

# CHARTING A NATURE POSITIVE FUTURE FOR FOOD AND AGRICULTURE



## BETSY HICKMAN

Director  
Anthesis Group

- ▶ Leads Nature offerings across the Americas
- ▶ 15+ years experience harnessing purchasing power and working lands as a force for conservation
- ▶ Previous tenures at Field to Market: The Alliance for Sustainable Agriculture and WWF



1000+ Experts

42 Countries

2600+ Clients

**7/10**  
FORBES' WORLD'S MOST VALUABLE BRANDS

NGO  
Public Sector

14%  
Government

17%  
Public Companies

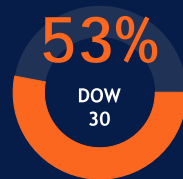
66%  
Private Companies



Our clients have an estimated workforce of **18 million**



Worth  
**\$17.9 Trillion USD**  
Aggregated market cap of 180 largest clients



# WHAT WE'LL COVER TODAY



## 01

### INTRODUCTION

Global Risks  
Key Challenges

## 02

### DEFINITIONS

Nature, Biodiversity,  
Natural Capital,  
Ecosystem Services

## 03

### NATURE & FOOD

Relationship Between  
Nature and Food

## 04

### EVOLVING TRENDS

Emerging Disclosure &  
Reporting Frameworks  
No Regrets Actions

# Introduction





# NATURE IS UNDER THREAT AS NEVER BEFORE

“Biodiversity loss and ecosystem collapse” is one of the fastest deteriorating global risks over the next decade

Burdens on natural ecosystems will grow given their still undervalued role in the global economy and overall planetary health.

Nature loss and climate change are inextricably intertwined - a failure in one sphere will cascade into the other.


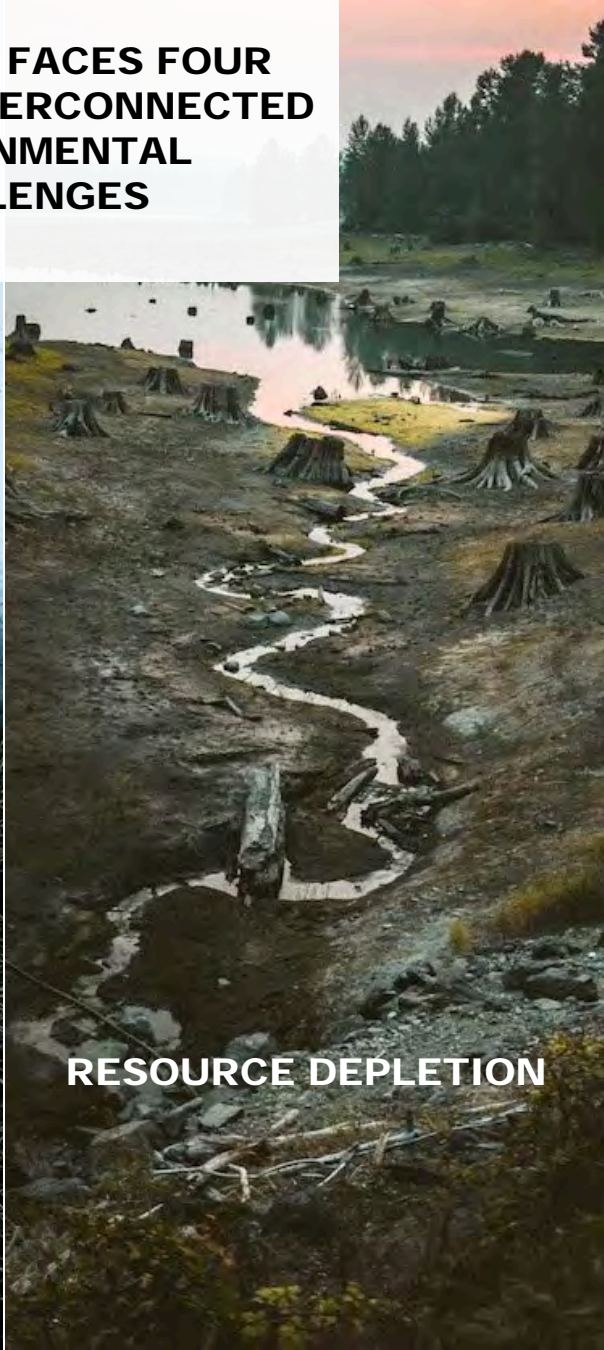



50% of the top 10 short-term risks and 60% of the long-term risks relate to deteriorating environmental risks





