Global Biodiversity Outlook 5

COP decisions 13/29 and 14/35 – GBO-5 should provide:

- A report on progress to Aichi Biodiversity Targets, and contributions to the SDGs;
- A basis for post-2020 global biodiversity framework

GBO-5 should draw upon, 6th National Reports, IPBES GA etc.

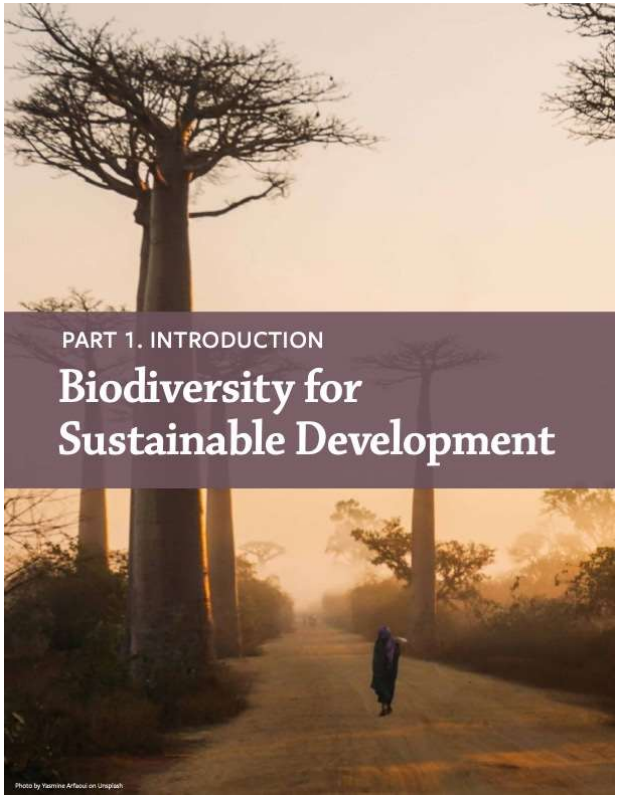
167 National Reports and **170** NBSAPs analysed

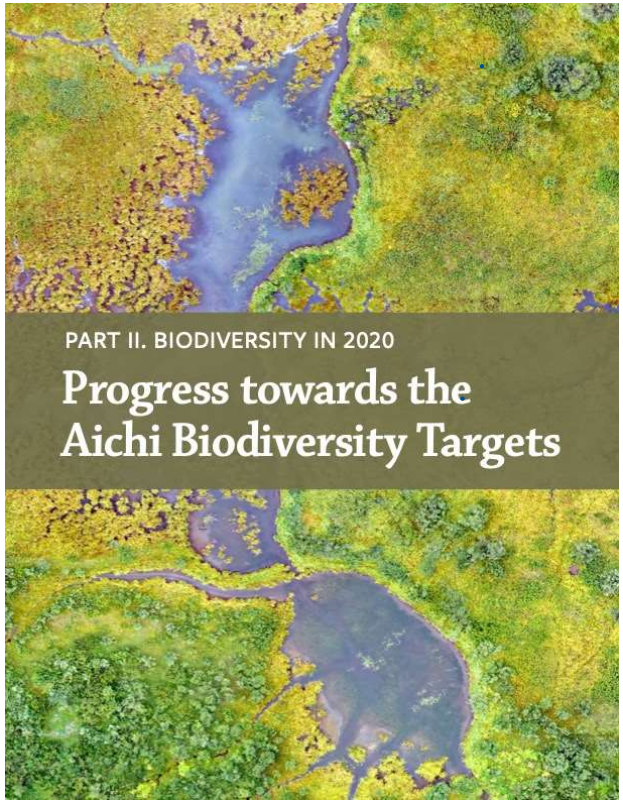
93 References to national reports from **59** Parties

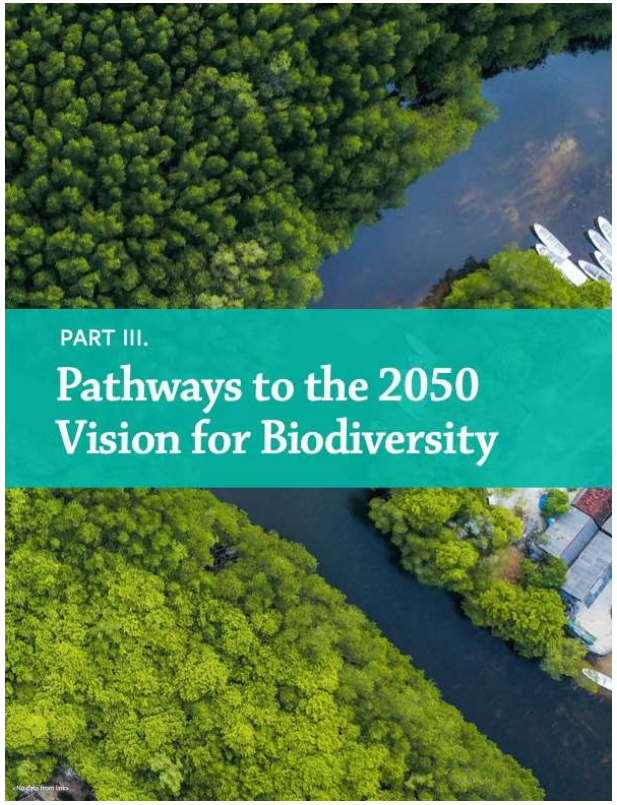
675 Citations to academic literature and technical reports

50 Indicators; Focus on trends 2000-2020

926 Comments on the first draft

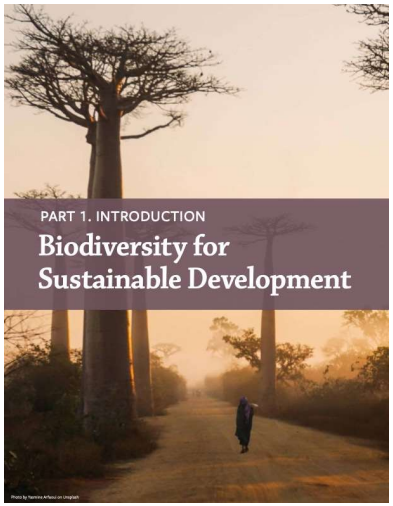

PART 1. INTRODUCTION
Biodiversity for Sustainable Development


PART II. BIODIVERSITY IN 2020
Progress towards the Aichi Biodiversity Targets


PART III.
Pathways to the 2050 Vision for Biodiversity

PART 1. INTRODUCTION

Biodiversity for Sustainable Development



Biodiversity → SDG

- Contributes
- Supports
- Loss Jeopardizes

SDG → Biodiversity

- Contributing
- Enabling
- Constraining

SDG	Aichi Biodiversity Target	Biodiversity's impact on the SDG	SDG's impact on biodiversity
1	18	✚ !	▽ ⊙
2	7, 13, 16	✚ !	▲ ▽ ⊙
3		✚ !	▽
4			▽
5			▽
6	5, 14	✚ !	▲ ▽
7		✙	▲ ⊙
8	4	✙	▽ ⊙
9		✙	▽ ⊙
10			▽
11		✚ !	▲
12	1	✙	
13		✚ !	▲ ⊙
14	3, 6, 8, 10, 11	✚ !	▲
15	2, 5, 9, 11, 12, 15, 16	✚ !	▲
16			▽
17	19, 20		▽

PART II. BIODIVERSITY IN 2020

Progress towards the Aichi Biodiversity Targets

For each Aichi Biodiversity Target:

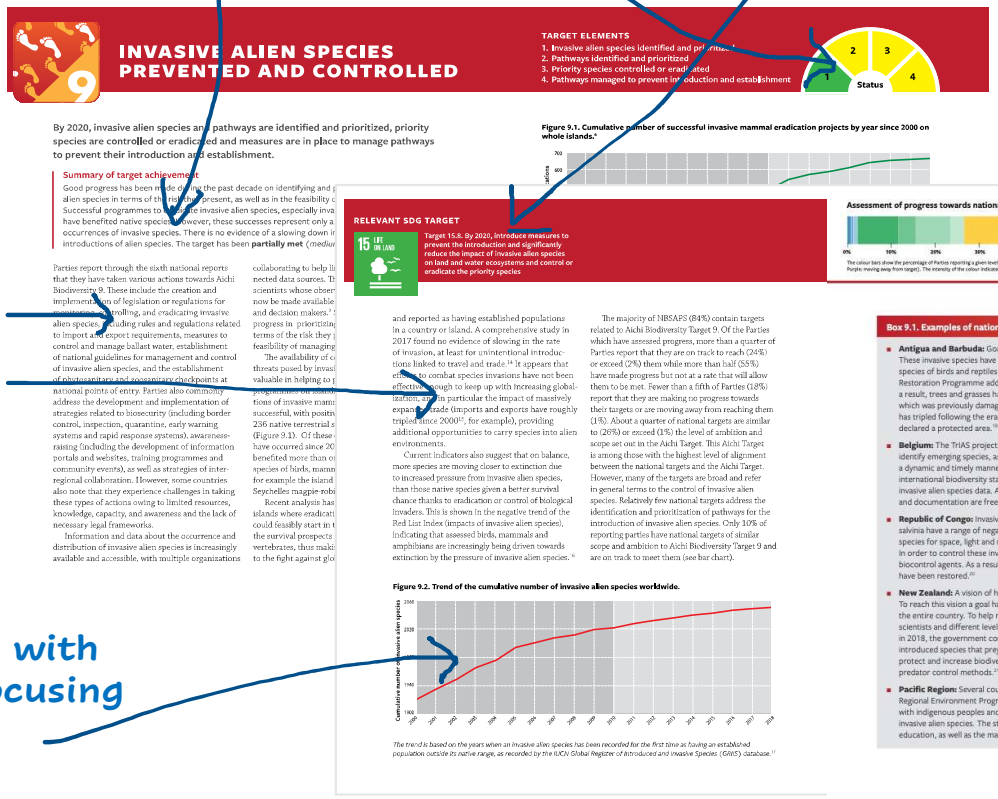
Summary of progress towards target and each element

Most relevant SDG target(s)

Analysis and examples from national report

Narrative based on national reports and scientific literature

Indicator based charts with data since 2000 and focusing on changes since 2010



INVASIVE ALIEN SPECIES PREVENTED AND CONTROLLED

TARGET ELEMENTS
1. Invasive alien species identified and pri
2. Pathways identified and prioritized
3. Priority species controlled or eradicated
4. Pathways managed to prevent introduction and establishment

Status

By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated and measures are in place to manage pathways to prevent their introduction and establishment.

