



UN Environment
World Conservation Monitoring Centre



International Union for Conservation of Nature

ROSSTAT/UNECE/UNEP/OECD JOINT WORKSHOP ON ENVIRONMENTAL INDICATORS

Edward Lewis & Marine Deguignet (UNEP-WCMC); Thomas Brooks (IUCN) 20th March 2019

UN Environment World Conservation Monitoring Centre

Who are we ?

- We are a global authority on biodiversity data and information
- Based in Cambridge, UK, ~~UNEP~~ WCMC is a collaboration between UN Environment and a UK ~~profit~~ not-for-profit organization WCMC.
- We were established 40 years ago with the aim to be a world leader in biodiversity knowledge. We work with a global network of partners to place biodiversity at the heart of decision making.
- Over 100 experts from more than 30 countries, covering biodiversity and ecosystem services of marine, freshwater and terrestrial environments, along with social scientists, ecological ~~modellers~~ modellers, economists, lawyers, GIS experts, data managers and thematic experts.

International Union for Conservation of Nature

Who are we ?

- A Membership Union uniquely composed of both government and civil society organisations, providing public, private and governmental organisations with the knowledge and tools that enable human progress, economic development and nature conservation to take place together
- Established in 1948, and based in Gland, Switzerland, with offices in ~50 countries
- Members encompass more than 200 states and government agencies, and more than 1,100 governmental and indigenous people's organisations
- Convenes independent Commissions encompassing more than 13,000 specialists in: Education & Communication; Ecosystem Management; Environmental, Economic & Social Policy; Species Survival; Environmental Law and Protected Areas

SDGs 14 and 15

SUSTAINABLE DEVELOPMENT GOAL 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

SUSTAINABLE DEVELOPMENT GOAL 15

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

UNEP-WCMC and IUCN are official custodians of three indicators relating to these goals, in collaboration with BirdLife International

Target 14.5: By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information – **indicator 14.5.1**

Target 15.1: By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements – **indicator 15.1.2**

Target 15.4: By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development – **indicator 15.4.1**

A synthesis of SDG indicator calculation

When does it happen?

- **November:** UNSD sends out call to indicator custodians
- **December:** indicator custodians prepare data
- **January:** analysis and data summation
- **February:** write indicator narratives and submit indicators

A synthesis of SDG indicator calculation

How does it happen?

- UNEP-WCMC prepare the WDPA
- BirdLife International run most of the geoprocessing
- IUCN, UNEP-WCMC and BirdLife International write indicator narratives, prepare data and submit to UNSD.

What is submitted?

Each indicator has two major components:

- Indicator data by country, region, globally
- Indicator narrative (~200 words & graph)

Metadata for these indicators are available online:

<https://unstats.un.org/sdgs/metadata/?Text=&Goal=&Target=14.5>

<https://unstats.un.org/sdgs/metadata/?Text=&Goal=&Target=15.1>

<https://unstats.un.org/sdgs/metadata/?Text=&Goal=&Target=15.4>

SDG Indicators have a standardised metadata template – editable once a year.

The metadata covers:

- Institutional information
- Concepts and definitions
- Methodology
- Data sources
- Data availability
- Calendar
- Data providers
- Data compilers
- References

Methodology for 14.5.1

Temporal trends in the mean percentage of each important site for **marine biodiversity** (i.e., those that contribute significantly to the global persistence of biodiversity) that is covered by designated protected areas.

Two subcomponents to 14.5.1:

- A) % of a country's territorial waters covered by protected areas
- B) Average % of marine KBAs protected in a country's territorial waters

UNEP-WCMC calculate (A)

BirdLife International calculate (B)

The two complement each other – A shows the total PA coverage whereas B shows the proportion of important sites for biodiversity that are covered by protected areas.

Methodology for 15.1.2

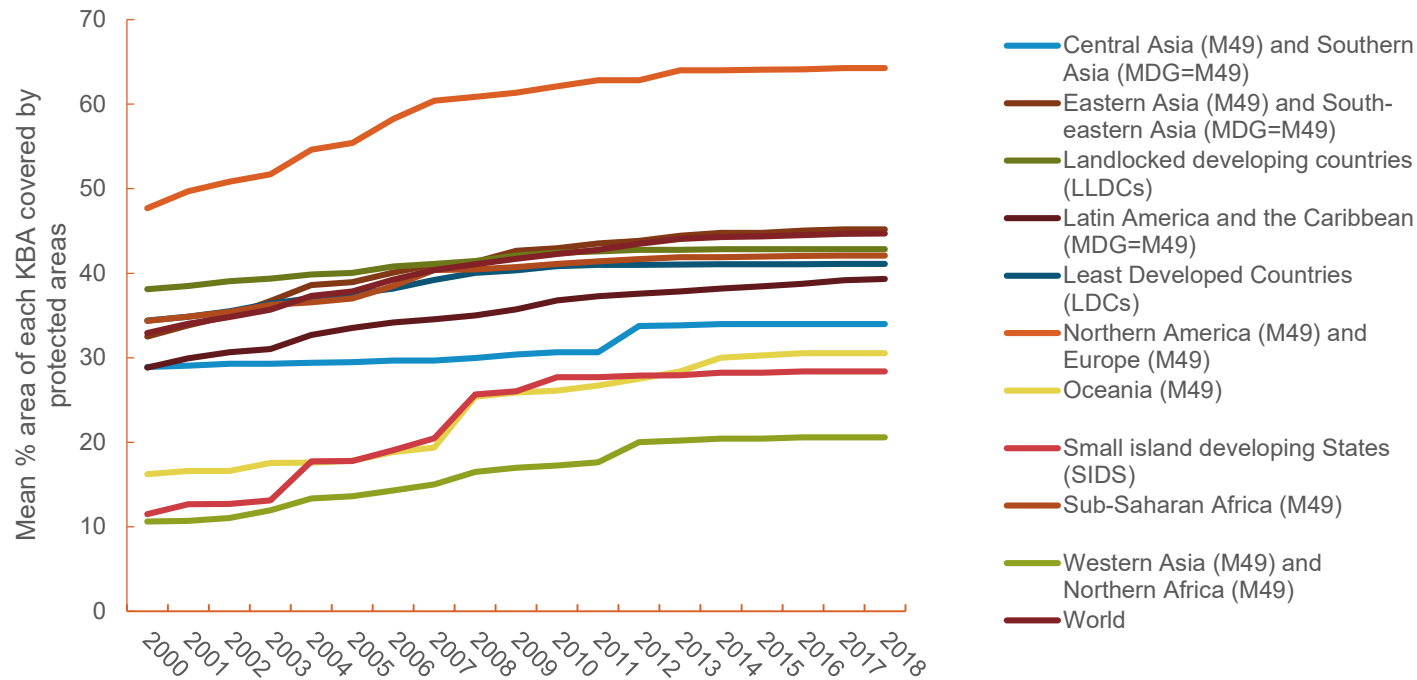
Temporal trends in the mean percentage of each important site for **terrestrial and freshwater biodiversity** (i.e., those that contribute significantly to the global persistence of biodiversity) that is covered by designated protected areas.