THE WORLD FACES FOUR  
CRITICAL, INTERCONNECTED  
ENVIRONMENTAL  
CHALLENGES



CLIMATE CHANGE

BIODIVERSITY LOSS

RESOURCE DEPLETION

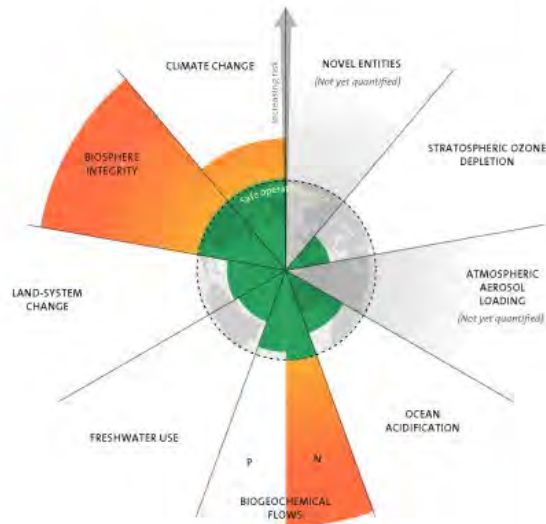
POLLUTION



# PLANETARY BOUNDARIES

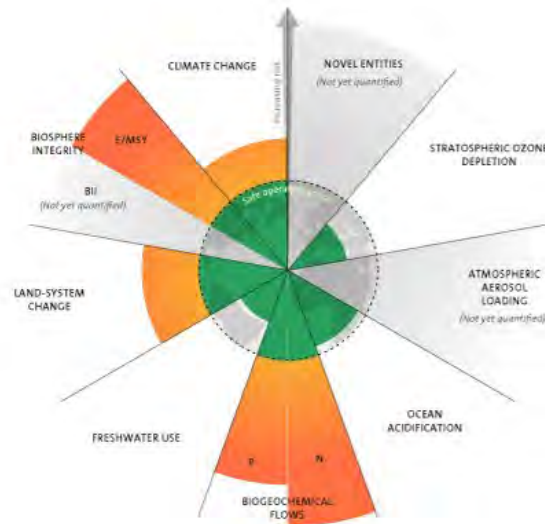
## TIME TREND

2009



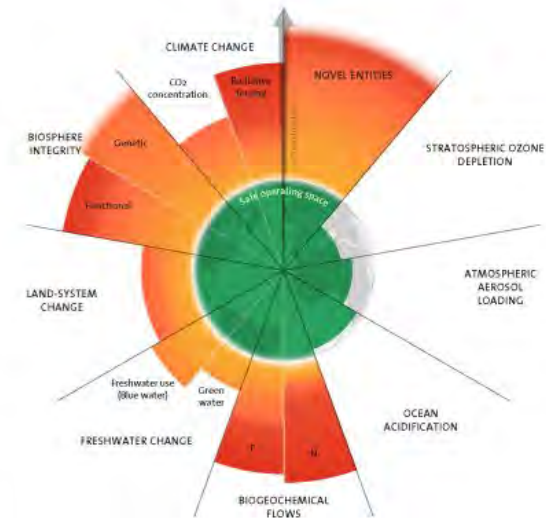
3 boundaries crossed

2015



4 boundaries crossed

2023



6 boundaries crossed

Source: <https://www.stockholmresilience.org/research/planetary-boundaries.html>



DEFINITIONS

# Understanding Key Concepts in Nature



# THREE FOUNDATIONAL CONCEPTS

## Nature

We define nature as the natural, physical and material world around us, including the *air we breathe*, the *water we drink*, the *forests, land and oceans* we rely on.

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## Ecosystem

A dynamic complex of plant, animal and microorganism communities and the non-living environment, interacting as a functional unit

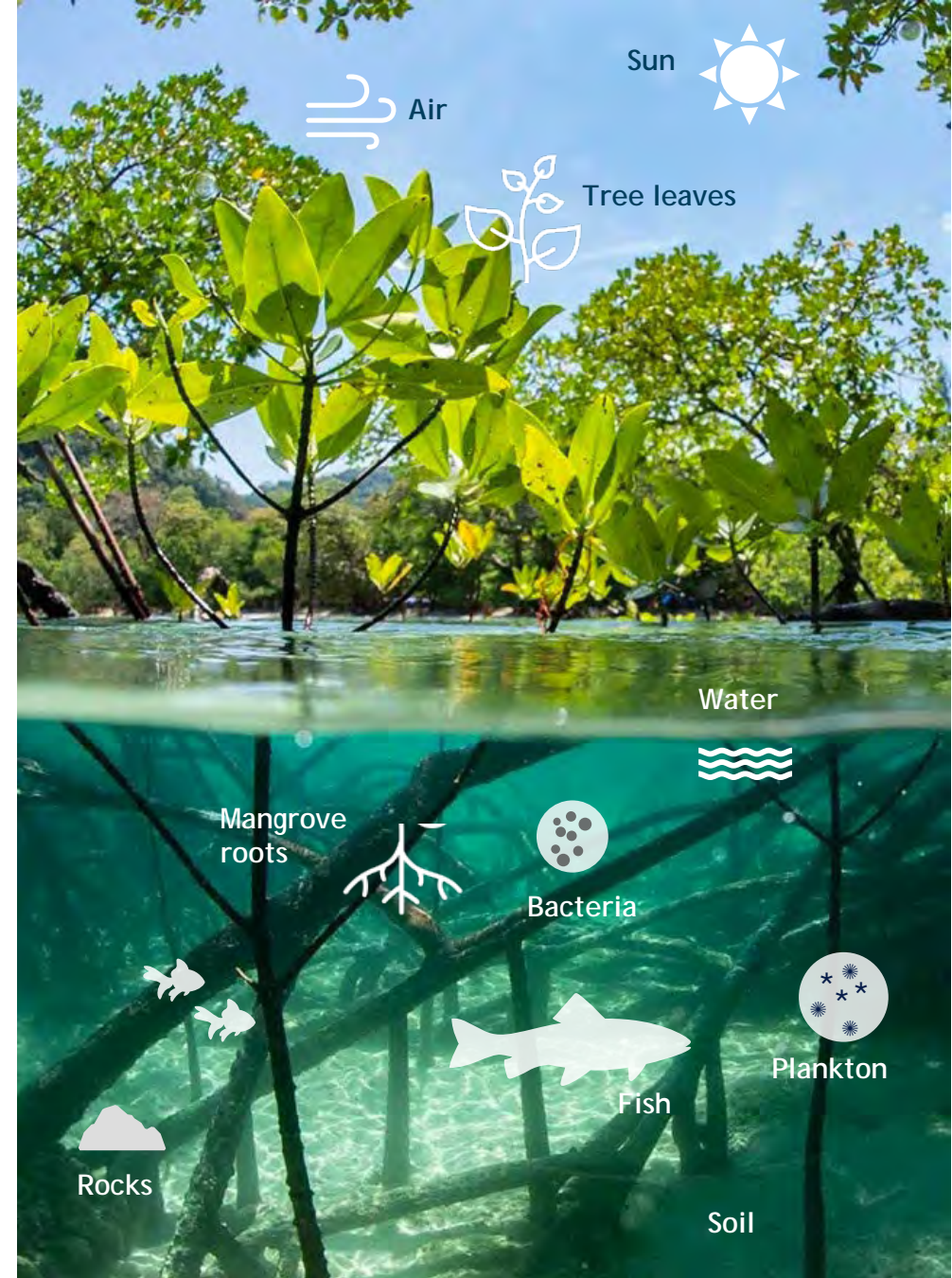
\* Note that countries may have different classifications of ecosystem types, which may have implications for adherence to the equivalency principle, notably in the context of no-net-loss requirements

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## Biodiversity

Measures the quality of nature through its diversity. We can look at the diversity of species, diversity of genes within a species or population, and/or diversity of how an ecosystem is organized.