Summary of target achievement

Good progress has been made during the past decade on identifying and
alien species in terms of the risk they present, as well as in the feasibility
Successful programmes to eradicate invasive alien species, especially inva
have benefited native species. However, these successes represent only a
occurrences of invasive species. There is no evidence of a slowing down in
introductions of alien species. The target has been **partially met** (*mediu*

Parties report through the sixth national reports that they have taken various actions towards Aichi Biodiversity 9. These include the creation and implementation of legislation or regulations for quarantine, controlling, and eradicating invasive alien species, including rules and regulations related to import and export requirements, measures to control and manage ballast water, establishment of national guidelines for management and control of invasive alien species, and the establishment of quarantines and cooperative checkpoints at national points of entry. Parties also commonly address the development and implementation of strategies related to biosecurity (including border control, inspection, quarantine, early warning systems and rapid response systems), awareness-raising (including the development of information portals and websites, training programmes and community events), as well as strategies of inter-regional collaboration. However, some countries also note that they experience challenges in taking these types of actions owing to limited resources, knowledge, capacity, and awareness and the lack of necessary legal frameworks.

Information and data about the occurrence and distribution of invasive alien species is increasingly available and accessible, with multiple organizations collaborating to help li
nected data sources. Th
scientists whose observ
now be made available
and decision makers.
progress in prioritizin
terms of the risk they
feasibility of managing

The availability of c
threats posed by invasi
valuable in helping to
progress on invasive
tions of invasive mamm
successful, with positiv
236 native terrestrial s
(Figure 9.1). Of these
have occurred since 20
benefited more than o
species of birds, mamm
for example the island
Seychelles magpie-robi

Recent analysis has
islands where eradicati
could feasibly start in t
the survival prospects
vertebrates, thus maki
to the fight against glo

Figure 9.1. Cumulative number of successful invasive mammal eradication projects by year since 2000 on whole islands.*

RELEVANT SDG TARGET

Target 15.8. By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species

Assessment of progress towards national targets

and reported as having established populations in a country or island. A comprehensive study in 2017 found no evidence of slowing in the rate of invasion, at least for unintentional introductions linked to travel and trade.[14] It appears that efforts to combat species invasions have not been effective enough to keep up with increasing global-isation, and in particular the impact of massively expanded trade (imports and exports have roughly tripled since 2000[15], for example), providing additional opportunities to carry species into alien environments.

Current indicators also suggest that on balance, more species are moving closer to extinction due to increased pressure from invasive alien species, than those native species given a better survival chance thanks to eradication or control of biological invaders. This is shown in the negative trend of the Red List Index (impacts of invasive alien species), indicating that assessed birds, mammals and amphibians are increasingly being driven towards extinction by the pressure of invasive alien species. [16]

The majority of NBSAPS (84%) contain targets related to Aichi Biodiversity Target 9. Of the Parties which have assessed progress, more than a quarter of Parties report that they are on track to reach (24%) or exceed (2%) them while more than half (58%) have made progress but not at a rate that will allow them to be met. Fewer than a fifth of Parties (18%) report that they are making no progress towards their targets or are moving away from reaching them (1%). About a quarter of national targets are similar to (26%) or exceed (1%) the level of ambition and scope set out in the Aichi Target. This Aichi Target is among those with the highest level of alignment between the national targets and the Aichi Target. However, many of the targets are broad and refer in general terms to the control of invasive alien species. Relatively few national targets address the identification and prioritization of pathways for the introduction of invasive alien species. Only 10% of reporting parties have national targets of similar scope and ambition to Aichi Biodiversity Target 9 and are on track to meet them (see bar chart).

Figure 9.2. Trend of the cumulative number of invasive alien species worldwide.

The trend is based on the years when an invasive alien species has been recorded for the first time as having an established population outside its native range, as recorded by the IUCN Global Register of Introduced and Invasive Species (GRIIS) database.[17]

Box 9.1. Examples of national experiences and progress

- **Antigua and Barbuda:** Goats and black rats were introduced to Redonda Island in the 193
These invasive species have had significant negative impacts on the ecosystem, and on seve
species of birds and reptiles which, as a result, are listed as Critically Endangered. The Redonda
Restoration Programme addressed the problem by removing the goats and rats from the island. As
a result, trees and grasses have been able to grow, stabilizing the island's soils and reducing runoff
which was previously damaging surrounding coral ecosystems. The lizard population on Redonda
has tripled following the eradication of goats and rats. Efforts are under way to have Redonda
declared a protected area.[18]
- **Belgium:** The TrIAS project aims to build a system to track the progression of alien species,
identify emerging species, assess their current and future risk and help to inform policy in
a dynamic and timely manner. TrIAS uses open science and open data infrastructures and
international biodiversity standards to ensure interoperability, reusability and sustainability of
invasive alien species data. As TrIAS is an open science project, all of its associated software, data
and documentation are freely shared so that it can be reused once the project has concluded.[19]
- **Republic of Congo:** Invasive aquatic plants, such as water hyacinth, water lettuce and giant
salvinia have a range of negative impacts on water systems by outcompeting or displacing endemic
species for space, light and nutrients. They can also reduce oxygen levels and affect water flow.
In order to control these invasive aquatic plants, three species of weevils are being used as
biocontrol agents. As a result of these efforts some waterways in the Kouilou and Likouala regions
have been restored.[20]
- **New Zealand:** A vision of having predator-free New Zealand by 2050 was established in 2016.
To reach this vision a goal has been set for the eradication of possums, rats, and stoats from
the entire country. To help reach this 2050 vision the active involvement of community groups,
scientists and different levels and sectors of government is being actively promoted. Further
in 2018, the government committed NZD $81.28 million, over a four year period, to suppress
introduced species that prey on indigenous and endemic biodiversity in priority ecosystems, to
protect and increase biodiversity on offshore islands, and to develop more effective and efficient
predator control methods.[21]
- **Pacific Region:** Several countries in the region, with the support of the Secretariat of the Pacific
Regional Environment Program (SPREP) and the Global Environment Facility and in collaboration
with indigenous peoples and local communities developed a Pacific-wide strategy to combat
invasive alien species. The strategy includes resources to support learning, reporting, and
education, as well as the management of invasive alien species across the islands.[22]

2% Parties report that they will exceed national targets

24% Parties report that they are on track to reach national targets

55% report progress but not at a rate that will allow the target to be

18% report that they are making no progress towards their targets

1% report they are moving away from the target

About a quarter of national targets are similar to (26%) or exceed (1%) the level of ambition and scope set out in the Aichi Target.

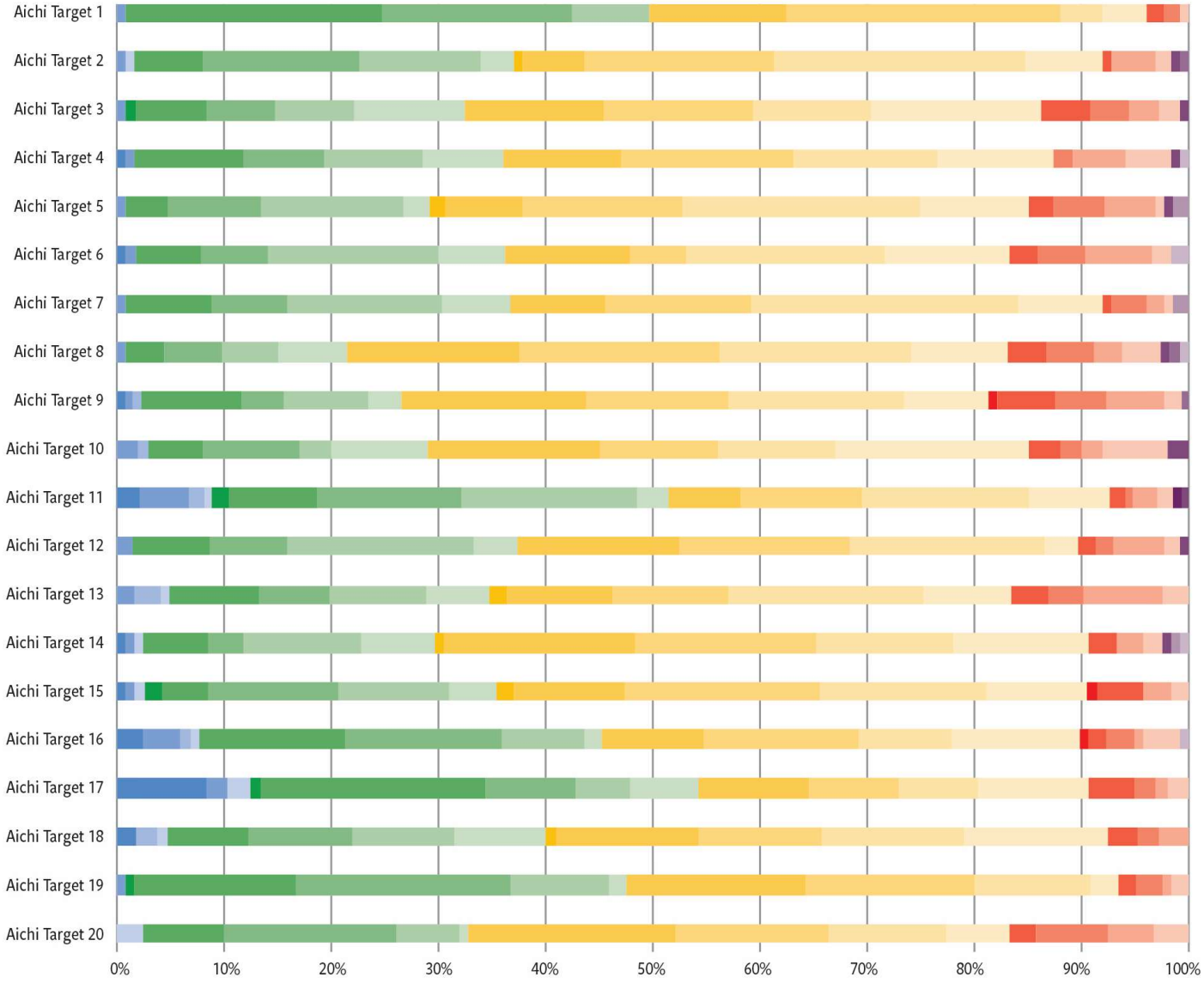
Only 10% of reporting parties have national targets of similar scope and ambition to Aichi Biodiversity Target 9 and are on track to meet them