Methodology for 15.4.1

Temporal trends in the mean percentage of each important site for **mountain biodiversity** (i.e., those that contribute significantly to the global persistence of biodiversity) that is covered by designated protected areas

A depiction of the indicator

- Reported at an annual resolution (from 2000).
- Reported at country, regional and global spatial scales



Shows gradual increase in area covered by protected areas

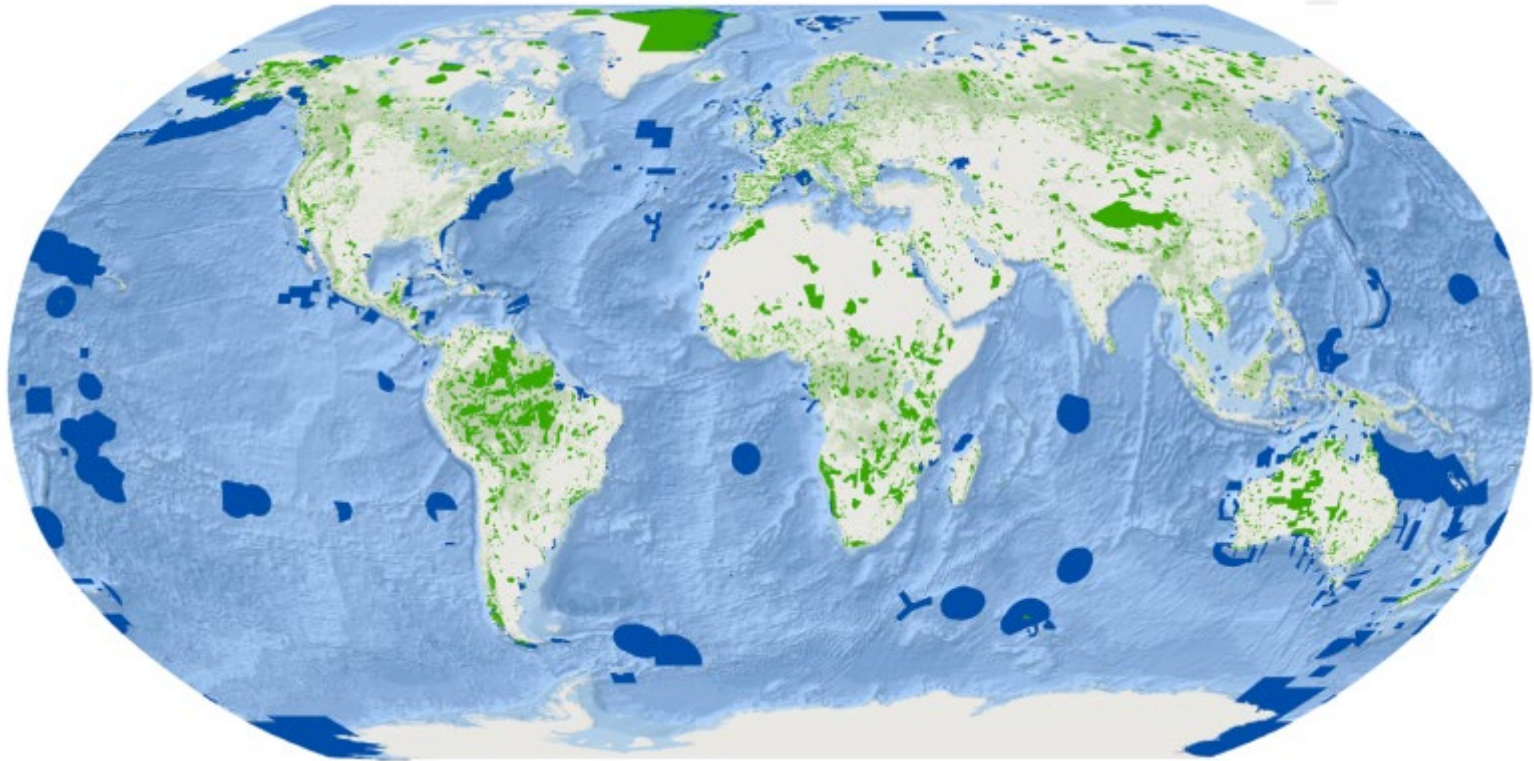
The World Database on Protected Areas

The World Database on Protected Areas

- Joint product between the United Nations Environment World Conservation Monitoring Centre and the International Union of Nature Conservation (IUCN)
- To provide authoritative and up-to-date information about protected areas and to support protected area decision making
- To support countries in their provision of coverage statistics towards reaching Convention on Biological Diversity Target 11 of securing *by 2020 at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas especially areas of particular importance for biodiversity and ecosystem services*