***Biodiversity underpins the health, abundance and resilience of our natural resources and ecosystems***





# NATURAL CAPITAL: PLACING A VALUE ON NATURE

Nature Capital is the stock of renewable and non-renewable natural resources, (e.g., plants, animals, air water, soils, minerals) that combine to yield a flow of benefits to people

Biodiversity  
underpins both  
stocks and  
ecosystem  
services



# ECOSYSTEM SERVICES DESCRIBE THE BENEFITS AND SERVICES NATURE PROVIDES TO HUMANITY

## PROVISIONING SERVICES

Obtaining products from ecosystems, such as food, water and resources, including wood, oil and genetic resources and medicines.

## REGULATING SERVICES

Any benefit obtained from the natural processes and functioning of ecosystems

## SUPPORTING SERVICES

Those which relate to habitat functioning themselves, and therefore influence survival.

## CULTURAL SERVICES

Include non-material benefits that people can obtain from ecosystems.







NATURE & FOOD

# Exploring Food & Agriculture's Unique Relationship with Nature

# NATURE UNDERPINS OUR QUALITY OF LIFE AND OUR GLOBAL ECONOMY

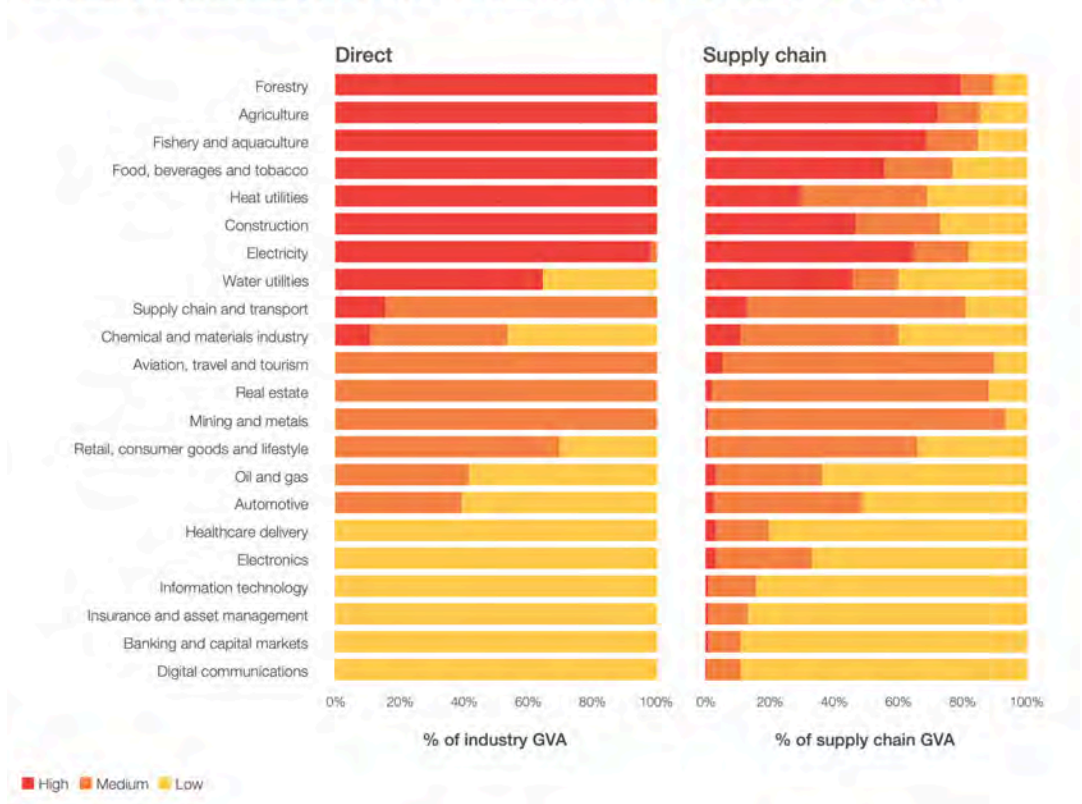
Economic benefits of ecosystem services are estimated at **an annual value of \$170-190 trillion**, equivalent to double the value of global GDP.

Businesses are more dependent on nature than previously thought, with approximately \$44 trillion of economic value generation - equivalent to **more than half of the world's GDP** - moderately or highly dependent on nature.

**Food and agriculture industries are among the sectors most highly dependent upon nature.**

Which means that approximately **\$2.5 trillion** (agriculture) and **\$1.4 trillion** (food and beverage) is at risk if we do not halt and reverse biodiversity loss.

Percentage of direct and supply chain GVA with high, medium and low nature dependency, by industry





# FIVE LEADING DRIVERS OF BIODIVERSITY LOSS

NATURE LOSS CREATES SIGNIFICANT RISKS FOR BUSINESSES AND THE WIDER ECONOMY



## 1 Land-use and sea-use change

75% of land-based environments and 66% of marine environments have been altered by human actions.



## 2 Direct exploitation of organisms

In 2015, 33% of marine stocks were being fished at unsustainable levels; 60% were maximally sustainably fished, and 7% harvested at levels lower than what can be sustainably fished.



## 3 Climate change

Global heating has already negatively impacted 47% of threatened mammals and nearly one-quarter of threatened birds.



