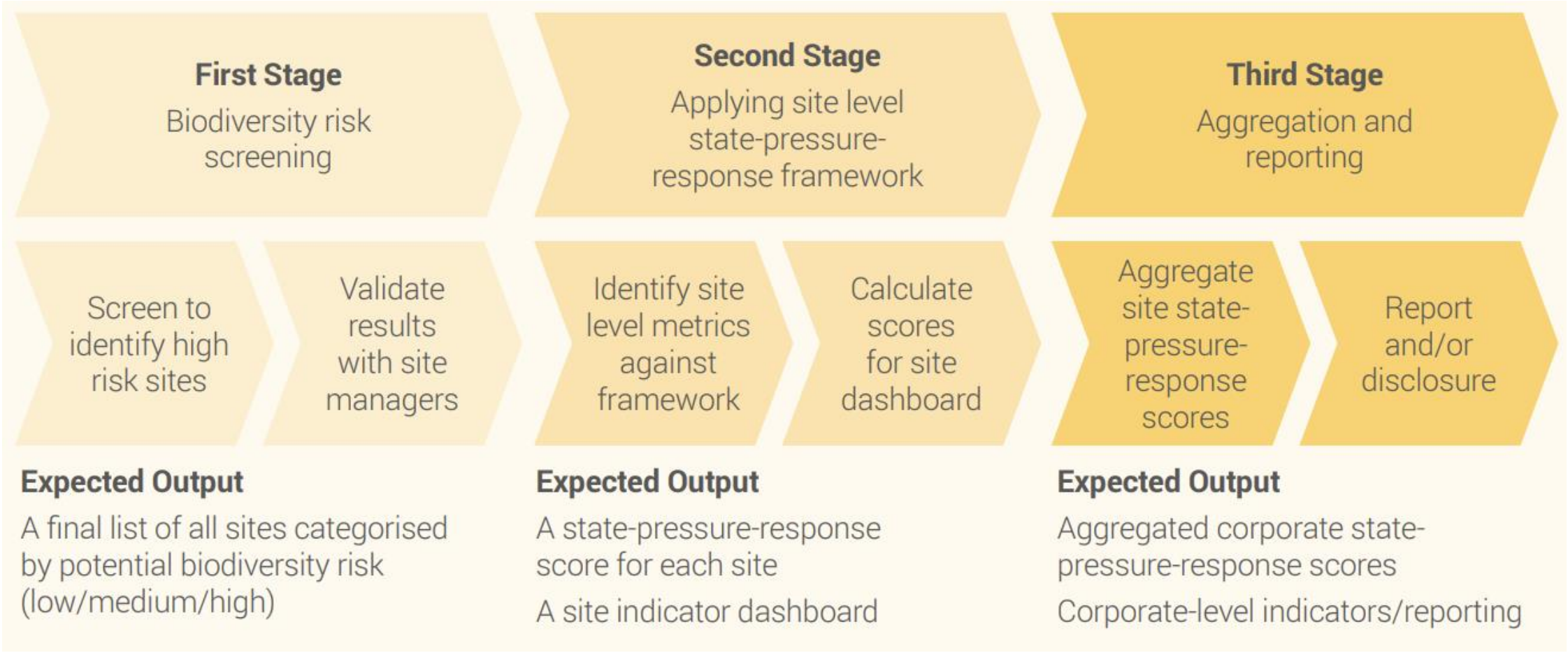
- Improve clarity and build consensus
- Develop a generally accepted way for businesses to understand their relationship with nature
- Build from and link to existing initiatives and networks
- Guided by what businesses need and the lessons already learned from applying these in practice
- Complement policies within the EC

Align | Aligning accounting approaches for nature

ASPECTS OF BIODIVERSITY TO MEASURE AND ASSOCIATED INDICATORS



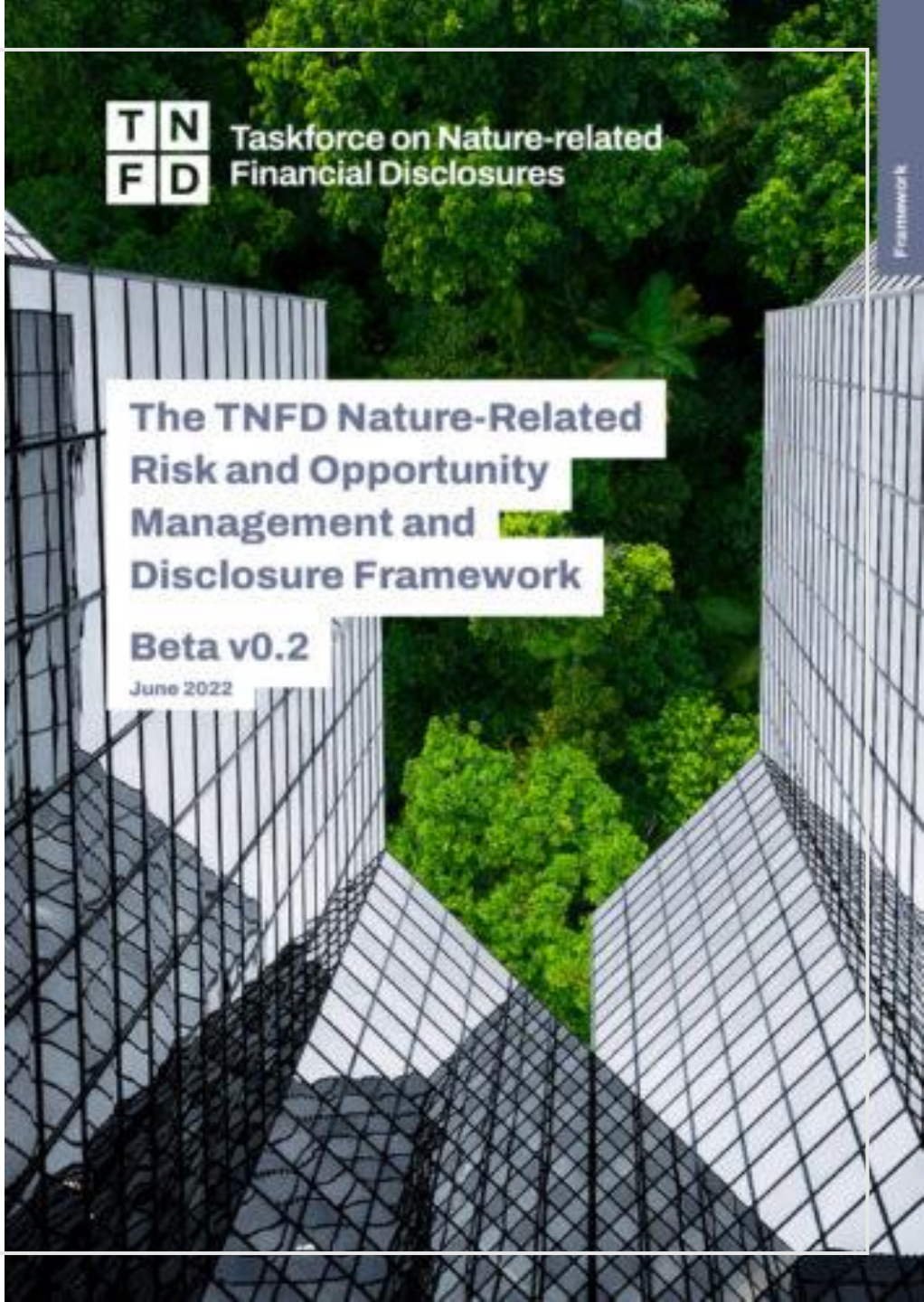
BIODIVERSITY INDICATORS FOR SITE-BASED IMPACTS (BISI)