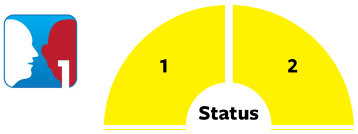
Assessment of progress towards national targets

The colour bars show the percentage of Parties reporting a given level of progress towards their national targets. (Blue: exceeds target; Green: on track; Yellow: some progress; Red: no change; Purple: moving away from target). The intensity of the colour indicates alignment of national targets with the Aichi Target (Darker colours indicate close alignment).

- On track to exceed
- On track to reach
- Some progress but at an insufficient rate
- No significant change
- Moving away from the target

- Target has little relevance
- Target is significantly lower
- Target is less ambitious or does not address all of elements
- Target is commensurate
- Target surpasses the scope and/or level of ambition

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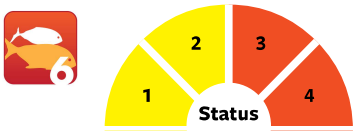
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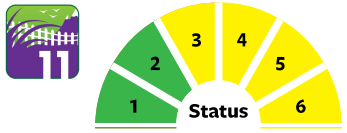
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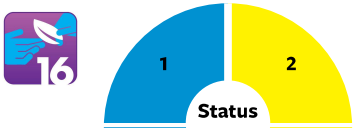
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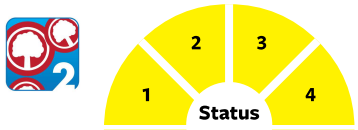
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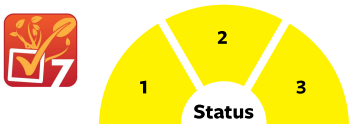
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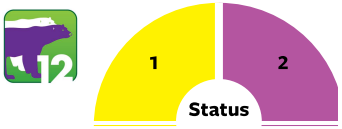
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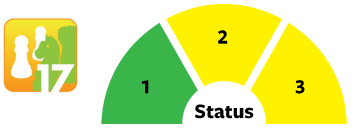
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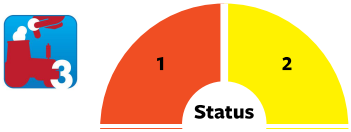
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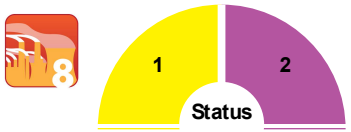
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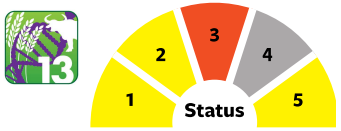
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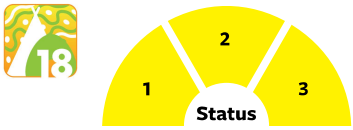
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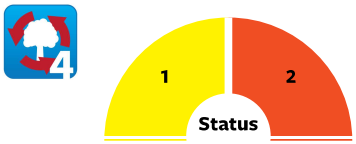
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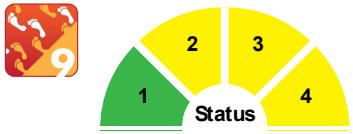
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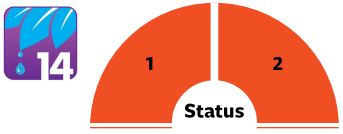
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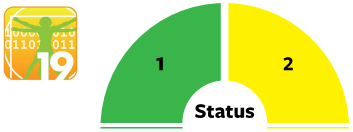
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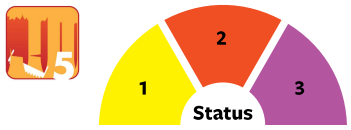
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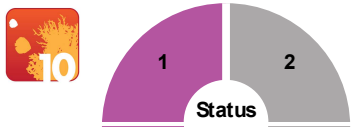
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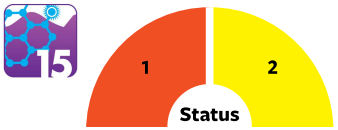
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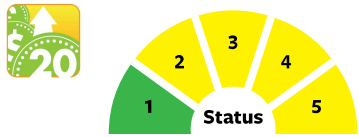
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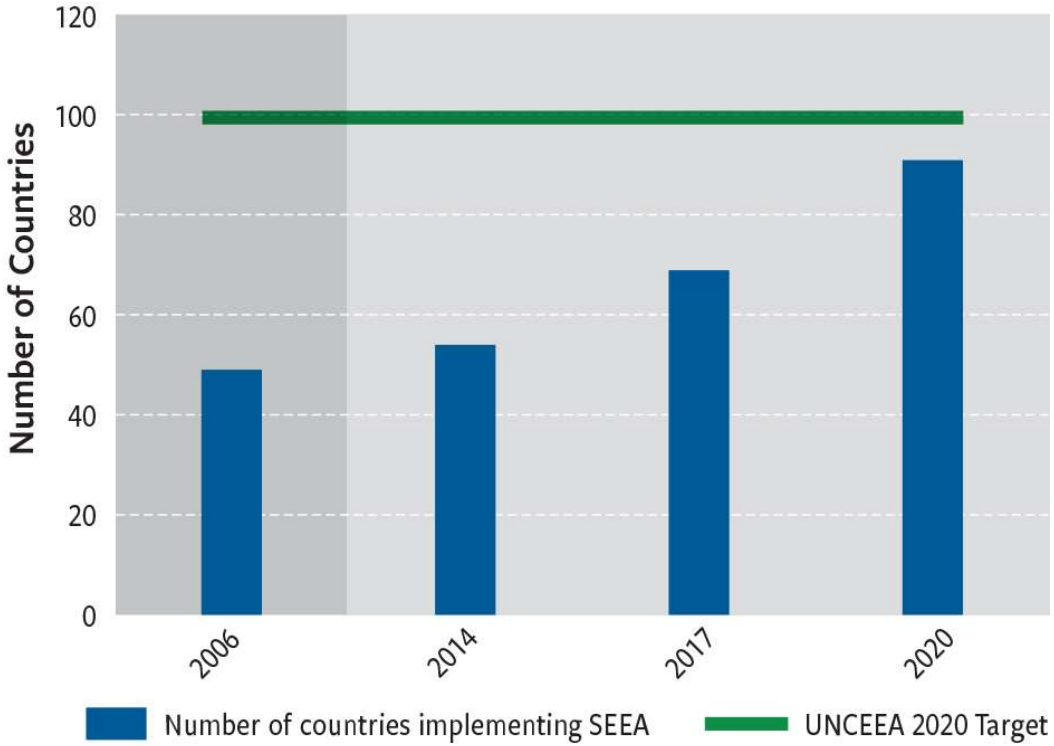
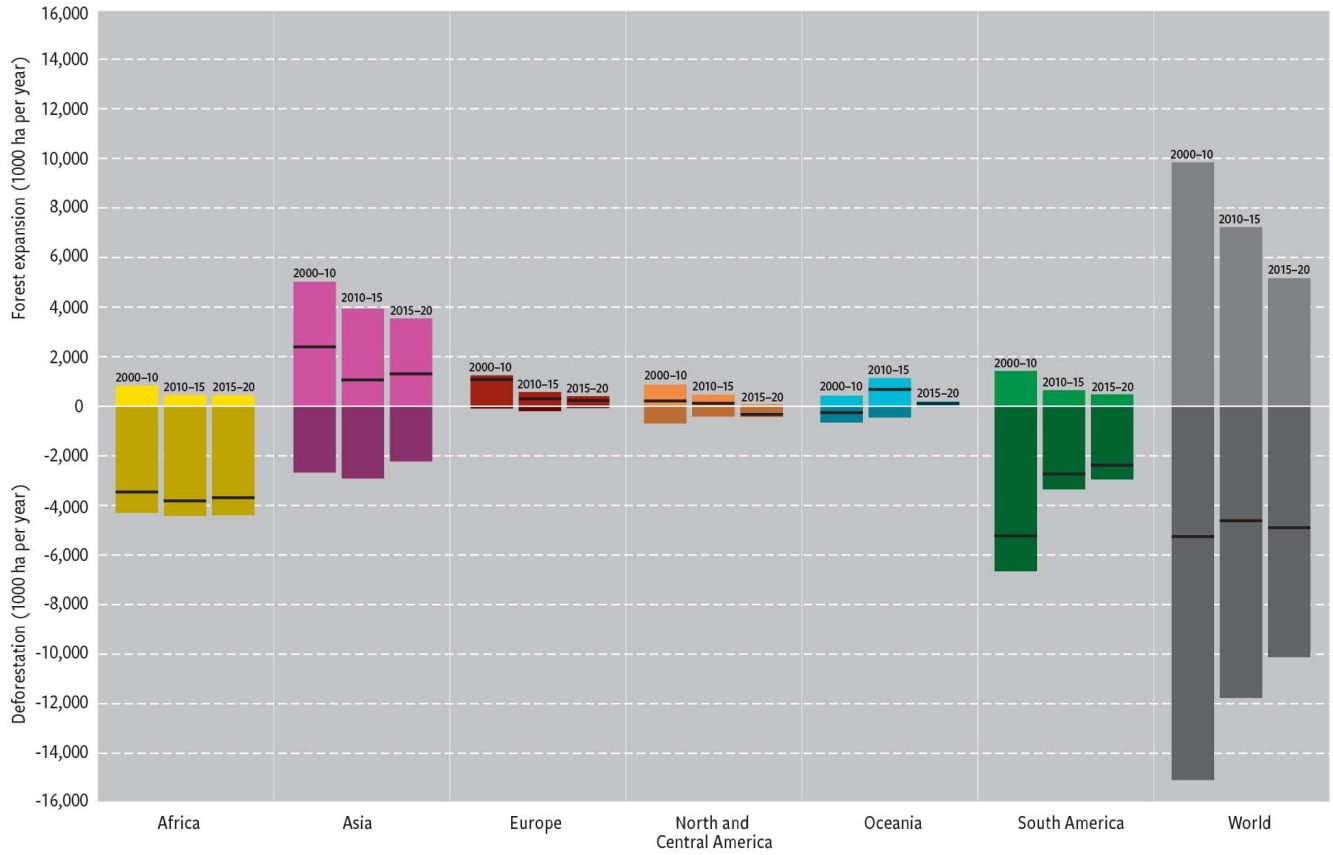
Success Stories relating to the underlying causes of biodiversity loss (Goal A):