## 4 Pollution

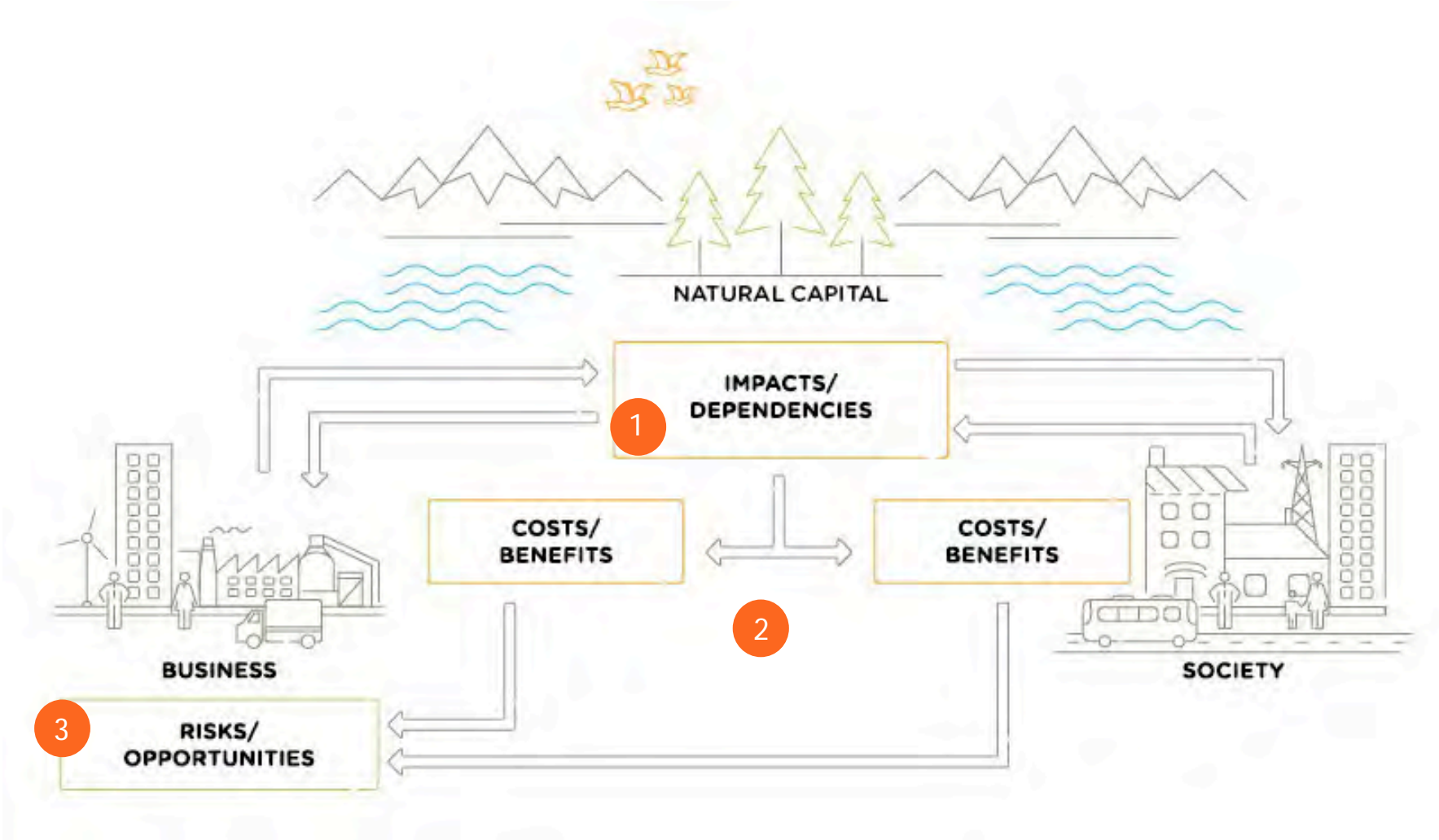
Plastic pollution has increased tenfold since 1980, with 300-400 million tons of waste dumped annually in the world's waters.



## 5 Invasive non-native species

The number of invasive alien species per country have risen by about 70% since 1970.

# THE INTERACTION OF NATURE WITH BUSINESS AND SOCIETY IS A TWO-WAY INTERACTION



\* Source: Capitals Coalition



# KEY NATURE-RELATED DEPENDENCIES IDENTIFIED FOR ROW CROP COMMODITIES

Value chain stages	Dependencies																			
	Direct physical inputs					Enable production processes				Mitigate direct impacts					Protect from disruption					
	Animal-based energy	Fibres & other materials	Genetic materials	Ground-water	Surface water	Pollination	Soil quality	Water flow maintenance	Water quality	Bio-remediation	Dilution by atmosphere & ecosystems	Filtration	Ventilation	Mediation of sensory impacts	Buffering	Climate regulation	Disease control	Flood & storm protection	Mass stabilization & erosion control	Pest control
Inputs								Important for operations & product quality		Mitigate pollution from operations	Mitigate pollution from operations	Mitigate pollution from operations				Operations affected by temperatures				
Agri-production (irrigated)				Where irrigated (secondary source today)	Where irrigated (primary source today)		Essential for crop health & yield	Replenish surface & ground-water		Mitigate pollution from farm operations	Mitigate pollution from farm operations	Mitigate pollution from farm operations			Replenish eroded soil & support soil health	Crop health & yield affected by temperatures	Natural crop protection	Natural barriers & root systems	Essential to maintain soil structure	Natural crop protection
Agri-production (rainfed)							Essential for crop health & yield	Replenish surface & ground-water		Mitigate pollution from farm operations	Mitigate pollution from farm operations	Mitigate pollution from farm operations			Replenish eroded soil & support soil health	Crop health & yield affected by temperatures	Natural crop protection	Natural barriers & root systems	Essential to maintain soil structure	Natural crop protection
Trading & distribution																Operations affected by temperatures			Transport corridors exposure to weather	
Processing & manufacturing				Needed for operations	Needed for operations				Important for operations & product quality							Operations affected by temperatures			Facilities exposure to weather	

High materiality
Very High materiality

 ↑ ↓ Rating difference vs TNFD sector guidance, if any

Source: WBCSD. "Roadmap to Nature Positive: Foundations for the agri-food system."  
 \*Analysis limited to Soy/Corn/Rice.

# KEY NATURE-RELATED IMPACTS IDENTIFIED FOR ROW CROP COMMODITIES

Value chain stages	Impacts											
	Land-/water-/sea-use change			Resource exploitation		Climate change	Pollution				Invasive species & others	
	Terrestrial ecosystem use	Freshwater ecosystem use	Marine ecosystem use	Water use	Other resource use	GHG emissions	Non-GHG air pollutants	Water pollutants	Soil pollutants	Solid waste	Disturbance	Biological alterations/interferences
Inputs	Land-use in mining operations			Mining & industrial processes	Mining of minerals	Mining & industrial processes	Mining & industrial processes		Mining & industrial processes		Noise & light pollution	
Agri-production (irrigated)	Land-use change & soil loss			For irrigation		Land-use change & farm operations	Fuel use & agrichemical emissions/ drift	Agrichemical run-off & leaching	From agrichemicals			From GMOs
Agri-production (rainfed)	Land-use change & soil loss					Land-use change & farm operations	Fuel use & agrichemical emissions/ drift	Agrichemical run-off & leaching	From agrichemicals			From GMOs
Trading & distribution	Land clearing for transport infrastructure		Ocean transport & port construction			Fuel use in transport	Fuel use in transport				Noise & light pollution	Spread of disease & invasive species
Processing & manufacturing				Industrial processes & in products		Industrial processes	Industrial processes	Industrial processes				
Retail						Distribution & waste						