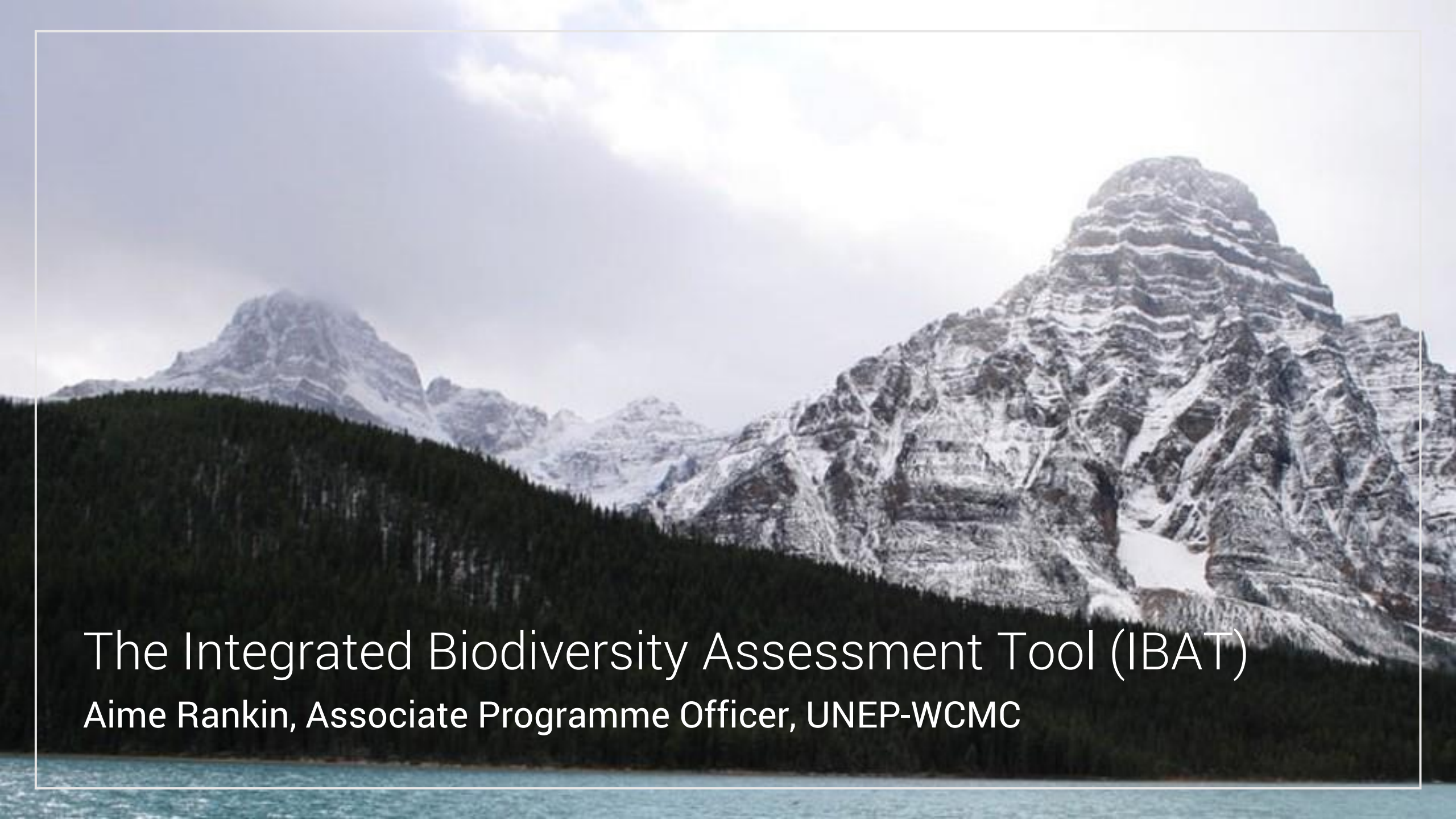


THE TNFD LEAP ASSESSMENT APPROACH

Guidance on nature-related risk and opportunity assessment:

- 4 phases, 17 components:
  - **Locate** your interface with nature;
  - **Evaluate** your dependencies and impacts;
  - **Assess** your risks and opportunities; and
  - **Prepare** to respond to nature-related risks and opportunities and report.
- Extended approach for financial institutions

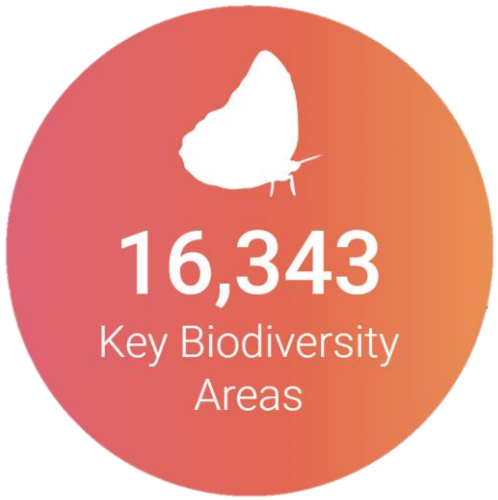




The Integrated Biodiversity Assessment Tool (IBAT)

Aime Rankin, Associate Programme Officer, UNEP-WCMC

INTEGRATED BIODIVERSITY ASSESSMENT TOOL (IBAT)



IBAT

KEY FEATURES OF IBAT

Features

- Ability to draw polylines and polygons
- Upload multiple sites (csv, shp, KMZ, KML)
- Download data per specified area
- Create portfolio of ‘Projects’ (sites)
- Site page giving overview of a site
- Multiple report types: Proximity, IFC PS6/World Bank ESS6, Freshwater, Multi-site
- Ability to view all data in the IBAT map

Real-time updates

- Protected Areas
- Key Biodiversity Areas
- Red List of Species data
- Species Threat Abatement and Restoration (STAR)

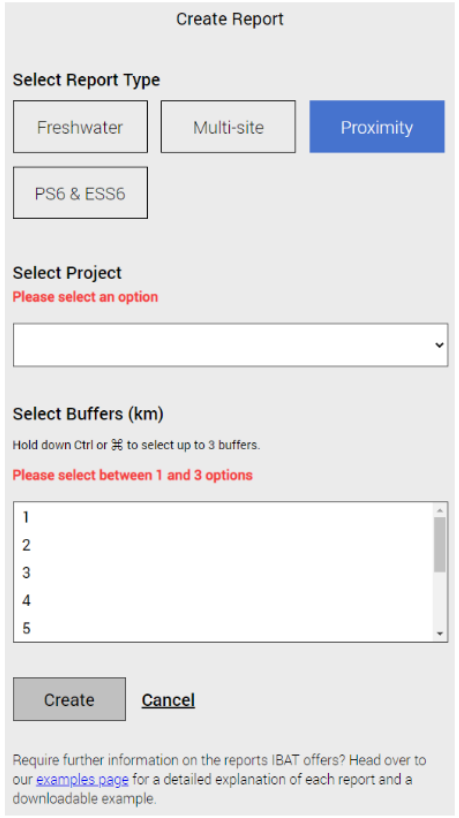
Committed to continuous improvement and user support

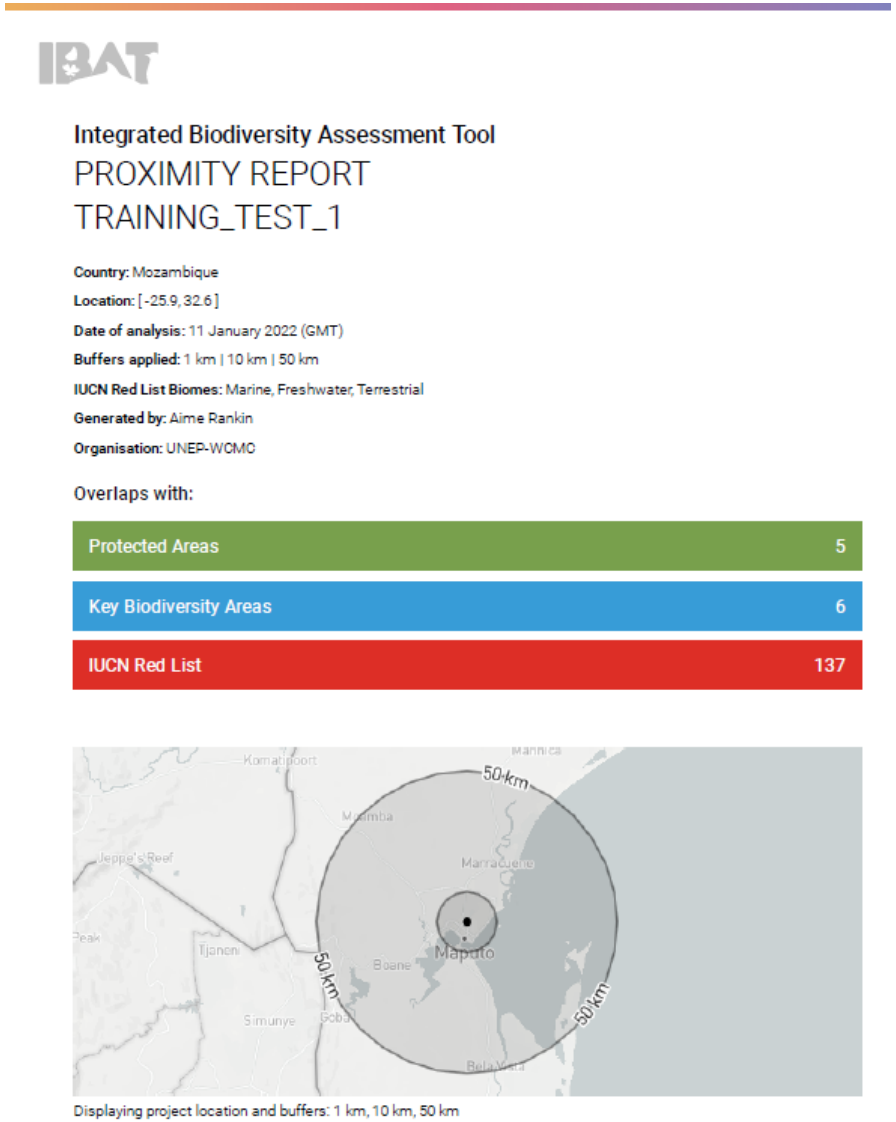
- Fully maintained
- Scientifically robust
- Committed to innovation and new functionality

IBAT REPORTS

Proximity Reports

- High-level early stage biodiversity risk screening for a single site.
- Buffers from 1 to 50 km.
- Assess for overlap with:
  - Protected Areas.
  - Key Biodiversity Areas.
  - IUCN Red List species.