Almost 100 countries have incorporated biodiversity values into national accounting systems



Success Stories Relating to the direct pressures on biodiversity (Goal B):

- The rate of deforestation has fallen globally by about a third compared to the previous decade

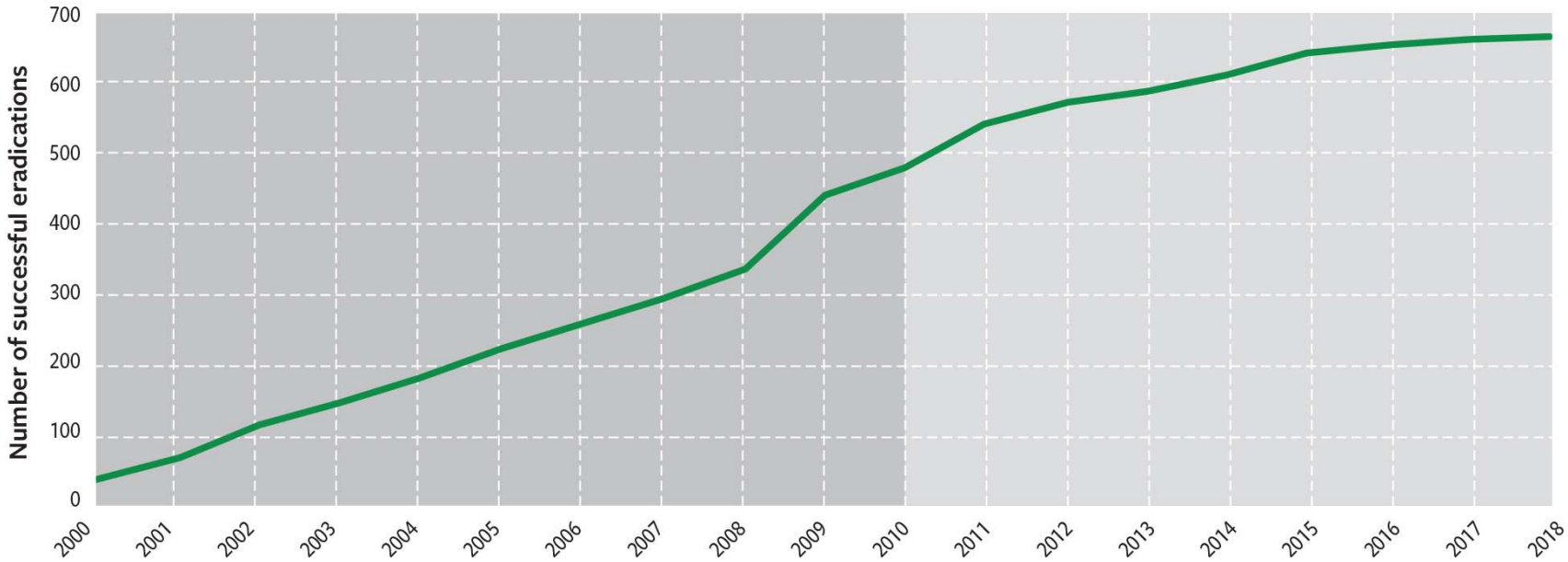


Success Stories Relating to the direct pressures on biodiversity (Goal B):

- In about half of fisheries, where good management policies have been introduced, involving stock assessments, catch limits, and enforcement, the abundance of marine fish stocks has been maintained or rebuilt

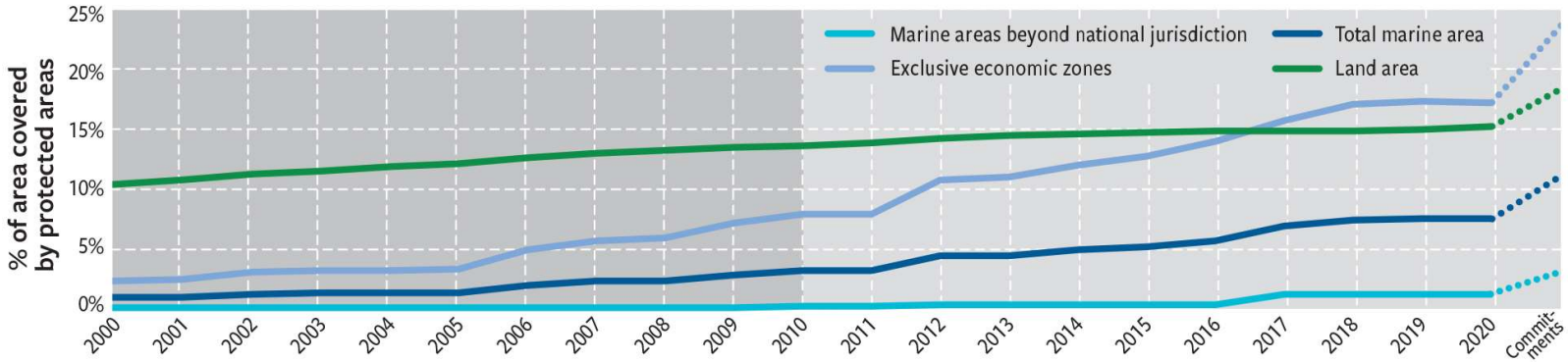
Success Stories Relating to the direct pressures on biodiversity (Goal B):

- There have been an increasing number of successful cases of eradication of invasive alien species from islands, and of the targeting of priority species and pathways to avoid future invasive species introductions



Relating to the status of biodiversity (Goal C):

Protected area, increasing from about 10% to at least 15% terrestrially, and from about 3% to at least 7% in marine areas.



The protection of areas of particular importance for biodiversity (KBAs) has increased from 29% to 44%

Relating to the status of biodiversity (Goal C):

Conservation actions are estimated to have prevented between 28 and 48 bird and mammal species from going extinct since 1993 (when the CBD came into force), including between 11 and 25 since 2010.

Conservation actions include:

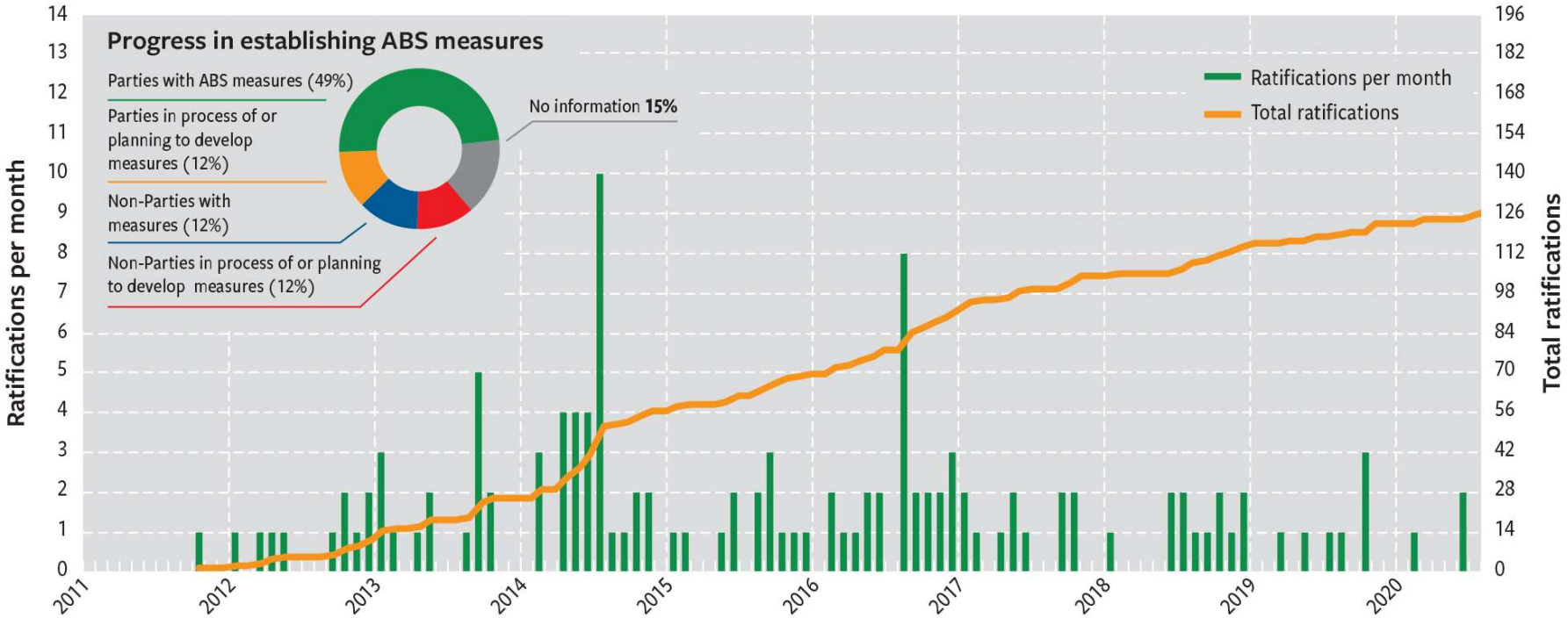
- protected areas,
- hunting restrictions,
- control of invasive alien species,
- *ex situ* conservation &
- re-introduction.