High materiality
Very High materiality

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Source: WBCSD. "Roadmap to Nature Positive: Foundations for the agri-food system."  
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**Agri-food contributes around *one-third of all GHGs* and *70% of freshwater use* and is the *primary driver of global land-use change* and *biodiversity loss*.**

**With food demand growing by up to 50% by 2050, *agri-food simultaneously poses the most substantial threat to nature* AND *offers the greatest potential to halt and reverse nature loss*.**

**We stand at a pivotal juncture today, presented with a critical opportunity to rethink how we produce, source, transport and consume agricultural products.**



# WHAT ARE THE MAIN RISKS AND OPPORTUNITIES FOR BUSINESSES?

Business risks are typically divided into four general and inter-related categories:

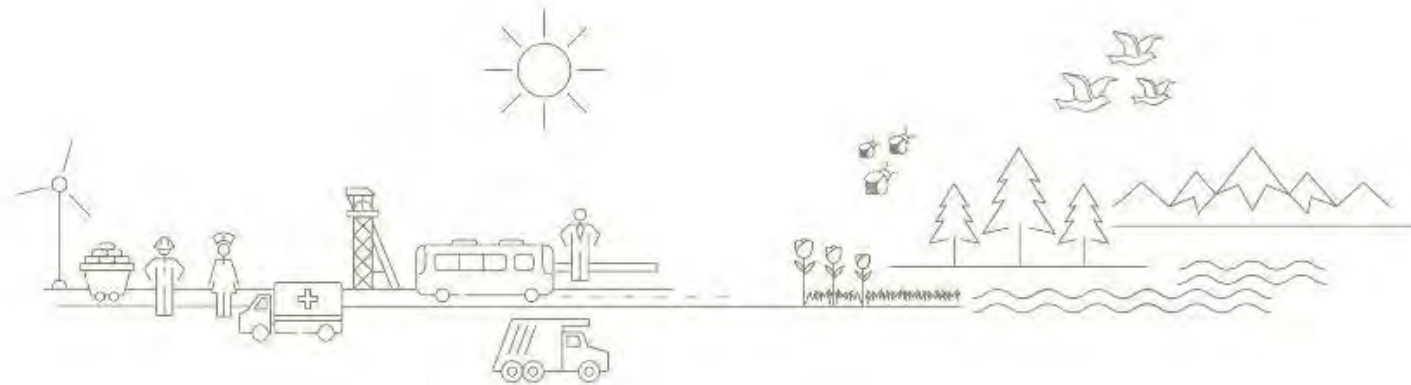




# WHY SHOULD YOUR BUSINESS ASSESS ITS IMPACTS & DEPENDENCIES ON NATURE?

Many natural capital risks and opportunities are becoming increasingly visible, and **business needs a way to understand and manage these.**

- ▶ Understand relationships with nature in a structured way
- ▶ Future proof your business model
- ▶ Mitigate risks
- ▶ Increased competitive advantage
- ▶ Create opportunities
- ▶ Inform decisions that are important to your business
- ▶ Access to finance
- ▶ Recruitment & retention of staff



