Convention on Biological Diversity

UNDP

Aichi Biodiversity Target 11 Country Dossier: RUSSIAN FEDERATION

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GLOSSARY

AZEs	Alliance for Zero Extinction sites
CEPF	Critical Ecosystem Partnership Fund
EBSA	Ecologically or Biologically Significant Marine Area
EEZ	Exclusive Economic Zone
GCF	Green Climate Fund
GD-PAME	Global Database on Protected Area Management Effectiveness
GEF	Global Environment Facility
IBA	Important Bird and Biodiversity Area
ICCAs	Indigenous and Community Conserved Area Area (may also be referred to as territories and areas conserved by Indigenous peoples and local communities or "territories of life")
IPLC	Indigenous Peoples and Local Communities
KBA	Key Biodiversity Area
MEOW	Marine Ecosystems of the World
MPA	Marine Protected Area
NBSAP	National Biodiversity Strategy and Action Plan
OECM	Other Effective Area-Based Conservation Measures
PA	Protected Area
PAME	Protected Area Management Effectiveness
PPA	Privately Protected Area
PPOW	Pelagic Provinces of the World
ProtConn	Protected Connected land indicator
SOC	Soil Organic Carbon
TEOW	Terrestrial Ecosystems of the World
WDPA	World Database on Protected Areas
WD-OECM	World Database on Other Effective Area-Based Conservation Measures

Disclaimer

The designations employed and the presentation of material in this dossier do not imply the expression of any opinion whatsoever on the part of the Secretariat of the Convention on Biological Diversity (SCBD) or United Nations Development Programme (UNDP) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The information contained in this publication do not necessarily represent those of the SCBD or UNDP.

This country dossier is compiled by the UNDP and SCBD from publicly available information. It is prepared, within the overall work of the Global Partnership on Aichi Biodiversity Target 11, for the purpose of attracting the attention of the Party concerned and other national stakeholders to facilitate the verification, correcting, and updating of country data. The statistics might differ from those reported officially by the country due to differences 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. Furthermore, the suggestions from the UNDP and SCBD are based on analyses of global datasets, which may not necessarily be representative of national policy or criteria used at the national level. The analyses are also subject to the limits inherent in global indicators (precision, reliability, underlying assumptions, etc.). Therefore, they provide useful information but cannot replace analyses at a national level nor constitute a future benchmark for national policy or decision-making.

The preparation of this dossier was generously supported by: the Government of the Federal Republic of Germany, *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GMbH*; the European Commission; the Government of the United Kingdom of Great Britain and Northern Ireland; and the Government of Japan (Japan Biodiversity Fund). The dossier does not necessarily reflect their views.

EXECUTIVE SUMMARY

This document provides information on the coverage of protected areas (PAs) and other effective area-based conservation measures (OECMs), as currently reported in global databases (the World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM)). It also includes details on the status of the other qualifying elements of Aichi Biodiversity Target 11 based on this data. These statistics might differ from those reported officially by countries due to difference in methodologies and datasets used to assess protected area coverage, differences in the base maps used to measure terrestrial and marine area of a country or territory, or if global datasets differ from the criteria and indicators used at the national level. This dossier also provides a summary of commitments made under Aichi Biodiversity Target 11, and a summary of potential opportunities regarding elements of the target for future planning.

The dossier has been developed in consultation with the UN Environment Programme World Conservation Monitoring Centre (UNEP-WCMC), which manages the WDPA, WD-OECM and Global Database on Protected Area Management Effectiveness (GD-PAME).

Parties to the CBD are requested to contact protectedareas@unep-wcmc.org with any updates to the information in these databases.

Aichi Biodiversity Target 11 Elements: Current status and opportunities for action

Coverage - Terrestrial & Marine

- **Status:** as of May 2021, terrestrial coverage in Russian Federation is 1,932,706.7 km^2 (11.5%) and marine coverage is 172,138.7 km^2 (2.2%).

- **Opportunities for action:** opportunities for the near-term include updating the WDPA with any unreported PAs and reporting OECMs to the WD-OECM (nationally reported coverage for all areas under legal protection may have already surpassed 25%). In the future, focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.

Ecological Representativeness– Terrestrial & Marine

- **Status:** Russian Federation contains 52 terrestrial ecoregions, 14 marine ecoregions, and 3 pelagic provinces: the mean protected coverage by reported PAs and OECMs is 16.0% (terrestrial), 2.3% (marine), and 0.1% (pelagic); 2 terrestrial ecoregions and 2 pelagic provinces have no coverage by reported PAs and OECMs.

- **Opportunities for action:** there is opportunity for Russian Federation to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs. Ecoregions which currently have no coverage by PAs or OECMs are key areas for action.

Areas Important for Biodiversity

- **Status:** Russian Federation has 800 Key Biodiversity Areas (KBAs): the mean protected coverage of KBAs by reported PAs and OECMs is 25.7%, while 384 KBAs have no coverage by reported PAs and OECMs.

- **Opportunities for action:** there is opportunity for Russian Federation to increase protection of KBAs that have lower levels of coverage by PAs and OECMs; priority could be given to those with no current coverage.

Areas Important for Ecosystem Services

- **Status:** coverage of areas important for ecosystem services: In Russian Federation, 9.9% of aboveground biomass carbon, 10.9% of belowground biomass carbon, 11.1% of soil organic carbon, 2.1% of carbon stored in marine sediments is covered by PAs and OECMs.

- **Opportunities for action:** for carbon, there is opportunity for Russian Federation to increase PA and OECM coverage in both marine and terrestrial areas with high carbon stocks. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.

- For water, there is opportunity to increase the area of the water catchment under protection by PAs and OECMs, or in cases where there is high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforesting would have benefits for improving water security.

Connectivity and Integration

- **Status:** coverage of protected-connected lands is 1.9%.

- **Opportunities for action:** there is opportunity for a targeted increase in connecting PAs or OECMs and to focus on PA and OECM management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation.

- As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).

Governance Diversity

- **Status:** the most common governance type(s) for reported PAs in Russian Federation is: 98.9% under Government (96.7% Sub-national ministry or agency; 2.2% Federal or national ministry or agency).

- **Opportunities for action:** explore opportunities for governance types that have lower representation, for Russian Federation this could relate to shared governance, etc.

- There is also opportunity for Russian Federation to complete governance and equity assessments, to establish baselines and identify relevant actions for improvement. As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).

Protected Area Management Effectiveness

- **Status:** 11.7% of terrestrial PAs and 10.6% of marine PAs have completed Protected Area Management Effectiveness (PAME) assessments reported.
- **Opportunities for action:** the 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for both terrestrial and marine PAs to achieve the target.
- There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g. through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.

INTRODUCTION

The Strategic Plan for Biodiversity 2011-2020 was adopted at the tenth meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) held in Nagoya, Aichi Prefecture, Japan from 18-29 October 2010. The vision of the Strategic Plan is one of "Living in harmony with nature" where *"By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people"* (CBD, 2010). In addition to this vision, the Strategic Plan is composed of 20 targets, under five strategic goals. Aichi Biodiversity Target 11 states that *"By 2020, at least 17 per cent of terrestrial and inland water, 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."*

With the conclusion of the Aichi Biodiversity Targets in 2020, Target 11 on area-based conservation has seen success in the expansion of the global network of protected areas (PA) and other effective area-based conservation measures (OECMs). The negotiation of the post-2020 Global Biodiversity Framework (GBF) and its future targets provide an essential opportunity to further improve the coverage of PAs and OECMs, to improve other aspects of area-based conservation, to accelerate progress on biodiversity conservation more broadly, while also addressing climate change, and the Sustainable Development Goals. This next set of global biodiversity targets are to be adopted at the fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity. These new targets must aim to build upon lessons learned from the last decade of progress to deliver transformative change for the benefit of nature and people, to realize the 2050 Vision for biodiversity.

The United Nations Development Programme (UNDP) and the Secretariat of the Convention on Biological Diversity have developed the Aichi Biodiversity Target 11 Country Dossiers, which provide countries with an overview of the status of Target 11 elements, opportunities for action, and a summary of commitments made by Parties over the last decade. Each dossier can support countries in assessing their progress on key elements of Aichi Biodiversity Target 11 and identifying opportunities to prioritize new protected areas and OECMs.

This dossier provides an overview of area-based conservation in Russian Federation. Section I of the dossier presents data on the current status of Russian Federation's PAs and OECMs. The data presented in Section I relates to each element of Target 11. Section I also presents the PA and OECM coverage for two critical ecosystem services: water security and carbon stocks. In addition, the dossier presents potential opportunities for action for Russian Federation, in relation to each Target 11 element. The analyses present options for improving Russian Federation's area-based conservation network to achieve enhanced protection and benefits for livelihoods and climate change. Section II presents details on Russian Federation's existing PA and OECM commitments as a summary of existing efforts towards achieving Target 11. This gives focus not only to national policy and actions but

also voluntary commitments to the UN. Furthermore, where data is available, this dossier provides information on potential OECMs, Indigenous and Community Conserved Areas (ICCAs; also, often referred to as territories and areas conserved by Indigenous peoples and local communities or "territories of life") and Privately Protected Areas (PPAs) and the potential contribution they will have in achieving the post-2020 targets.

The information on PAs and OECMs presented here is derived from the World Database on Protected Areas (WDPA) and World Database on Other Effective Area-Based Conservation Measures (WD-OECM). These databases are joint products of UNEP and IUCN, managed by UNEP-WCMC, and can be viewed and downloaded at www.protectedplanet.net. Parties are encouraged to provide data on their PAs and OECMs to UNEP-WCMC for incorporation into the databases (see e.g., Decisions 10/31 and 14/8). The significant efforts of Parties in updating their data in the build up to the publication of the Protected Planet Report 2020 (UNEP-WCMC and IUCN, 2021) were greatly appreciated. UNEP-WCMC welcomes further updates, following the data standards described here (www.wcmc.io/WDPA_Manual), and these should be directed to protectedareas@unep-wcmc.org. The statistics presented in this dossier are derived from the May 2021 WDPA and WD-OECM releases, unless explicitly stated otherwise. Readers should consult www.protectedplanet.net for the latest coverage statistics (updated monthly).

Some data from the WDPA and WD-OECM are not made publicly available at the request of the data-provider. This affects some statistics, maps, and figures presented in this dossier. Statistics provided by UNEP-WCMC (terrestrial and marine coverage) are based upon the full dataset, including restricted data. All other statistics, maps, and figures are based upon the subset of the data that is publicly available.

Where data is less readily available, such as for potential OECMs, ICCAs and PPAs, data has also been compiled from published reports and scientific literature to provide greater awareness of these less commonly recorded aspects. These data are provided to highlight the need for comprehensive reporting on these areas to the WDPA and/or WD-OECM. Parties are invited to work with indigenous peoples, local communities and private actors to submit data under the governance of these actors, with their consent, to the WDPA and/or WD-OECM.

Overall, PAs and OECMs are essential instruments for biodiversity conservation and to sustain essential ecosystem services that support human well-being and sustainable development, including food, medicine, and water security, as well as climate change mitigation and adaptation and disaster risk reduction. The data in this dossier, therefore, aims to celebrate the current contributions of PAs and OECMs, whilst the gaps presented hope to encourage greater progress, not just for the benefit of biodiversity and the post-2020 GBF, but also to recognize the essential role of PAs and OECMs to the Sustainable Development Goals and for addressing the climate crisis.

SECTION I: CURRENT STATUS

Aichi Biodiversity Target 11 refers to both protected areas (PAs) and other effective area-based conservation measures (OECMs). This section provides the current status for all elements of Aichi Biodiversity Target 11 where indicators with global data are available. Statistics for all elements are presented using data on both PAs and OECMs (where this data is available and reported in global databases like the WDPA and WD-OECM). It is recognized that statistics reported in the WPDA and WD-OECM might differ from those reported officially by countries due to differences 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. Details on UNEP-WCMC's methods for calculating PA and OECM coverage area available here. The global indicators adopted here for presenting the status of other elements of Target 11 may also differ from those in use nationally.

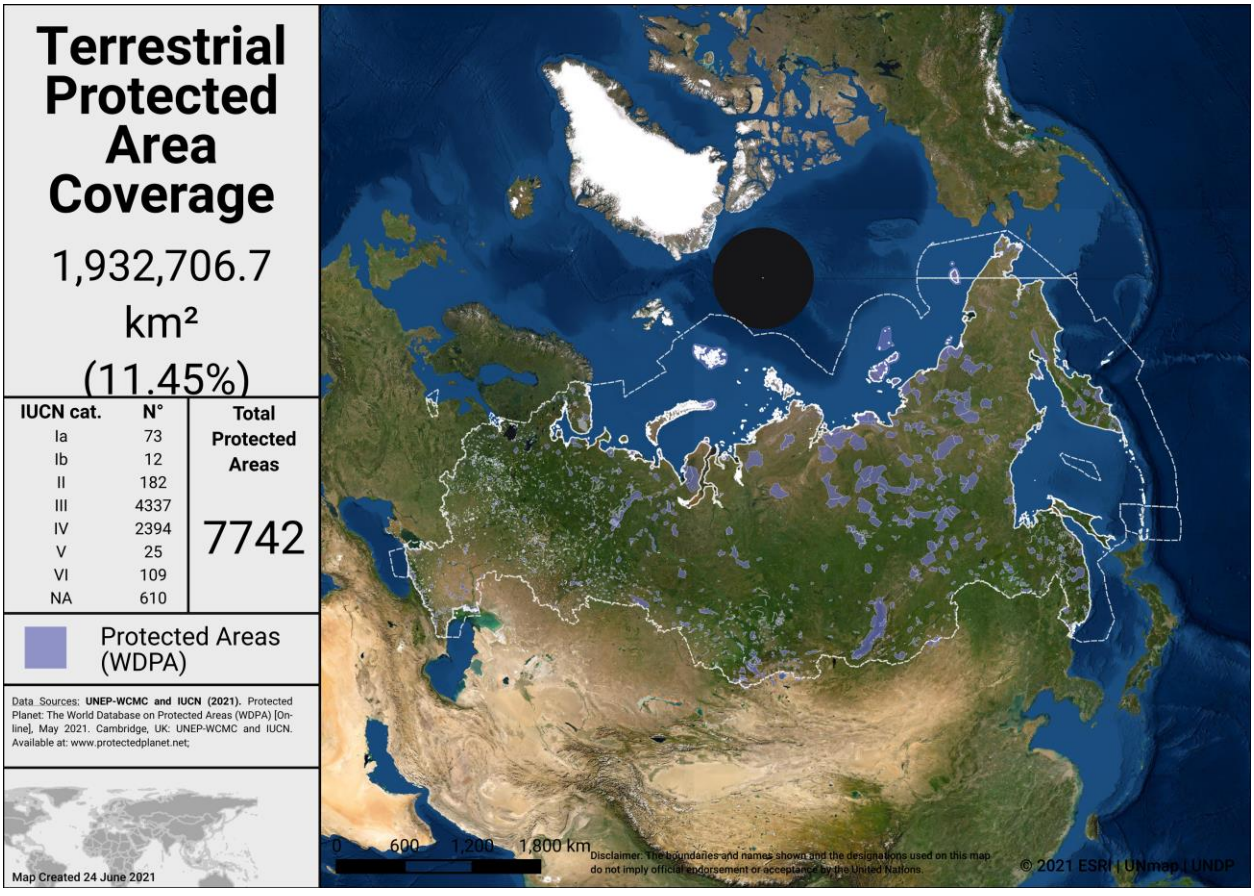
COVERAGE - TERRESTRIAL & MARINE

As of May 2021, Russian Federation has **8,991** protected areas reported in the World Database on Protected Areas (WDPA). 264 PAs have no spatial boundary and no area listed in the WDPA and 40 UNESCO-MAB Biosphere Reserves are not included in the following statistics (see details on UNWP-WCMC's methods for calculating PA and OECM coverage **here**).

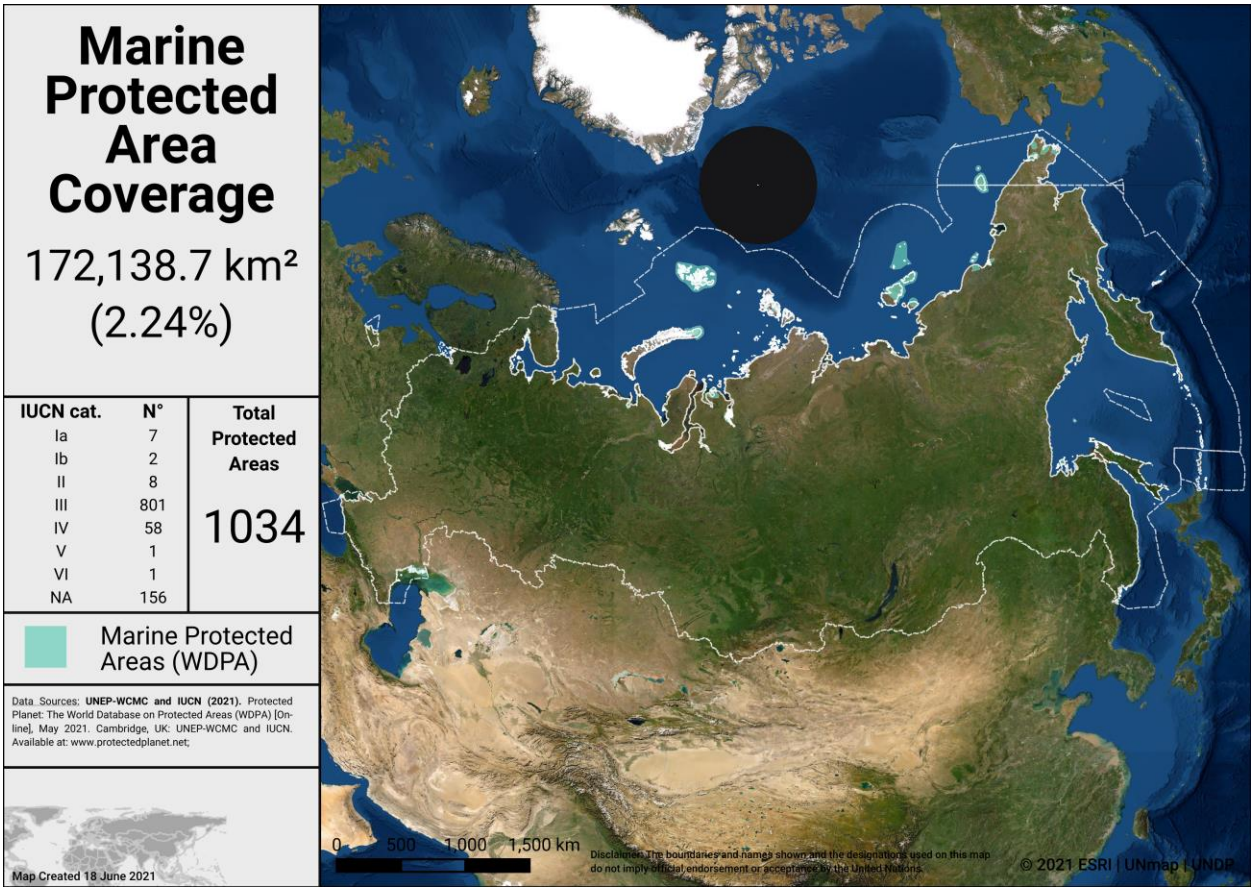
As of May 2021, Russian Federation has **0** OECMs reported in the world database on OECMs (WD-OECM).

Current coverage for Russian Federation:

- 11.5% terrestrial (7,742 protected areas, 1,932,706.7 km^2)
- 2.2% marine (1,034 protected areas, 172,138.7 km^2)



Terrestrial Protected Areas in Russian Federation



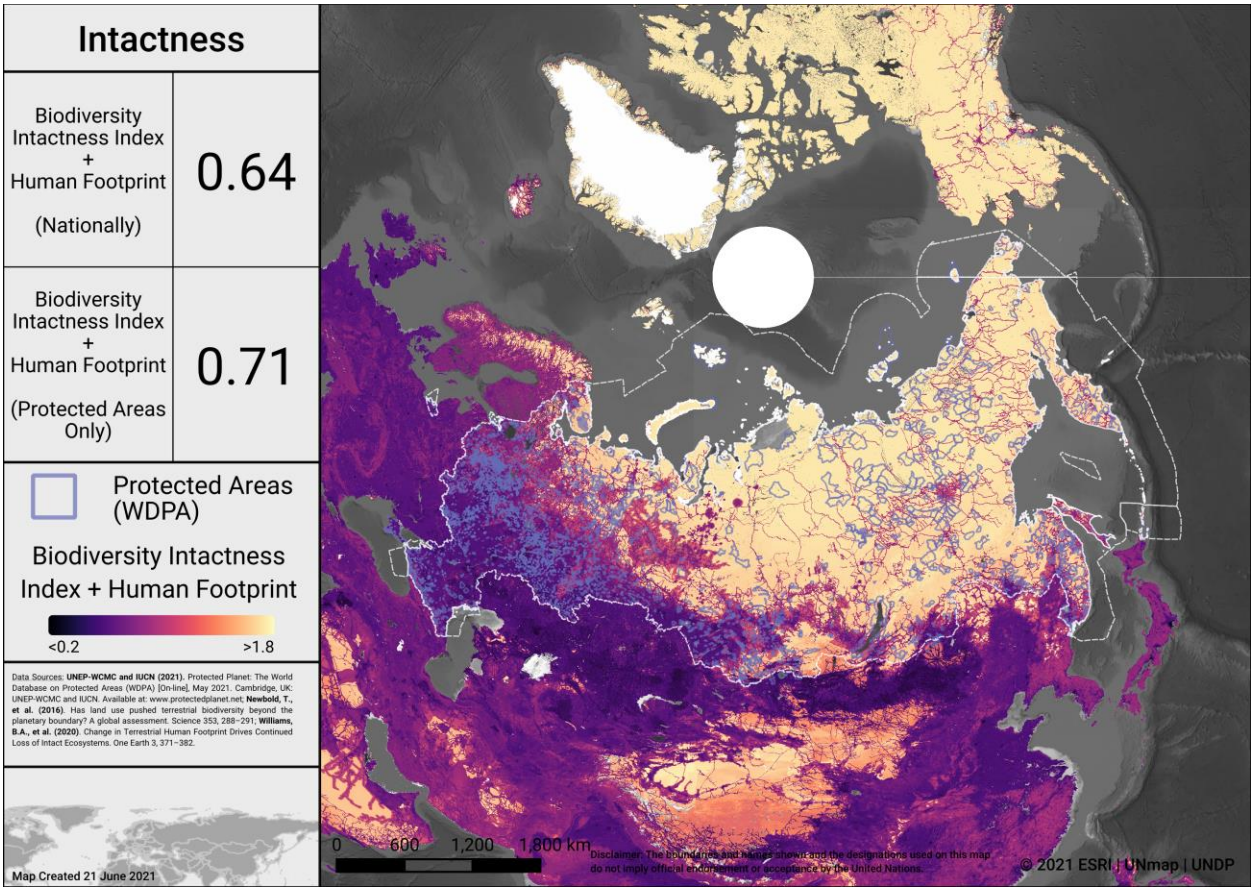
Marine Protected Areas in Russian Federation

Potential OECMs

According to a recent review of existing coverage in Russia (see full details in Stishov & Dudley, 2018), sites that meet the IUCN criteria but are not nationally designated as PAs could be considered as potential OECMs; these sites currently cover **~13.5%** of land areas and **~1%** of Russia's national waters.