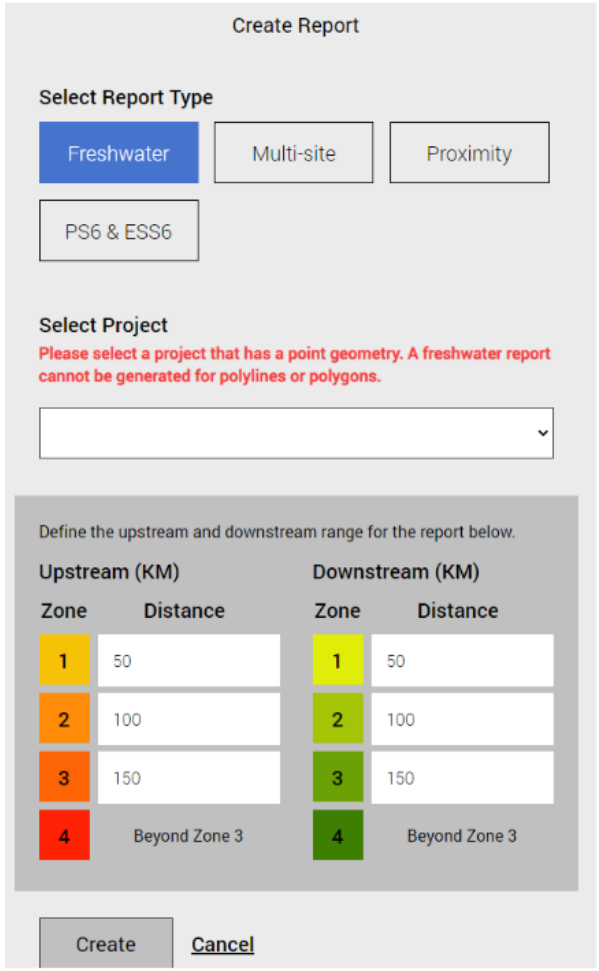


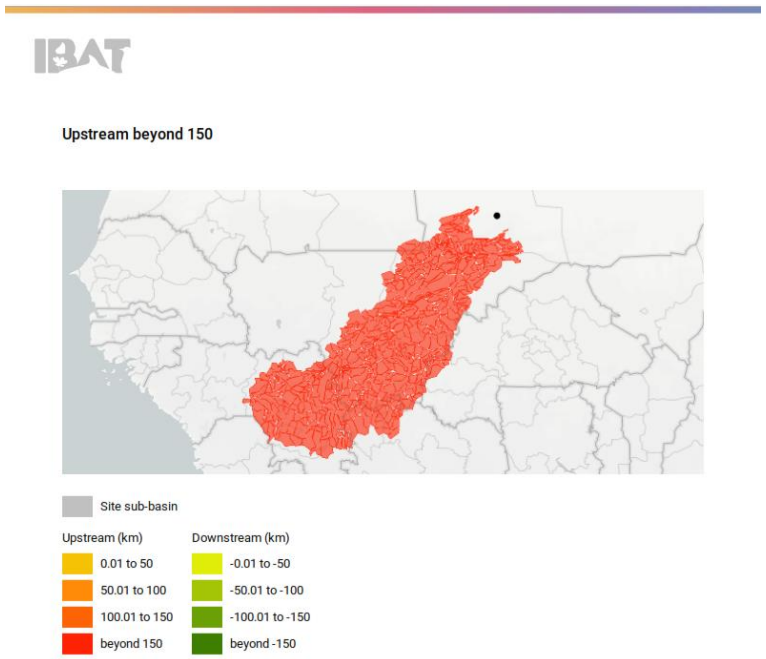


IBAT REPORTS

Freshwater

- High-level early stage biodiversity risk screening for a single site with potential to impact freshwater ecosystems.
- Upstream and downstream buffers.
- Point features only.

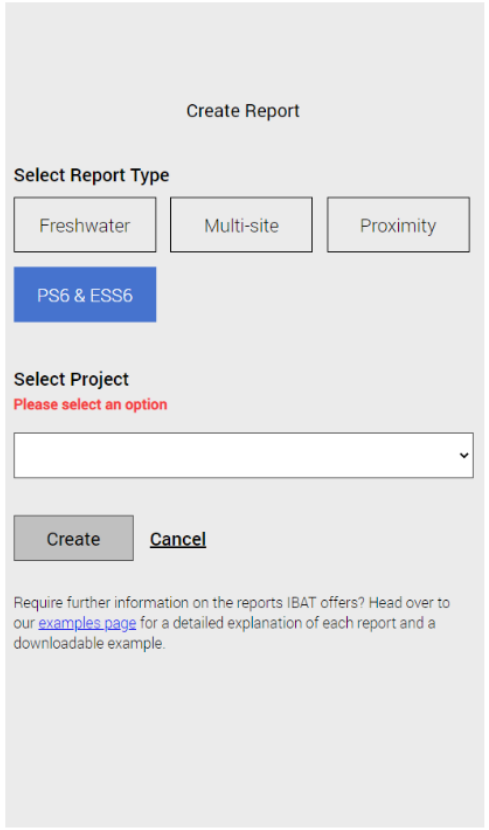


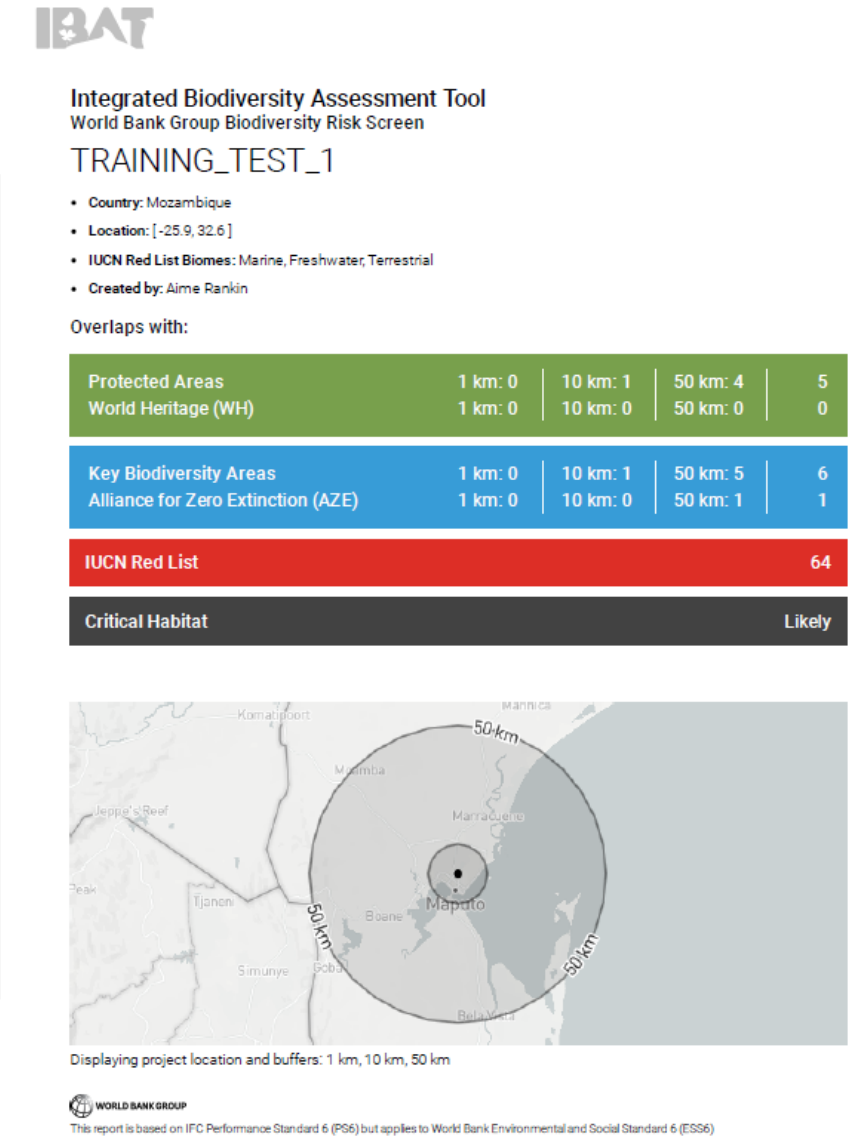


IBAT REPORTS

World Bank Group Risk Reports

- High-level early stage biodiversity risk screening for a single site with specific reference to **PSS6** and **ESS6**.
- Assesses **Critical habitat likelihood**.
- Buffers pre-defined at 10 and 50 km.