Evolving Trends

# Understanding Emerging Disclosures & No Regrets Action to Accelerate a Nature Positive Future

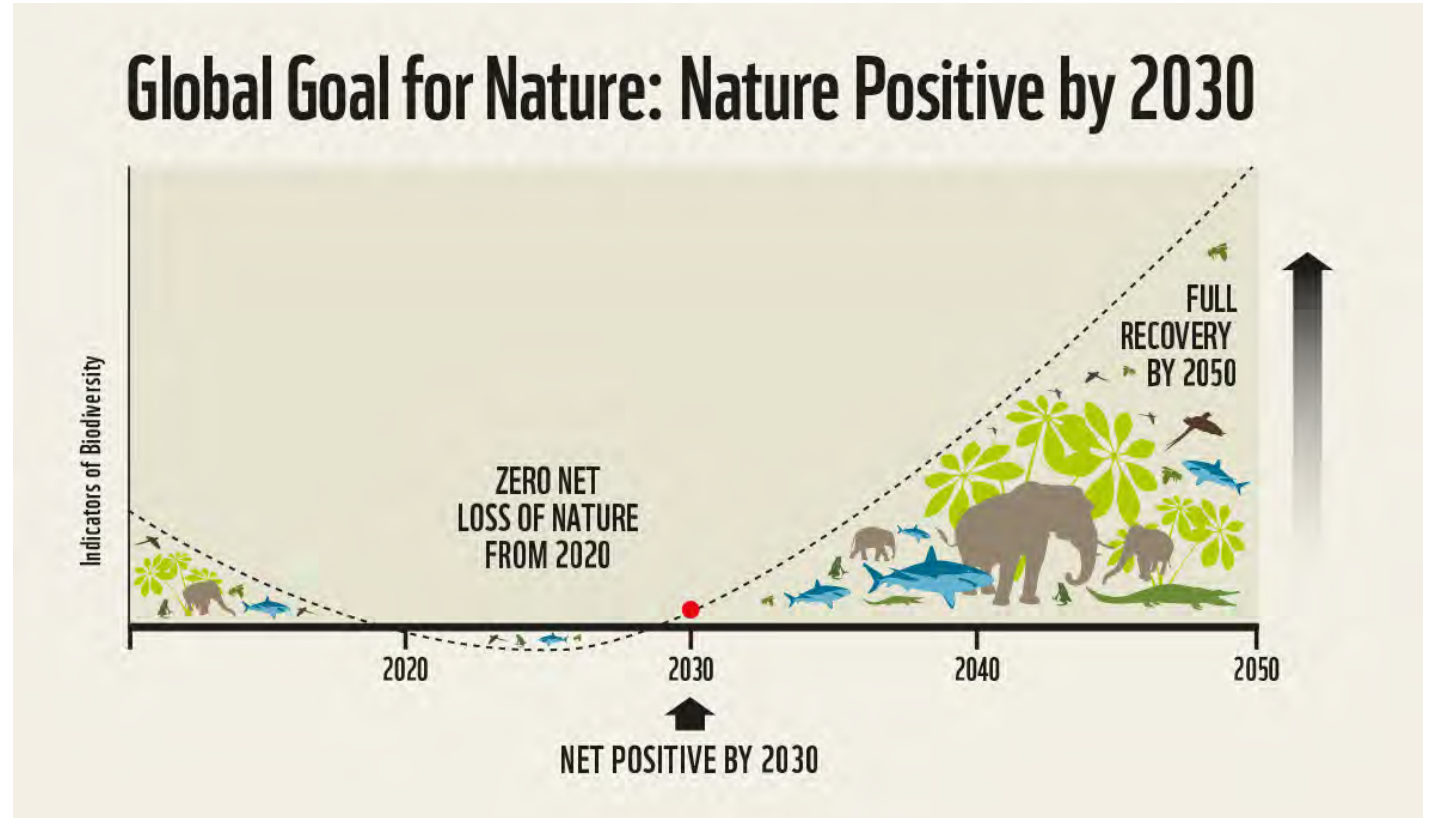


# NATURE IS EVERYONE'S BUSINESS

COP15 of the UN Convention on Biological Diversity codified the groundbreaking Kunming-Montreal Global Biodiversity Framework, committing 196 parties to halting biodiversity loss by 2030 through 23 ambitious targets for the conservation and sustainable use of nature.

This Global Goal for Nature—in parallel to the Paris Agreement for Climate—is our guiding light to secure a Nature Positive world.

Businesses are key to implementing the GBF, with Target 15 calls “for all large businesses and financial institutions to regularly monitor, assess and transparently disclose their risks, dependencies and impacts on biodiversity.” This includes assessing the impacts of their operations, products, and services on nature and reporting on their progress.



*By 2030, we must halt and reverse nature loss, through increasing the health, abundance, diversity and resilience of species, populations and ecosystems to secure a net positive future that visibly and measurably places nature on the path of recovery.*

*By 2050, nature must recover so that thriving ecosystems and nature-based solutions support future generations, the diversity of life, and continue to play a critical role in halting runaway climate change.*

# NATURE IS A BLINDSPOT FOR FOOD & AGRICULTURE

*Only 2% of leading food and agriculture companies disclose impacts on nature. No companies holistically address their dependencies on nature.*

Despite the sector's reliance on the long-term health of the planet to grow crops, only 2% of 350 food and agriculture companies analyzed by the World Benchmarking Alliance have carried out a science-based assessment to show how their operations impact nature and biodiversity.

Nature is currently a significant blind-spot, with 94% of companies in the Benchmark yet to commit to a nature-positive trajectory by setting time-bound targets to eliminate deforestation.



Source: 2023 Nature Benchmark. World Benchmarking Alliance. <https://www.worldbenchmarkingalliance.org/publication/nature/rankings>



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*As we see more evidence and more interest in the kind of impacts and dependencies associated with natural capital being a material driver of business value, we are naturally interested to learn more, hear more from companies about **how they're managing the risks and opportunities associated with natural capital**, and how that can help **deliver long term business value** for our clients.*

**Chris Weber**

BlackRock, Head of Climate and Sustainability Research

CLIMATE



LAND



RESILIENCE



BIODIVERSITY



WASTE



OCEANS



FRESHWATER



FORESTS



FOOD



**WE WILL EXPAND OUR WORK TO COVER THE FULL RANGE  
OF PLANETARY BOUNDARIES AND EARTH SYSTEMS**





# MORE THAN 200 INSTITUTIONAL INVESTORS WITH \$26.6+ TRILLION IN ASSETS FOCUSED ON RAISING CORPORATE AMBITION IN FOOD, AG, & OTHER PRIORITY SECTOR ON NATURE ACTION

## The Launching Investor Group includes:

AXA Investment Managers, Columbia Threadneedle Investments, BNP Paribas Asset Management, Church Commissioners for England, Domini Impact Investments, Federated Hermes Limited, Karner Blue Capital, Robeco, Storebrand Asset Management, and Christian Brothers Investment Services



“

***We now move into action and engagement, to bring the initiative's investor expectations to companies and mobilize meaningful corporate action to halt and reverse nature loss using a rights-based approach.***

Mary Beth Gallagher, Director of Engagement, Domini Impact



**Nature Action 100**

# UK government pushing GFANZ members on nature, says Lord Goldsmith

*Minister voices hope that the UK could be first country to mandate TNFD reporting; move to Canada confirmed for COP15.*

Lord Goldsmith also flagged the work of the Taskforce on Nature-related Financial Disclosures (TNFD), which has promised to develop a framework for companies and financial institutions to assess, manage and report on their dependencies and impacts on biodiversity by September 2023. “It’s not something that’s particularly well known,” he said. “It’s not something that rolls off the tongue and it’s not something that people are talking about, but there is a real interest in the Treasury. And it’s not uniform across the whole Treasury, but **there are real pockets of interest within the Treasury and enthusiasm for trying to figure out how we can create parameters in which nature increasingly factors in the decisions that are taken.**”

Earlier in the hearing, Lord Goldsmith noted that the UK was the first country to commit to mandatory reporting in line with the Task Force on Climate-Related Financial Disclosures. “**I hope we will be the first country to do the same with the TNFD,**” he said. “It’s not yet government policy, but I’m absolutely convinced it will be at some point soon.”