Without such actions, extinctions of birds and mammals in the past decade would likely have been two to four times higher.

Black footed ferret
© Joel Sartore/National Geographic
natgeophotoark.org.

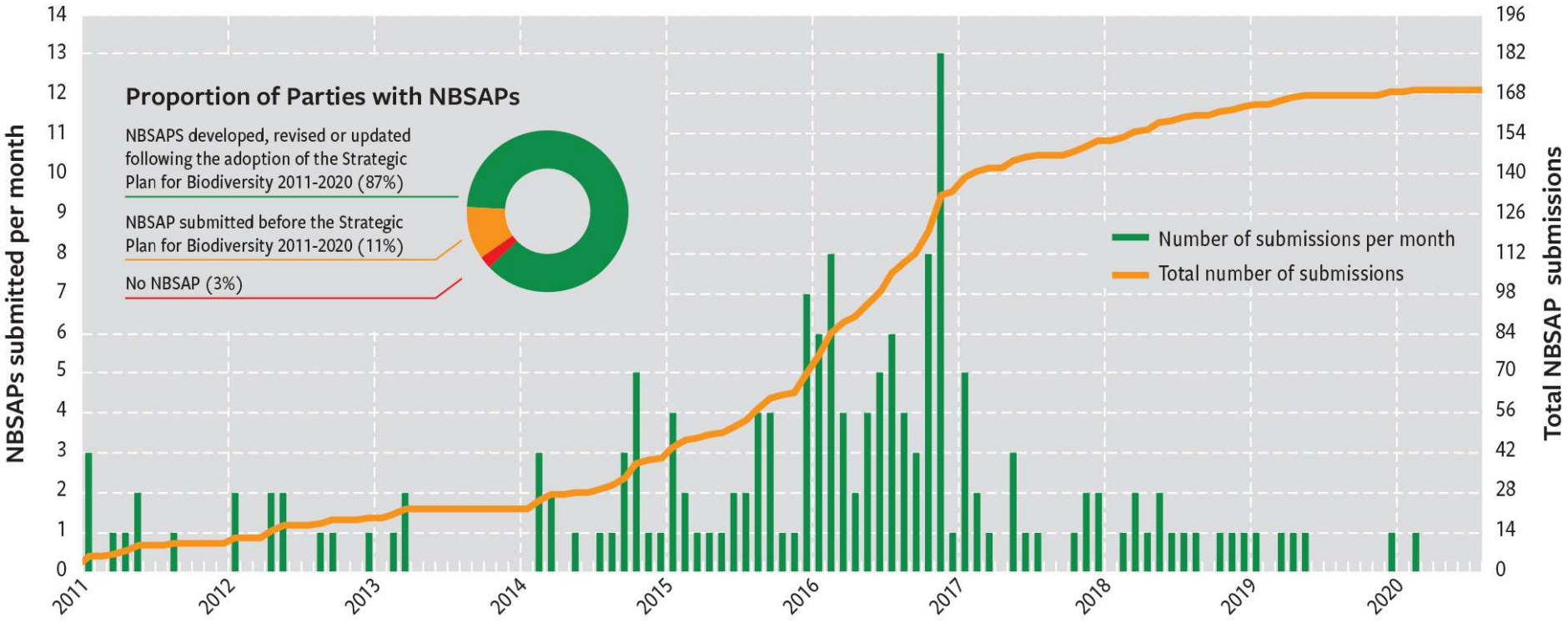
Success stories relating to measures enabling implementation (Goal E):

- The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization has come into force and is now fully operational in at least 87 countries and internationally



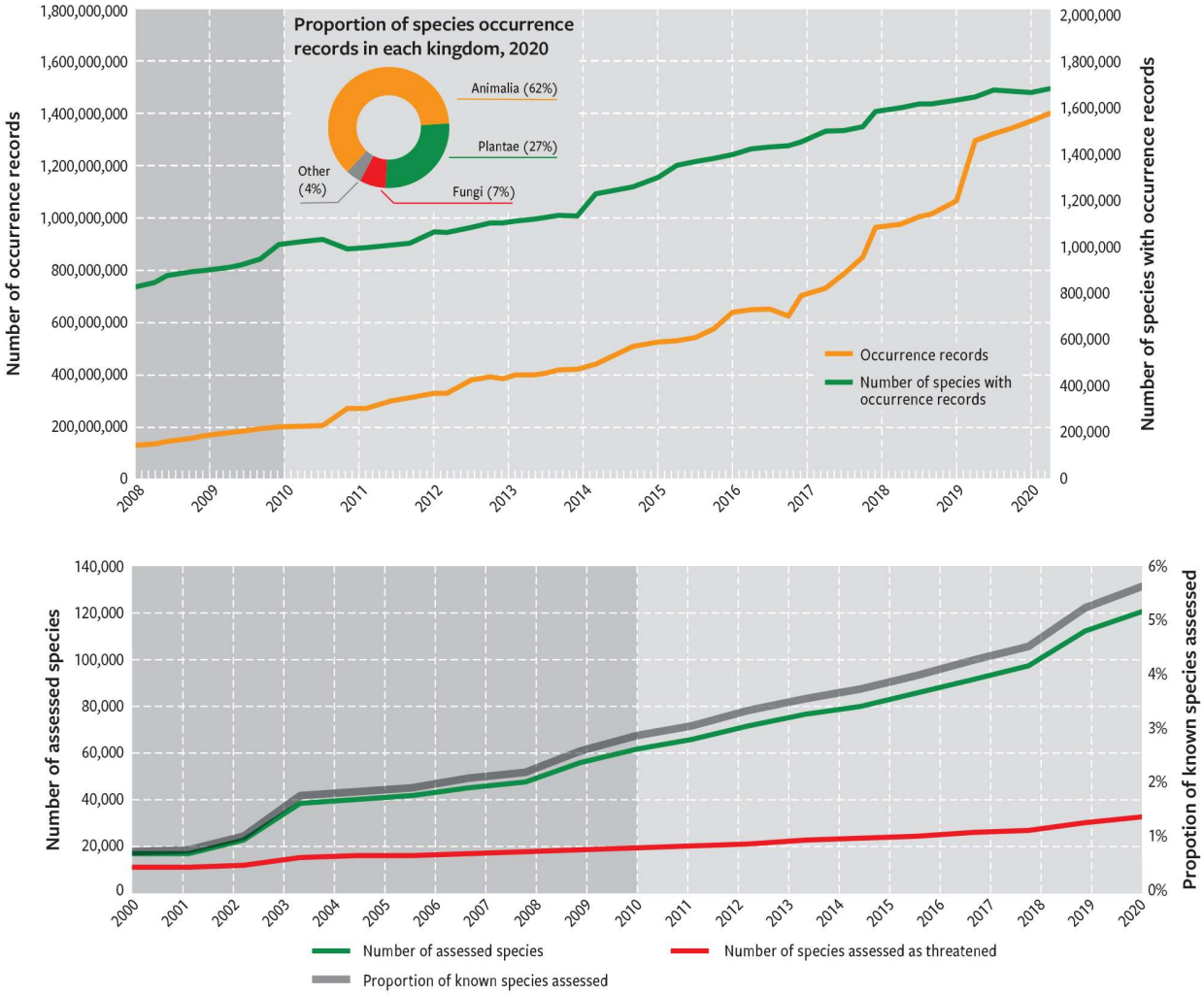
Success stories relating to measures enabling implementation (Goal E):

- National biodiversity strategies and action plans (NBSAPs) have been updated in line with the Strategic Plan for Biodiversity 2011-2020 by 170 countries, 85% of CBD Parties