Opportunities for action

Opportunities for the near-term include updating the WDPA with any unreported PAs and reporting OECMs to the WD-OECM (coverage of all areas under legal protection may have already surpassed 25% — see Russian Federation's statement at the 2020 UN Biodiversity Summit in *Other commitments*). In the future, as Russian Federation considers where to add new PAs and OECMs, the map below identifies areas in Russian Federation where intact terrestrial areas are not currently protected. Focus on relatively intact areas, while addressing the elements in the following sections, could be considered when planning new PAs or OECMs.



Intactness in Russian Federation

To explore more on intactness visit the UN Biodiversity Lab: map.unbiodiversitylab.org.

ECOLOGICAL REPRESENTATIVENESS – TERRESTRIAL & MARINE

Ecological representativeness is assessed based on the PAs and OECMs coverage of broad-scale biogeographic units. Globally, ecoregions have been described for terrestrial areas (Dinerstein et al, 2017), marine coastal and shelf ecosystems (to a depth of 200m; Spalding et al 2007) and surface pelagic waters (Spalding et al 2012).

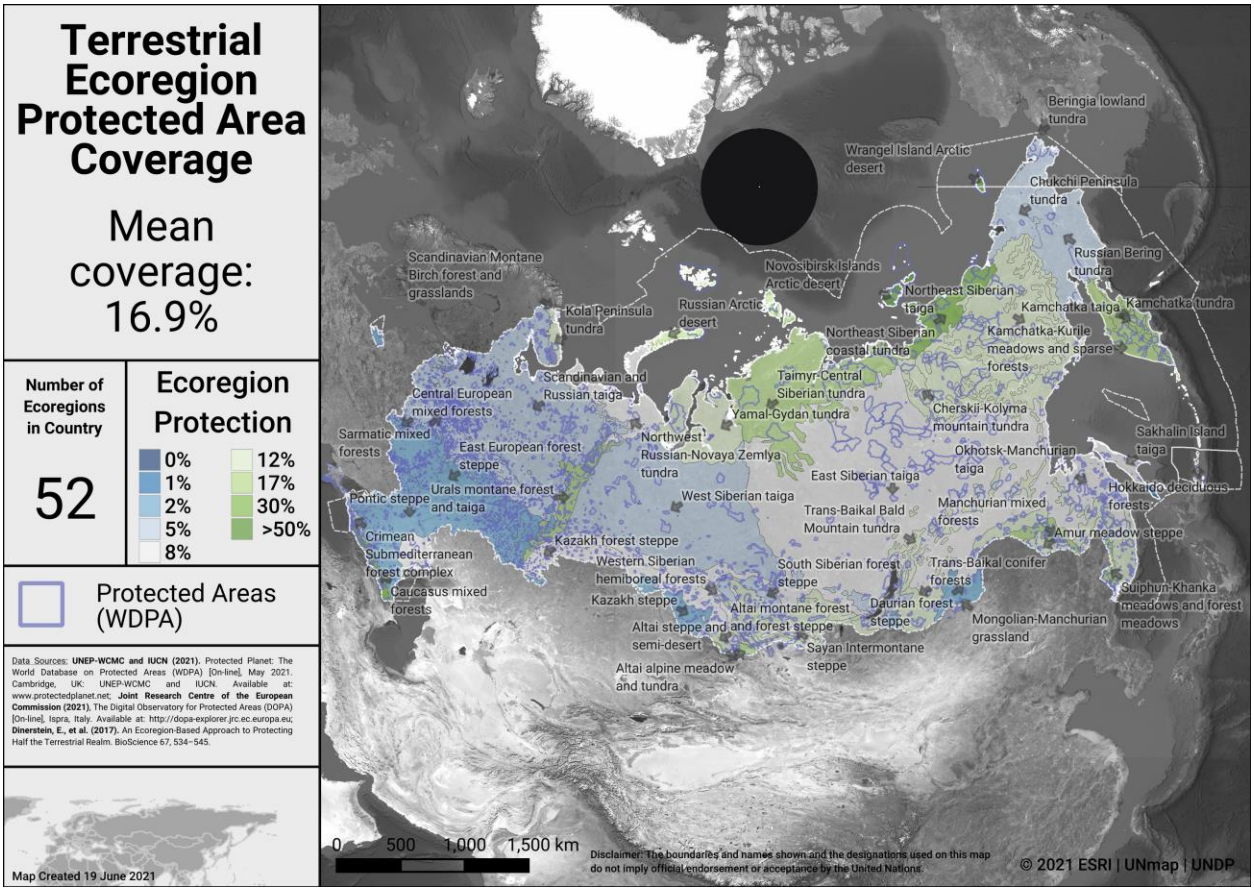
Russian Federation has 52 **terrestrial** ecoregions. Out of these:

- 50 ecoregions have at least some coverage from PAs and OECMs.
  - The 2 remaining ecoregions cover <0.1% of Russian territory
- 14 ecoregions have at least 17% protected within the country.
- The average terrestrial coverage of ecoregions is 16.0%.

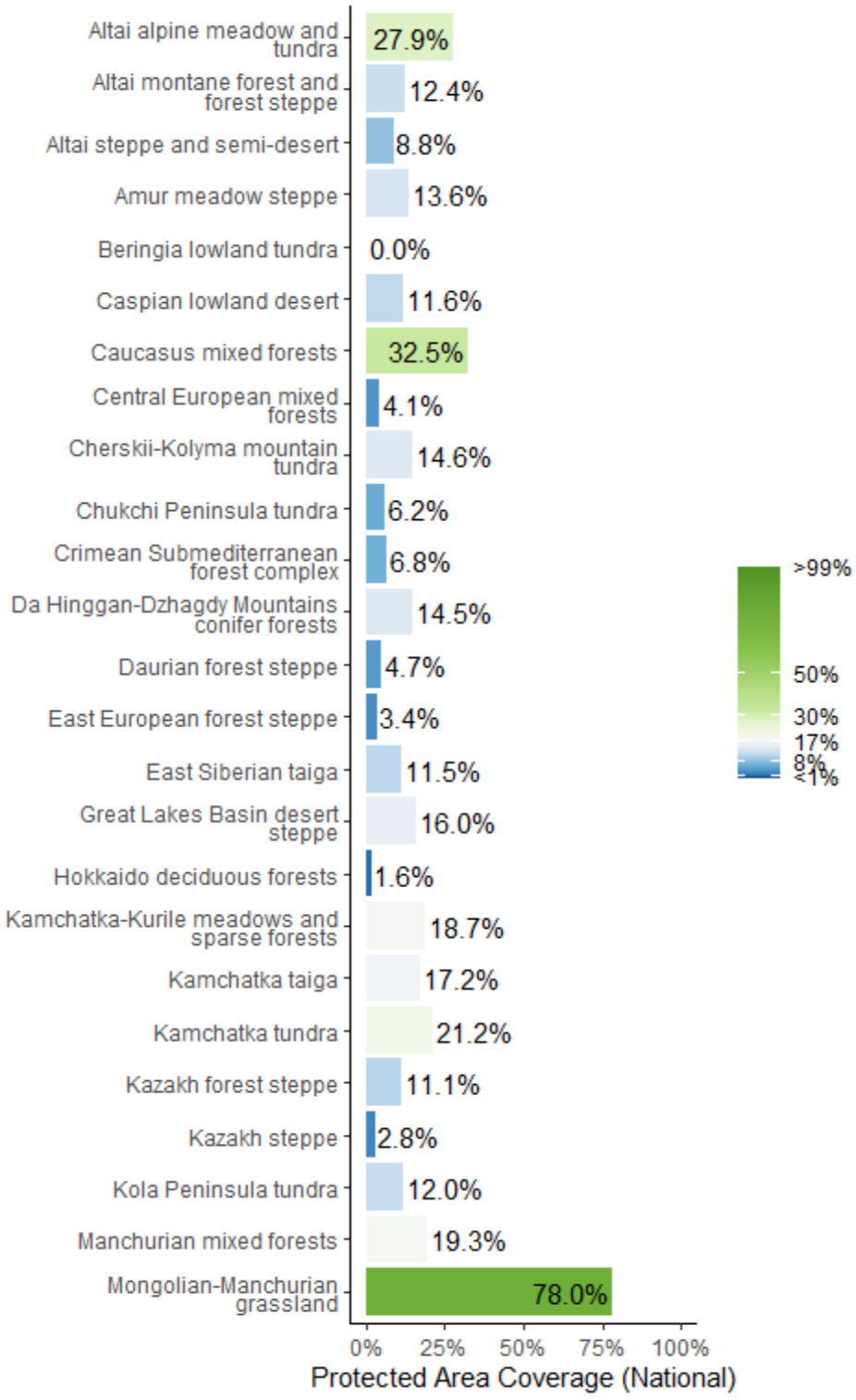
Russian Federation has 14 **marine** ecoregions and 3 **pelagic provinces**. Out of these:

- 14 marine ecoregions and 1 pelagic province have at least some coverage from reported PAs and OECMs.
- 0 marine ecoregions and 0 pelagic provinces have at least 10% protected within Russian Federation's exclusive economic zone (EEZ).
- The average coverage of marine ecoregions is 2.3% and the average coverage of pelagic provinces is 0.1%.

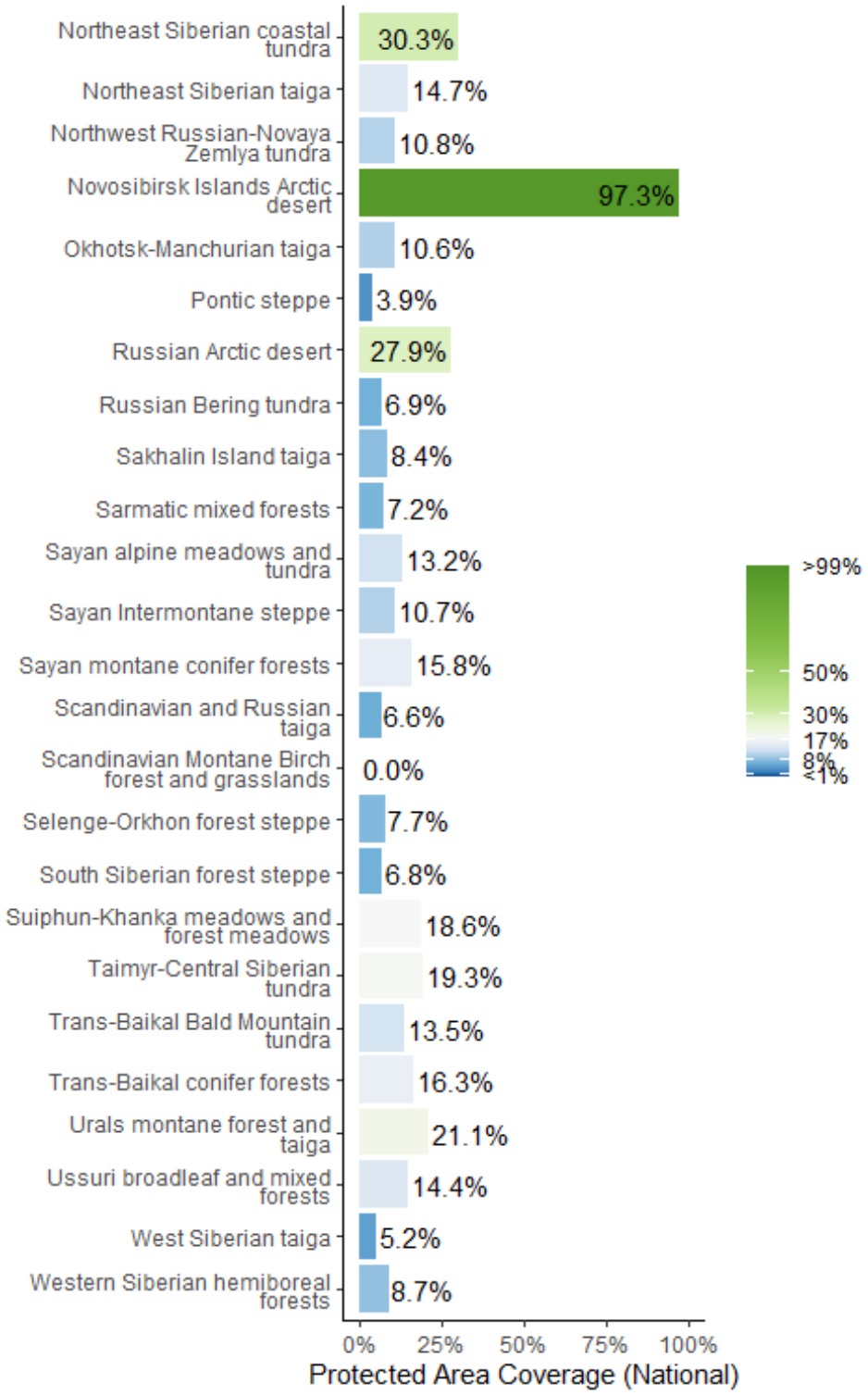
A full list of terrestrial ecoregions in the Russian Federation is available in Annex I.



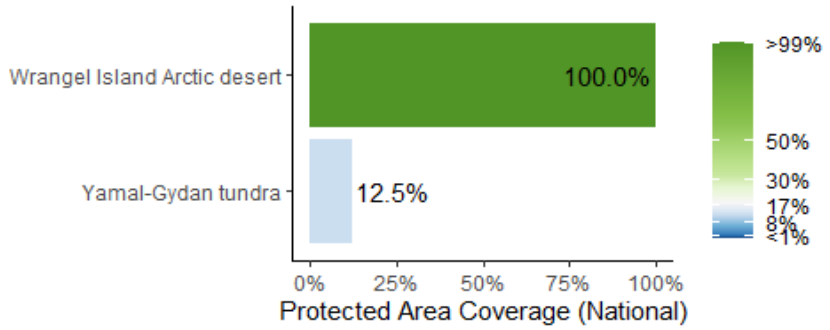
Terrestrial ecoregions in Russian Federation



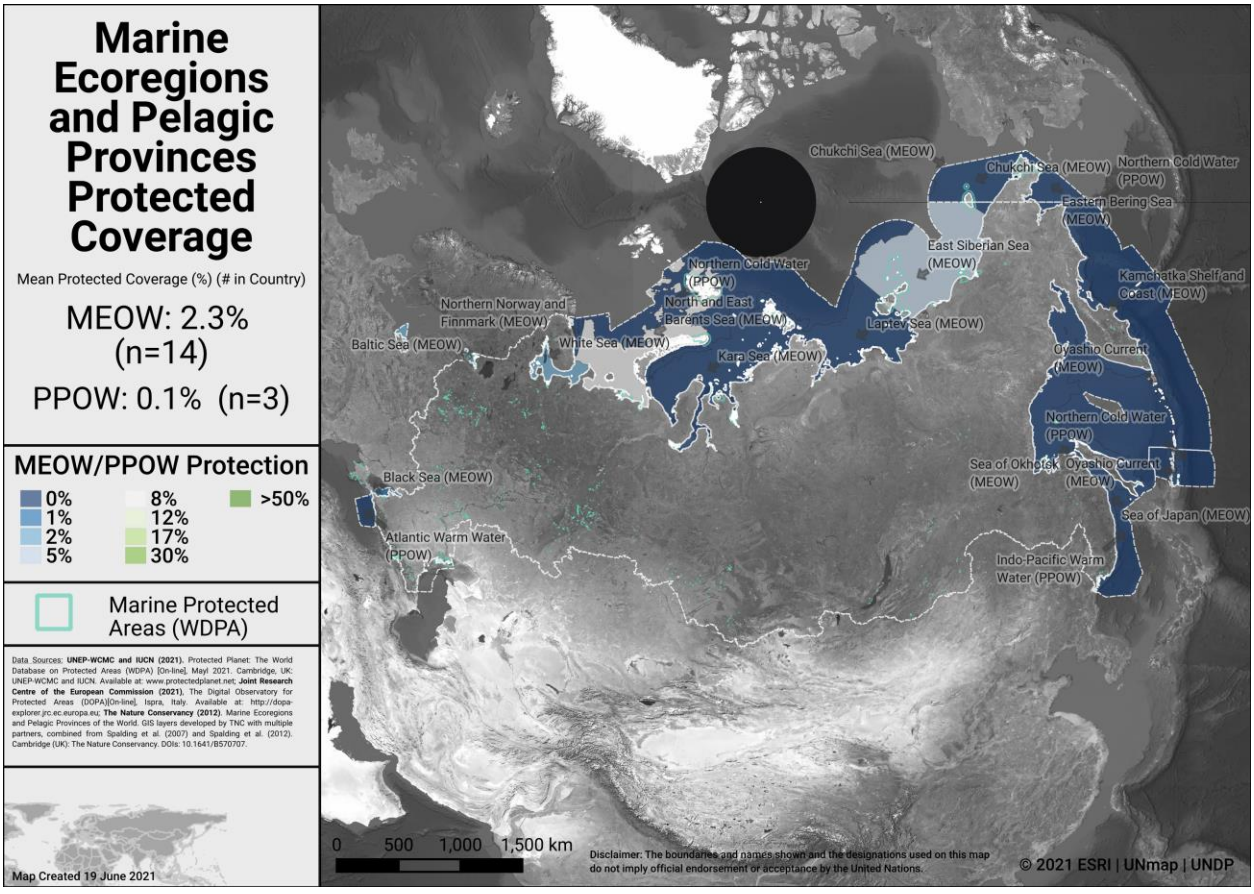
Terrestrial ecoregions of the World (TEOW) in Russian Federation



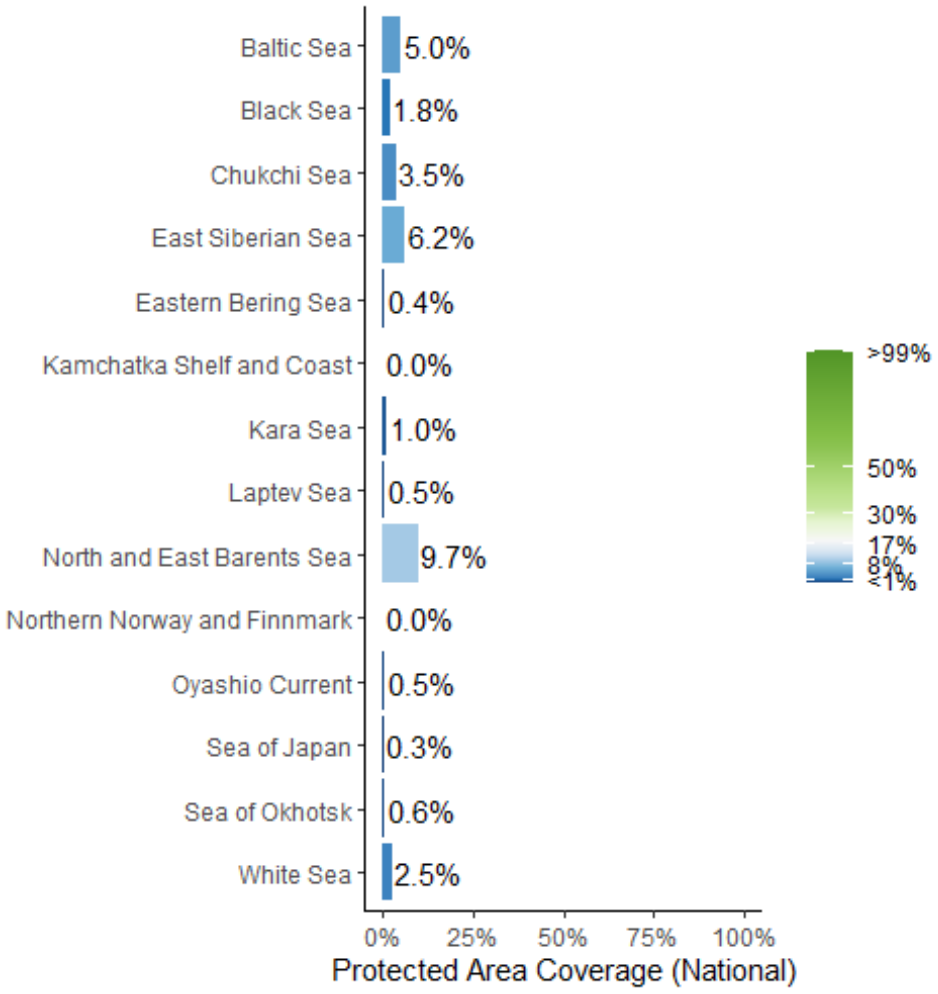
Terrestrial ecoregions of the World (TEOW) in Russian Federation (continued)



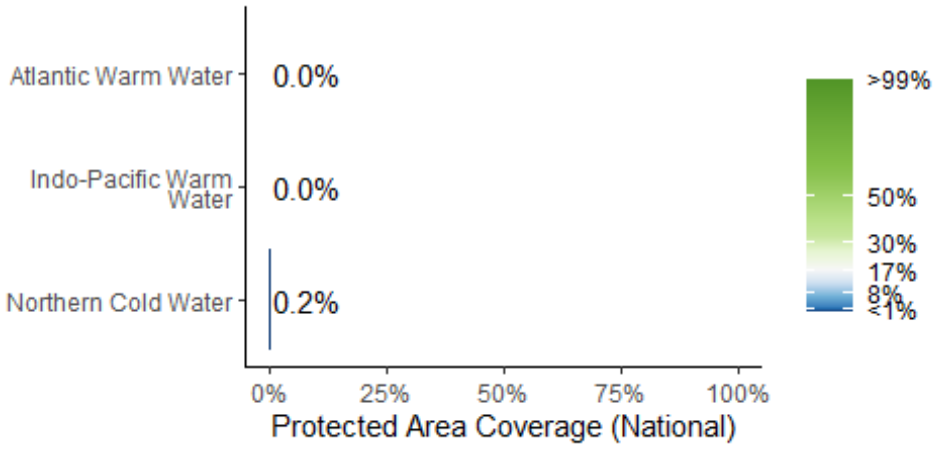
Terrestrial ecoregions of the World (TEOW) in Russian Federation (continued)



Marine ecoregions and pelagic provinces



Marine Ecoregions of the World (MEOW) in Russian Federation



Pelagic Provinces of the World (PPOW) in Russian Federation

Opportunities for action

There is opportunity for Russian Federation to increase protection in terrestrial and marine ecoregions and pelagic provinces that have lower levels of coverage by PAs or OECMs. Ecoregions which currently have no coverage by PAs or OECMs are key areas for action.