# ASSESSING NATURE-RELATED RISKS AND OPPORTUNITIES

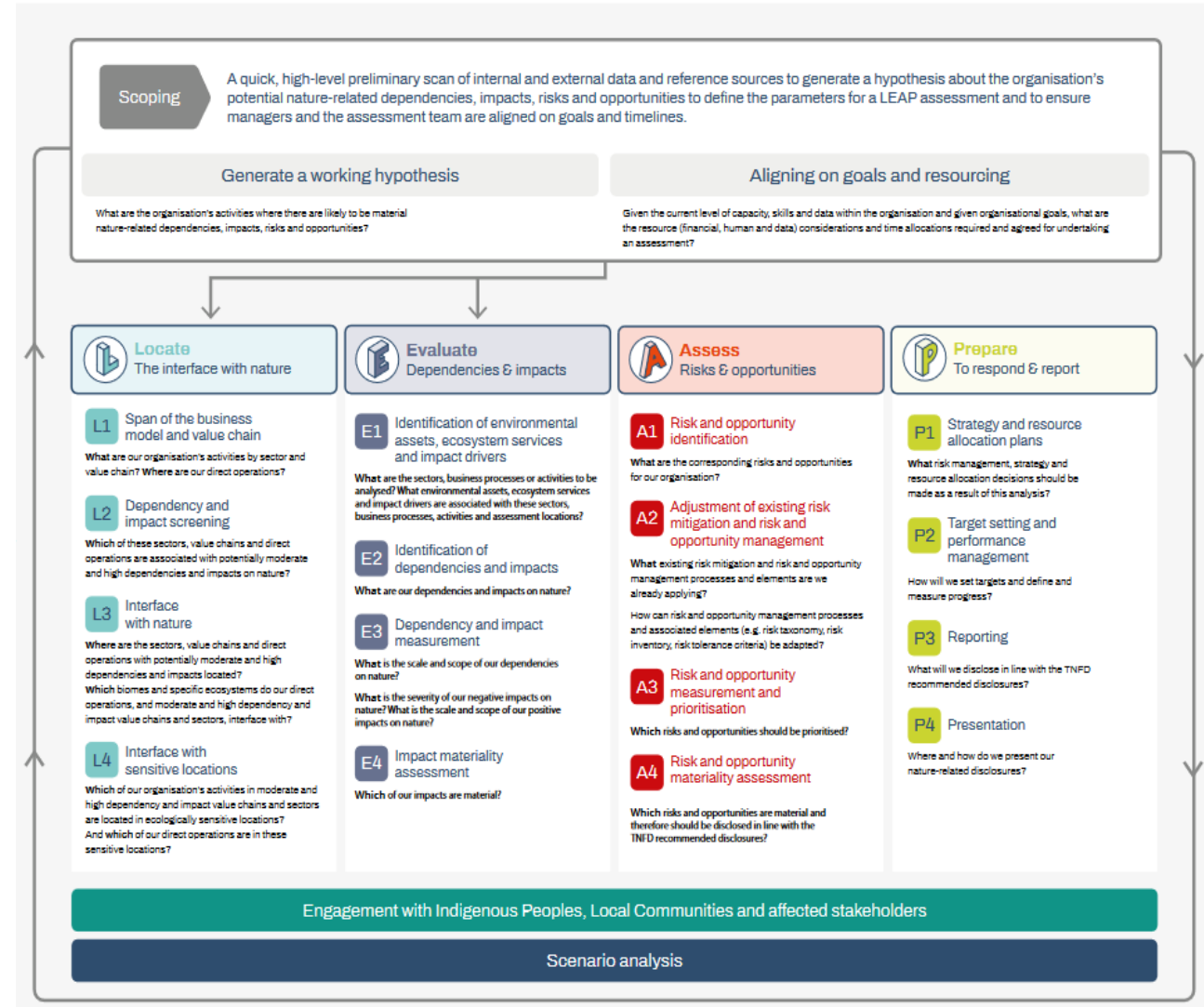
## LEAP FRAMEWORK

### Nature Risk & Opportunity Assessment

Anthesis supports businesses and financial institutions in conducting the nature-related impacts and dependencies assessment of their direct operations and value chain to prioritize nature-related risks and opportunities.

Together, we support companies to align with Taskforce on Nature-Related Financial Disclosure's LEAP Framework by:

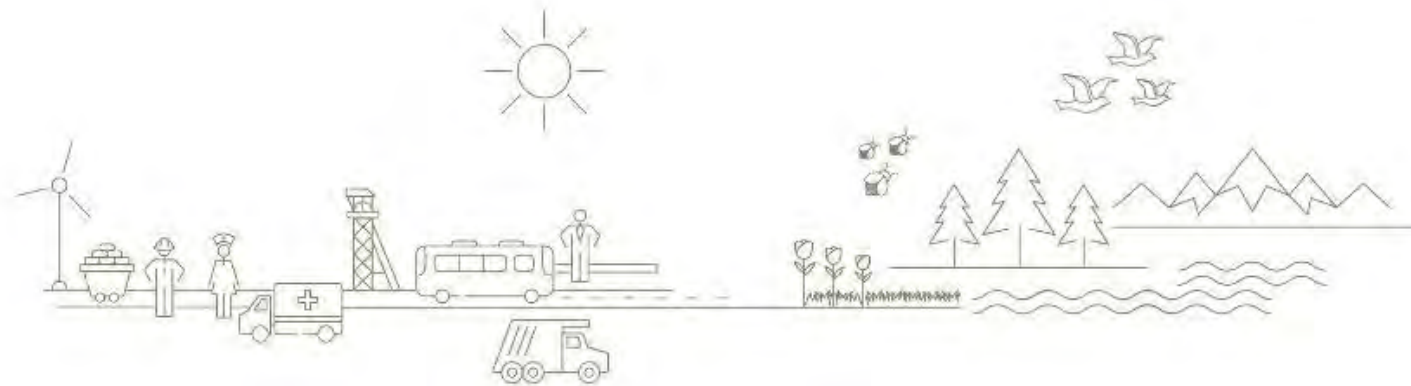
- **Locating** your interface with nature;
- **Evaluating** your dependencies and impacts;
- **Assessing** your risks and opportunities; and
- **Preparing** to respond to nature-related risks and opportunities and report.