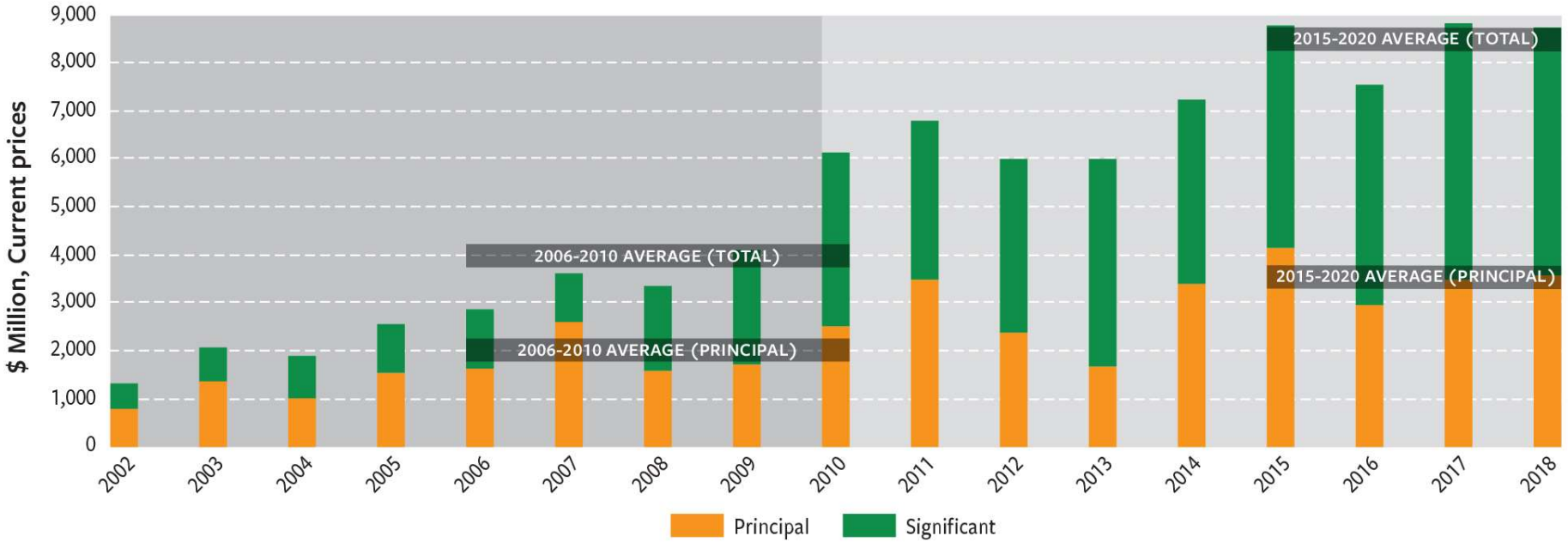
Success stories relating to measures enabling implementation (Goal E):

- There has been a substantial increase in the data and information on biodiversity available to citizens, researchers and policy makers, including through the efforts of citizen science



Success stories relating to measures enabling implementation (Goal E):

- Financial resources available for biodiversity through international flows have doubled

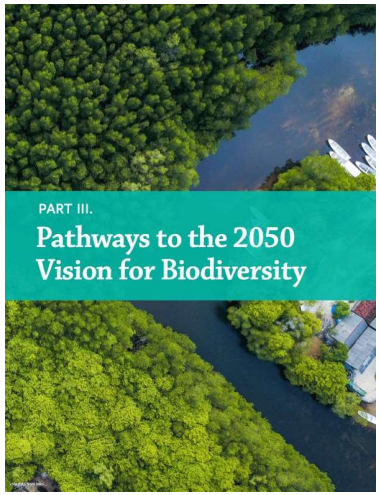


Lessons from the Strategic Plan for Biodiversity 2011-2020. Need for:

- Still greater efforts to address the direct and indirect drivers of biodiversity loss, including through greater interaction among government ministries, economic sectors and society generally.
- Strengthen further the integration of gender, the role of IPLCs & stakeholder engagement.
- Well-designed goals and targets formulated with clear, and, simple language, and with quantitative elements (i.e. 'SMART').
- Strengthen NBSAPs, including their adoption as whole-of-government policy instruments.
- Reduce time lags in planning and implementat
  unavoidable time lags in implementation.
- Increased ambition of national commitments,
  review, learning and adaptive management.
- Greater attention to implementation; sustaine
  targeted support to countries.

PART III.

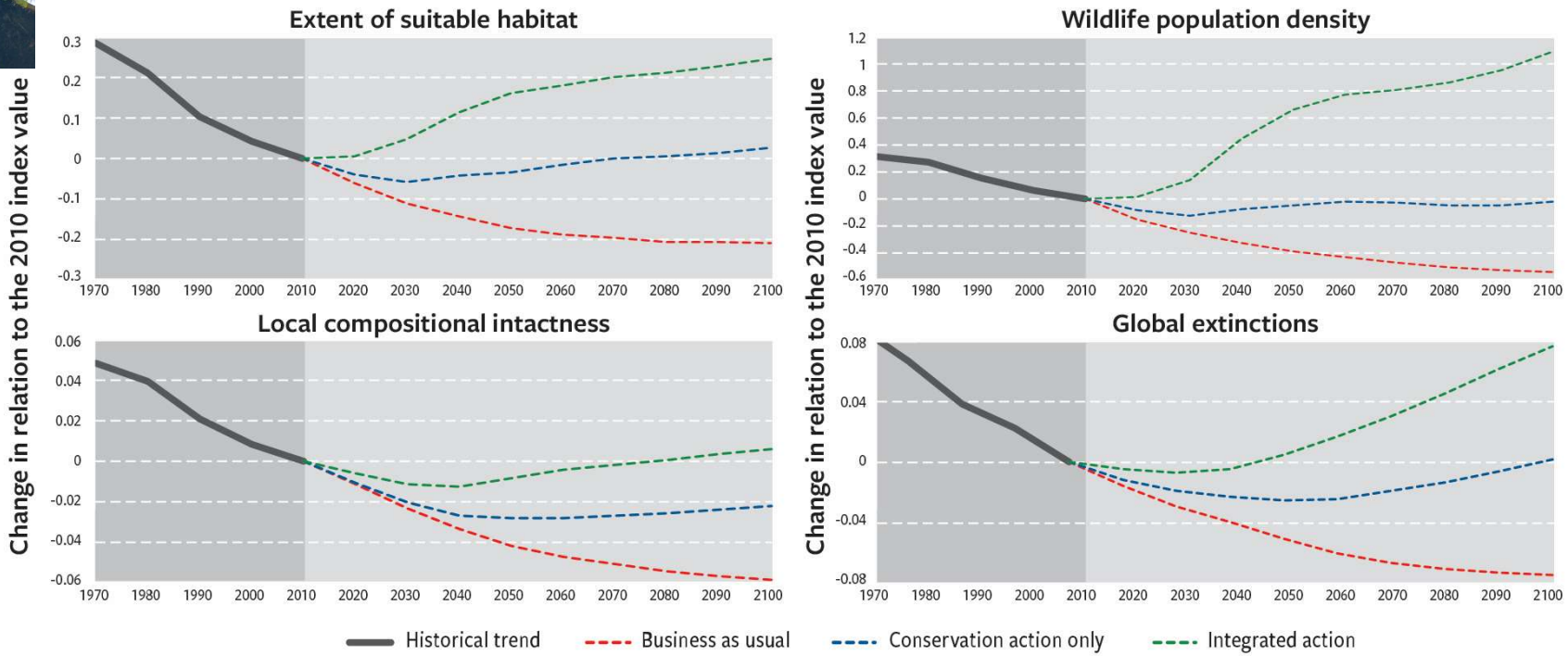
Pathways to the 2050 Vision for Biodiversity

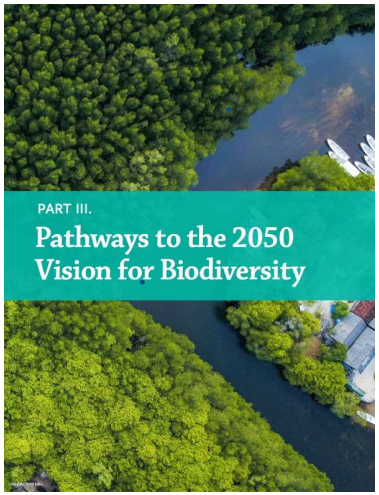


Bending the curve of biodiversity loss requires:

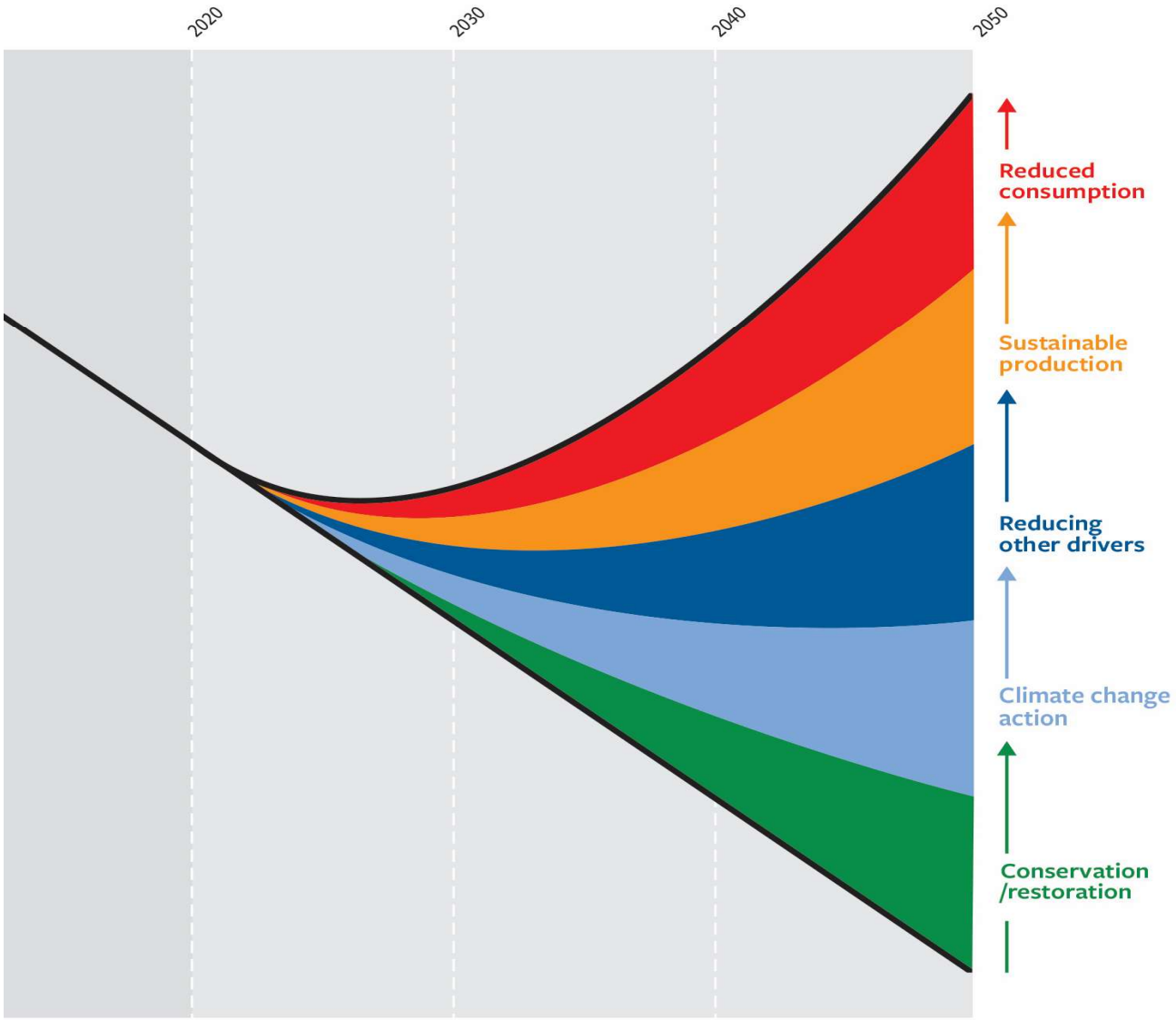
- ❖ Bold conservation and restoration action; and
- ❖ Change in agricultural production and trade, and consumption patterns.