The World Database on Protected Areas

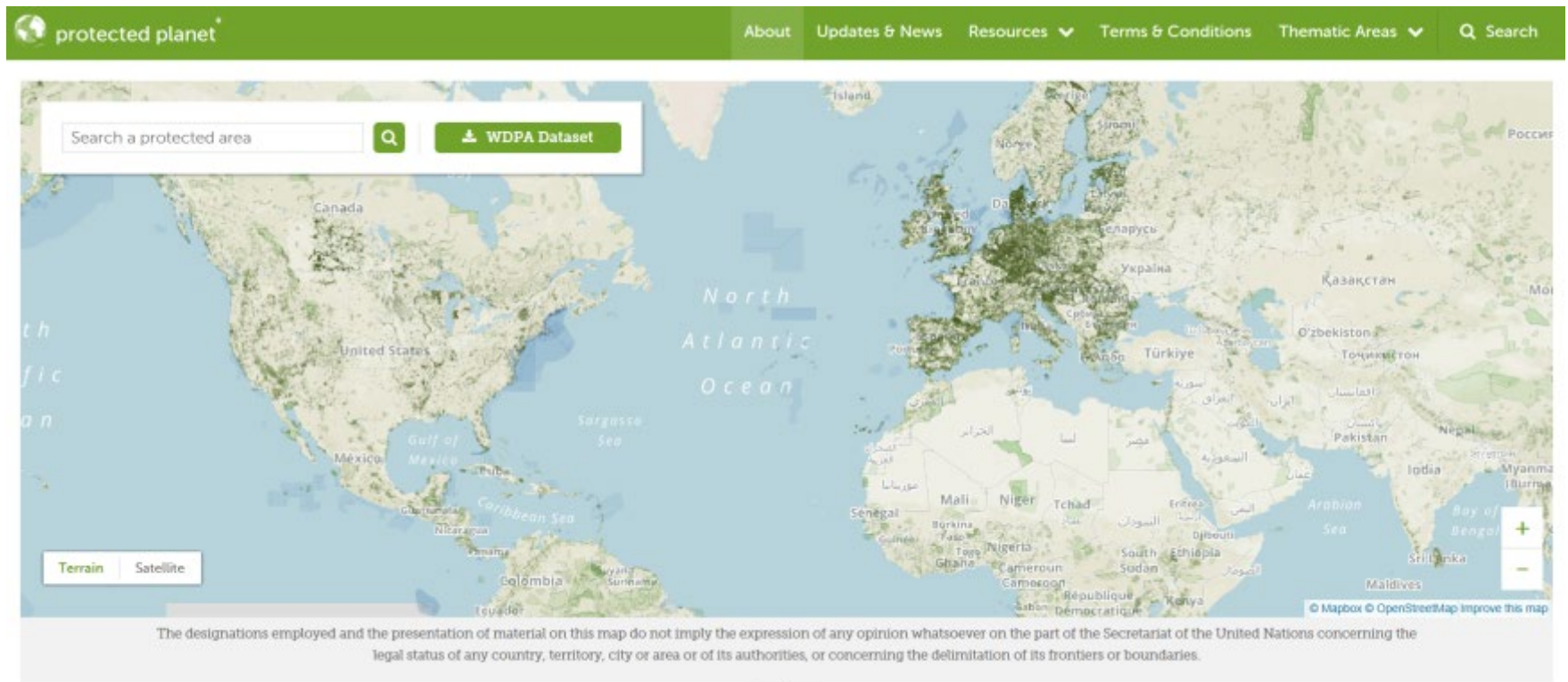
- Currently storing over 240,000 protected areas from more than 243 countries and territories
- Approximately 8% of sites as point records



UN Environment World Conservation Monitoring Centre & International Union for Conservation of Nature (IUCN)

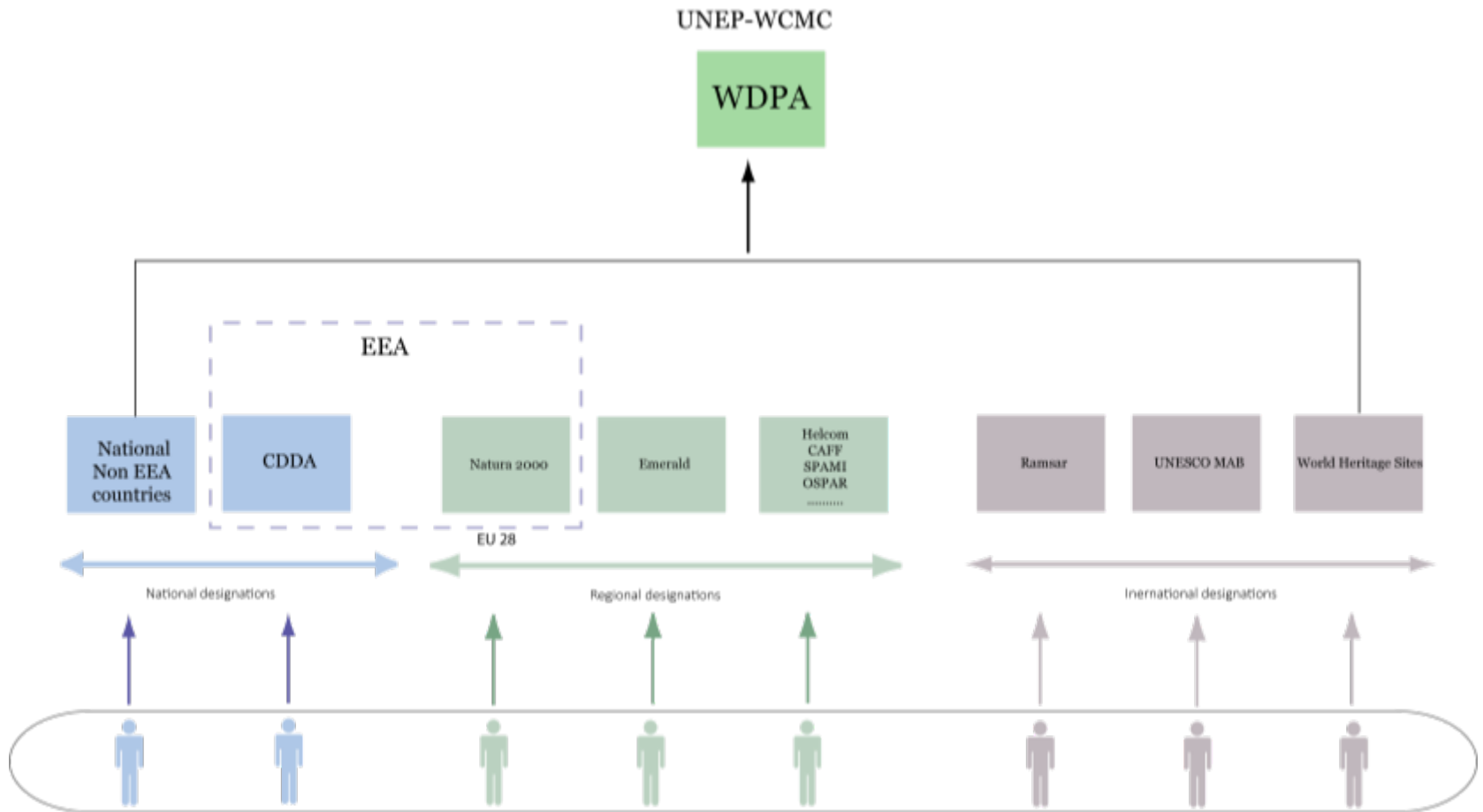
- Protected Planet

Centralized portal for accessing key information on protected areas



The World Database on Protected Areas

- Data providers
Over 500 different sources



The World Database on Protected Areas

- Used to report to different international supporting mechanisms
 - UN List of Protected Areas
 - **Sustainable Development Goals**
 - CBD Global Biodiversity Outlook
 - UNEP Global Environment Outlook
 - Global Reporting Initiative
- And online systems
 - Google Earth Engine
 - Global Fishing Watch
 - EEA' DOPA