# WHY SHOULD YOUR BUSINESS ASSESS ITS IMPACTS & DEPENDENCIES ON NATURE?

Many natural capital risks and opportunities are becoming increasingly visible, and **business needs a way to understand and manage these.**

- ▶ Understand relationships with nature in a structured way
- ▶ Future proof your business model
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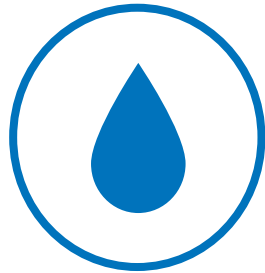




# HELPING YOU TRANSFORM ISOLATED ISSUES INTO NEW OPPORTUNITIES THROUGH **INTEGRATED ASSESSMENT** & **ACTION ON NATURE**



**REDUCING CARBON  
EMISSIONS**



**PRESERVING  
FRESHWATER RESOURCES  
AND WATER SECURITY**



**SUPPORTING  
BIODIVERSITY AND  
ECOSYSTEM  
SERVICES**



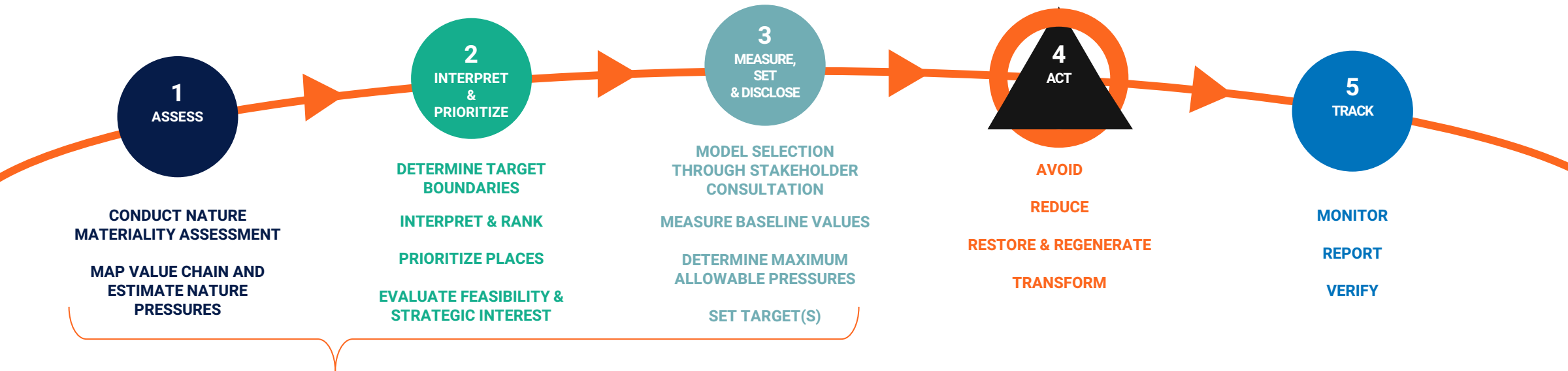
**PRESERVING AND  
REGENERATING  
LAND SYSTEMS**



**SECURING HEALTHY,  
DIVERSE OCEANS**



# GUIDING YOU THROUGH A STEPWISE APPROACH TO SETTING SCIENCE-BASED TARGET FOR NATURE



## The first corporate science-based targets for nature are here:

- Freshwater
- Land

With our in depth understanding of the SBTN guidance and proven track record of supporting companies in setting and validating SBTs for Climate, Anthesis experts can guide you through a stepwise process to set SBTs for Nature, implement strategies to halt nature loss and monitor and report progress.

Drawing upon our global network of nature experts, including specialists in freshwater, forests, grasslands, oceans, climate, biodiversity, and land use change, Anthesis can help your organization build a roadmap to address nature-related impacts and dependencies of your direct operations and value chain.



# ACCELERATING A NATURE POSITIVE FUTURE BY ADDRESSING IMPACTS & DEPENDENCIES ON FRESHWATER



## FRESHWATER SCIENCE-BASED TARGETS FOCUS ON TWO KEY ISSUES:

### 1. WATER USE

Addressing withdrawals from surface water bodies and groundwater

### 2. WATER QUALITY

Reducing pollution resulting from nitrogen and phosphorus.

These pressures are the first to be addressed by Freshwater SBTs because of their relevance to the majority of companies (freshwater use), their significance in specific sectors and environmental issues (freshwater quality) and are together two of the key pressures that are driving the loss of nature in ecosystems around the world.

# STEP 3: SAMPLE SCIENCE-BASED TARGETS FOR FRESHWATER



Address corporate pressures on nature through freshwater withdrawals from surface water bodies and groundwater

SAMPLE TARGET:

[Company] will reduce its water withdrawals in the [Watershed] Basin to [Amount] ml/y by [Target Year].



Address freshwater pollution by reducing the total amount of nitrogen and phosphorus entering a surface water body

SAMPLE TARGET:

[Company] will reduce its nutrient load in the [Watershed] Basin to [Amount] kg P/yr and [Amount] kg N/yr by [Target Year].



# ACCELERATING A NATURE POSITIVE FUTURE BY ADDRESSING IMPACTS & DEPENDENCIES ON LAND



## LAND SCIENCE-BASED TARGETS FOCUS ON THREE KEY ISSUES:

### 1. NO CONVERSION OF NATURAL ECOSYSTEMS

Halting conversion of natural ecosystems

### 2. LAND FOOTPRINT REDUCTION

Freeing up agricultural land for natural ecosystem restoration

### 3. LANDSCAPE ENGAGEMENT

Improving ecological integrity of landscapes

The first land targets are at a beta stage and are currently being piloted in 2023 by the initial group of target-setting companies. SBTN's goal is to capture learnings from these pilots, in order to make optimizations ahead of a Version 1 roll-out planned for early 2024.

# STEP 3: SAMPLE SCIENCE-BASED TARGETS FOR LAND



Stop direct and indirect conversion of all natural, terrestrial ecosystems

## SAMPLE TARGET:

Direct Operations: [Company] will have zero conversion of natural ecosystems by [Target Year], compared with a 2020\* baseline. [Company] will remediate all past conversion occurring between 2020\* and [Target Year].



Reduce the global footprint of production systems and work with stakeholders on ecosystem restoration through the Landscape Engagement Target

## SAMPLE TARGET:

[Company] commits to reduce absolute agricultural land footprint, from direct operations [and upstream impacts], [percent reduction]% by [target year] from a [base year].



Engage in materiality relevant landscape initiatives to support actions and enable condition that lead to substantial improvements in nature

## SAMPLE TARGET:

[Company] is engaged in [Initiative Name] and committed to a substantial improvement in ecological and social conditions by 2030.



# WHAT IS YOUR COMPANY'S ROLE IN ACCELERATING NATURE POSITIVE FOOD PRODUCTION?



# CONTACT

Betsy Hickman

Director, Nature

[betsy.hickman@anthesisgroup.com](mailto:betsy.hickman@anthesisgroup.com)