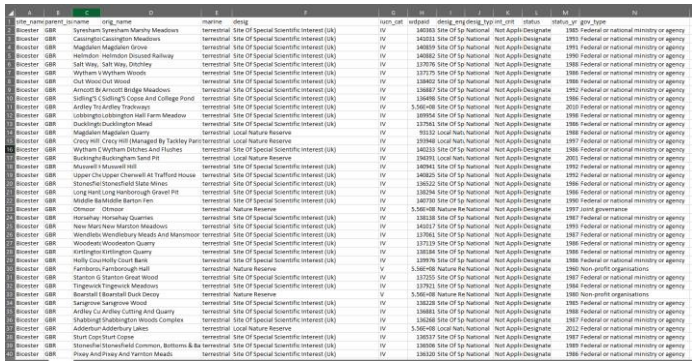




IBAT REPORTS

Multi Site

- IBAT Multi-site reports designed to help companies reporting for GRI/ SASB, and certification schemes .
- GRI Disclosure 304-1 Identify operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas (aka Key Biodiversity Areas)
- GRI Disclosure 304-4 Identify presence of IUCN Red List species and national conservation list species with habitats in areas affected by operations.



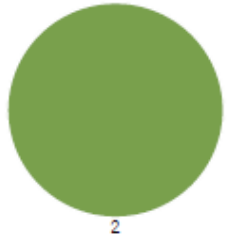
IBAT

Overlap with protected areas and Key Biodiversity Areas (KBAs)

The following table shows the number of protected areas and KBAs overlapped by a 50.0 km buffer for each operational site where an overlap occurs.

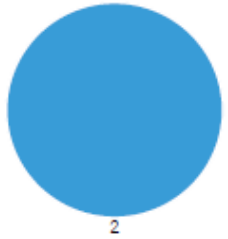
Site	Area (km²)	Protected Areas	KBAs
Training_test_1	0	5	6
Training_test_2	0	173	20

% Summary of protected areas overlap



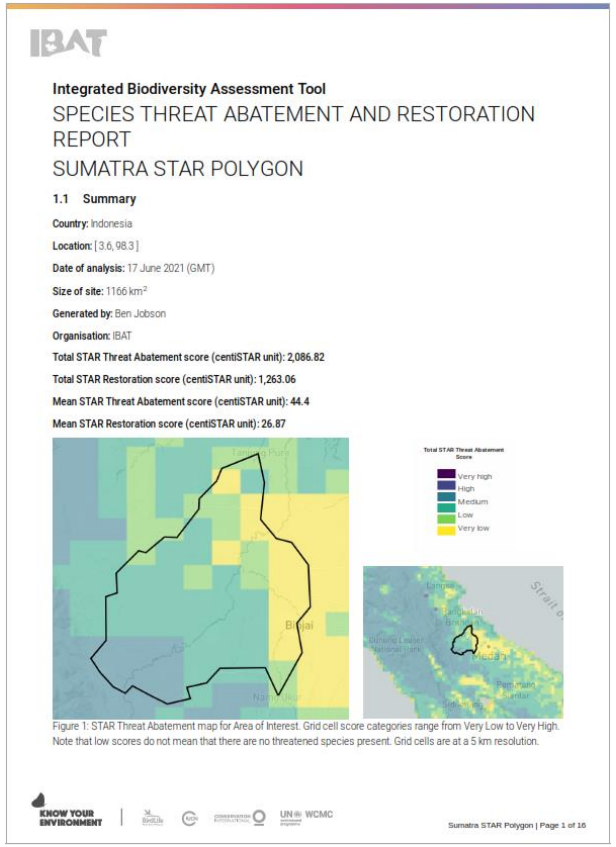
- 2 (100.00% of sites) are within 50.0 km of a protected area.
- 0 (0.00% of sites) are not within 50.0 km of a protected area.

% Summary of KBAs overlap



- 2 (100.00% of sites) are within 50.0 km of a Key Biodiversity Area.
- 0 (0.00% of sites) are not within 50.0 km of a Key Biodiversity Area.

SPECIES THREAT ABATEMENT AND RESTORATION METRIC (STAR)



IBAT

Integrated Biodiversity Assessment Tool

SPECIES THREAT ABATEMENT AND RESTORATION REPORT

SUMATRA STAR POLYGON

1.1 Summary

Country: Indonesia

Location: [3.6, 98.3]

Date of analysis: 17 June 2021 (GMT)

Size of site: 1166 km²

Generated by: Ben Jobson

Organisation: IBAT

Total STAR Threat Abatement score (centiSTAR unit): 2,086.82

Total STAR Restoration score (centiSTAR unit): 1,263.06

Mean STAR Threat Abatement score (centiSTAR unit): 44.4

Mean STAR Restoration score (centiSTAR unit): 26.87

Total STAR Threat Abatement Score

Very high
High
Medium
Low
Very low

Figure 1: STAR Threat Abatement map for Area of Interest. Grid cell score categories range from Very Low to Very High. Note that low scores do not mean that there are no threatened species present. Grid cells are at a 5 km resolution.