→ (Integrated Action Portfolio)





Putting nature on a path to recovery, towards the 2050 Vision requires transformative change through a portfolio of actions



Eight Transitions to Living in Harmony with Nature

The Land and Forests Transition

The Food Systems Transition

The Sustainable Freshwater Transition

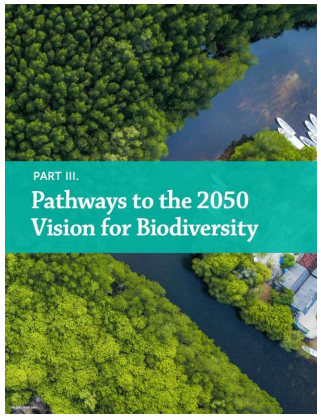
The Cities and Infrastructure Transition

The Fisheries and Oceans Transition

The Climate Action Transition

The Sustainable Agriculture Transition

The Biodiversity-Inclusive One Health Transition



For each Transition:

Summary description

Rationale & Benefits

Key components

Progress towards transition (examples)

Linkages with other transitions

THE LAND AND FORESTS TRANSITION

Summary of the transition

conserving intact ecosystems, restoring ecosystems, combatting and reversing degradation, and employing landscape level spatial planning to avoid, reduce and mitigate land-use change. This transition recognizes the essential value of well-conserved habitats for the maintenance of biodiversity and the provision of ecosystem services for the benefit of people, and the need to move to a situation in which maintaining and improving food security no longer involves the large-scale conversion of forests and other ecosystems.

Rationale and Benefits

Land-use change is the largest direct driver of terrestrial biodiversity loss.[1] The loss and degradation of forests and other natural ecosystems is continuing globally, and especially in tropical areas (see Aichi Biodiversity Target 5). The main cause of forest loss is expansion of agriculture (for example, primarily by commercial agriculture in South America, and by small-scale agriculture in central Africa),[2] though urbanization[3] and infrastructure development[4] are increasingly important (see Cities and Infrastructure transition). Scenarios of land-use change demonstrate that a range of futures are possible, depending on decisions taken globally, nationally and locally (Box 22.2).[5] As noted in the foregoing section (see Pathways), achieving such changes are essential to reduce and reverse biodiversity loss.

Reduction of land pressure on forests and other natural ecosystems would reduce the risk of extinction for many species by avoiding further loss of habitat and creating conditions for more habitat to be restored. It will preserve and enhance sources of income and nutrition for people who depend on living forest ecosystems. Many cultural connections with forest species and landscapes will be protected, along with benefits to health and well-being. Broader benefits to society at local, regional and global scales will flow from maintenance of the role of natural ecosystems in harbouring pollinator species, supporting air and water quality as well as in moderating climate change through capture and storage of carbon.

Key components of the transition

ADOPT INTEGRATED APPROACHES TO LAND USE AND LAND-USE CHANGE. This entails: coherent policies on agriculture, forestry, and on rural, urban and infrastructure development, and comprehensive spatial planning, applying the ecosystem approach or landscape approach,[6] with strong community engagement and supported by land tenure, data and monitoring; investing in research and development to improve the productivity, sustainability and integration of agricultural, pastoral and forestry systems;[7] developing and implementing legislation or policy frameworks on land use, land-use change and spatial planning, including, as appropriate, limits on deforestation or land-use change, requirements for minimum areas under native vegetation, or for no-net-loss or net gain of biodiversity;[8] and strengthening monitoring and enforcement of legal requirements domestically and through supply chains.[9]

CONSERVE BIODIVERSITY through protected areas and other effective area-based measures,[10] ensuring protection of the most intact ecosystems and the most important sites for biodiversity and ecosystem services, and the full involvement of indigenous and local communities (Box 22.3).

RESTORE AND REHABILITATE ECOSYSTEMS,[11] including converted and degraded natural and seminatural ecosystems, giving priority to contributions to conserving biodiversity, enhancing the provision of ecosystem services, mitigating and adapting to the effects of climate change, recovering connectivity, improving ecosystem resilience, combating desertification and land degradation, and improving human well-being (Box 22.4), including the reintroduction of keystone species and restoration of ecosystems where appropriate.[12] Ensure the full involvement of indigenous and local communities in the development and implementation of restoration activities.[13]

MANAGE LANDSCAPES to balance needs for the conservation and restoration of biodiversity, production of food, timber and other needs, the provision of ecosystem services and urban and rural development, promoting ecological connectivity, and enhancing biodiversity in agricultural and urban landscapes.[14] (see Agriculture, Freshwater, Cities and Infrastructure, and Climate Action transitions)

Progress towards the transition

In a number of countries, food security has improved while forest cover increased or remained stable. The UN Food and Agriculture Organization (FAO) identified 22 countries in which this has occurred since 1990, 12 of which showed forest cover increases of more than 10%, including Chile, Costa Rica, The Gambia, Georgia, Ghana, Tunisia and Viet Nam. Common factors in these countries include increased productivity in the agricultural sector, provision of finance and technical support, secure land tenure, stakeholder involvement and reform of forest and agricultural policies, recognizing the value of forests for society and promoting policy coherence.[15] A number of other countries have demonstrated significant reductions in forest loss (see Aichi Biodiversity Target 5) and many have invested in protected areas (see Aichi Biodiversity Target 11)

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The Land and Forests transition 33

significant declines (more than 3 million square kilometres) have occurred over the last two decades (see Aichi Biodiversity Target 5).[22] However, formal protected area status or active conservation action may not be necessary to maintain ecological integrity in all wilderness areas or in all intact areas.[23] It should also be noted that indigenous peoples have rights to and/or manage an estimated 30 million square kilometres of land that falls outside reported protected areas, accounting for a significant portion of Earth's remaining natural lands.[24]

areas to safeguard (Box 11.1).[25] Mexico's n Sustainable Forestry established limits cultural frontier,[26] Brazil's Forest Code n the Protection of Native Vegetation) he 1960s mandated the protection m areas of native vegetation in rural ranging from 80% in the Amazon forest 0% in other biomes, and including ntally-sensitive areas such as river banks lopes. A nationwide register of all rural has been established to record such il has also developed a National Plan for ation of Native Vegetation.[27]

ages with other transitions

AGRICULTURE: *depends* on reducing land pressure on ecosystems through avoiding further expansion of cropland; *contributes* al processes essential for agriculture

CITIES AND INFRASTRUCTURE: *depends on* reducing land pressure on ecosystems through improved planning of urban expansion and infrastructure development; *contributes to* ecosystem services essential to urban populations

CLIMATE ACTION: *depends on* reducing land pressure from land-based climate mitigation; *contributes to* carbon sequestration through conserving and restoring high-carbon ecosystems, as well as increasing resilience and safeguarding ecosystem services from climate impacts

FRESHWATER: *depends on* reducing land pressure from large hydropower schemes and other water infrastructure development; *contributes to* water purification and supply

ONE HEALTH: *contributes to* reduction of disease risk through maintaining healthy ecosystems

.4. Potential for ecosystem restoration

e ecosystem restoration, including the restoration of lands previously converted to ure as well as the restoration of degraded ecosystems, is central to conserving biodiversity ilizing the Earth's climate, and the United Nations has declared 2021-2030 as the UN Decade ystem Restoration.

nalysis of restoration opportunities[28] shows that restoring 15% of converted lands across biomes could reduce extinction debts (the predicted future extinction based on current es) by about 60%, while sequestering up to 300 GtCO2. Most of these benefits could be realized while maintaining or increasing agricultural production in each country, through progress in closing crop and livestock yield gaps.

Good spatial planning is essential, in order to optimize outcomes for biodiversity and climate change objectives at reasonable cost. The analysis demonstrates the importance of international cooperation to support restoration in the places that will generate the largest environmental benefits.