AREAS IMPORTANT FOR BIODIVERSITY

Key Biodiversity Areas (KBAs)

Protected area and OECM coverage of Key Biodiversity Areas (KBAs) provide one proxy for assessing the conservation of areas important for biodiversity at national, regional and global scales. KBAs are sites that make significant contributions to the global persistence of biodiversity (IUCN, 2016). The KBA concept builds on four decades of efforts to identify important sites for biodiversity, including Important Bird and Biodiversity Areas, Alliance for Zero Extinction sites, and KBAs identified through Hotspot ecosystem profiles supported by the Critical Ecosystem Partnership Fund. Incorporating these sites, the dataset of internationally significant KBAs includes Global KBAs (sites shown to meet one or more of 11 criteria in the Global Standard for the Identification of KBAs, clustered into five categories: threatened biodiversity; geographically restricted biodiversity; ecological integrity; biological processes; and irreplaceability), Regional KBAs (sites identified using pre-existing criteria and thresholds, that do not meet the Global KBA criteria based on existing information), and KBAs whose Global/Regional status is Not yet determined, but which will be assessed against the global KBA criteria within 8-12 years. Regional KBAs are often of critical international policy relevance (e.g., in EU legislation and under the Ramsar Convention on Wetlands), and many are likely to qualify as Global KBAs in future once assessed for their biodiversity importance for other taxonomic groups and ecosystems. To date, nearly 16,000 KBAs have identified globally, and information on each of these is presented in the World Database of Key Biodiversity Areas: www.keybiodiversityareas.org.

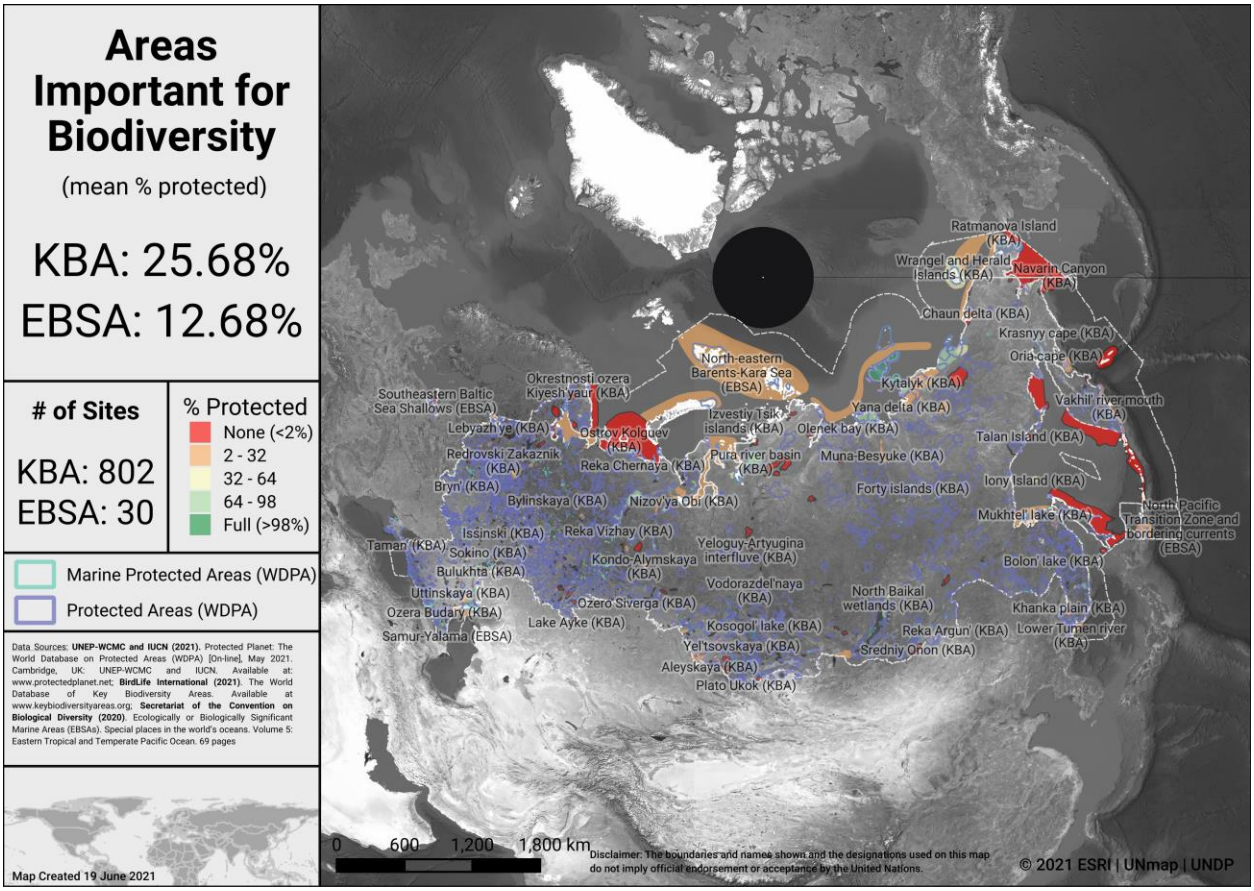
Russian Federation has **800** Key Biodiversity Areas (KBAs).

- Mean percent coverage of all KBAs by PAs and OECMs in the Russian Federation is **25.7%**.
- **46** KBAs have full (>98%) coverage by PAs and OECMs.
- **370** KBAs have partial coverage by PAs and OECMs.
- **384** KBAs have no (<2%) coverage by PAs and OECMs.

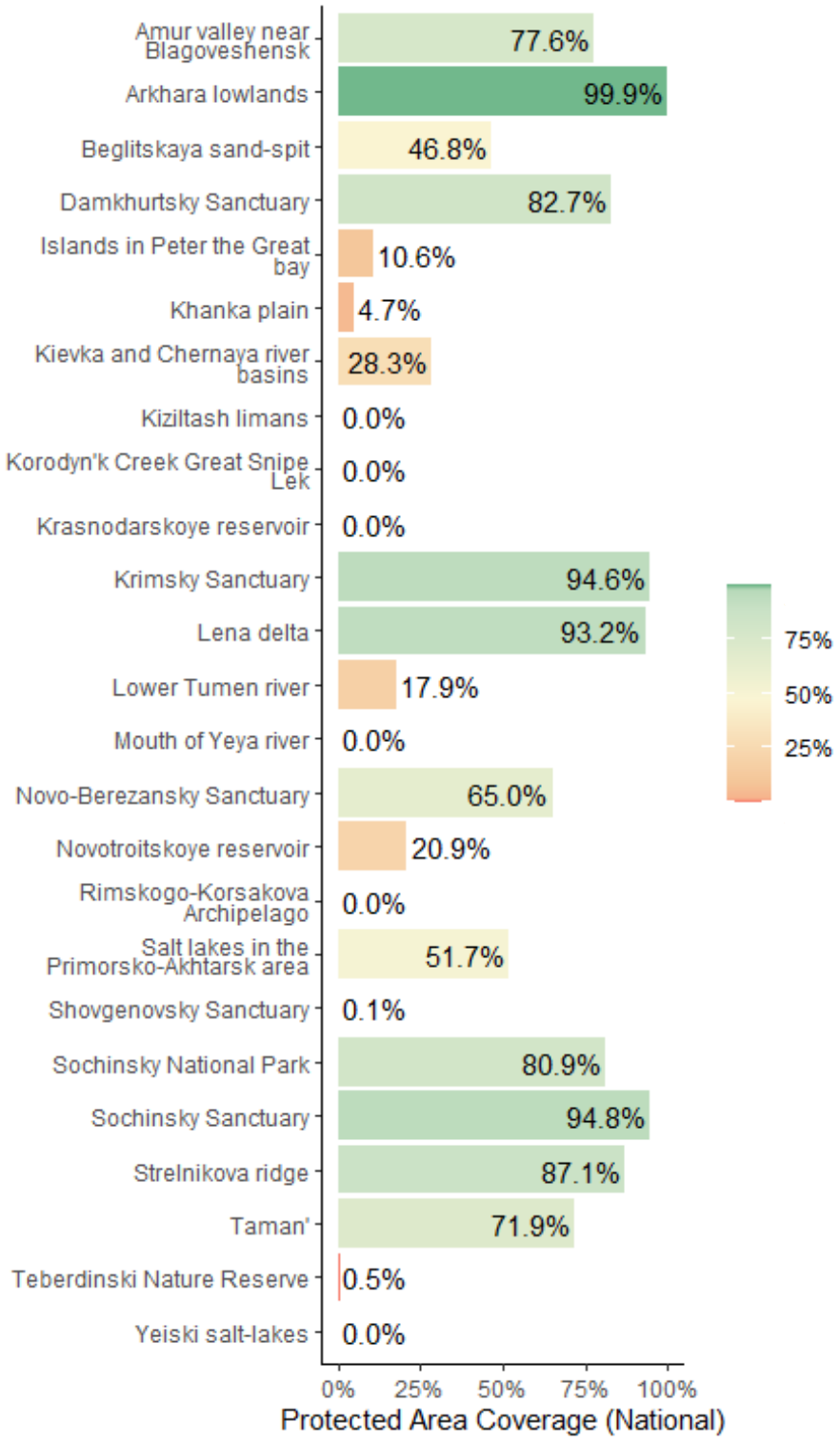
Ecologically or Biologically Significant Marine Areas (EBSAs)

Other important areas for biodiversity may also include Ecologically or Biologically Significant Marine Areas (EBSAs), which were identified following the scientific criteria adopted at COP-9 (Decision IX/20; see more at: https://www.cbd.int/ebsa/). Sites that meet the EBSA criteria may require enhanced conservation and management measures; this could be achieved through means including MPAs, OECMs, marine spatial planning, and impact assessment.

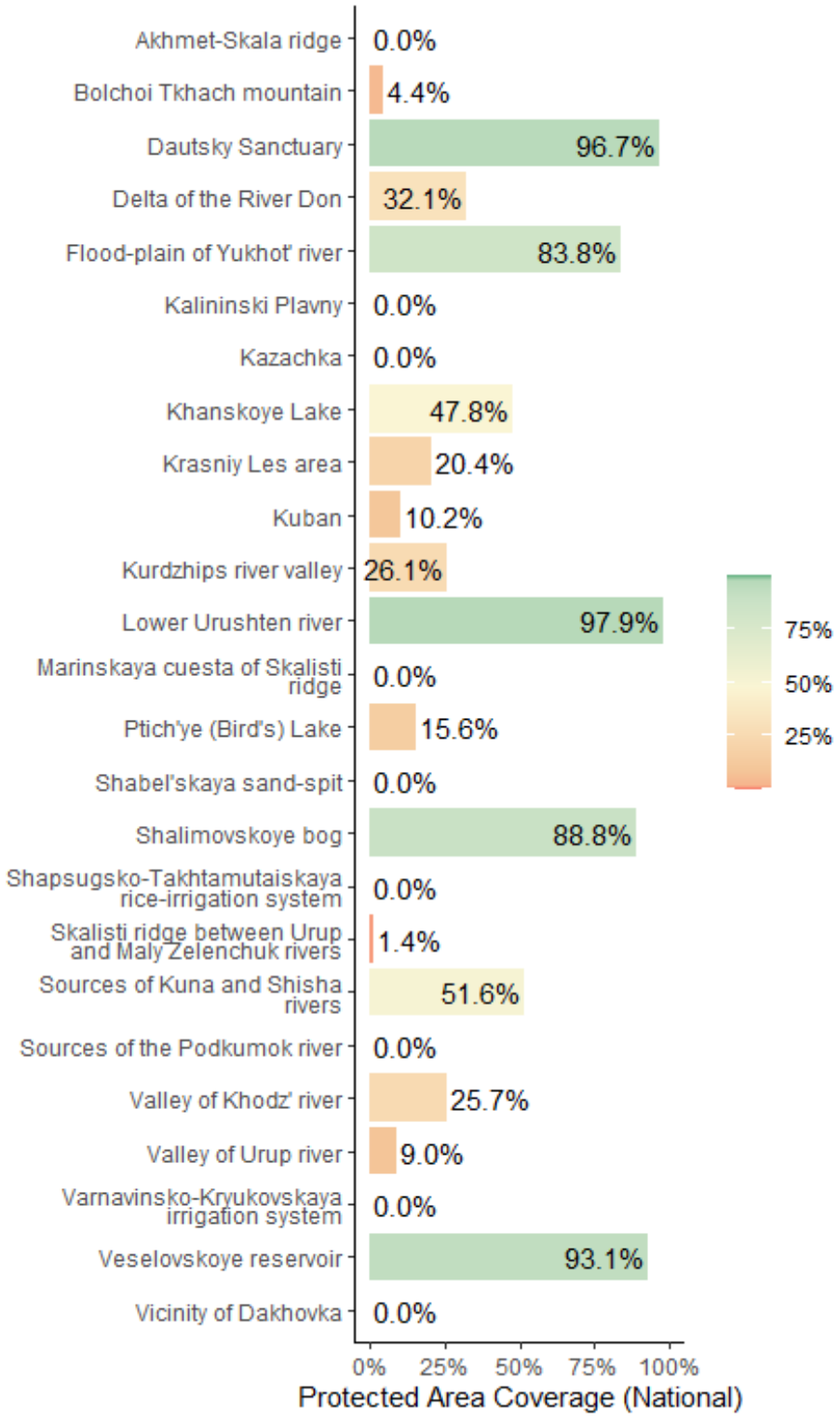
There are 30 EBSAs with some portion of their extent within Russian Federation's EEZ, of which 7 EBSAs have no coverage from PAs and OECMs.



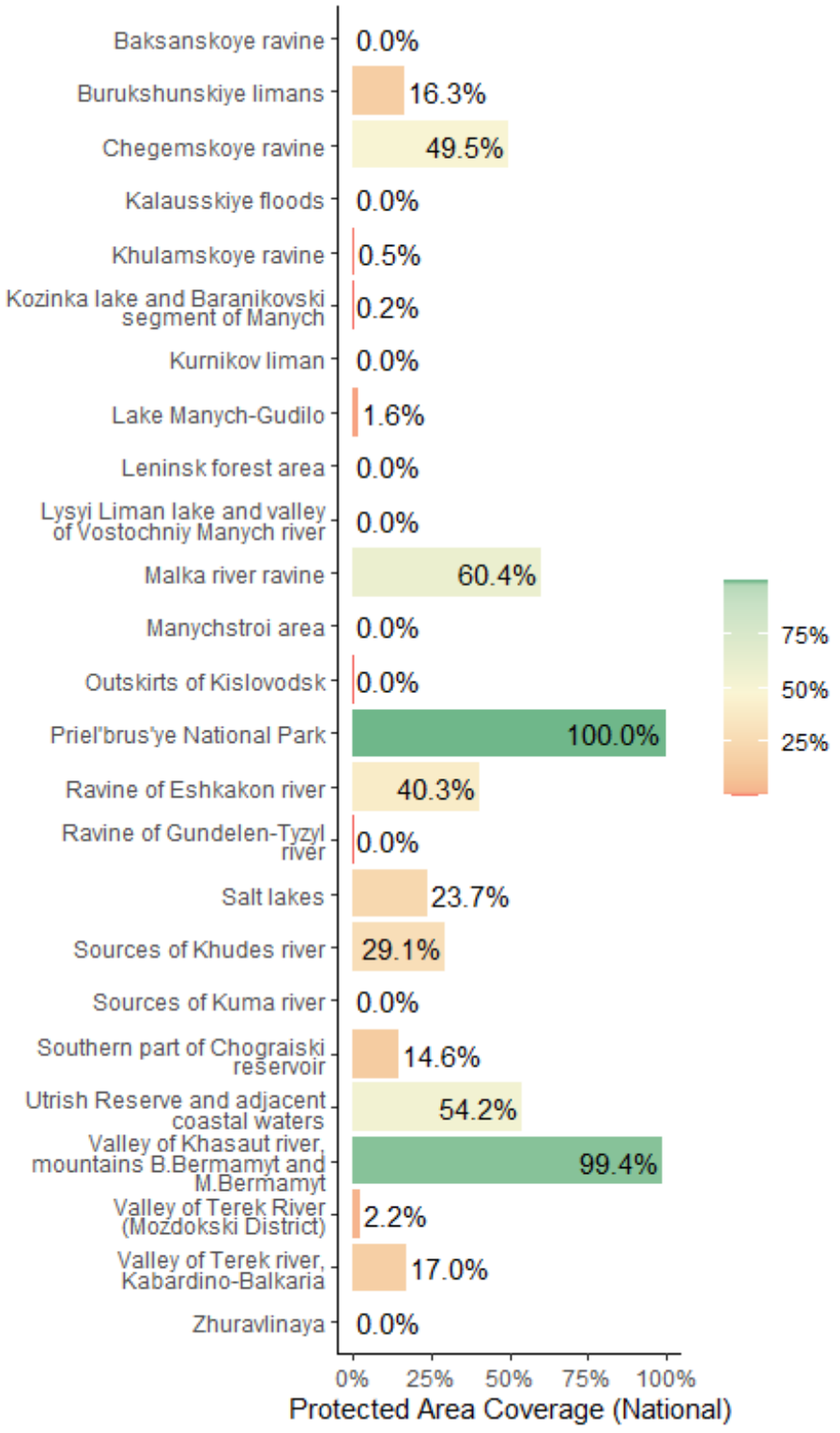
Areas Important for Biodiversity in Russian Federation



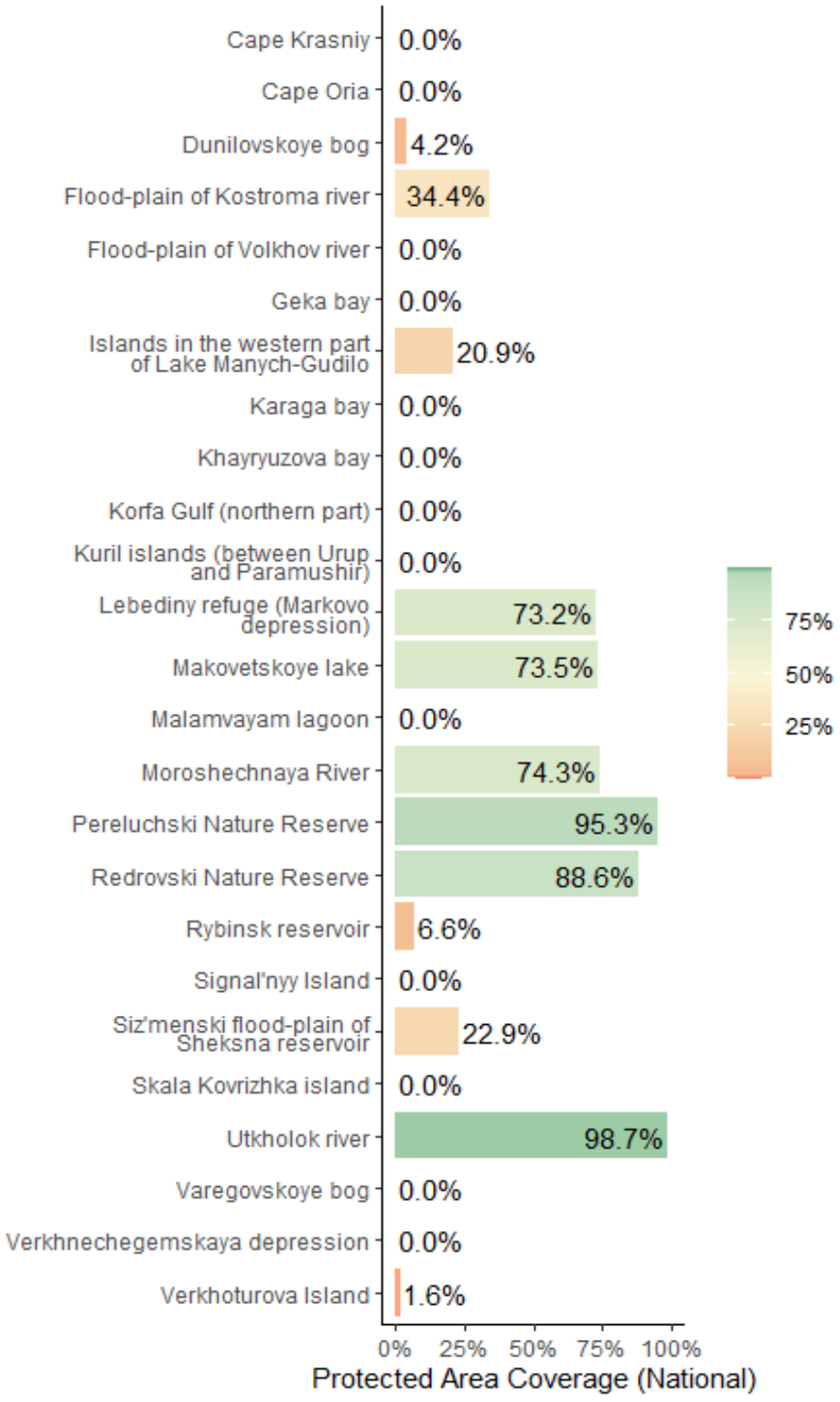
Key Biodiversity Area Coverage (KBA) in Russian Federation