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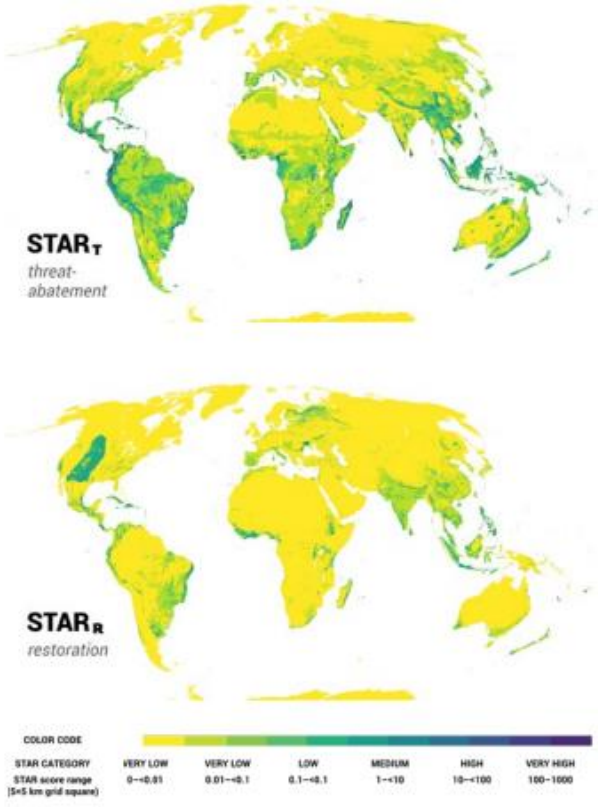
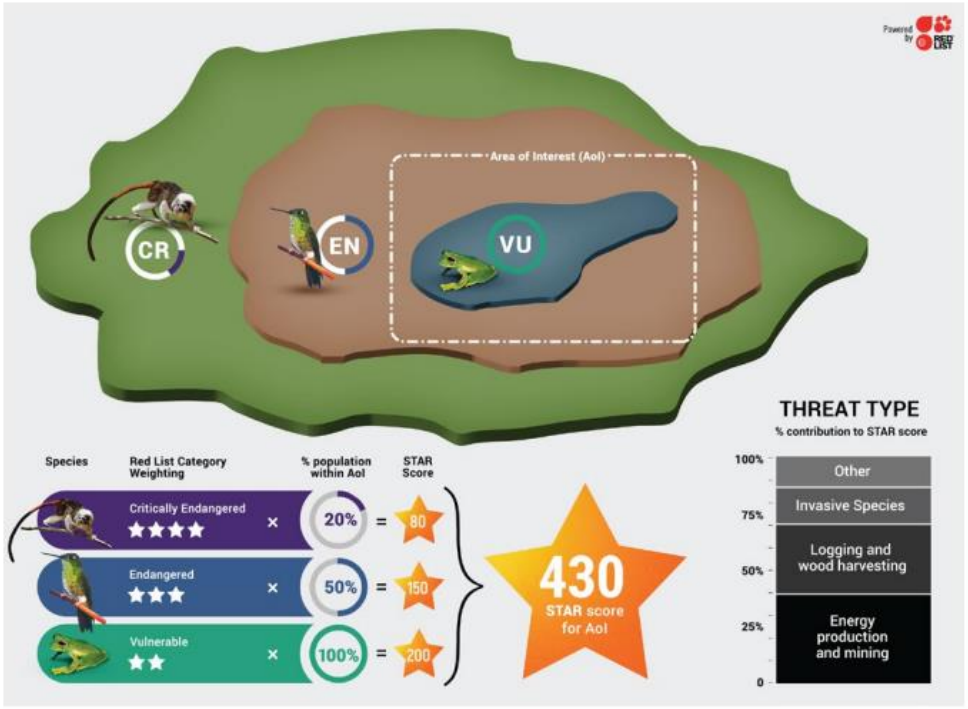
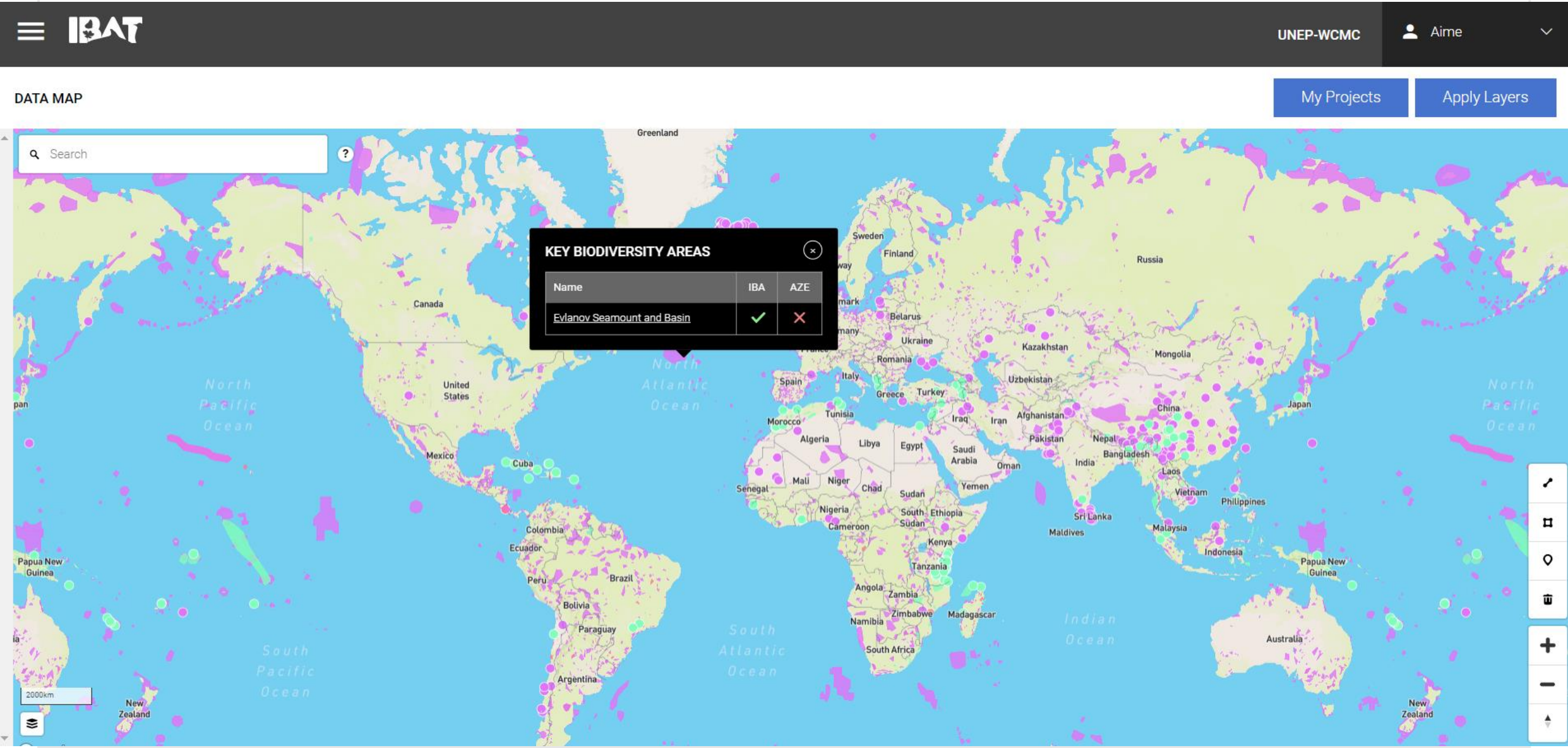
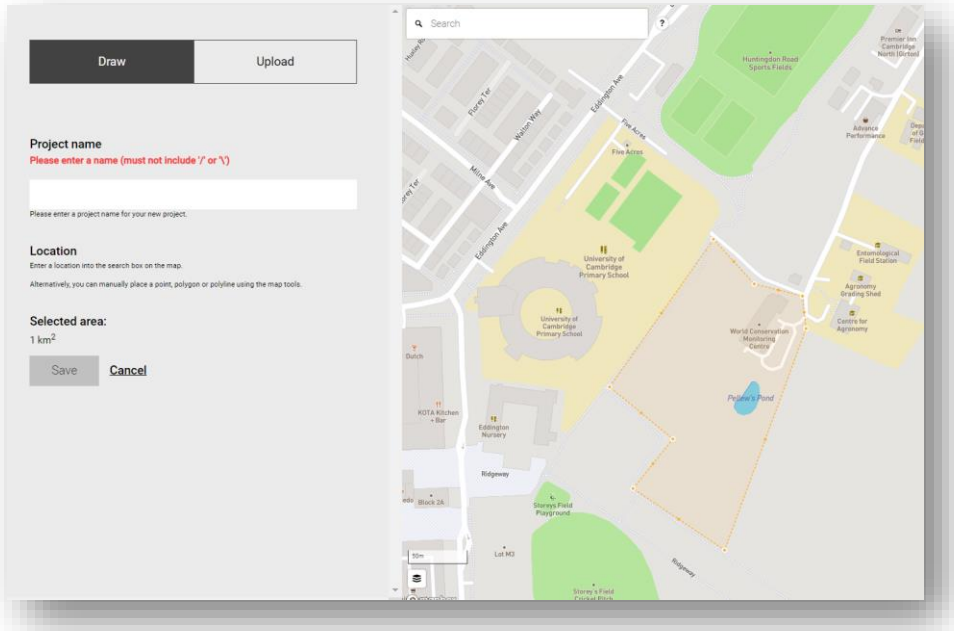
Sumatra STAR Polygon | Page 1 of 16