The World Database of Key Biodiversity Areas

The World Database of Key Biodiversity Areas

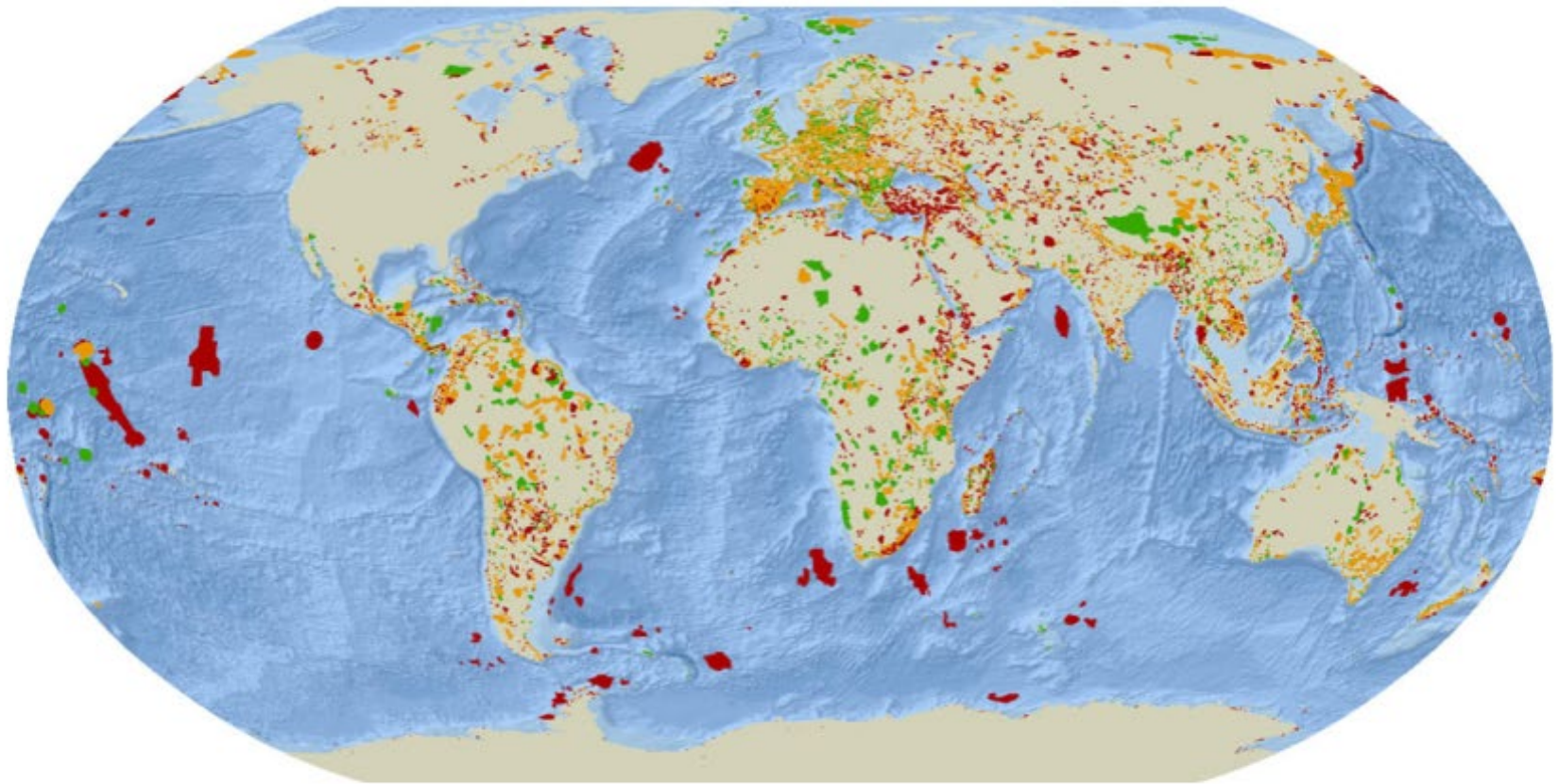
Key Biodiversity Areas (KBA) are 'sites contributing significantly to the global persistence of biodiversity', in terrestrial, freshwater and marine ecosystems.

Led by the KBA Partnership, a unique collaboration of 12 organisations



KBAs partnership has three main goals:

1. identify, map and document thousands of Key Biodiversity Areas worldwide;
2. promote targeted conservation action in Key Biodiversity Areas; and
3. inform and influence public policy and private sector decision-making.

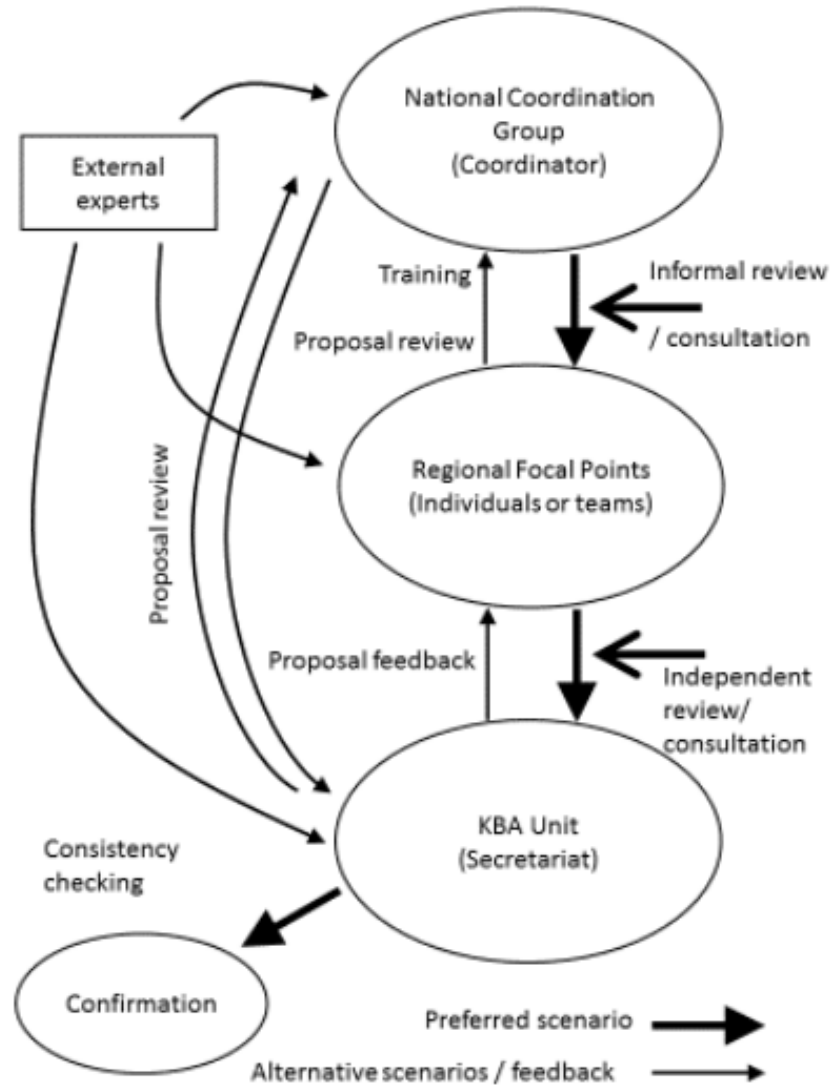


■ 1. Fully within protected areas ■ 2. Partially within protected areas ■ 3. Outside protected areas