Key Biodiversity Area Coverage (KBA) in Russian Federation



Key Biodiversity Area Coverage (KBA) in Russian Federation



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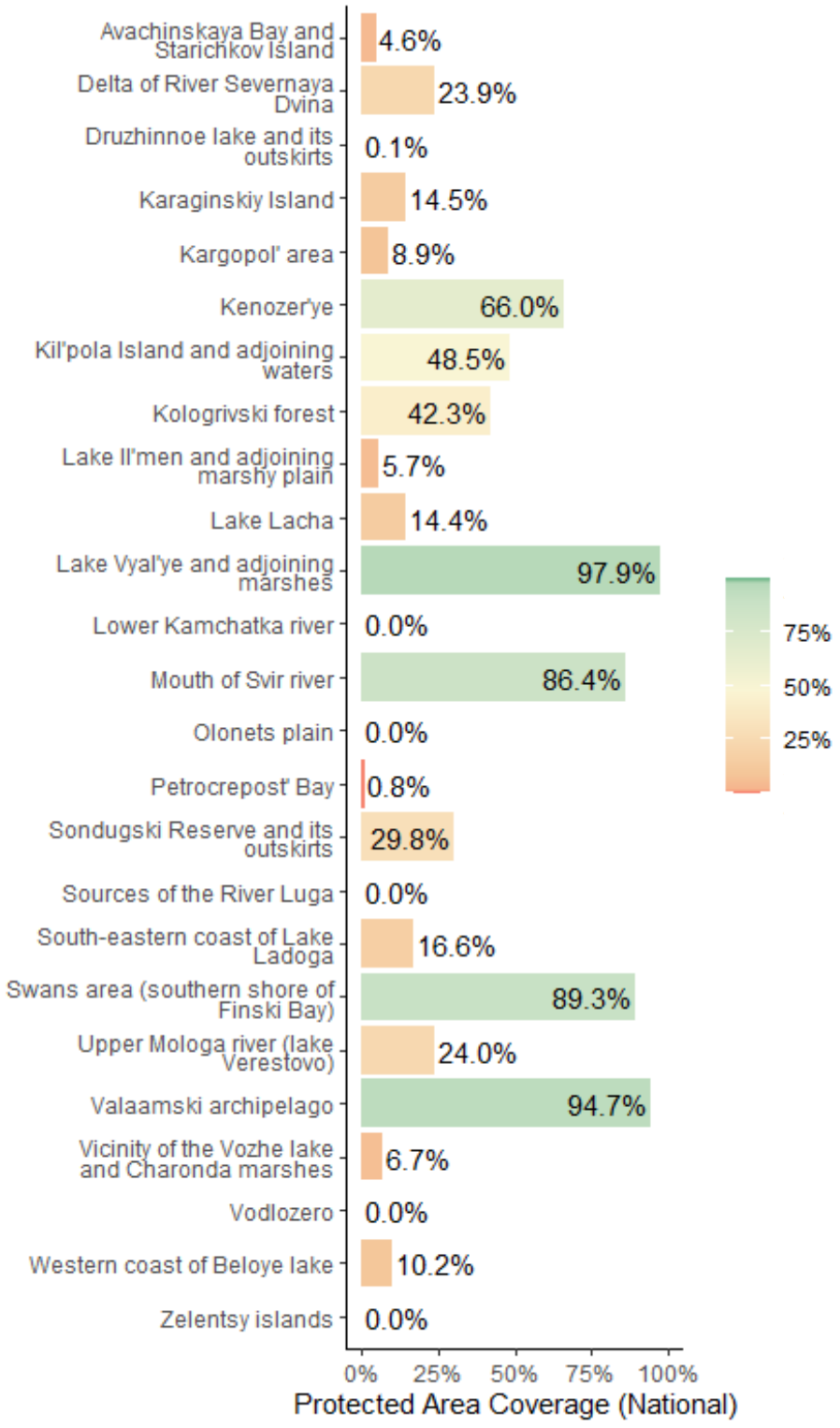

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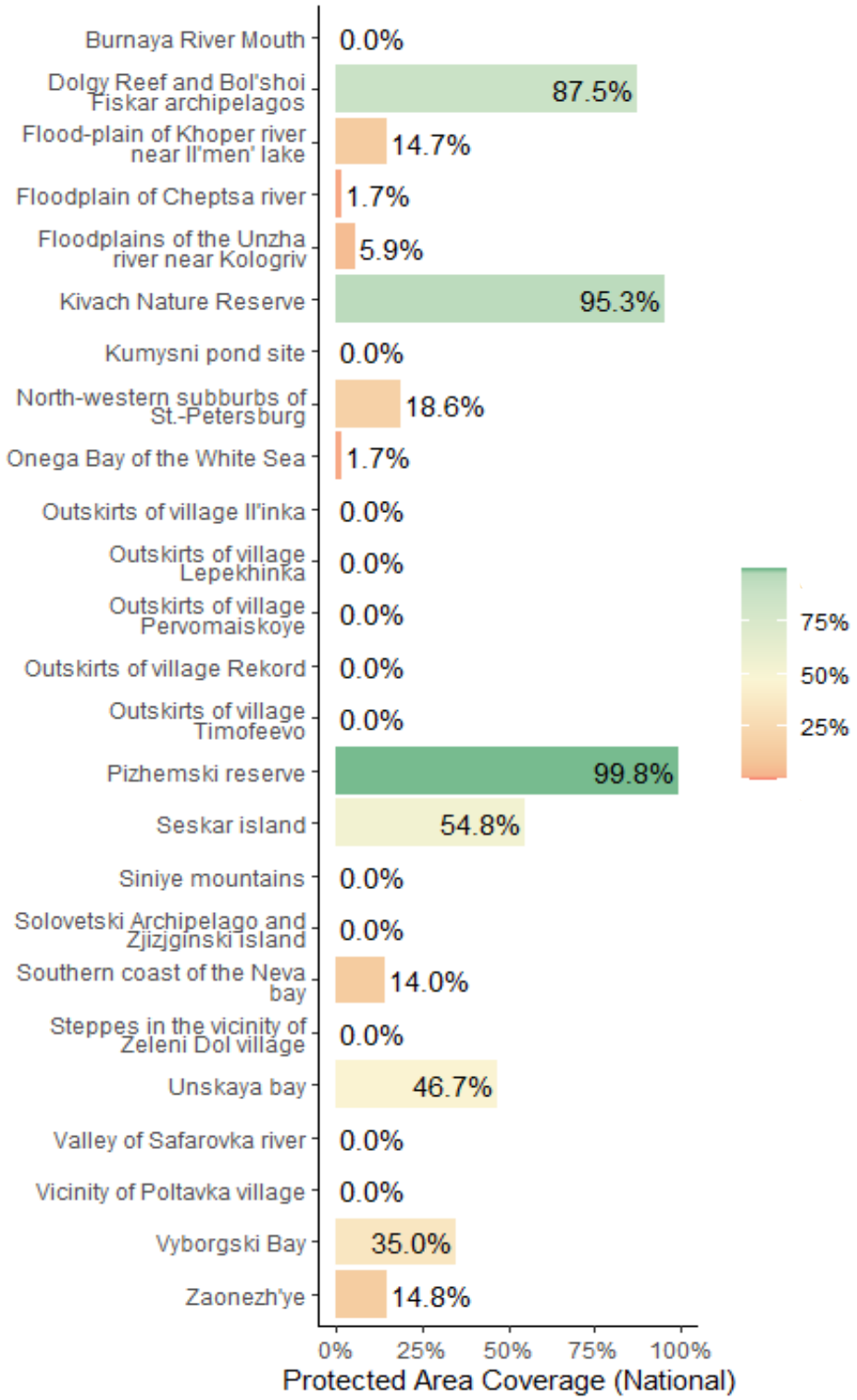
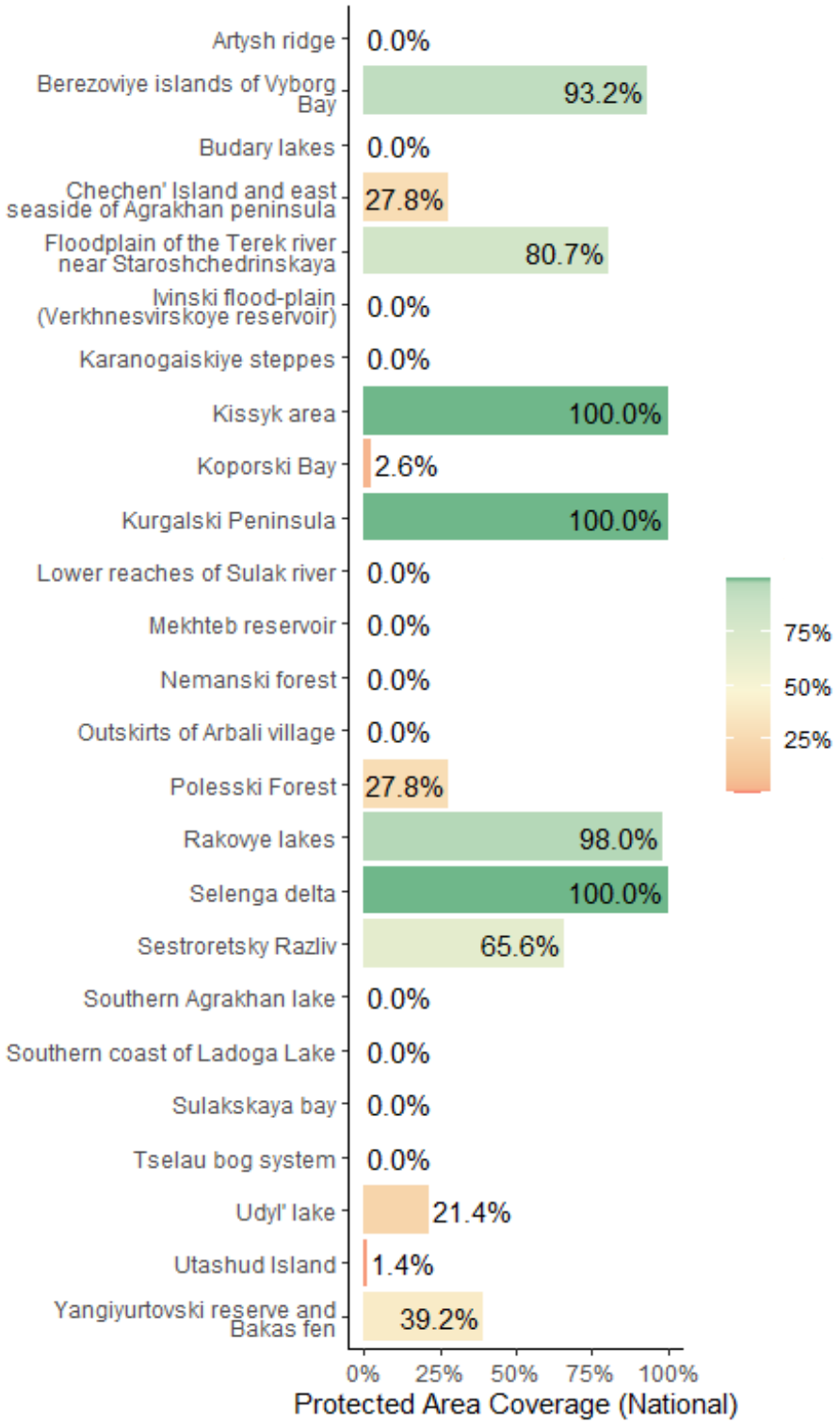
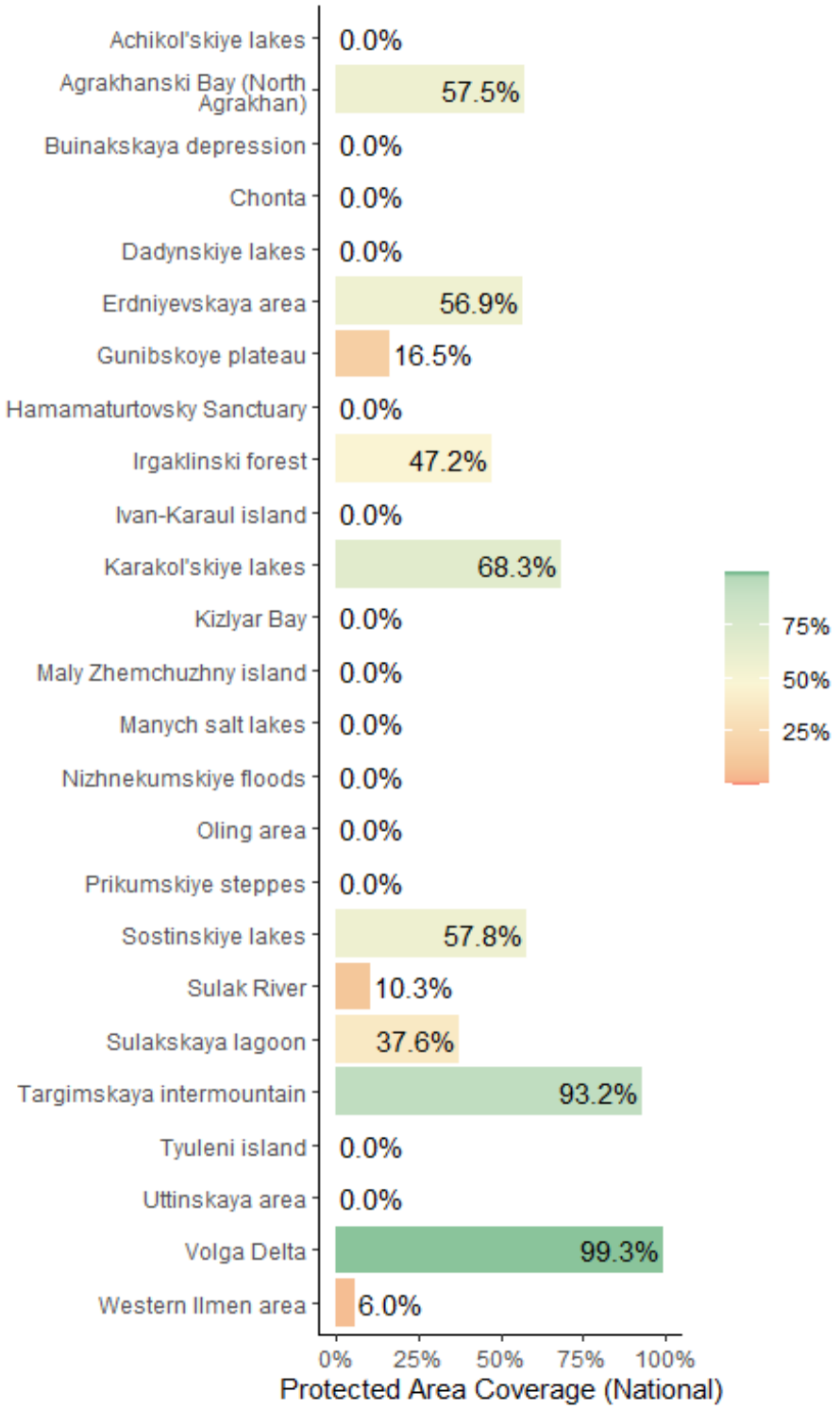


Key Biodiversity Area Coverage (KBA) in Russian Federation

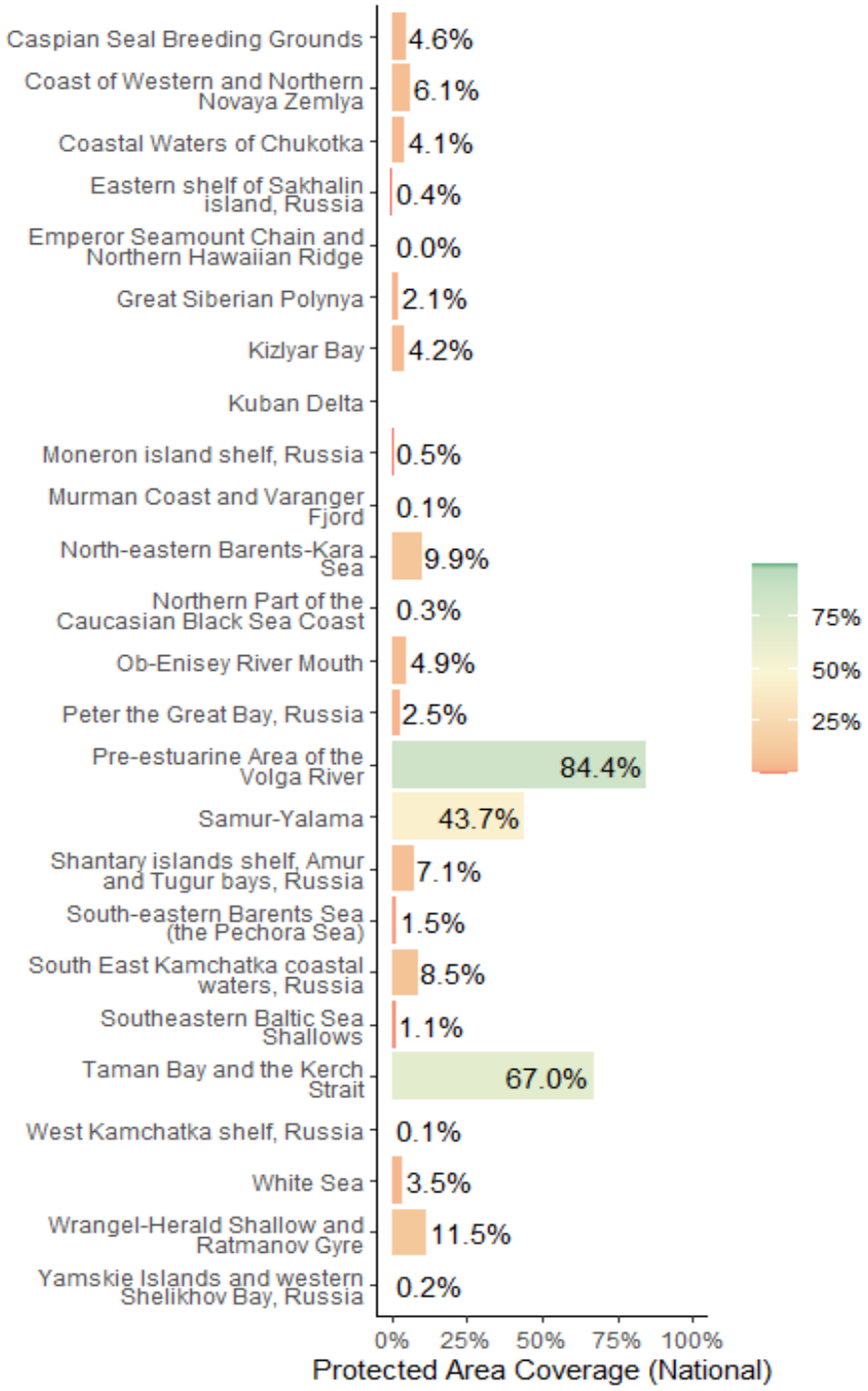


Key Biodiversity Area Coverage (KBA) in Russian Federation

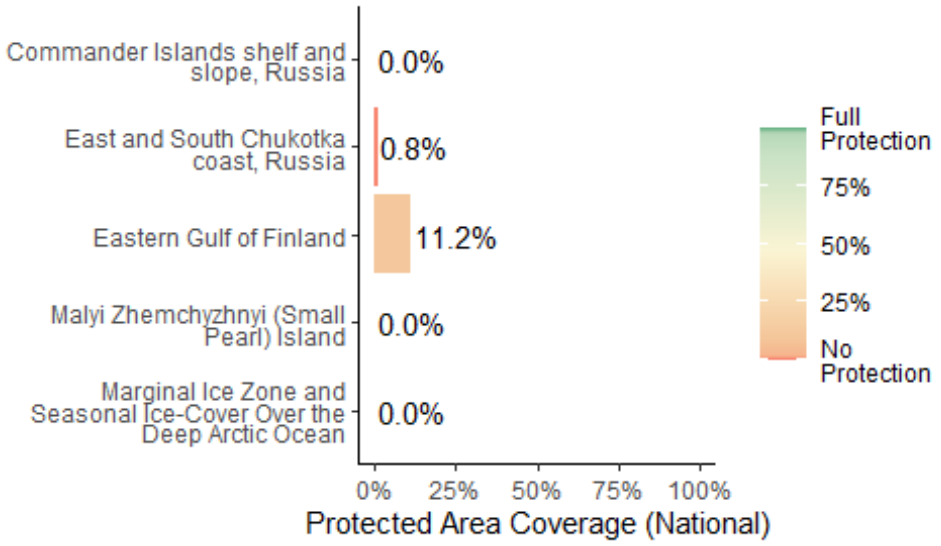


Key Biodiversity Area Coverage (KBA) in Russian Federation

Coverage statistics for all remaining KBAs in Russia is available in Annex II.



Ecologically or Biologically Significant Marine Areas (EBSAs) in Russian Federation



Ecologically or Biologically Significant Marine Areas (EBSAs) in Russian Federation

Opportunities for action

There is opportunity for Russian Federation to increase protection of KBAs that have lower levels of coverage by PAs and OECMs; priority could be given to those with no current coverage

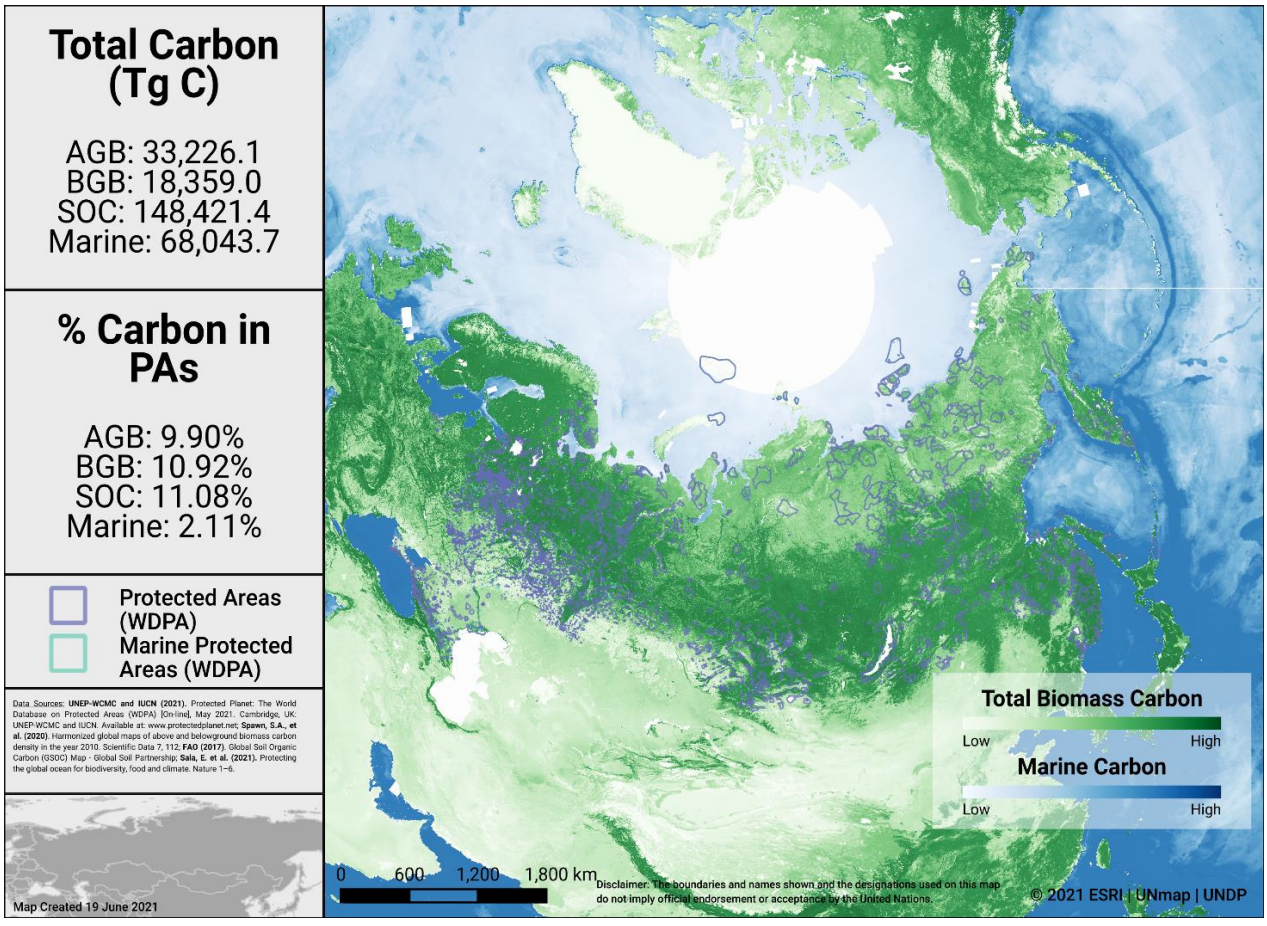
AREAS IMPORTANT FOR ECOSYSTEM SERVICES

There is no single indicator identified for assessing the conservation of areas important for ecosystem services. For simplicity, two services with available global datasets are assessed here (carbon and water). In future, other critical ecosystem services could be explored.