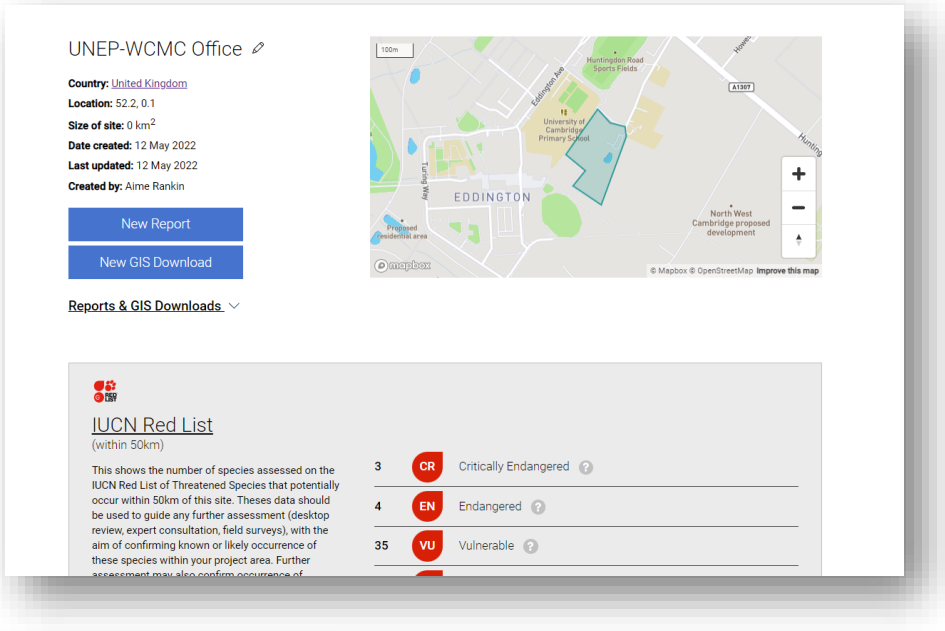


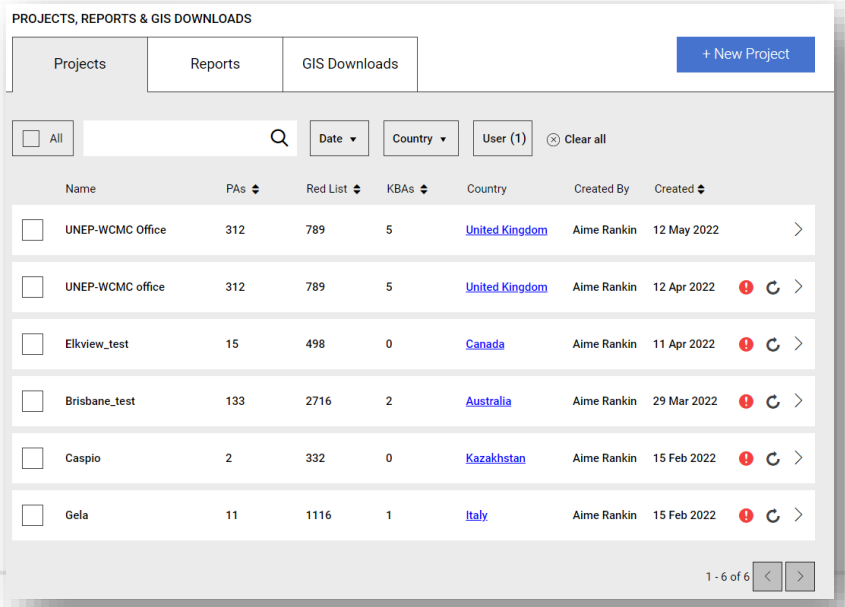

IBAT
UNEP-WCMC
Aime
DATA MAP
My Projects
Apply Layers
Search
KEY BIODIVERSITY AREAS
Name
IBA
AZE
Evlanov Seamount and Basin
Greenland
Canada
United States
Mexico
Cuba
Colombia
Ecuador
Peru
Brazil
Bolivia
Paraguay
Argentina
Papua New Guinea
New Zealand
North Pacific Ocean
South Pacific Ocean
North Atlantic Ocean
South Atlantic Ocean
Indian Ocean
Sweden
Finland
Russia
Belarus
Ukraine
Romania
Kazakhstan
Mongolia
Uzbekistan
Spain
Italy
Greece
Turkey
Tunisia
Morocco
Algeria
Libya
Egypt
Iraq
Iran
Afghanistan
Pakistan
China
Japan
Nepal
Bangladesh
India
Saudi Arabia
Oman
Yemen
Mali
Niger
Chad
Sudan
Senegal
Nigeria
Cameroon
South Sudan
Ethiopia
Kenya
Tanzania
Angola
Zambia
Zimbabwe
Namibia
South Africa
Madagascar
Laos
Vietnam
Philippines
Sri Lanka
Maldives
Malaysia
Indonesia
Australia
2000km

Adding sites (draw directly on map or upload file)



Home page for your site with summary information





Create portfolios of ‘projects’ (sites)

Integrated Biodiversity Assessment Tool

PROXIMITY REPORT
MARCELLUS_TEST

Country: United States of America

Location: [41.6, -77.1]

Date of analysis: 27 September 2022 (GMT)

Size of site: 8 km^2

Buffers applied: 1 km | 5 km | 10 km

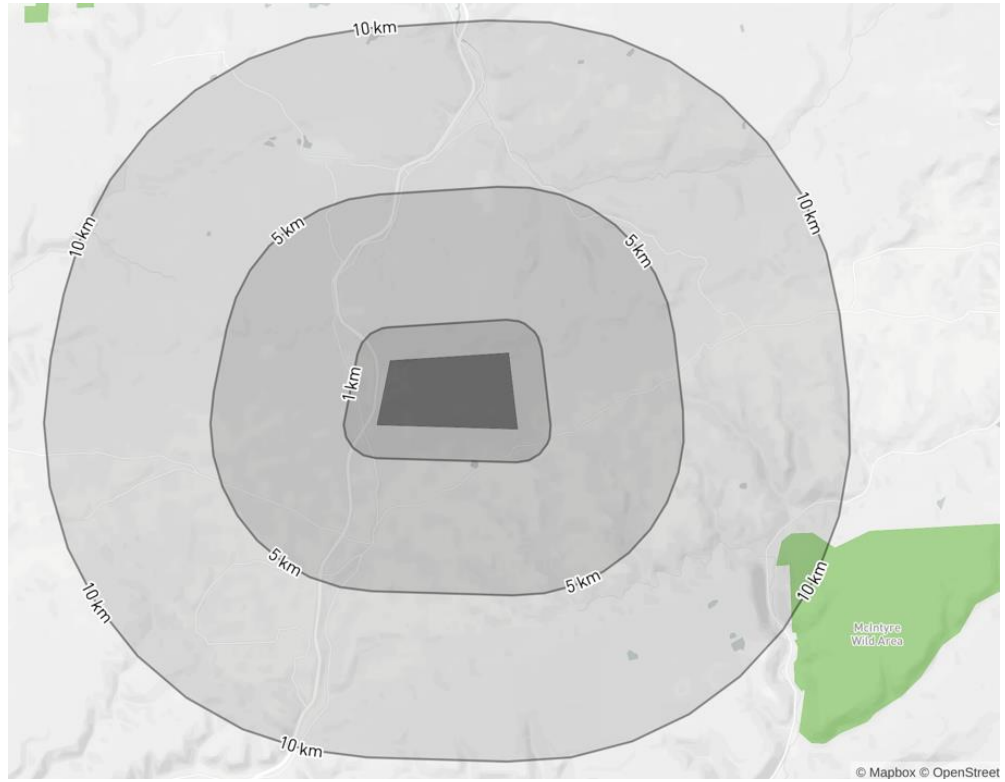
IUCN Red List Biomes: Marine, Freshwater, Terrestrial

Generated by: Aime Rankin

Organisation: UNEP-WCMC

Overlaps with:

Protected Areas	1
Key Biodiversity Areas	0
IUCN Red List	28



Protected Areas

The following protected areas are found within 1 km, 5 km, 10 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

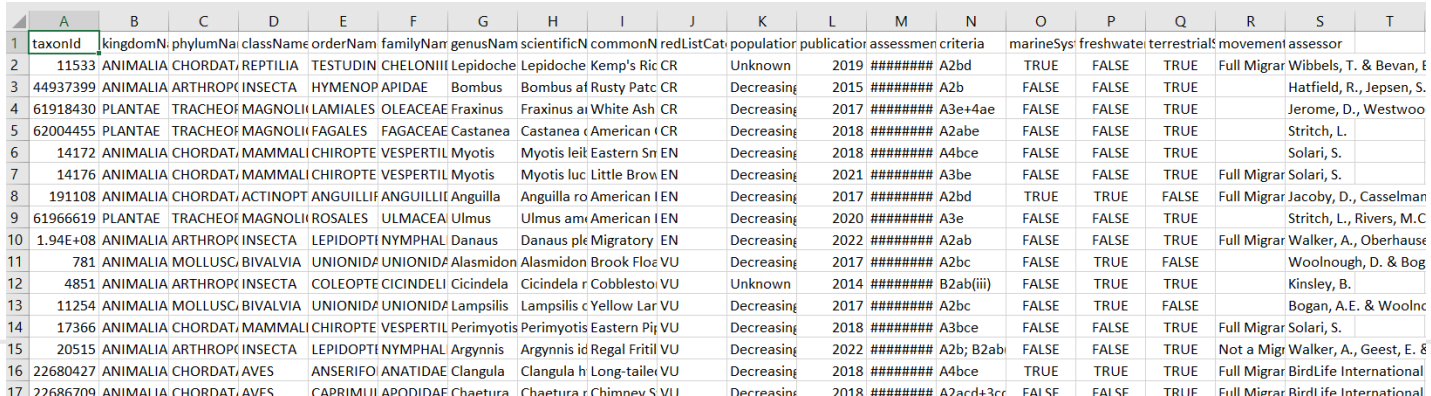
Area name	Within buffer of
Mcintyre	10 km