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The Land and Forests transition 35

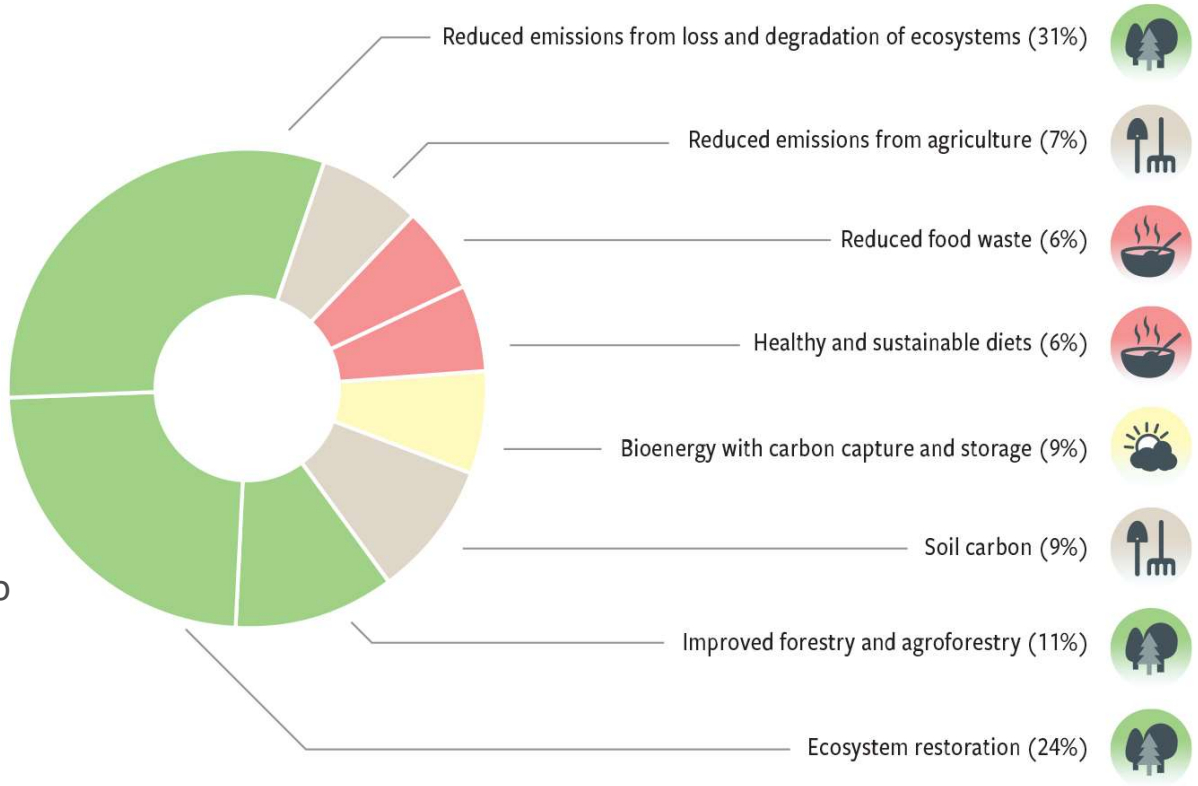
THE SUSTAINABLE FOOD SYSTEMS TRANSITION

Enabling sustainable and healthy diets with a greater emphasis on a diversity of foods, mostly plant-based, and more moderate consumption of meat and fish, as well as dramatic cuts in the waste involved in food supply and consumption. This transition recognizes the potential nutritional benefits from diverse foods and food systems, and the need to reduce demand-driven pressures globally while ensuring food security in all its dimensions.

- Rebalance agricultural policies and incentives
- Promote the availability of healthy and sustainable diets.
- Promote access to healthy and sustainable diets
- Promote the consumption of healthy and sustainable diets,
- Promote measures to reduce food waste,
- Encourage businesses to promote sustainability through supply chains and to redesign product portfolios

THE SUSTAINABLE CLIMATE ACTION TRANSITION

Employing nature-based solutions, alongside a rapid phase-out of fossil fuel use, to reduce the scale and impacts of climate change, while providing positive benefits for biodiversity and other sustainable development goals. This transition recognizes the role of biodiversity in sustaining the capacity of the biosphere to mitigate climate change through carbon storage and sequestration and in enabling adaptation through resilient ecosystems, as well as the need to promote renewable energy while avoiding negative impacts on biodiversity

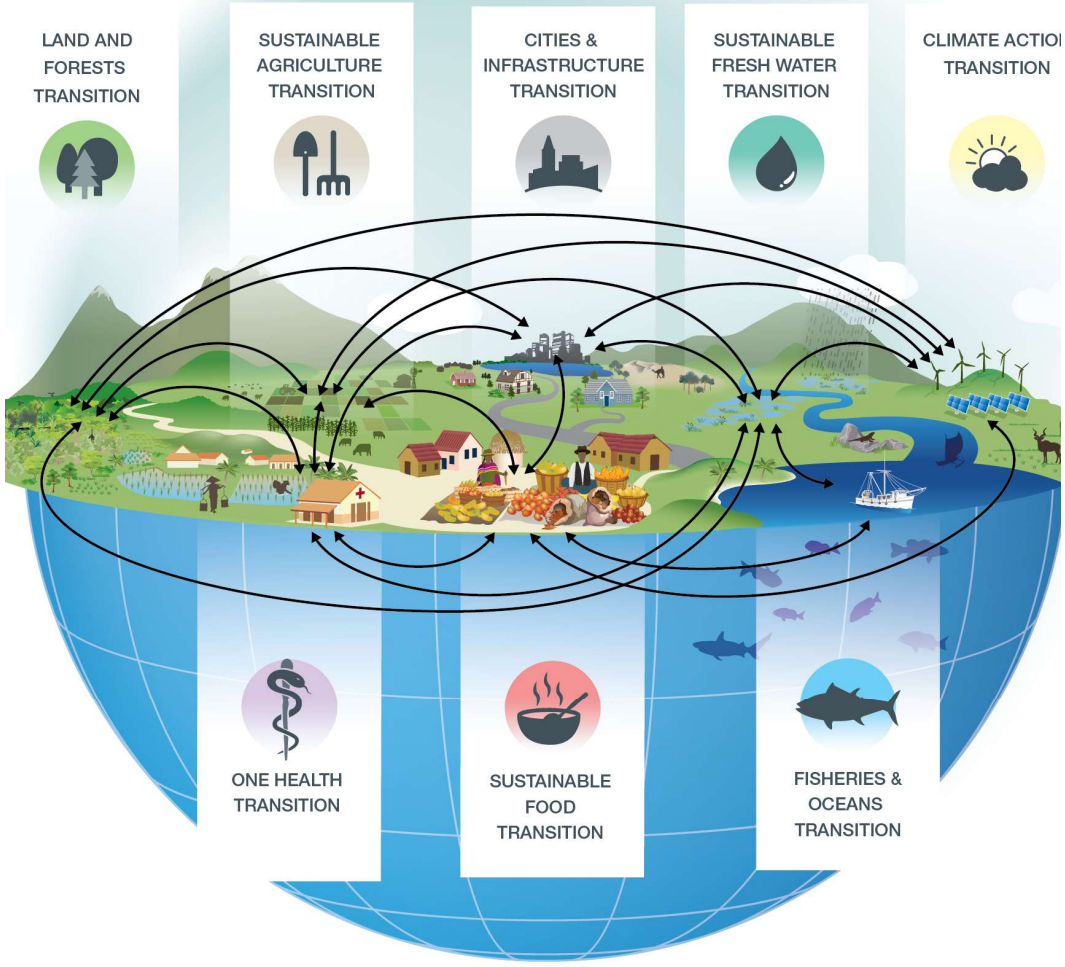


THE BIODIVERSITY-INCLUSIVE ONE HEALTH TRANSITION

Managing ecosystems, including agricultural and urban ecosystems, as well as the use of wildlife and trade, through an integrated approach, to promote healthy ecosystems and healthy people.

- recognizes the full range of linkages between biodiversity and all aspects of human health, and
- addresses the common drivers of biodiversity loss, disease risk and ill-health.

- Reduce disease risk by conserving and restoring ecosystems.
- Promote sustainable, legal and safe use of wildlife.
- Promote sustainable and safe agriculture, including crop and livestock production and aquaculture.
- Create healthy cities and landscapes.
- Promote healthy diets as a component of sustainable consumption


LAND AND FORESTS TRANSITION
SUSTAINABLE AGRICULTURE TRANSITION
CITIES & INFRASTRUCTURE TRANSITION
SUSTAINABLE FRESH WATER TRANSITION
CLIMATE ACTIO TRANSITION
ONE HEALTH TRANSITION
SUSTAINABLE FOOD TRANSITION
FISHERIES & OCEANS TRANSITION

LEVERAGE POINTS

Visions of GQL

Total consumption & waste

Values & social norms

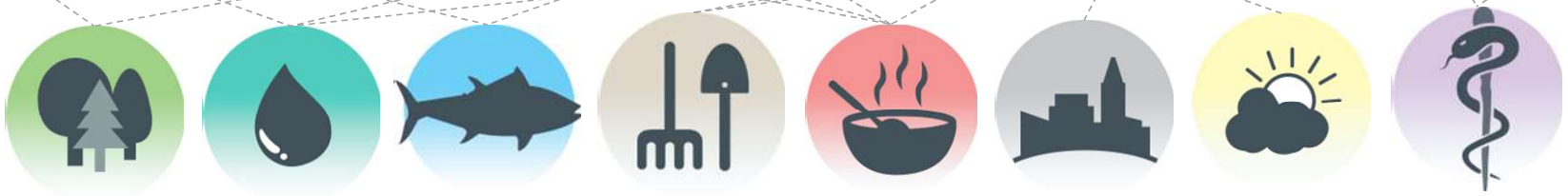
Inequality

Justice & inclusion

Tele-coupling

Innovation

Knowledge



Incentives & Capacity

Integrated Decision making

Precautionary & Adaptive management

Managing for resilience

Laws & enforcement

LEVERS for transformative change

Status:

- None of the Aichi targets fully met.
- Many examples of success – policy measures work!

Outlook:

- Possible to reduce and reverse biodiversity loss, path of recovery towards the 2050 Vision.
- Requires strong conservation and restoration action, addressing all drivers, sustainable consumption.
- Time for action is now.
- Lessons for post 2020 global biodiversity framework.

https://www.cbd.int/gbo5