Carbon

Data for biomass carbon comes from temporally consistent and harmonized global maps of aboveground biomass and belowground biomass carbon density (at a 300-m spatial resolution); the maps integrate land-cover specific, remotely sensed data, and land-cover specific empirical models (see Spawn et al., 2020 for details on methodology). The Global Soil Organic Carbon Map present an estimation of SOC stock from 0 to 30 cm (see FAO, 2017). Data is also presented from global maps of marine sedimentary carbon stocks, standardized to a 1-meter depth (see Sala et al., 2021, and Atwood et al., 2020).

The map below presents the total carbon stocks in Russian Federation and the percent of carbon in protected areas. The total carbon stocks is 33,226.1 Tg C from aboveground biomass (AGB), with 9.9% in PAs; 18,359.0 Tg C from below ground biomass (BGB), with 10.9% in PAs; 148,421.4 Tg C from soil organic carbon (SOC), with 11.1% in PAs; and 68,043.7 Tg C from marine sediment carbon, with 2.1% in PAs.



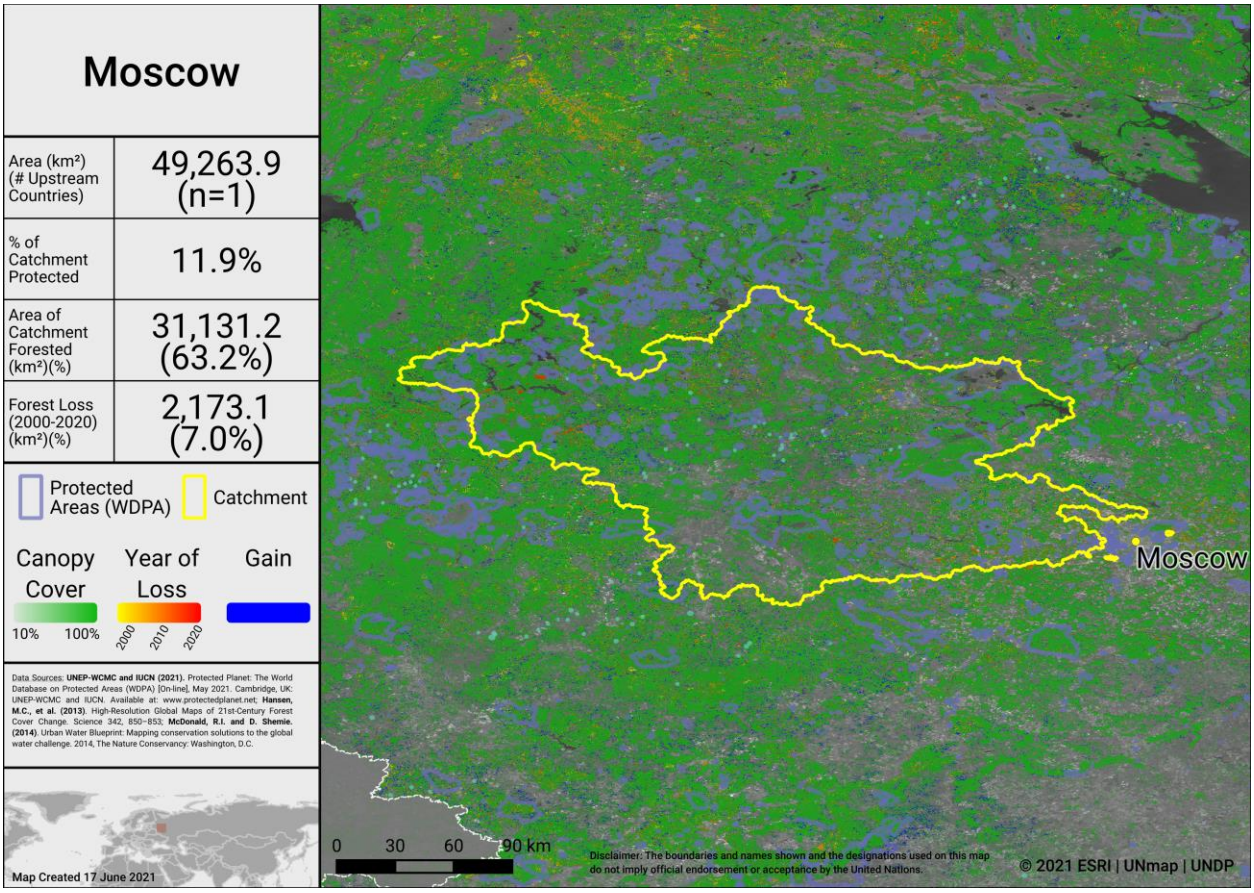
Carbon Stocks in Russian Federation

Water

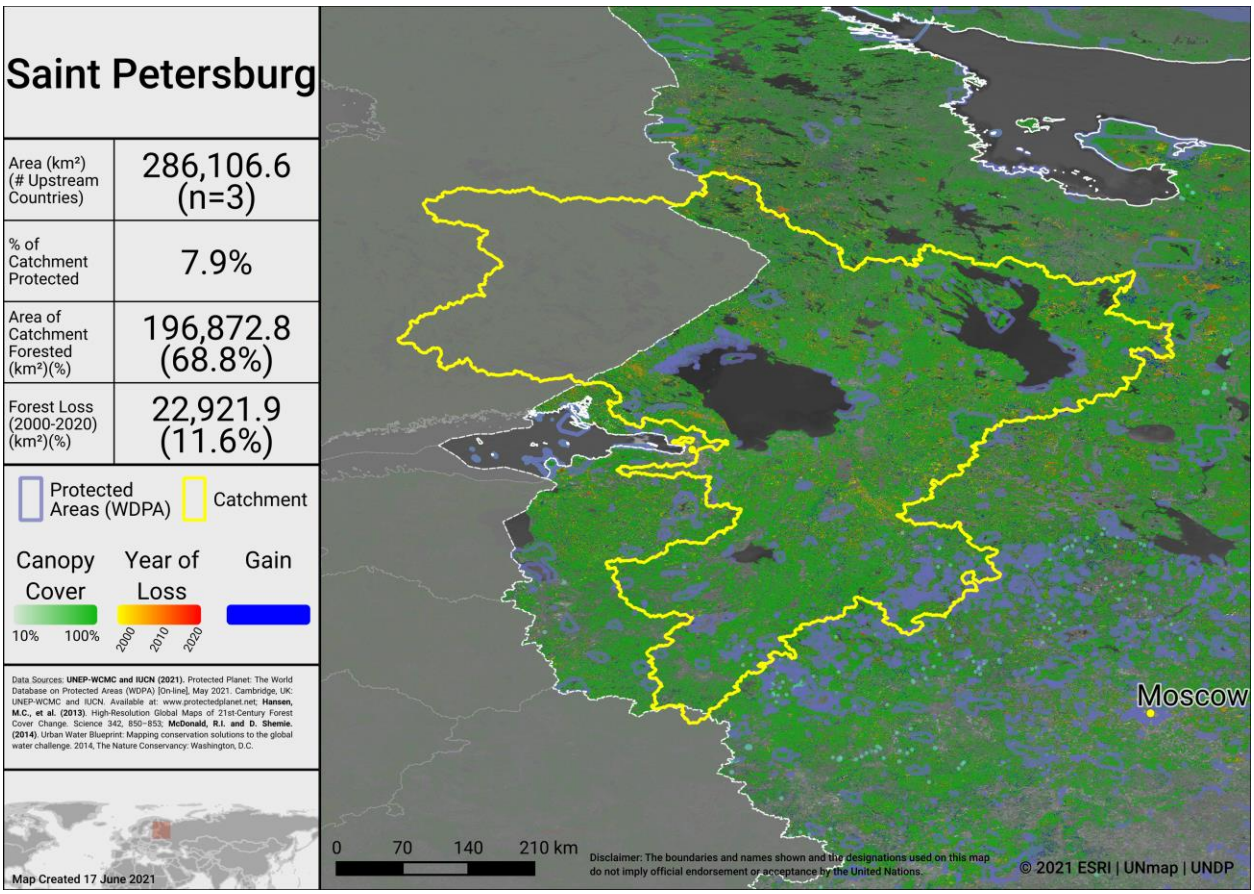
Information on the water sources for 534 cities is available via the City Water Map (CWM) and provides details on the catchment area of the watershed that supplies these cities (see McDonald et al., 2014 for details on methodology).

Forests support stormwater management and clean water availability, especially for large urban populations. Research that has examined the role of forests for city drinking water supplies shows that of the world's 105 largest cities, more than 30% (33 cities) rely heavily on the local protected forests, which provide ecosystem services that underpin local drinking water availability and quality (Dudley & Stolton, 2003).

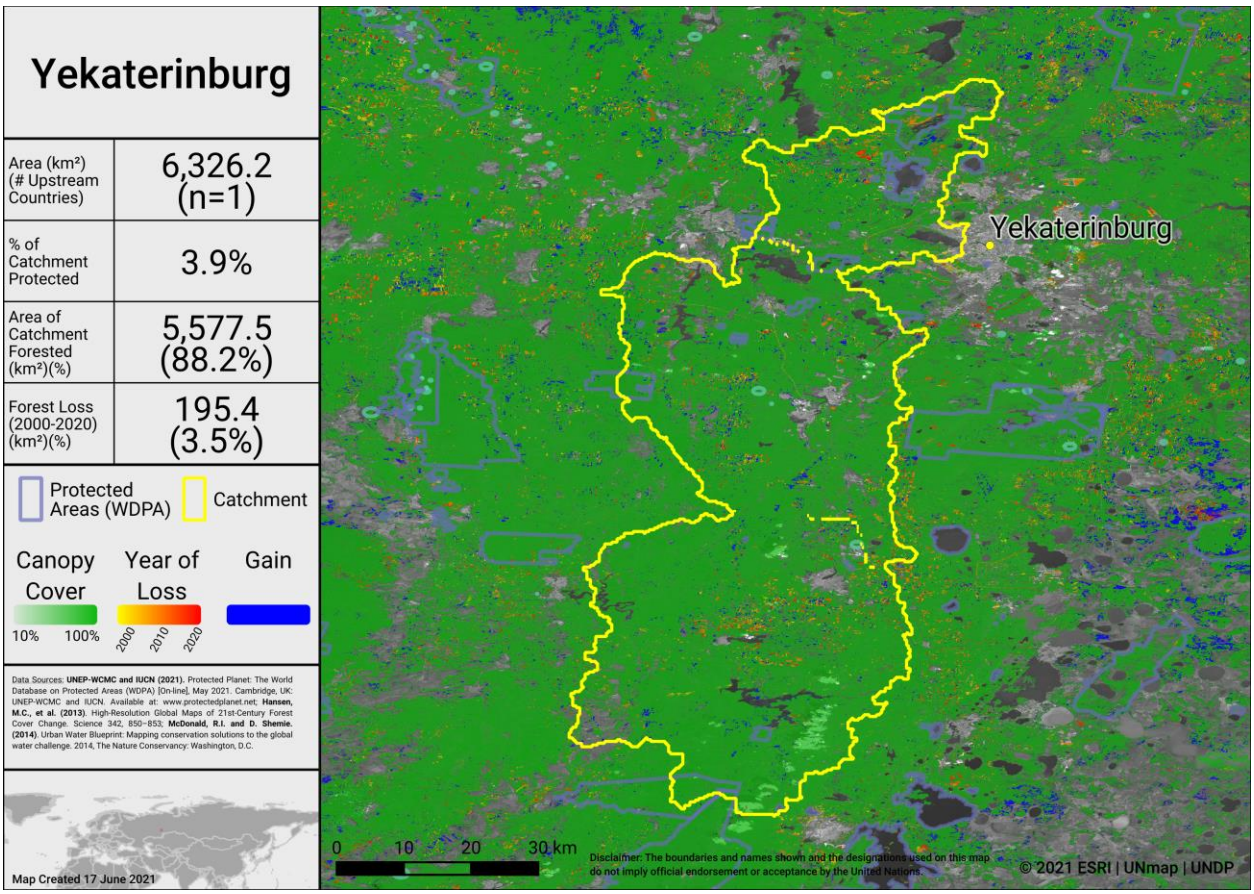
Drinking water supplies for cities in Russian Federation may similarly depend on protected forest areas within and around water catchments. The maps below show the percentage forest and PA cover and the forest loss from 2000-2020 in the most heavily populated water catchments of Russian Federation. Intact catchments can support more consistent water supply and improved water quality.



Water supply area for the city of Moscow



Water supply area for the city of Saint Petersburg



Water supply area for the city of Yekaterinburg

Opportunities for action

For carbon, there is opportunity for Russian Federation to increase PA and OECM coverage in both marine and terrestrial areas with high carbon stocks, as identified in the map above. Protecting areas with high carbon stocks secures the benefits of carbon sequestration in the area.

For water, there is opportunity to increase the area of the water catchment under protection by PAs and OECMs, or in cases where there are high levels of protection, focus on effective management for these areas. Protecting the current area of forested land and potentially reforesting would have benefits for improving water security.

CONNECTIVITY & INTEGRATION

Two global indicators, the Protected Connected land indicator (ProtConn; EC-JRC, 2021; Saura et al., 2018) and the PARC-Connectedness indicator (CSIRO, 2019), have been proposed for assessing the terrestrial connectivity of PA and OECM networks. To date there is no global indicator for assessing marine connectivity, though some recent developments include proposed guidance for the treatment of connectivity in the planning and management of MPAs (see Lausche et al., 2021).

Protected Connected Land Indicator (Prot-Conn)

As of January 2021, as reported in the Joint Research Centre of the European Commission's Digital Observatory for Protected Areas (DOPA) (JRC, 2021), the coverage of protected-connected lands (a measure of the connectivity of terrestrial protected area networks, assessed using the ProtConn indicator) in Russian Federation was 1.9%.

PARC-Connectedness Index

In 2019, as assessed using the PARC-Connectedness Index (values ranging from 0-1, indicating low to high connectivity), connectivity in Russian Federation is 0.49. This represents a decrease from 0.53 in 2010.

Corridor case studies

Below are details from a case study on corridors and connectivity in Russian Federation:

Case study title	Type of study region	Greatest threat to connectivity	Approaches to conserving ecological corridors
ECONET: Ecological network in the Kostroma Region, Russia	terrestrial, rural	deforestation	• ecological network consisting of protected areas and ecological corridors • protected areas with different regimes of multifunctional activities

Further details are available in Hilty et al 2020.

Opportunities for action

There is opportunity for a targeted designation of PAs or OECMs in strategic locations for connectivity and to focus on PA and OECM management for enhancing and maintaining connectivity. Improving connectivity increases the effectiveness of PAs and OECMs and reduces the impacts of fragmentation.

As well, a range of suggested steps for enhancing and supporting integration are included in the voluntary guidance on the integration of PAs and OECMs into the wider land- and seascapes and mainstreaming across sectors to contribute, inter alia, to the SDGs (Annex I of COP Decision 14/8).

GOVERNANCE DIVERSITY

There is a lack of comprehensive global data on governance quality and equity in PAs and OECMs. Here, we provide data on the diversity of governance types for reported PAs and OECMs.

As of May 2021, PAs in Russian Federation reported in the WDPA have the following governance types:

- 98.9% are governed by **governments**
  - 2.2% by federal or national ministry or agency
  - 96.7% by sub-national ministry or agency
  - 0.0% by government-delegated management
- 0.5% are under **shared** governance (by collaborative governance)
- 0.0% are under **private** governance
- 0.0% are under **IPLC** governance
  - 0.0% by Indigenous Peoples
  - 0.0% by local communities
- 0.6% **do not** report a governance type
  - (All of which are regional or international designations)

OECMs

As of May 2021, there are **0** OECMs in Russian Federation reported in the WD-OECM, therefore there is no data available on OECM governance types.

Privately Protected Areas (PPAs)

There is currently no data available on PPAs for the Russian Federation (see Gloss et al., 2019, and Stolton et al., 2014 for details).

Territories and areas conserved by Indigenous Peoples and local communities (ICCAs)

From Kothari et al. (2012) potential ICCAs (or similar designation) in Russian Federation include:

- 475 territories of traditional use of nature (TTUN) in Khanty-Mansyisky Autonomous Okrug
  - No precise figures available
  - they range from a few hectares to several hundred thousand hectares

Other Indigenous lands

Lands managed and/or controlled by Indigenous Peoples cover an area of 8,486,954.0 km^2, of which 7,692,067.0 km^2 falls outside of formal protected areas. Indigenous lands with a human footprint less than 4 (considered as 'natural landscapes') cover an area of 7,918,763.0 km^2 (for details on analysis see Garnett et al., 2018).

For Russian Federation, evidence for the presence of Indigenous Peoples comes from: Indigenous Work Group on Indigenous Affairs. Indigenous World 2017 (Indigenous Working Group on Indigenous Affairs, 2017).

Boundaries of the lands Indigenous Peoples manage or have tenure rights over come from: Turaev, V., Sulyandziga, R., Sulyandziga, P. & Bocharnikov, V. Encyclopaedia of Indigenous Peoples of the North, Siberia and the Far East of the Russian Federation (Centre for Support of Indigenous Peoples of the North, 2011).

Opportunities for action

Explore opportunities for governance types that have lower representation, for Russian Federation this could relate to shared governance, etc.

There is also opportunity for Russian Federation to complete governance and equity assessments, to establish baselines and identify relevant actions for improvement. Examples of existing tools and methodologies include: Governance Assessment for Protected and Conserved Areas (Franks & Brooker, 2018), Social Assessment of Protected Areas (Franks et al 2018), and Site-level assessment of governance and equity (IIED, 2020). As well, a range of suggested actions are included in the voluntary guidance on effective governance models for management of protected areas, including equity (Annex II of COP Decision 14/8).

PROTECTED AREA MANAGEMENT EFFECTIVENESS

This section provides information on the coverage of PAs and OECMs with completed protected area management effectiveness (PAME) assessments as reported in the global database (GD-PAME). The proportion of terrestrial and marine PAs with completed PAME assessments is also calculated and compared with the 60% target agreed to in COP-10 Decision X/31. Information is also included regarding changes in forest cover nationally within PAs and OECMs.

Protected area management effectiveness (PAME) assessments

As of May 2021, Russian Federation has 8,991 PAs reported in the WDPA; of these PAs, 25 (0.3%) have management effectiveness evaluations reported in the global database on protected area management effectiveness (GD-PAME).

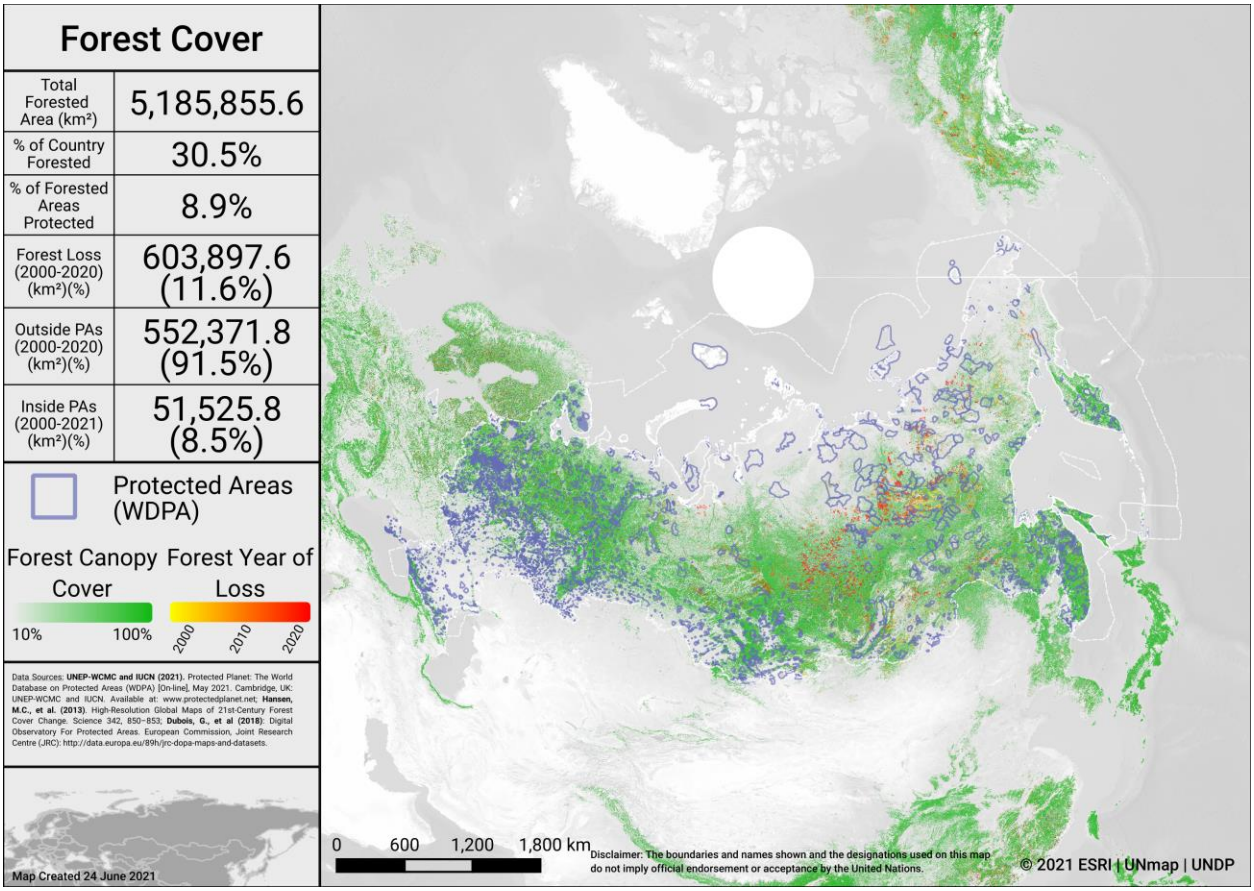
- 1.3% (225,314 km^2) of the terrestrial area of the country is covered by PAs with completed management effectiveness evaluations.
  - 11.7% of the area of terrestrial PAs have completed evaluations.
- 0.2% (18,197 km^2) of the marine area of the country is covered by PAs with completed management effectiveness evaluations.
  - 10.6% of the area of marine PAs have completed evaluations.