Key Biodiversity Areas

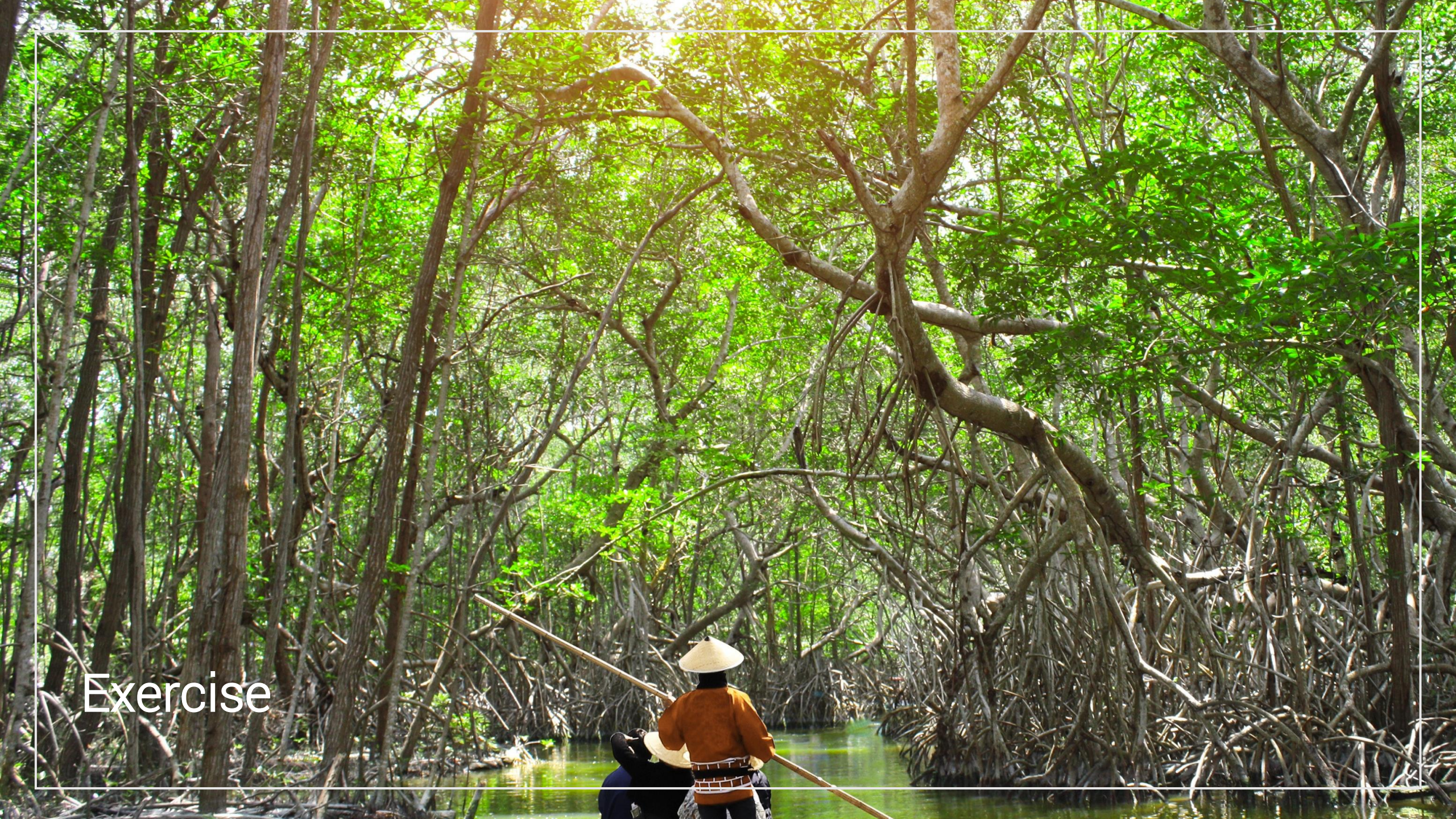
The following key biodiversity areas are found within 1 km, 5 km, 10 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

No KBAs within buffer distance

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Lepidochelys kempii	Kemp's Ridley	REPTILIA	CR	Unknown	Terrestrial, Marine
Bombus affinis	Rusty Patched Bumble Bee	INSECTA	CR	Decreasing	Terrestrial
Fraxinus americana	White Ash	MAGNOLIOPSIDA	CR	Decreasing	Terrestrial
Castanea dentata	American Chestnut	MAGNOLIOPSIDA	CR	Decreasing	Terrestrial
Myotis leibii	Eastern Small-footed Myotis	MAMMALIA	EN	Decreasing	Terrestrial



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	taxonId	kingdomN	phylumNa	className	orderNam	familyNam	genusNam	scientificN	commonN	redListCat	population	publicatior	assessmen	criteria	marineSys	freshwate	terrestrial	movement	assessor	
2	11533	ANIMALIA	CHORDAT	REPTILIA	TESTUDIN	CHELONIII	Lepidoche	Lepidoche	Kemp's Ric	CR	Unknown	2019	########	A2bd	TRUE	FALSE	TRUE	Full Migrar	Wibbels, T. & Bevan, E	
3	44937399	ANIMALIA	ARTHROP	INSECTA	HYMENOP	APIDAE	Bombus	Bombus af	Rusty Patc	CR	Decreasing	2015	########	A2b	FALSE	FALSE	TRUE		Hatfield, R., Jepsen, S.	
4	61918430	PLANTAE	TRACHEOF	MAGNOLI	LAMIALES	OLEACEAE	Fraxinus	Fraxinus a	White Ash	CR	Decreasing	2017	########	A3e+4ae	FALSE	FALSE	TRUE		Jerome, D., Westwoo	
5	62004455	PLANTAE	TRACHEOF	MAGNOLI	FAGALES	FAGACEAE	Castanea	Castanea	American	CR	Decreasing	2018	########	A2abe	FALSE	FALSE	TRUE		Stritch, L.	
6	14172	ANIMALIA	CHORDAT	MAMMALI	CHIROPTE	VESPERTIL	Myotis	Myotis leit	Eastern Sn	EN	Decreasing	2018	########	A4bce	FALSE	FALSE	TRUE		Solari, S.	
7	14176	ANIMALIA	CHORDAT	MAMMALI	CHIROPTE	VESPERTIL	Myotis	Myotis luc	Little Brow	EN	Decreasing	2021	########	A3be	FALSE	FALSE	TRUE	Full Migrar	Solari, S.	
8	191108	ANIMALIA	CHORDAT	ACTINOPT	ANGUILLIF	ANGUILLIE	Anguilla	Anguilla ro	American I	EN	Decreasing	2017	########	A2bd	TRUE	TRUE	FALSE	Full Migrar	Jacoby, D., Casselman	
9	61966619	PLANTAE	TRACHEOF	MAGNOLI	ROSALES	ULMACEA	Ulmus	Ulmus am	American I	EN	Decreasing	2020	########	A3e	FALSE	FALSE	TRUE		Stritch, L., Rivers, M.C	
10	1.94E+08	ANIMALIA	ARTHROP	INSECTA	LEPIDOPTI	NYMPHAL	Danaus	Danaus ple	Migratory	EN	Decreasing	2022	########	A2ab	FALSE	FALSE	TRUE	Full Migrar	Walker, A., Oberhause	
11	781	ANIMALIA	MOLLUSC	BIVALVIA	UNIONIDA	UNIONIDA	Alasmidon	Alasmidon	Brook Floa	VU	Decreasing	2017	########	A2bc	FALSE	TRUE	FALSE		Woolnough, D. & Bog	
12	4851	ANIMALIA	ARTHROP	INSECTA	COLEOPTE	CICINDELI	Cicindela	Cicindela r	Cobblesto	VU	Unknown	2014	########	B2ab(iii)	FALSE	TRUE	TRUE		Kinsley, B.	
13	11254	ANIMALIA	MOLLUSC	BIVALVIA	UNIONIDA	UNIONIDA	Lampsilis	Lampsilis c	Yellow Lar	VU	Decreasing	2017	########	A2bc	FALSE	TRUE	FALSE		Bogan, A.E. & Woolnc	
14	17366	ANIMALIA	CHORDAT	MAMMALI	CHIROPTE	VESPERTIL	Perimyotis	Perimyotis	Eastern Pi	VU	Decreasing	2018	########	A3bce	FALSE	FALSE	TRUE	Full Migrar	Solari, S.	
15	20515	ANIMALIA	ARTHROP	INSECTA	LEPIDOPTI	NYMPHAL	Argynnis	Argynnis id	Regal Fritil	VU	Decreasing	2022	########	A2b; B2ab	FALSE	FALSE	TRUE	Not a Migr	Walker, A., Geest, E. &	
16	22680427	ANIMALIA	CHORDAT	AVES	ANSERIFO	ANATIDAE	Clangula	Clangula h	Long-taile	VU	Decreasing	2018	########	A4bce	TRUE	TRUE	TRUE	Full Migrar	BirdLife International	
17	22686709	ANIMALIA	CHORDAT	AVES	CAPRIMUL	APODIDAE	Chaetura	Chaetura p	Chimney S	VU	Decreasing	2018	########	A2acd+3cc	FALSE	FALSE	TRUE	Full Migrar	BirdLife International	



Exercise

MAP

Key

Forest

Coral Reef

Mangrove

Beach
(currently undeveloped)