Documents 15,777 KBAs

On average, only around a third of the area of each KBA is covered by protected areas

The World Database of Key Biodiversity Areas: data flow



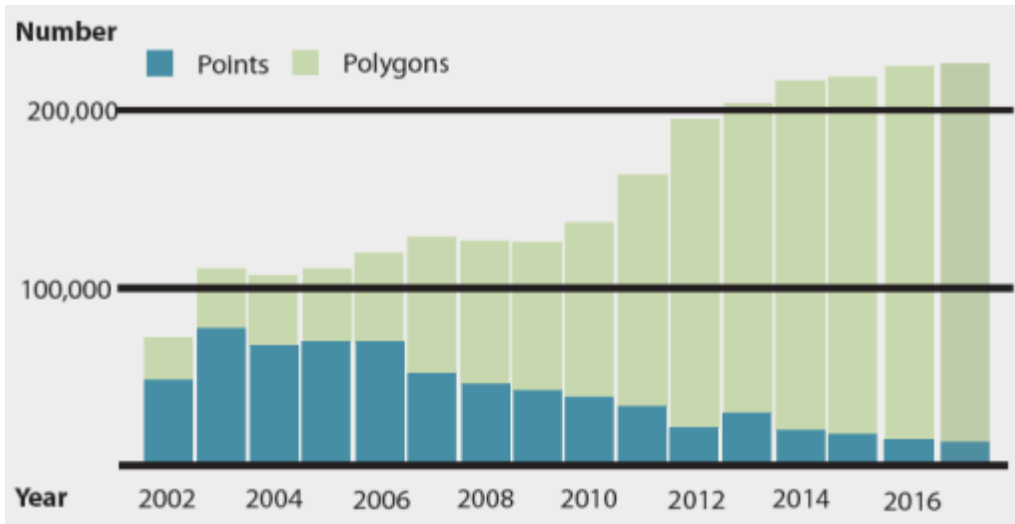
The World Database of Key Biodiversity Areas

- Used to report to different international supporting mechanisms
 - **Sustainable Development Goals**
 - CBD Global Biodiversity Outlook
 - IPBES Assessments
 - Global Reporting Initiative
 - IFC Performance Standards
- And online systems
 - CEPF Ecosystem Profiles
 - Global Forest Watch
 - EEA' DOPA

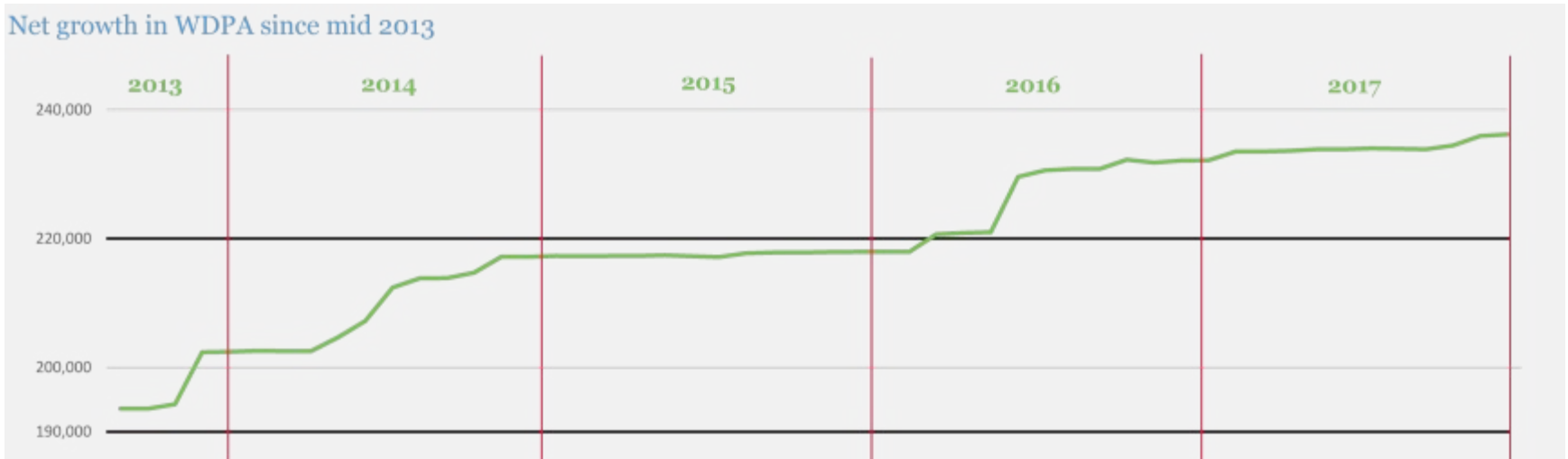
Challenges

There are three main challenges associated with maintenance, analysis and inference of these indicators.

1. Increasing size (and complexity) of the data



- Net increase in number over the period 2013-2018 with 40,000 new sites added



Accommodating more information

- Started very simple, with compiling only a few information for each site
- OECMS may increase the complexity further

	1998	2000	2002	2003	2004	2005	2006	2007	2009	2010	2011	2012	2013	2014
DESIG_ENG														
DESIG_TYPE														
GOV_TYPE														
ISO3														
IUCN_CAT														
MARINE														
METADATA_ID														
NAME														
REP_AREA														
REP_MARINE_AREA														
STATUS														
STATUS_YR														
WDPA_PID														
WDPAID														
VERSION														
DESIG														
GIS_AREA														
GIS_M_AREA														
INT_CRITERIA														
MANG_AUTH														
MANG_PLAN														
NO_TAKE														
NO_TK_AREA														
ORIG_NAME														
PARENT_ISO3														
SUB_LOC														

Many “missing” sites for both PAs/OECMs and KBAs

- Many PAs not yet documented, especially for private PAs, indigenous and community conserved areas, and mixed governance types
- Documentation of OECMs not yet begun
- KBA identification is comprehensive for birds, but only broadly covers other species groups for ~100 countries so far
- Some KBA criteria not yet also comprehensively applied
- Importance of establishment of National Coordination Groups to advance consolidation of KBA data