The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** been met for terrestrial PAs and **has not** been met for marine PAs.

As of May 2021, there are 0 OECMs in Russian Federation reported in the WD-OECM and no information available on the management effectiveness of potential OECMs (but see potential OECM details in Stishov & Dudley, 2018).

Changes in forest cover in protected areas and OECMs

Forested areas in Russian Federation cover approximately 30.5% of the country, an area of 5,183,249.5 km^2. Approximately 8.9% (460,236.2 km^2) of this is within the protected area estate of Russian Federation. Over the period 2000-2020 loss of forest cover amounted to over 603,873.0 km^2, or 3.5% of the country (11.6% of forest area), of which 51,511.4 km^2 (8.5% of forest loss) occurred within protected areas. The map below shows how forest cover has changed in Russian Federation from 2000-2020 both inside and outside of PAs. This can indicate how effective PAs are in reducing forest cover loss.



Forest Cover and Forest Loss in Russian Federation

Opportunities for action

The 60% target for completed management effectiveness assessments (per COP Decision X/31) **has not** been met for terrestrial PAs and **has not** been met for marine PAs. Therefore, there is opportunity to increase protected area management effectiveness (PAME) evaluations for both terrestrial and marine PAs to achieve the target.

There is also opportunity to implement the results of completed PAME evaluations, to improve the quality of management for existing PAs and OECMs (e.g. through adaptive management and information sharing, increasing the number of sites reporting 'sound management') and to increase reporting of biodiversity outcomes in PAs and OECMs.

SECTION II: EXISTING PROTECTED AREA AND OECM COMMITMENTS

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLANS (NBSAPs)

Russian Federation has submitted an NBSAP during the Strategic Plan for Biodiversity 2011-2020 (most recent NBSAP is available at: https://www.cbd.int/nbsap/search/).

The national target is composed of two sections: By 2020 there is an efficiently managed system of protected areas which composes no less than 13.5% of the Russian Federation. The role of the system is to ensure the protection of unique ecosystems and landscapes as well as of fauna and flora, including those species which are rare or endangered and part of the IUCN Red List of the Russian Federation. By 2020 the total area of terrestrial and aquatic territories with regulated resource use policies and which play a key role in the provision of ecosystem services is increased to the point where it composes 17% of all terrestrial territories and 10% of all aquatic bodies under the jurisdiction of the Russian Federation.

This NBSAP **did** include a quantitative target for **terrestrial** PAs or OECMs.

- As of May 2021 (based on the WDPA/WD-OECM) has the target been met: **NO**
- Accounting for other projects, actions and commitments, if this target is met, coverage in the country will increase by **905,015 km²**.
  - Target may already be surpassed (additional PAs and OECMs still need to be reported —see Russian Federation's statement at the 2020 UN Biodiversity Summit in *Other commitments*)

This NBSAP **did** include a quantitative target for **marine** protected areas or OECMs.

- As of May 2021 (based on the WDPA/WD-OECM) has the target been met: **NO**
- Accounting for other projects, actions and commitments, if this target is met, coverage in the country will increase by **595,193 km²**.

APPROVED GEF-5 & GEF-6 PROTECTED AREA PROJECTS

Approved GEF-5 and GEF-6 PA-related biodiversity projects

This includes biodiversity projects from the fifth and sixth replenishment of the Global Environment Facility (GEF-5 and GEF-6) with a clear impact of the quantity or quality of PAs; also including some projects occurring within the wider landscapes/seascapes around PAs. Only those with a status of 'project approved' or 'concept approved' as of June 2019 were considered. The qualifying elements likely benefiting from each GEF project is assessed based on a keyword search of Project Identification Forms (PIF).

GEF ID	PA increase?	Area to be added (km^2)	Type of new protected area	Qualitative elements potentially benefitting (based on keyword search of PIFs)
4664	No	N/A	N/A	None
4665	Yes	31,000	Terrestrial	All except Connectivity
4795	No	N/A	N/A	All except Ecologically representative and Connectivity
4796	No	N/A	N/A	All except Ecologically representative and Connectivity
5559	No	N/A	N/A	All except Ecologically representative and Ecosystem services

OTHER ACTIONS/COMMITMENTS

Russian Federation's statement at the 2020 UN Biodiversity Summit mentions PAs, OECMs or corridors:

Today, the most valuable pieces of our natural environment are preserved within the borders of 334 federal protected areas, 109 reserves, 64 national parks and 61 areas. The system of protected areas in Russia includes around 13,000 territories of federal, regional and local significance. The total area of this is 255 million hectares or more than 13% of the area of the Russian Federation. Considering other forms of territorial protection that, according to international standards. are also protected regions, Russia has more than 25% of its territory under legal protection. This is a significant contribution to meeting strategic goals in biodiversity, according to which, by 2020, at least 17% of land should be protected. We also set the goal of creating no fewer than 24 new specially protected areas by 2024 of an area of 5 million hectares, of these over 14 have already been created, covering 4.6 million hectares.

ANNEX I

FULL LIST OF TERRESTRIAL ECOREGIONS

Ecoregion Name	Area (km^2)	% of Global Ecoregion in Country	% of Country in Ecoregion	Area Protected (km^2)	% Protected in Country
Altai alpine meadow and tundra	27,547.9	30.5	0.2	7,692.7	27.9
Altai montane forest and forest steppe	25,419.9	17.8	0.2	3,151.9	12.4
Altai steppe and semi-desert	3.4	0.0	0.0	0.3	8.7
Amur meadow steppe	69,924.7	56.6	0.4	9,530.0	13.6
Beringia lowland tundra	30.5	0.0	0.0	0.0	0.0
Caspian lowland desert	86,828.9	32.4	0.5	10,077.3	11.6
Caucasus mixed forests	57,792.2	33.9	0.3	18,757.3	32.5
Central European mixed forests	34,357.8	4.7	0.2	1,419.1	4.1
Cherskii-Kolyma mountain tundra	560,491.8	100.0	3.3	81,916.3	14.6
Chukchi Peninsula tundra	300,482.9	100.0	1.8	18,665.9	6.2
Crimean Submediterranean forest complex	22,543.7	74.6	0.1	1,523.7	6.8
Da Hinggan-Dzhagdy Mountains conifer forests	97,648.3	39.2	0.6	14,137.3	14.5
Daurian forest steppe	112,071.0	53.5	0.7	5,274.7	4.7
East European forest steppe	580,950.4	79.6	3.5	19,962.7	3.4

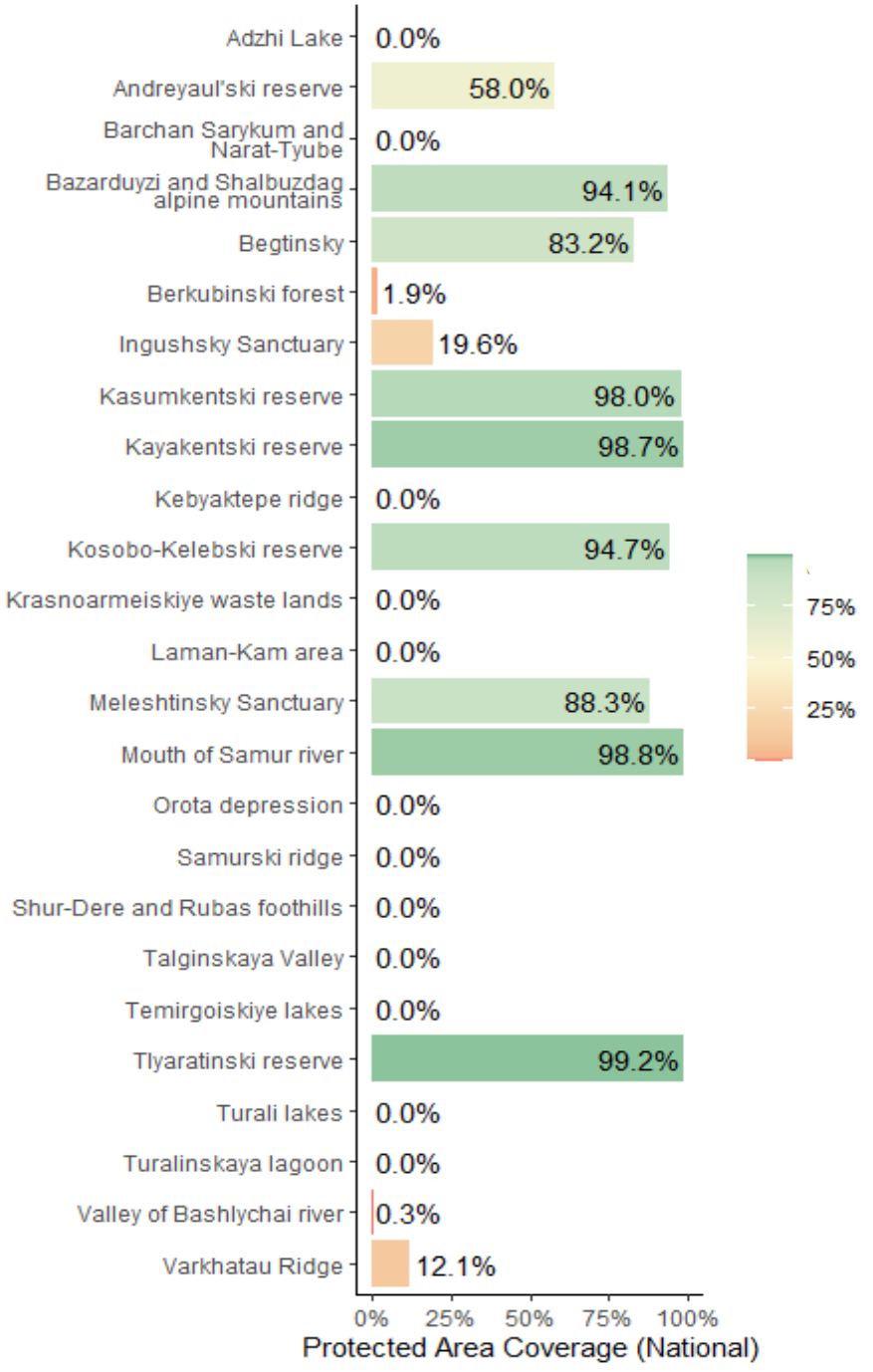
Ecoregion Name	Area (km^2)	% of Global Ecoregion in Country	% of Country in Ecoregion	Area Protected (km^2)	% Protected in Country
East Siberian taiga	3,922,199.2	100.0	23.3	449,558.7	11.5
Great Lakes Basin desert steppe	21,791.8	13.8	0.1	3,496.3	16.0
Hokkaido deciduous forests	7,070.9	18.5	0.0	110.4	1.6
Kamchatka-Kurile meadows and sparse forests	147,042.8	100.0	0.9	27,442.9	18.7
Kamchatka taiga	15,294.8	100.0	0.1	2,630.0	17.2
Kamchatka tundra	119,888.5	100.0	0.7	25,461.5	21.2
Kazakh forest steppe	374,993.9	88.8	2.2	41,691.2	11.1
Kazakh steppe	142,077.4	17.6	0.8	3,935.7	2.8
Kola Peninsula tundra	55,148.6	93.2	0.3	6,638.5	12.0
Manchurian mixed forests	95,953.9	19.0	0.6	18,524.6	19.3
Mongolian-Manchurian grassland	2,619.8	0.3	0.0	2,042.6	78.0
Northeast Siberian coastal tundra	224,236.5	100.0	1.3	67,885.7	30.3
Northeast Siberian taiga	1,133,305.3	100.0	6.7	167,058.9	14.7
Northwest Russian-Novaya Zemlya tundra	286,287.2	100.0	1.7	30,865.7	10.8
Novosibirsk Islands Arctic desert	37,247.5	100.0	0.2	36,250.9	97.3
Okhotsk-Manchurian taiga	403,550.7	100.0	2.4	42,900.5	10.6
Pontic steppe	647,948.9	65.0	3.9	25,545.8	3.9

Ecoregion Name	Area (km^2)	% of Global Ecoregion in Country	% of Country in Ecoregion	Area Protected (km^2)	% Protected in Country
Russian Arctic desert	99,890.2	61.4	0.6	27,917.3	27.9
Russian Bering tundra	477,272.3	100.0	2.8	32,765.2	6.9
Sakhalin Island taiga	68,945.4	100.0	0.4	5,767.7	8.4
Sarmatic mixed forests	474,089.4	55.8	2.8	34,278.1	7.2
Sayan alpine meadows and tundra	59,452.9	73.2	0.4	7,879.3	13.3
Sayan Intermontane steppe	33,782.5	99.1	0.2	3,611.2	10.7
Sayan montane conifer forests	320,216.9	89.2	1.9	50,674.3	15.8
Scandinavian and Russian taiga	1,484,730.2	68.4	8.8	97,669.9	6.6
Scandinavian Montane Birch forest and grasslands	1.1	0.0	0.0	0.0	0.0
Selenge-Orkhon forest steppe	26,183.0	11.5	0.2	2,008.3	7.7
South Siberian forest steppe	162,595.6	100.0	1.0	11,116.2	6.8
Suiphun-Khanka meadows and forest meadows	18,608.5	55.0	0.1	3,466.7	18.6
Taimyr-Central Siberian tundra	962,141.5	100.0	5.7	185,705.4	19.3
Trans-Baikal Bald Mountain tundra	218,604.5	100.0	1.3	29,495.0	13.5
Trans-Baikal conifer forests	163,237.3	81.1	1.0	26,656.9	16.3

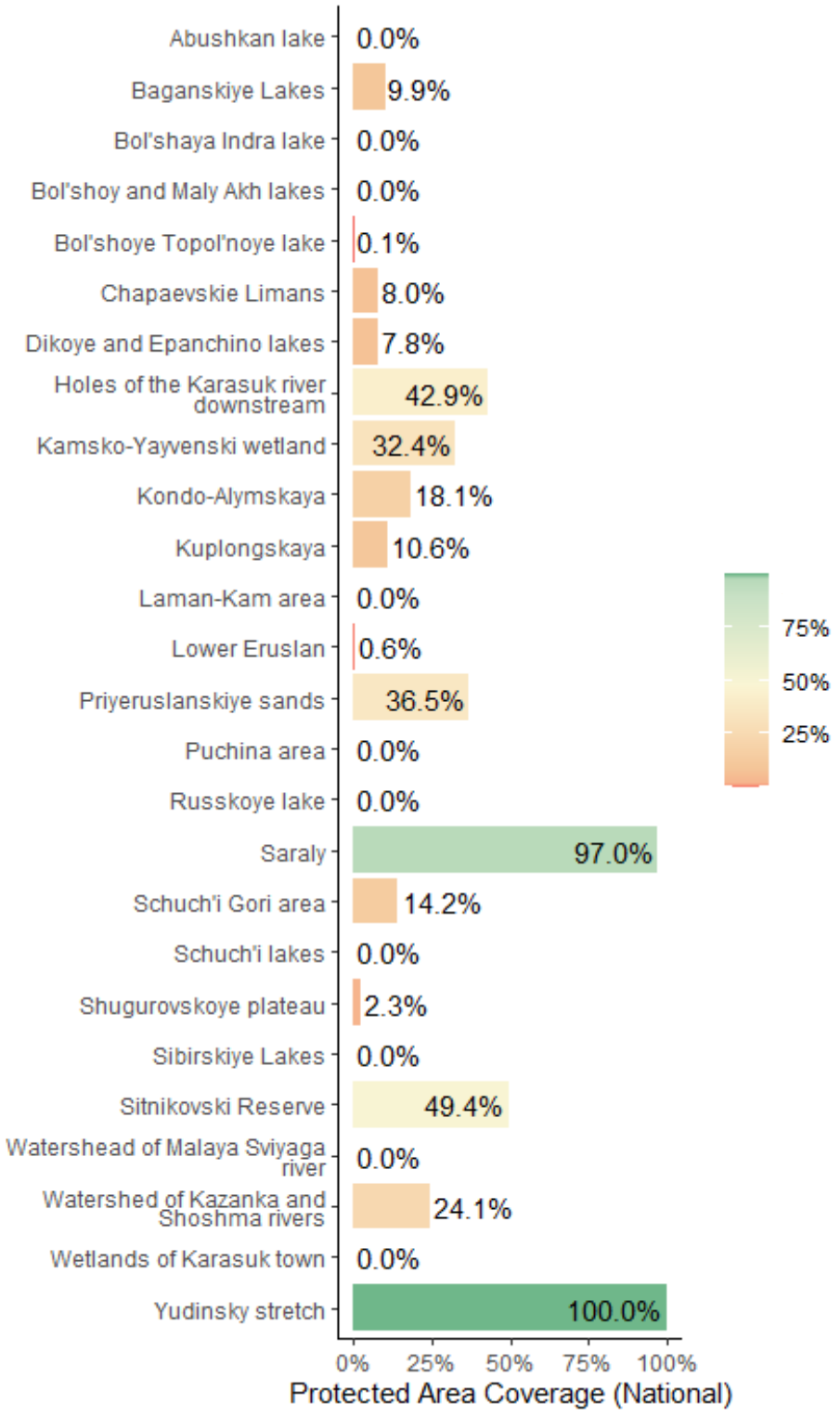
Ecoregion Name	Area (km^2)	% of Global Ecoregion in Country	% of Country in Ecoregion	Area Protected (km^2)	% Protected in Country
Urals montane forest and taiga	175,549.3	100.0	1.0	37,072.8	21.1
Ussuri broadleaf and mixed forests	197,962.5	100.0	1.2	28,563.5	14.4
Western Siberian hemiboreal forests	224,503.9	100.0	1.3	19,625.5	8.7
West Siberian taiga	1,680,192.1	100.0	10.0	88,113.3	5.2
Wrangel Island Arctic desert	7,598.8	100.0	0.0	7,598.7	100.0
Yamal-Gydan tundra	415,095.8	100.0	2.5	51,747.9	12.5

ANNEX II

ADDITIONAL KBA GRAPHS



Key Biodiversity Area Coverage (KBA) in Russian Federation



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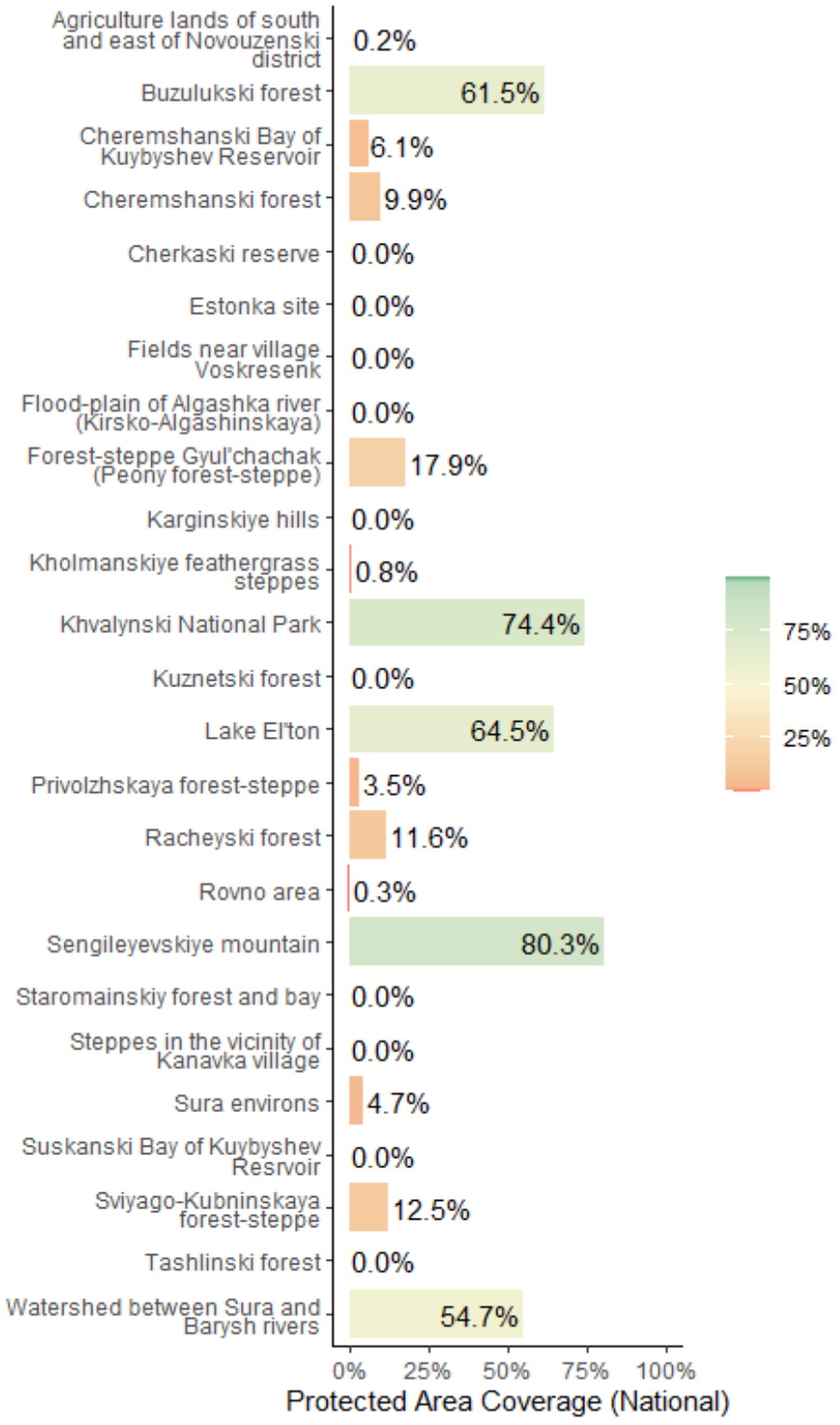