Scrubland

Palm Oil

Sea

Oil reserves

River

Human Settlement

Cultural feature

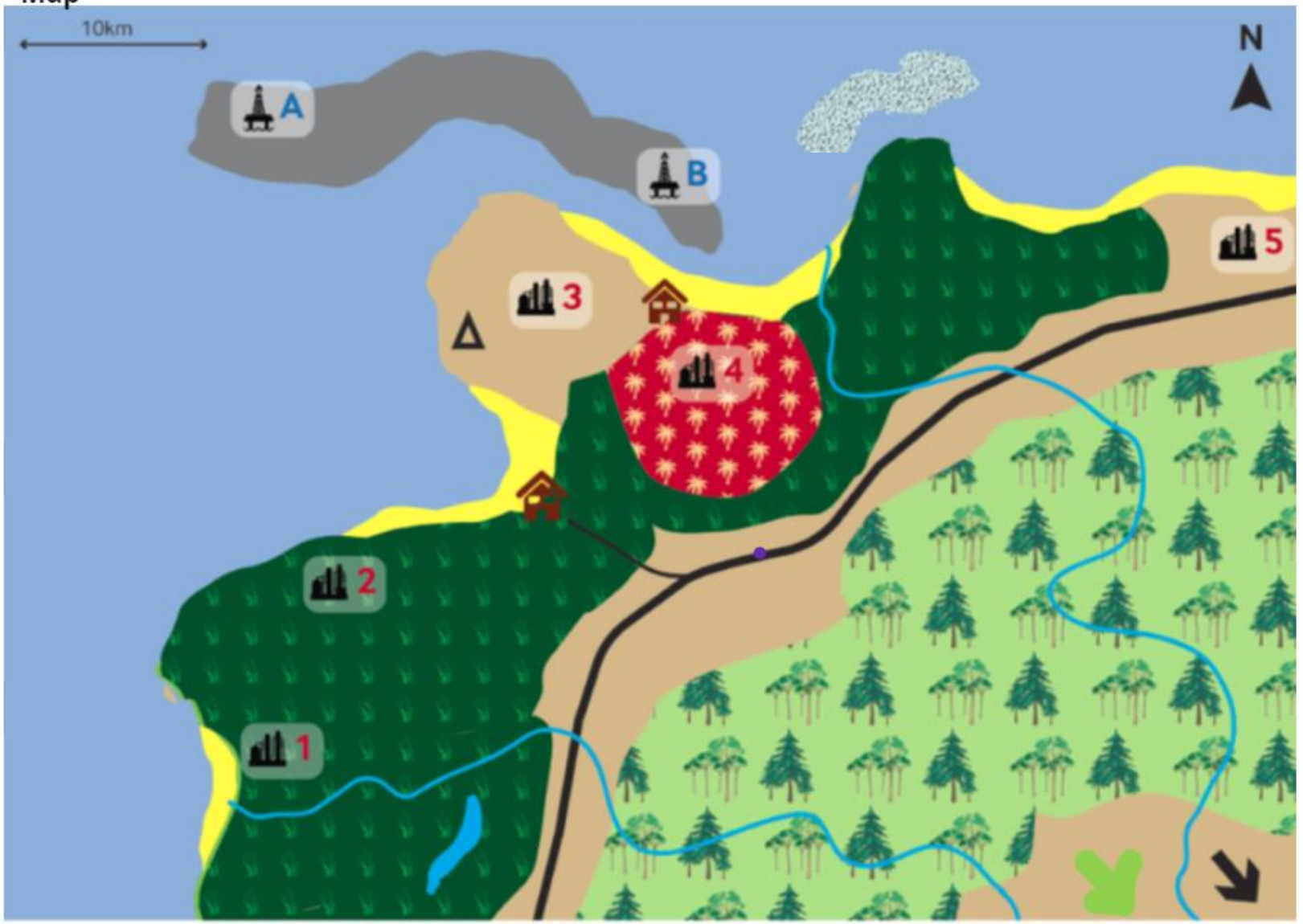
Road

Offshore drilling platform

Onshore processing plant

Direction of oil demand

Map



CONSIDERATIONS

Scrubland

Forest

Palm oil plantation

Mangroves

Beaches

Coral reefs

Subsistence agriculture

Seagrass

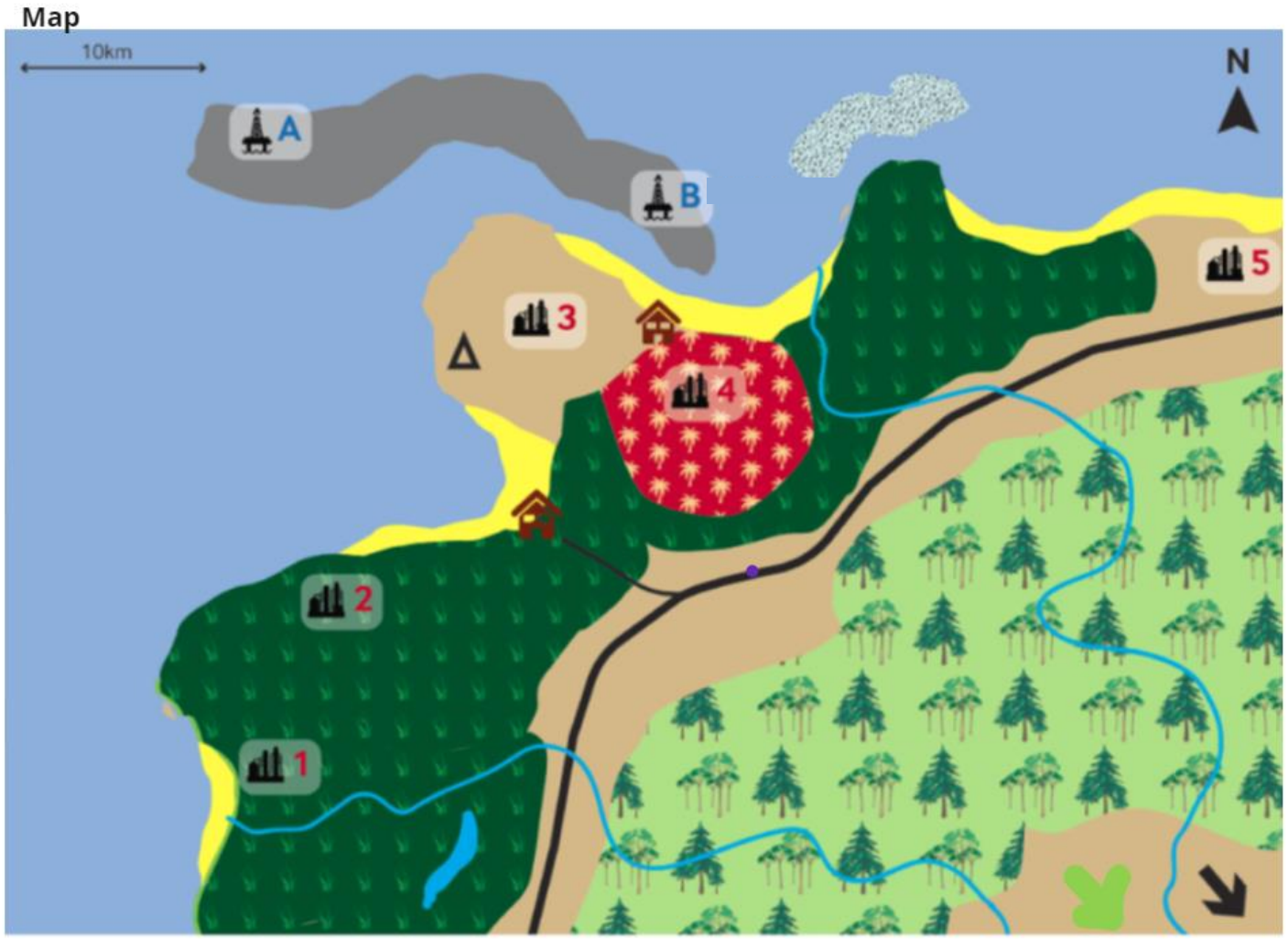
Processing plants

Potential drilling platforms

Villages

Artisanal fishing

BREAK OUT DISCUSSIONS



- What are the **potential environmental and social impacts** to consider for each of the proposed concession blocks?
- What **biodiversity features / ecosystem services** might be present in the area?
- **Which concession block would you choose**, and why? What are the main trade-offs?
- **What information / data might be useful** to inform your baseline?

DEBRIEF

Potential priority impacts to consider

- Impact to coral reef
- Damage to mangroves
- Presence of threatened species
- Loss of access by locals to habitat/beach
- Habitat loss or fragmentation from road and pipelines (terrestrial and marine)
- Visual impacts of structures
- Water requirements/impacts
- Potential presence of protected areas / KBAs

Area of influence considerations

- Effects of direction of water flows (upstream/downstream)
- Geographical and social extent of indirect effects
- Induced access to previously undisturbed areas
- Cumulative impacts of other businesses operating in the area

UN environment programme

WCMC