2. They do not measure effectiveness of protection

- **The Global Database on Protected Area Management Effectiveness**

Protected Area Management Effectiveness

- ‘The assessment of how well protected areas are being managed primarily the extent to which management is protecting values and achieving goals and objectives’ (Hockings et al. 2006)
- Despite growth in PA coverage, biodiversity continues to decline, even in s PAs. Effectiveness and level on management has been linked to underperformance of PA.
- PA well managed best conserve biodiversity

2. They do not measure effectiveness of protection

- **The Global Database on Protected Area Management Effectiveness**

- Joint product between the United Nations Environment and the International Union for Conservation of Nature (IUCN)
- To provide authoritative and ~~top~~ update information about protected area management effectiveness and to support protected area ~~designing~~ ~~ensuring~~
- To start assessing the 'effectively managed' of Aichi Target 11

By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes

3. Computing capacity to process the global data

- **Some file formats are no longer usable (e.g. .shp)**
- **Increasingly only some software can handle the processes (e.g. ArcGIS pro)**
- **Only some computers with good specs (>30gb RAM)**
- **Processing at country level is still OK!**

Solutions

Fortunately, through managing these databases there are some common -ground solutions that have proven to be effective..

Importance of data standards and quality checking processes

- Four requirements to meet the WDPA data standards
 1. All sites must meet the IUCN definition of a PA
 2. Spatial data from GIS and an associated list of attributes must be provided
 3. Source of information must be provided
 4. The WDPA DCA must be signed

- Clear WDPA schema and data standards
 - Interoperability
 - Consistency
 - Common format usable by all
 - Importance of the WDPA ID as unique identifier

A Data verification processes

DATASET DESCRIPTION:	
Marine	Check a fixed value is assigned. If not, assign fixed value. Check if the value assigned is consistent with the data provided and geographic

DATASET DESCRIPTION:	
GENERAL QUALITY CHECKS	RESULTS
Check dataset and repair geometry.	
Transform dataset to WGS84.	
Check all sites are within the country for which the protected areas dataset was sent including terrestrial and marine protected areas.	
Check if there are sites within overseas territories.	
Make sure data provider confirms which sites meet the IUCN definition of	square kilometers.
and go through a verification process to	than Reported Area.
based conservation measures or	square kilometers.
	area
	ue is assigned. If not,
	e.
	less.
	as year not date.
ected area have been submitted.	ue is assigned. If not,
	e.
provided.	
WDPA PIDs.	ue is assigned. If not,
	e.
	ue is assigned. If not,
	e.
a standards: Check all attributes are	ue is assigned. If not,
orrectly spelled. Do basic quality	e.
tributes (see below).	ue is assigned. If not,
ider to get their final approval.	e.
all countries data into the WDPA	ue is assigned. If not,
release.	e.
	RESULTS
Check there are no points and polygons	ue is assigned. If not,
g the same WDPA PID.	e.
Check ISO3 and PARENT ISO3 codes are	ue is assigned. If not,
correct and the protected area's location	e.
is consistent with the codes.	ness and consistency.
Name : Name and Original	ct or reference is
Name	

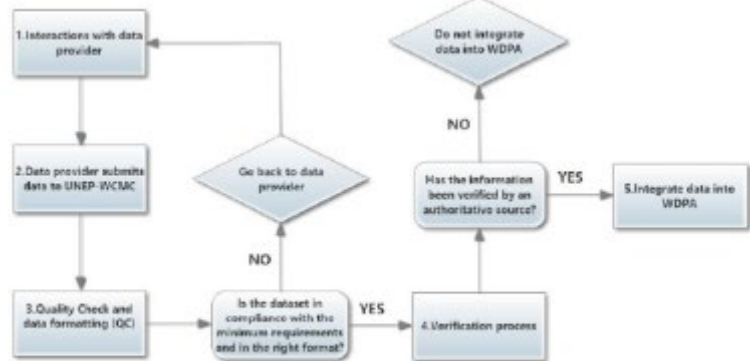
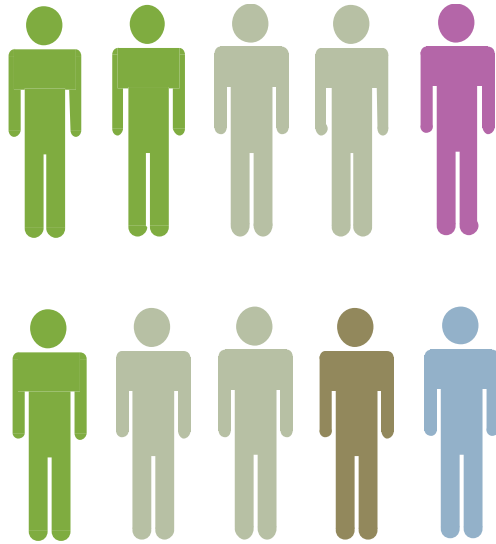
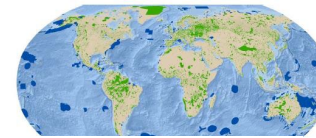


Figure 3.3 Key phases for verification and formatting of spatial and tabular data before being integrated in the WDPA.

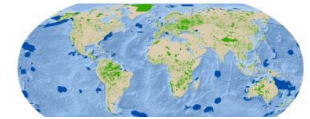
A Stable core team, with required technical and linguistic skills



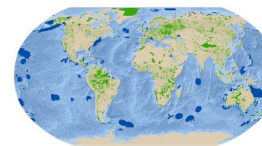
World Database on Protected Areas
User Manual 1.5



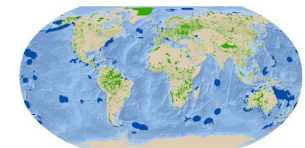
Base de données mondiale sur les aires protégées
Manuel d'utilisation 1.5



Всемирная база данных по охраняемым природным территориям
Руководство Пользователя 1.5



Base de Datos Mundial sobre Áreas Protegidas
Manual de Usuario 1.5



Work with partners to help them with their needs.
Demonstrating it is a real partnership.

Frequent lines of communication



Share and showcase the data

Protected area coverage per country/territory by UN Environment Regions

This page provides access to national statistics for every country and territory classified under the UN Environment Regions. The regions listed below are based upon UN Environment's Global Environment Outlook (GEO) process. For a detailed discussion on the use of regions for reporting and the links between the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) regional/subregional assessments please refer to the paper "Analysing biodiversity and conservation knowledge products to support regional environmental assessments" by Brooks et al., published in Nature's Scientific Data in February 2016.