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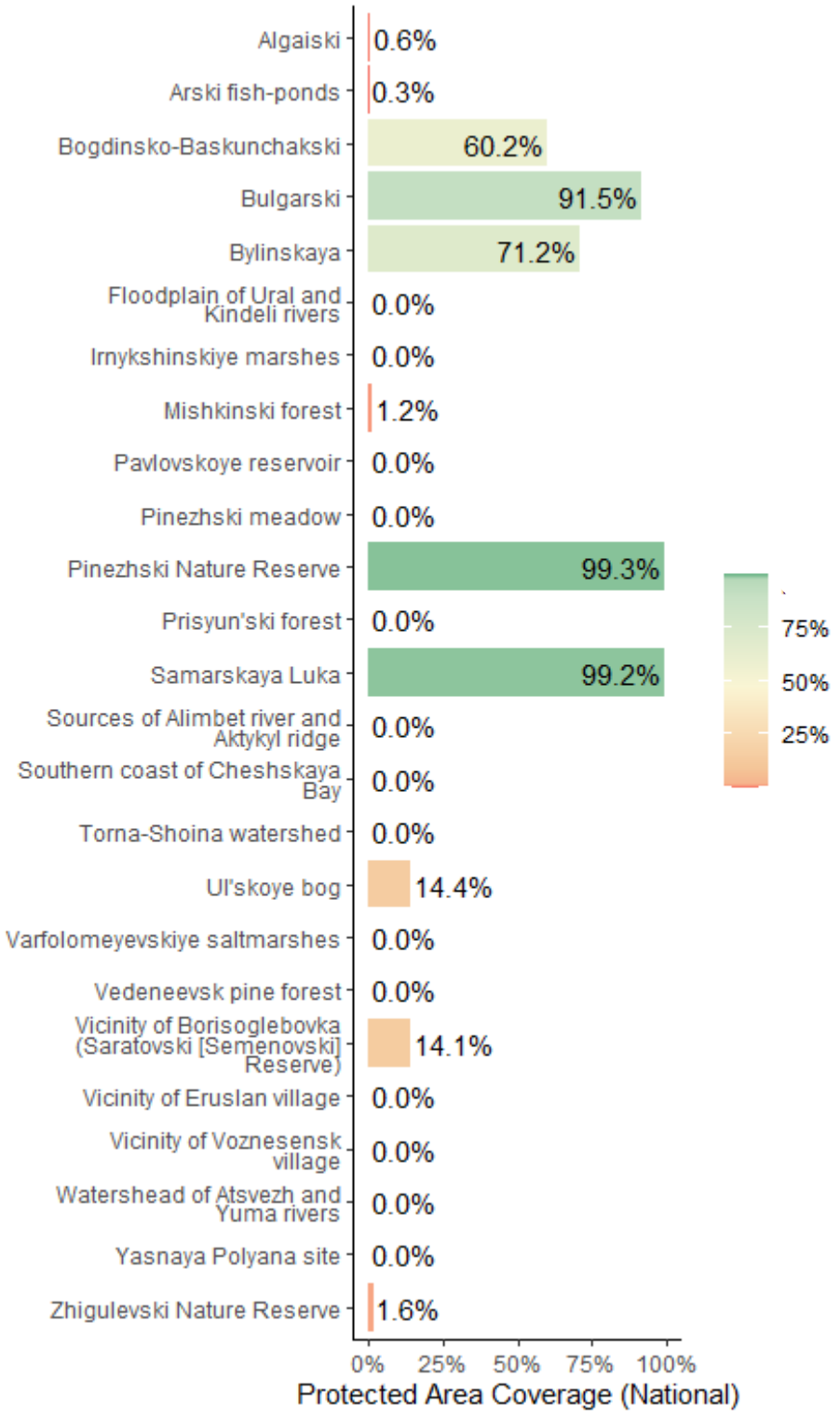

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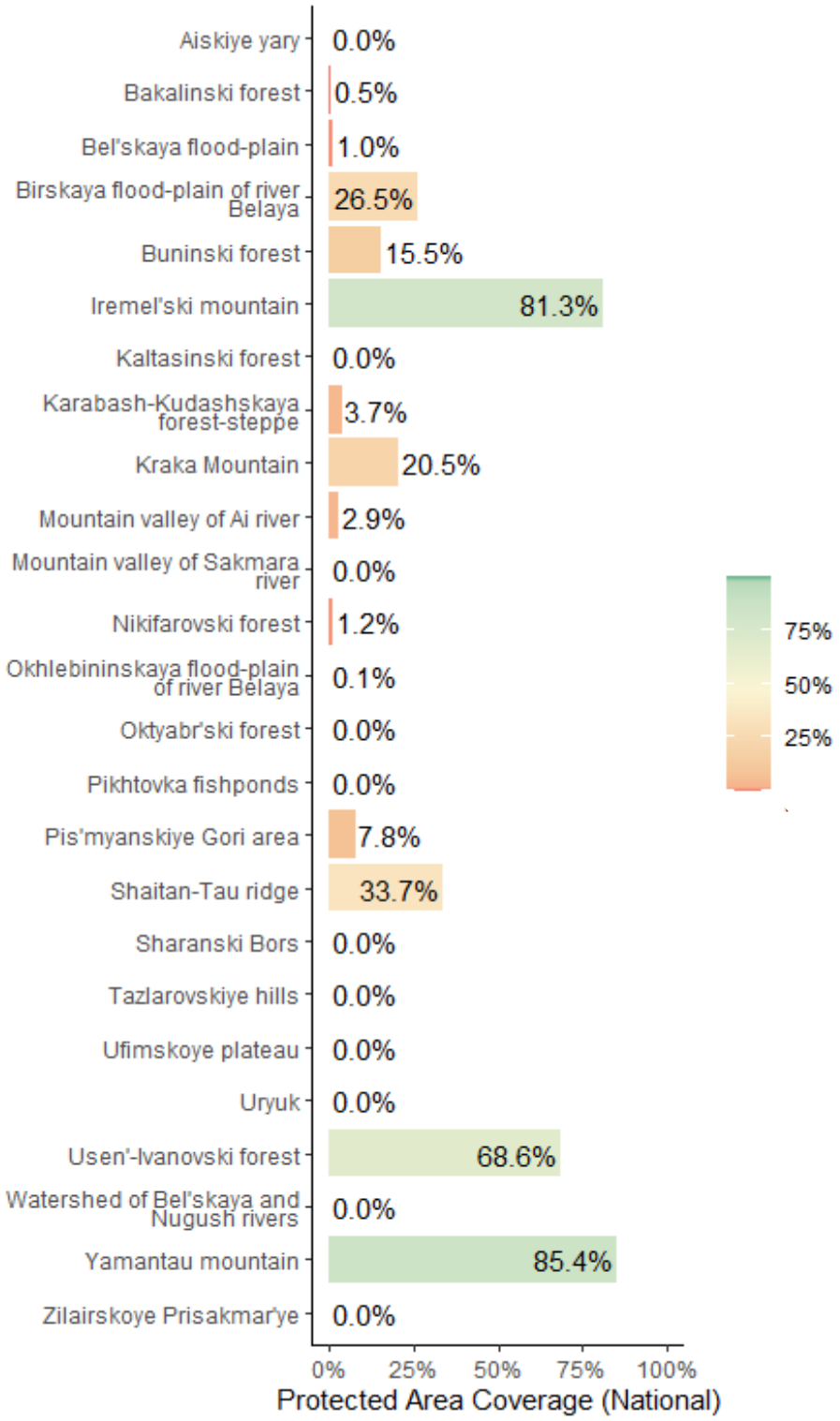

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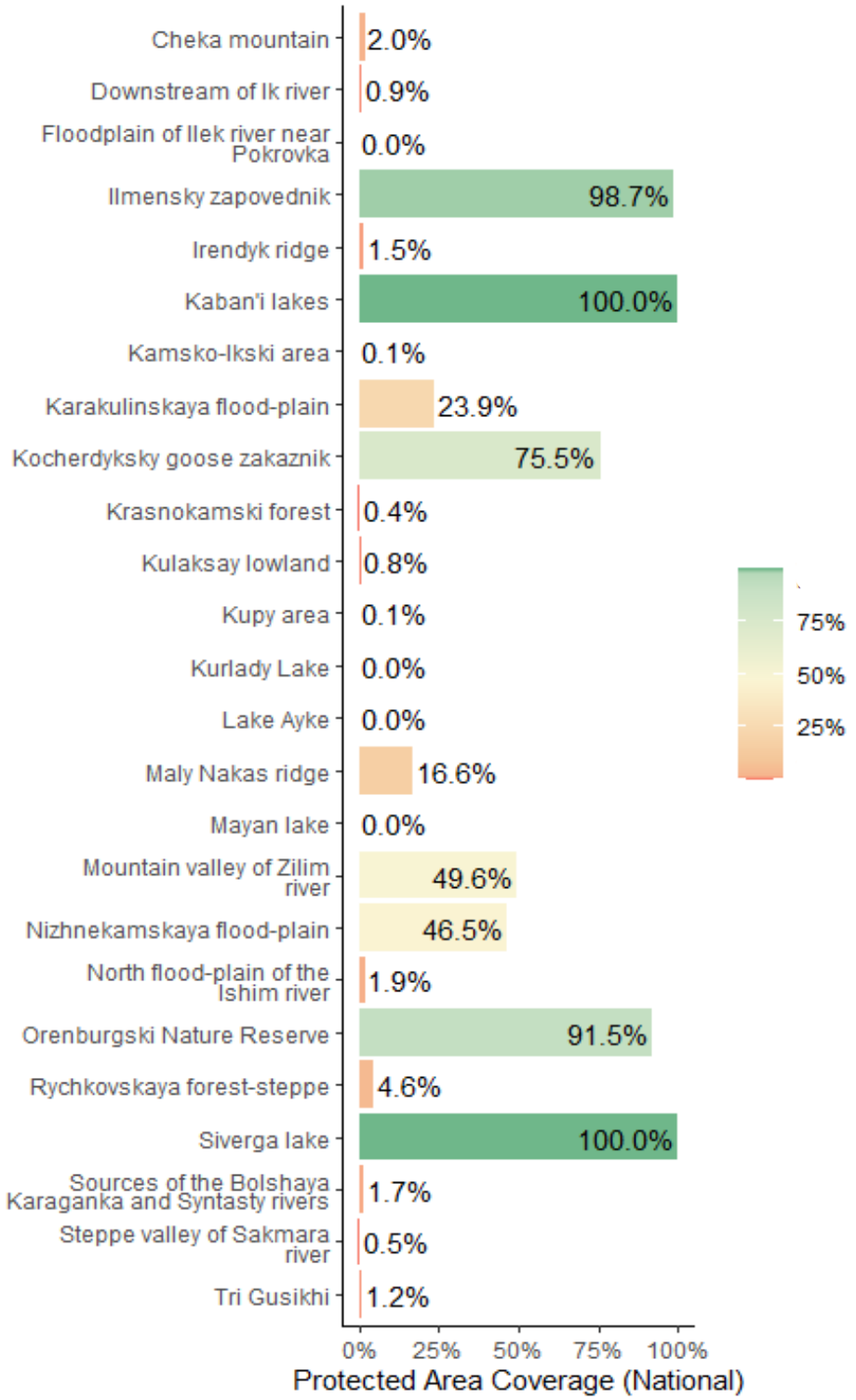

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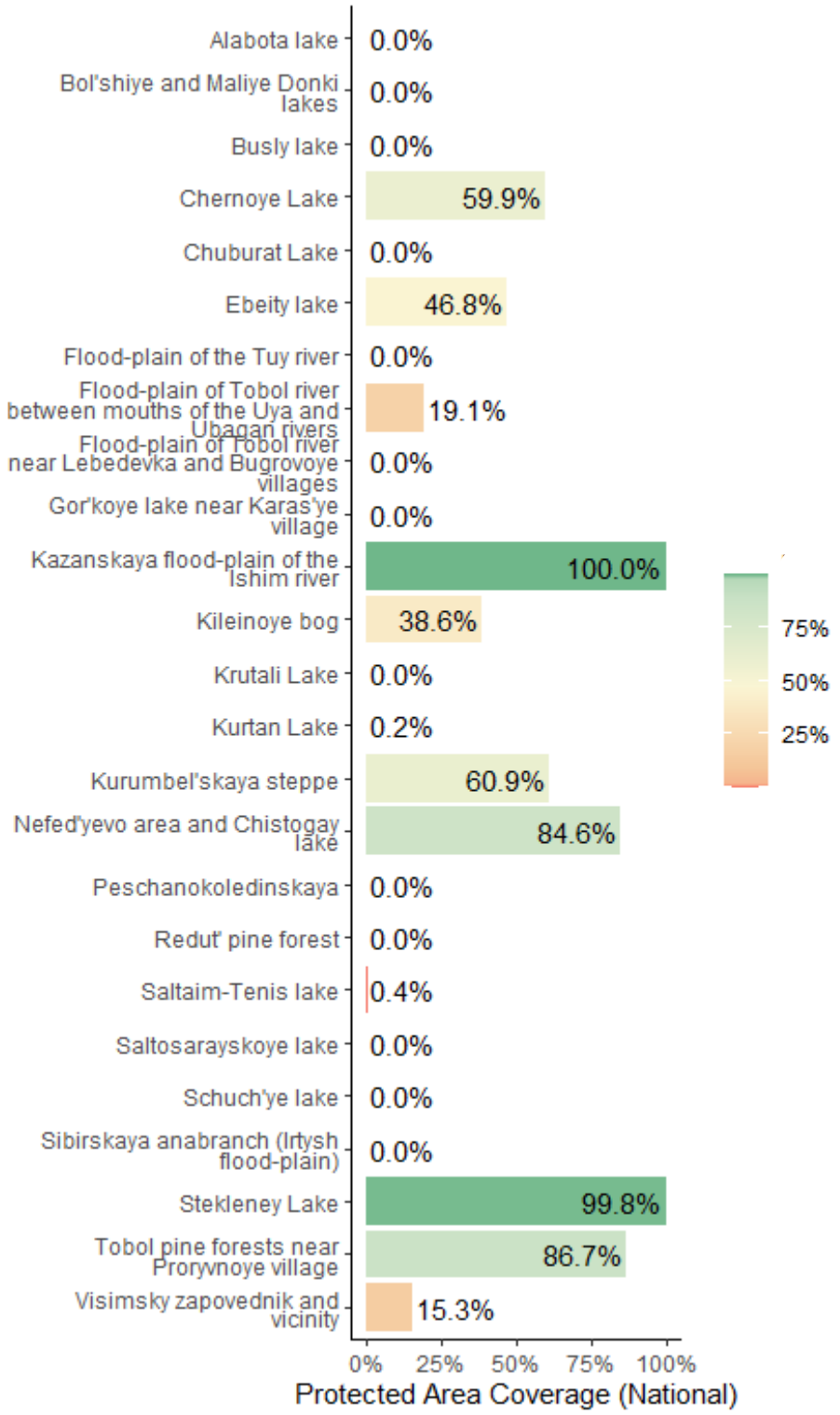

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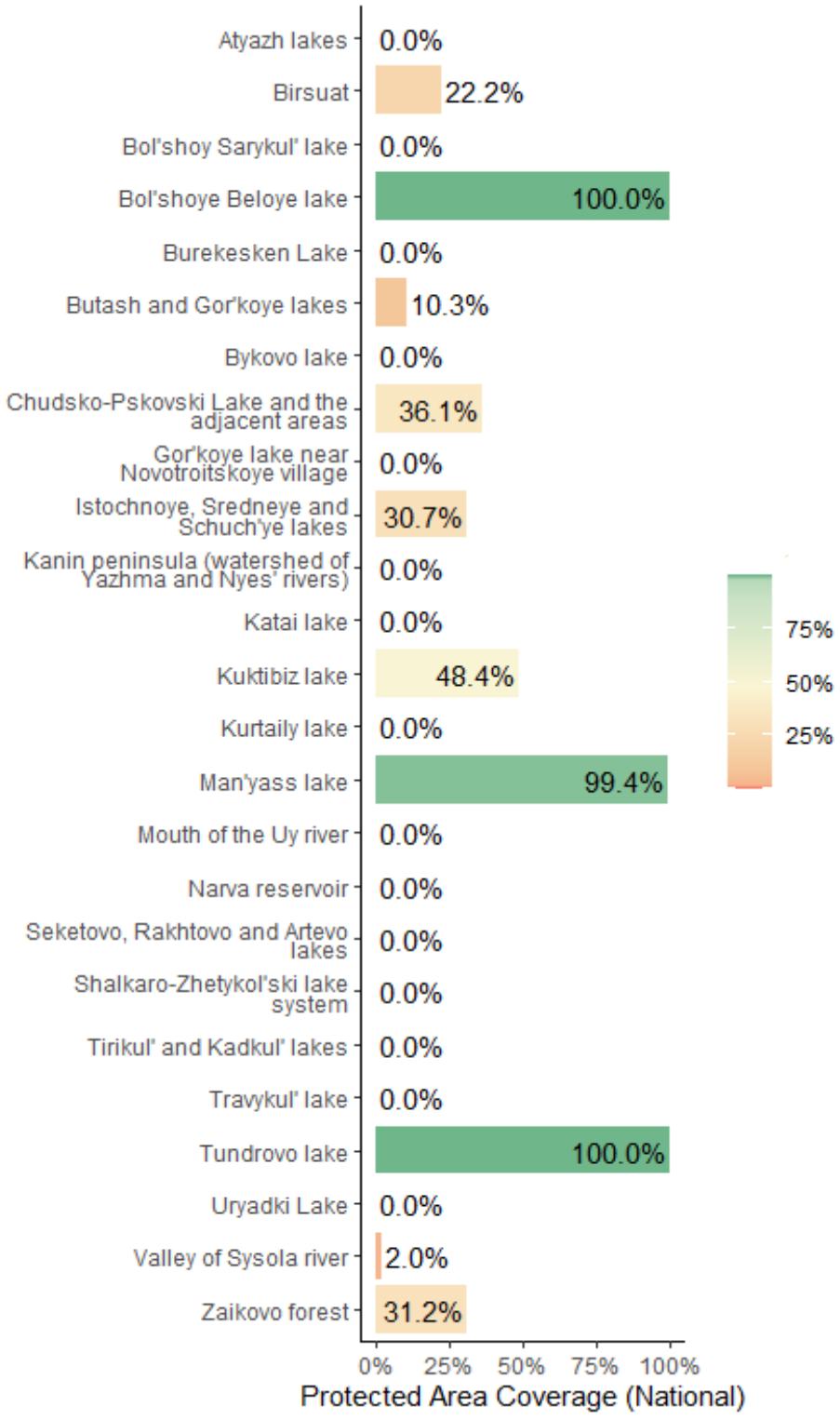
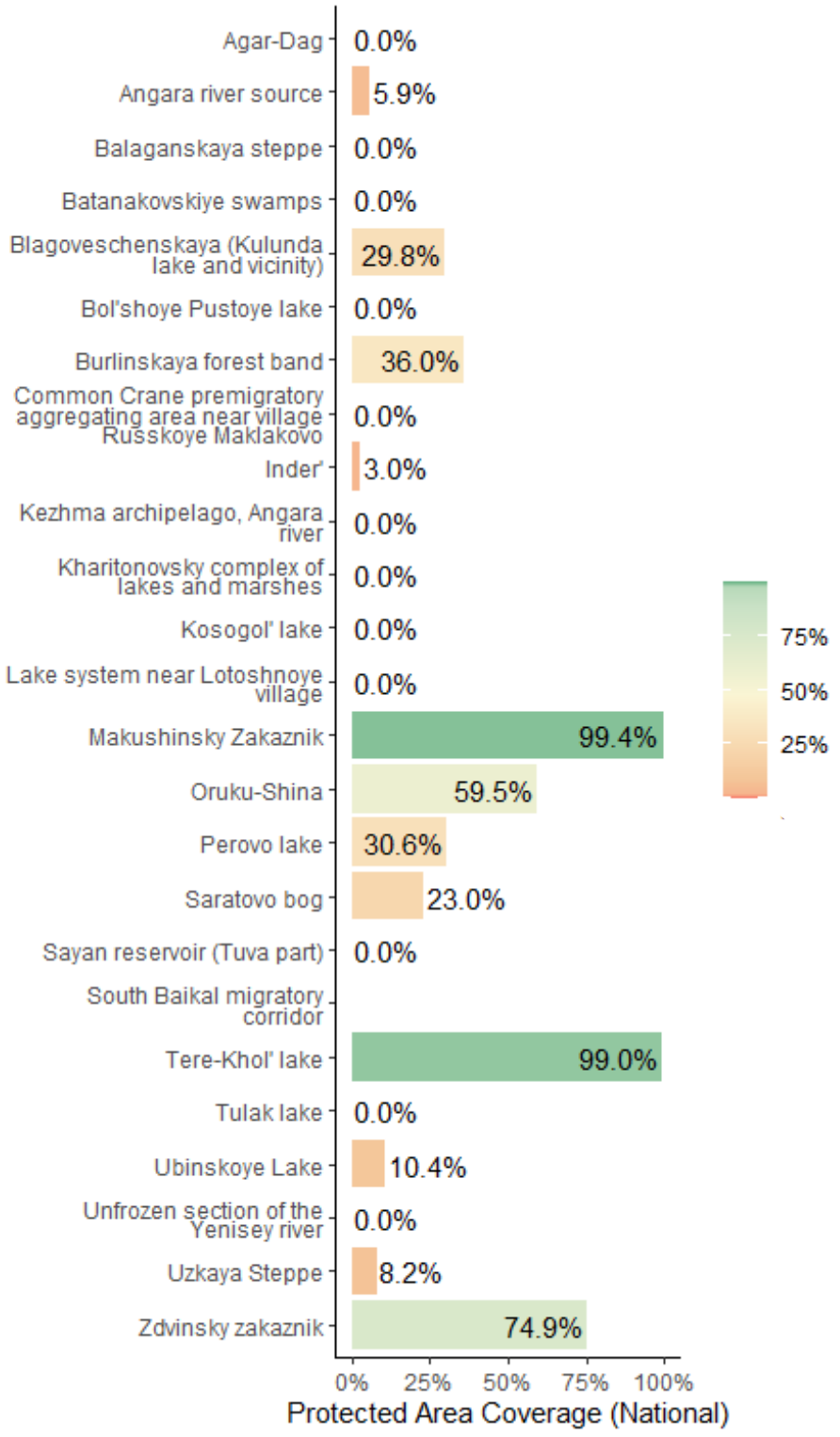