Download complete country codes list as a .CSV

Africa	
Asia & Pacific	
Europe	
Country name	ISO alpha-3
Åland Islands	ALA
Albania	ALB
Andorra	AND
Armenia	ARM
Austria	AUT



Number of Protected areas

11,432

Polygons/Points ratio



100% Polygons

0% Points

Number of sources

- For international designations: 5
- For national designations: 2
- For regional designations: 2
- TOTAL: 9

IUCN Management categories

Management category	Count	%
ii	17	0.15
ii	24	0.21

Protected areas coverage

Area terrestrial



Area marine



Warning: These statistics might differ from those reported officially by countries due to difference in methodologies and datasets used to assess protected area coverage and differences in the base maps used to measure terrestrial and marine area of a country or territory. [Learn how we calculate protected area coverage statistics](#)

Governance types

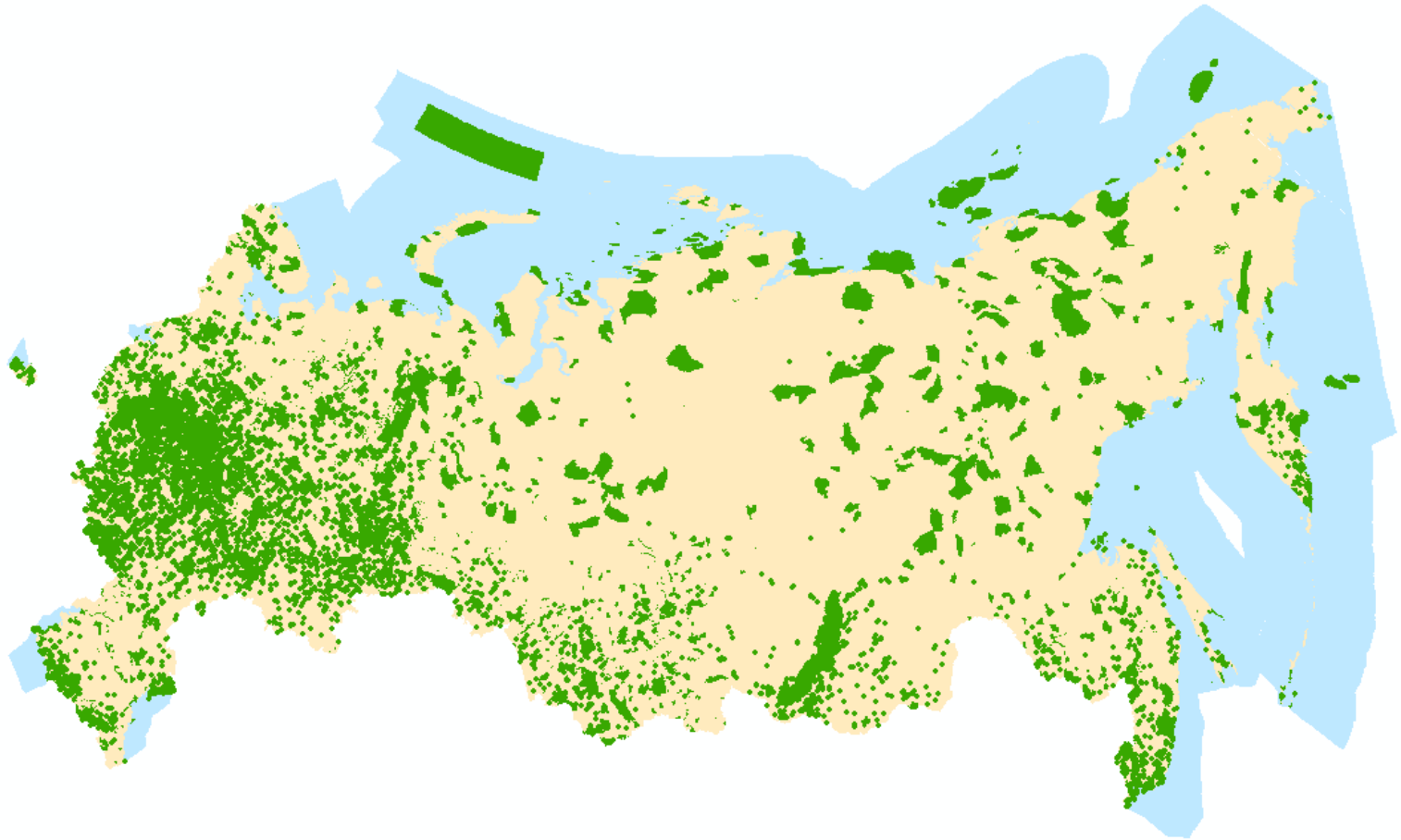
Name	Governance type	Count	%
ii	Federal or national ministry or agency	10228	89.47
ii	Not Reported	181	1.41



Review of Russia's datasets

Review of Russia's dataset in WDPA

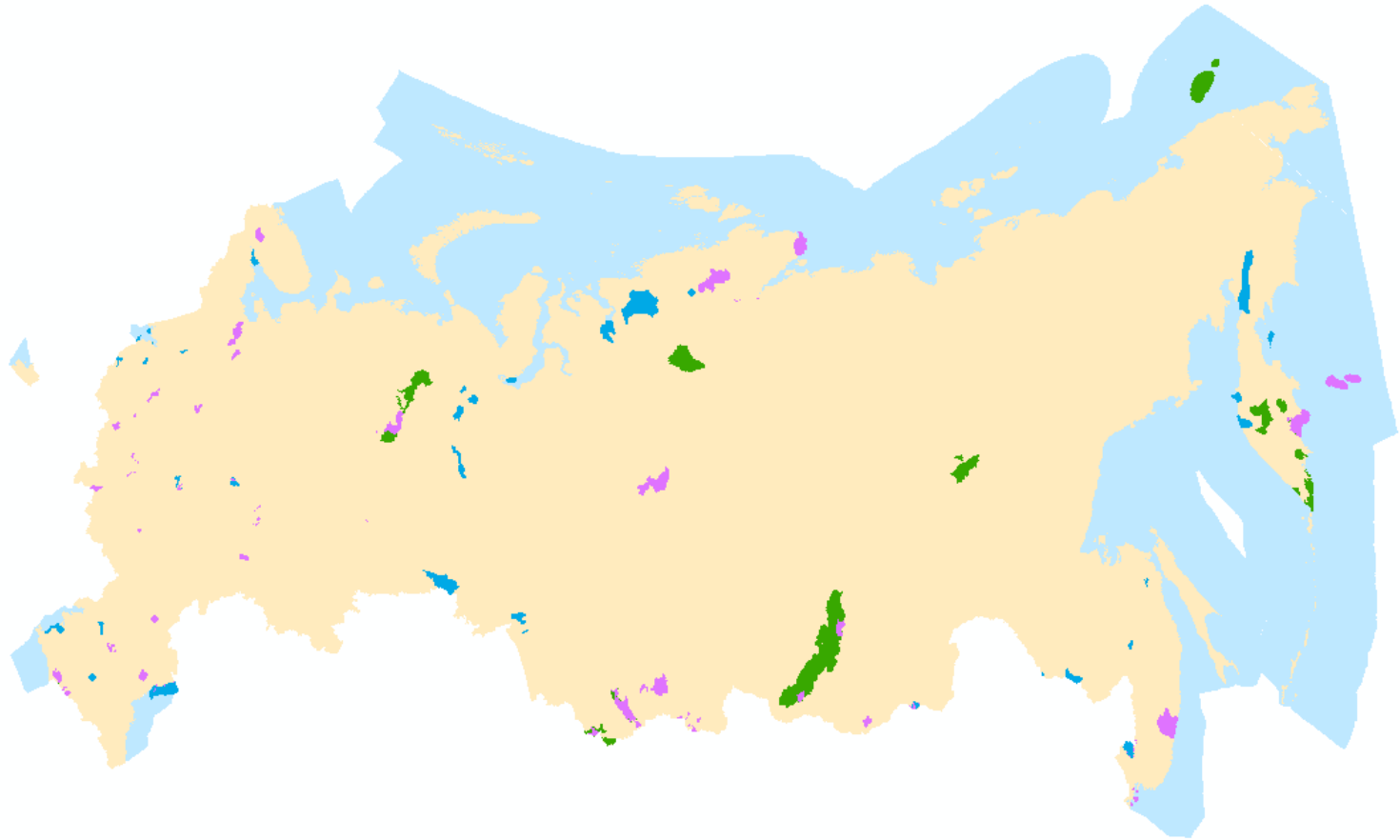
- 11,252 protected areas for the Russian Federation reported in the WDPA as of March 20



Review of Russia's dataset

- 86 sites designated under international conventions
 - 35 Ramsar sites, Wetlands of International Importance (35 sites reported on the Ramsar website):
<https://www.ramsar.org/wetland/china>
 - 40 Man and Biosphere Reserves (45 MAB sites reported on the UNESCO website):<http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/>
 - 11 World Heritage Sites (11 Natural World Heritage Sites)

Review of Russia's dataset



- Ramsar site, wetland or international importance
- UNESCO-MAB Biosphere Reserve
- World Heritage Site

Review of Russia's dataset

- Nationally designated sites are reported under 36 designations

National designation	Number of sites
Botanical garden	5
Buffer zone (adjacent to national park)	1
Buffer zone (adjacent to zapovednik)	12
Dendrarium	8
Forest park	10
Genetic reserve	82
Geological polygon	2
Health Restoration Resort	8
Historical – natural museum/ Zapovednik	16
Historical – natural protected site	42
Managed resource protected area	34
National park	31
National park (project)	9
Natural-ethnic territory	3
Nature Monument	7834

Review of Russia's dataset

- Nationally designated sites are reported under 36 designations

National designation	Number of sites
Natural Monument (Federal)	27
Natural Monument (project)	14
Nature park	25
Nature park (project)	8
Nature Sanctuary or Partial Reserve	1
Not Reported	100
Other area	12
Other area (project)	17
Preserve Green Belt	9
Protected Forest	3
Protected Landscape	300
Recreation Area	19
Reserved Territory	11
Resource Reserve	44
Resource Reserve (project)	3

Review of Russia's dataset

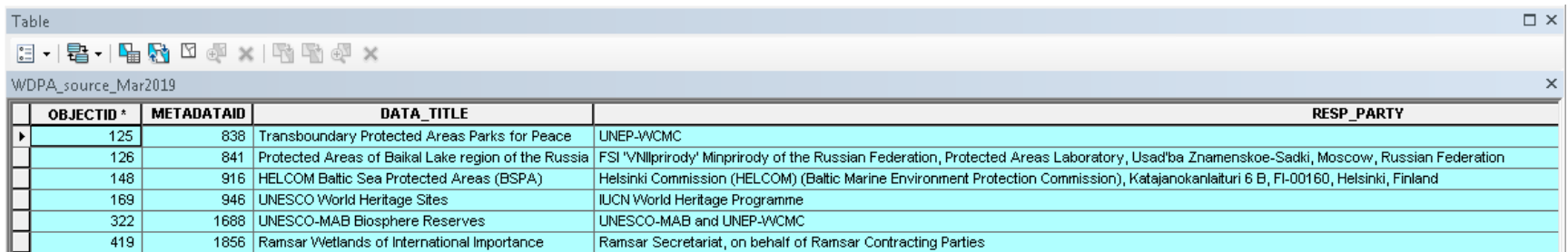
- Nationally designated sites are reported under 36 designations

National designation	Number of sites
State complex area	3
Zakaznik	2256
Zakaznik (Federal)	62
Zakaznik (project)	55
Zapovednik	96
Zapovednik (project)	7

Review of Russia's dataset

- Source information

2 different sources for national level protected area information



OBJECTID	METADATAID	DATA_TITLE	RESP_PARTY
125	838	Transboundary Protected Areas Parks for Peace	UNEP-WCMC
126	841	Protected Areas of Baikal Lake region of the Russia	FSI 'VNIIPrirody' Minprirody of the Russian Federation, Protected Areas Laboratory, Usad'ba Znamenskoe-Sadki, Moscow, Russian Federation
148	916	HELCOM Baltic Sea Protected Areas (BSPA)	Helsinki Commission (HELCOM) (Baltic Marine Environment Protection Commission), Katajanokanlaituri 6 B, FI-00160, Helsinki, Finland
169	946	UNESCO World Heritage Sites	IUCN World Heritage Programme
322	1688	UNESCO-MAB Biosphere Reserves	UNESCO-MAB and UNEP-WCMC
419	1856	Ramsar Wetlands of International Importance	Ramsar Secretariat, on behalf of Ramsar Contracting Parties

- Last update of nationally designated sites in 2003

Review of Russia's dataset in WDKBAs

- 802 key biodiversity areas for the Russian Federation reported in the WDKBAs March 2019.



Thank you!

 @Protected Planet

 @protectedplanet

Marine.Deguignet@unep-wcmc.org

www.protectedplanet.net

Thomas.Brooks@iucn.org

www.iucn.org

 @KeyBiodiversity