Key Biodiversity Area Coverage (KBA) in Russian Federation



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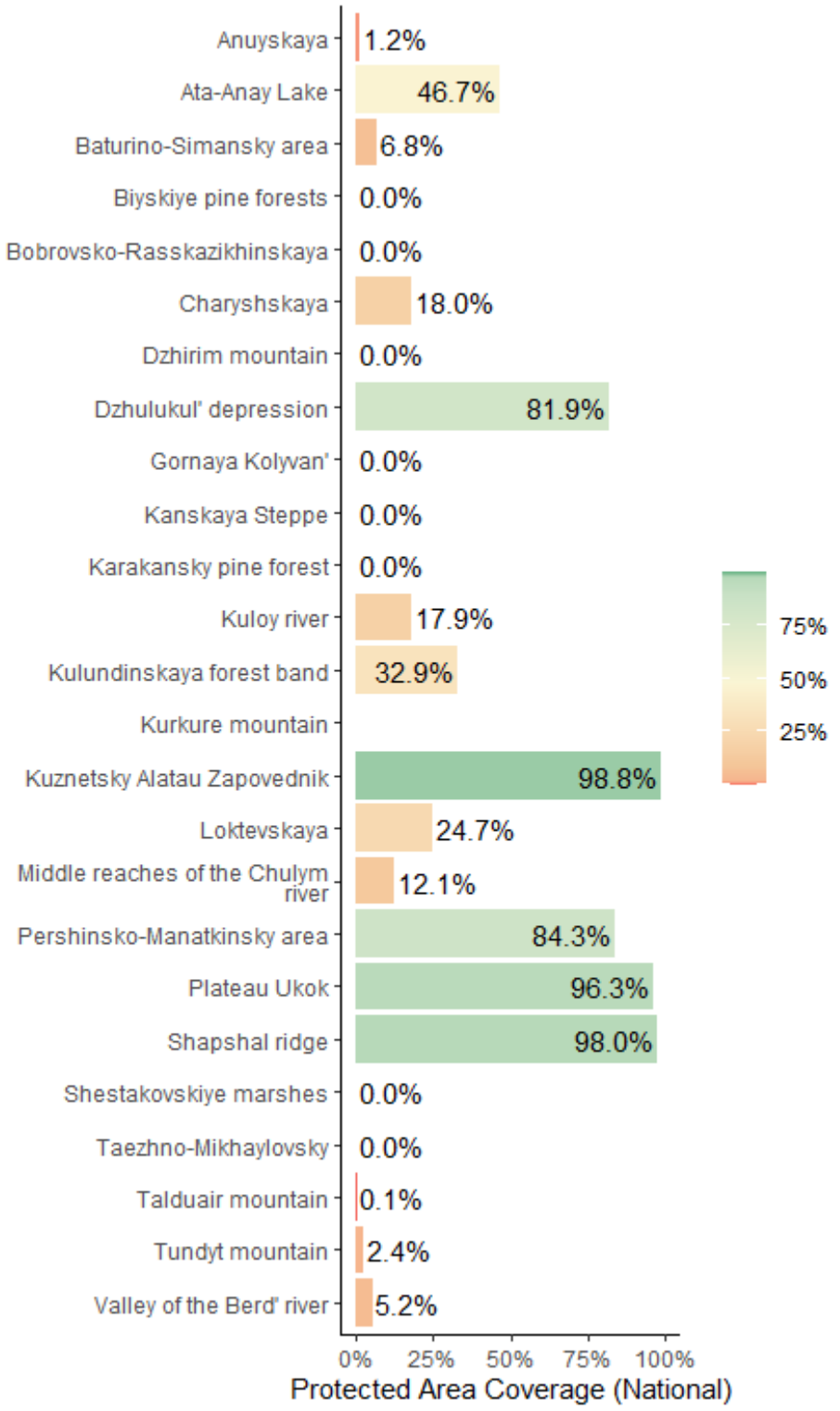

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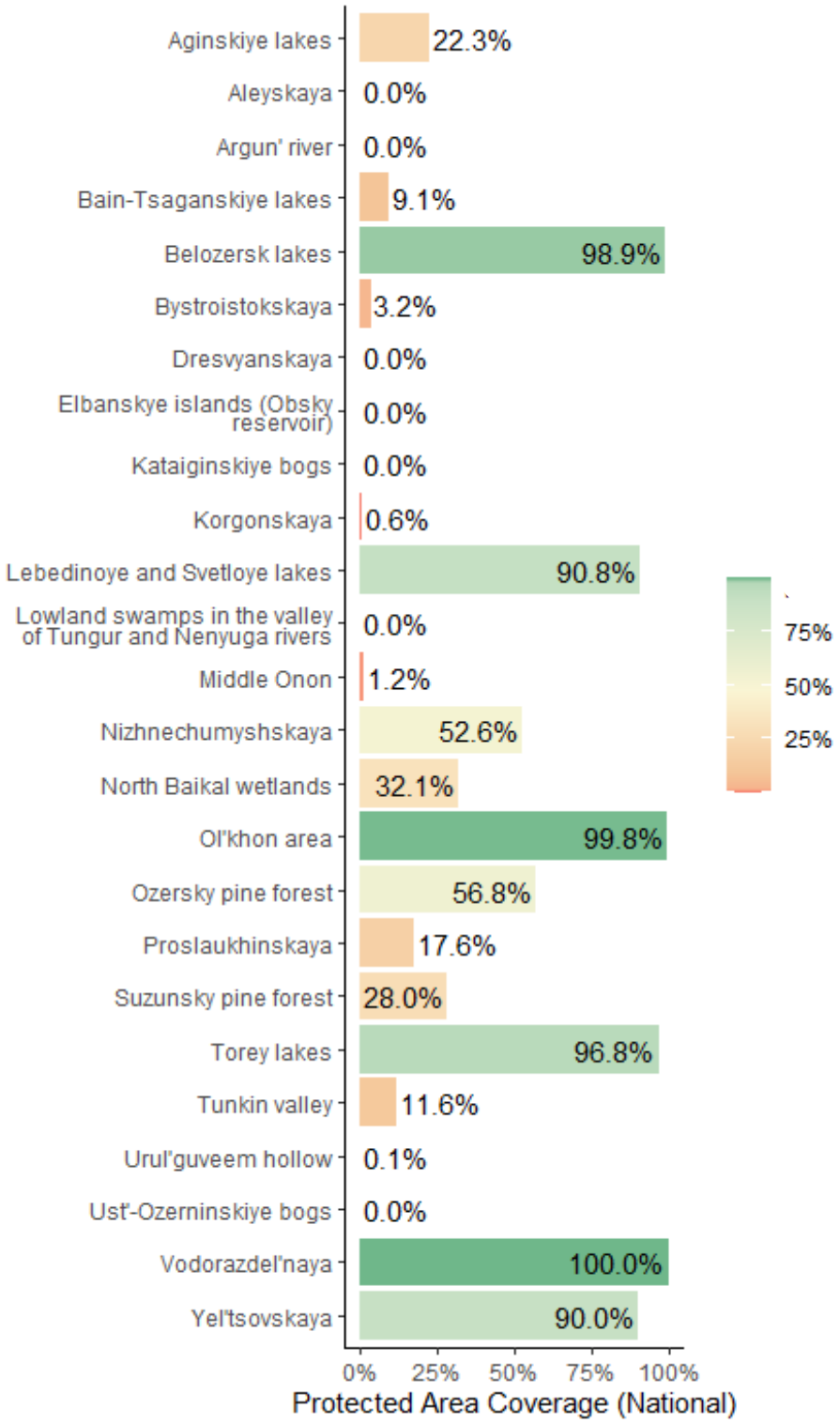

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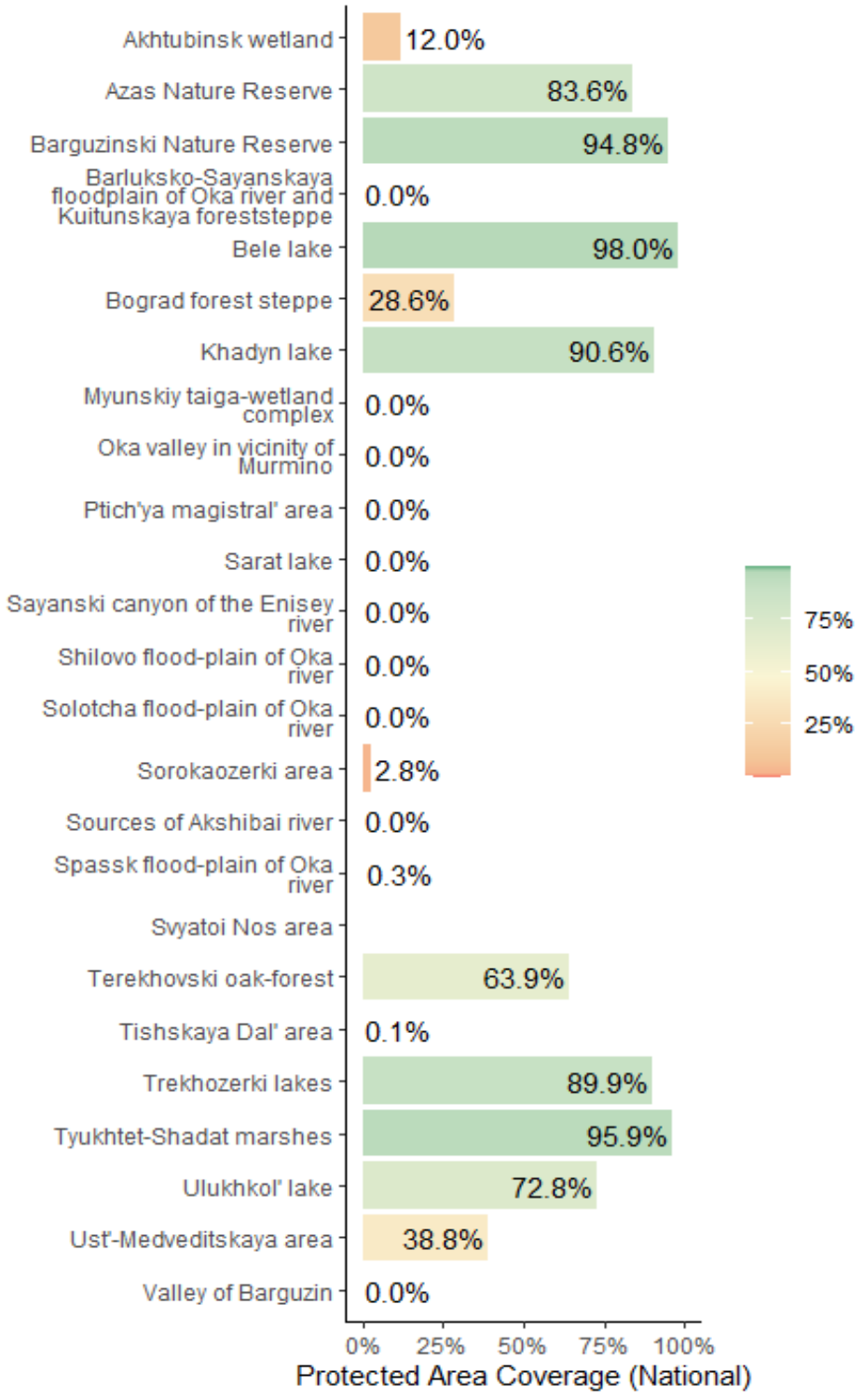

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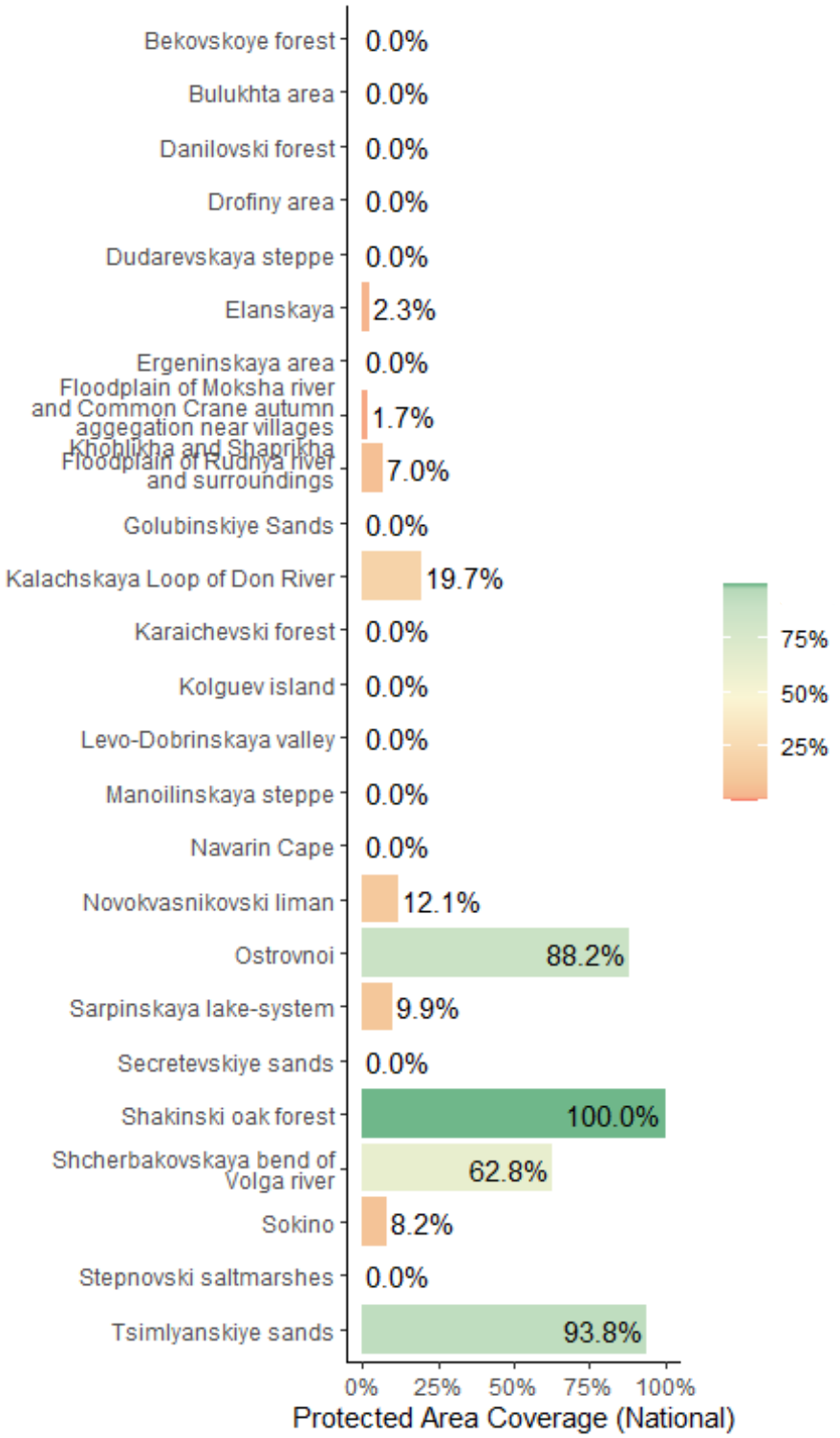

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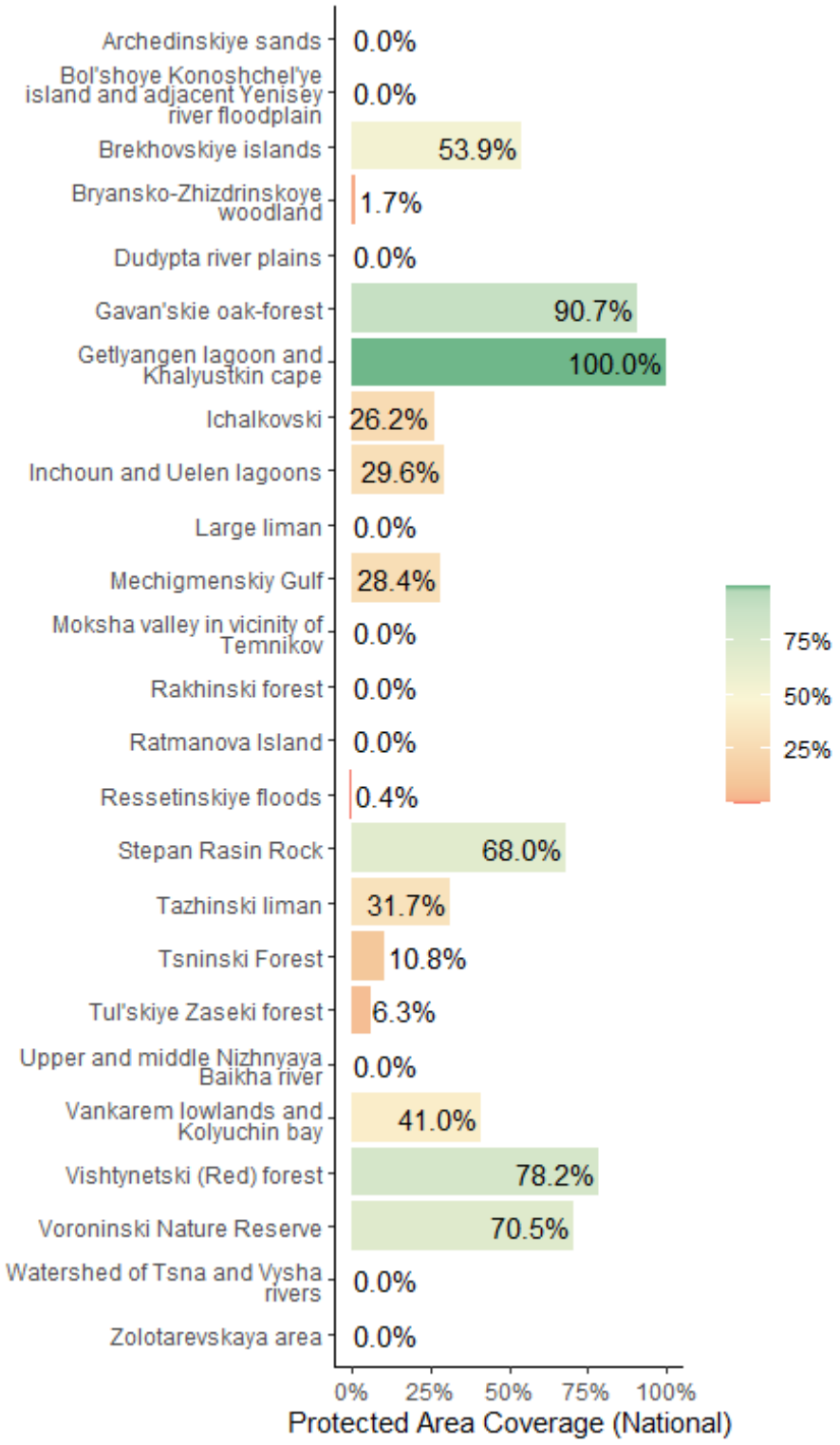

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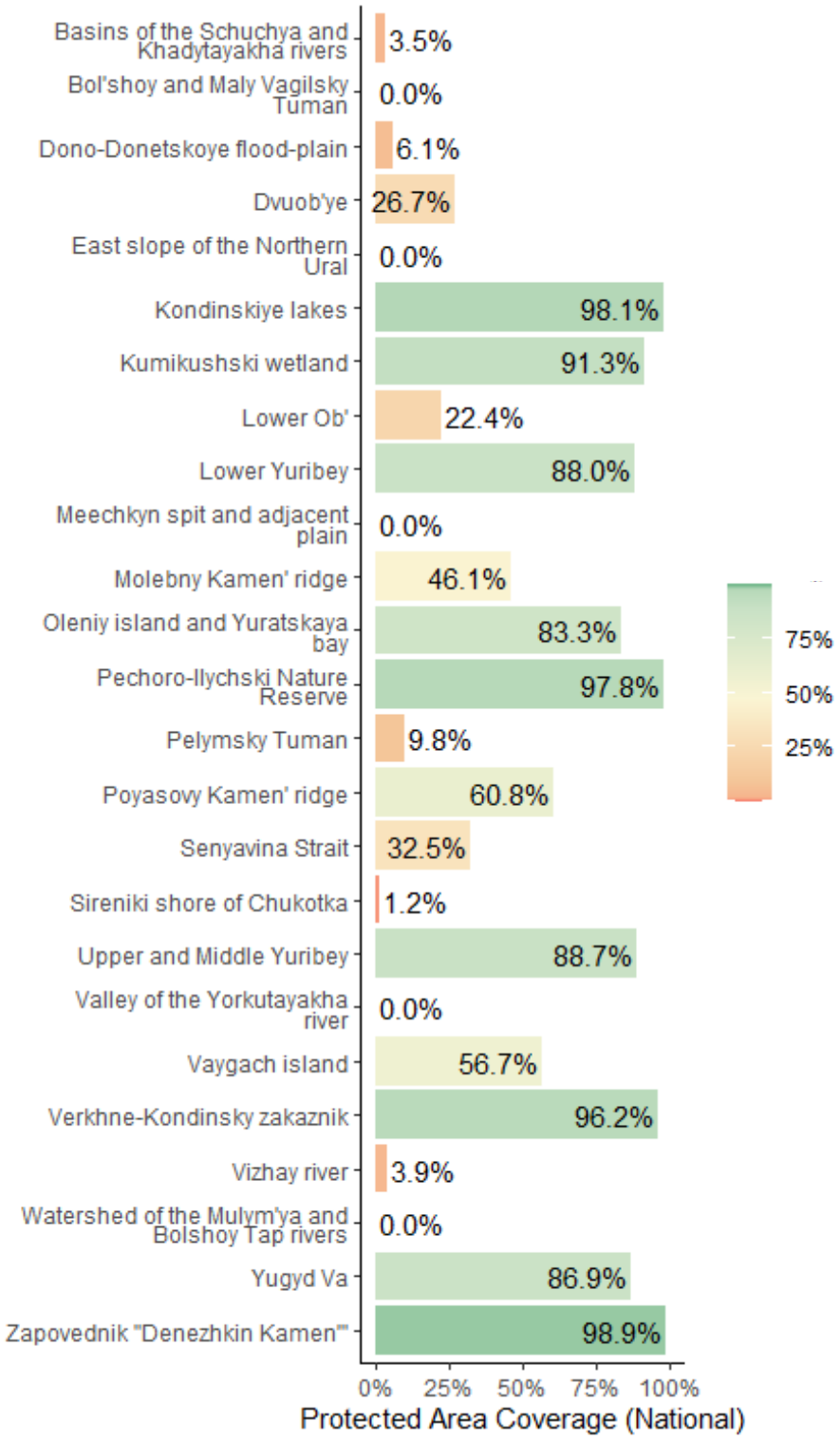

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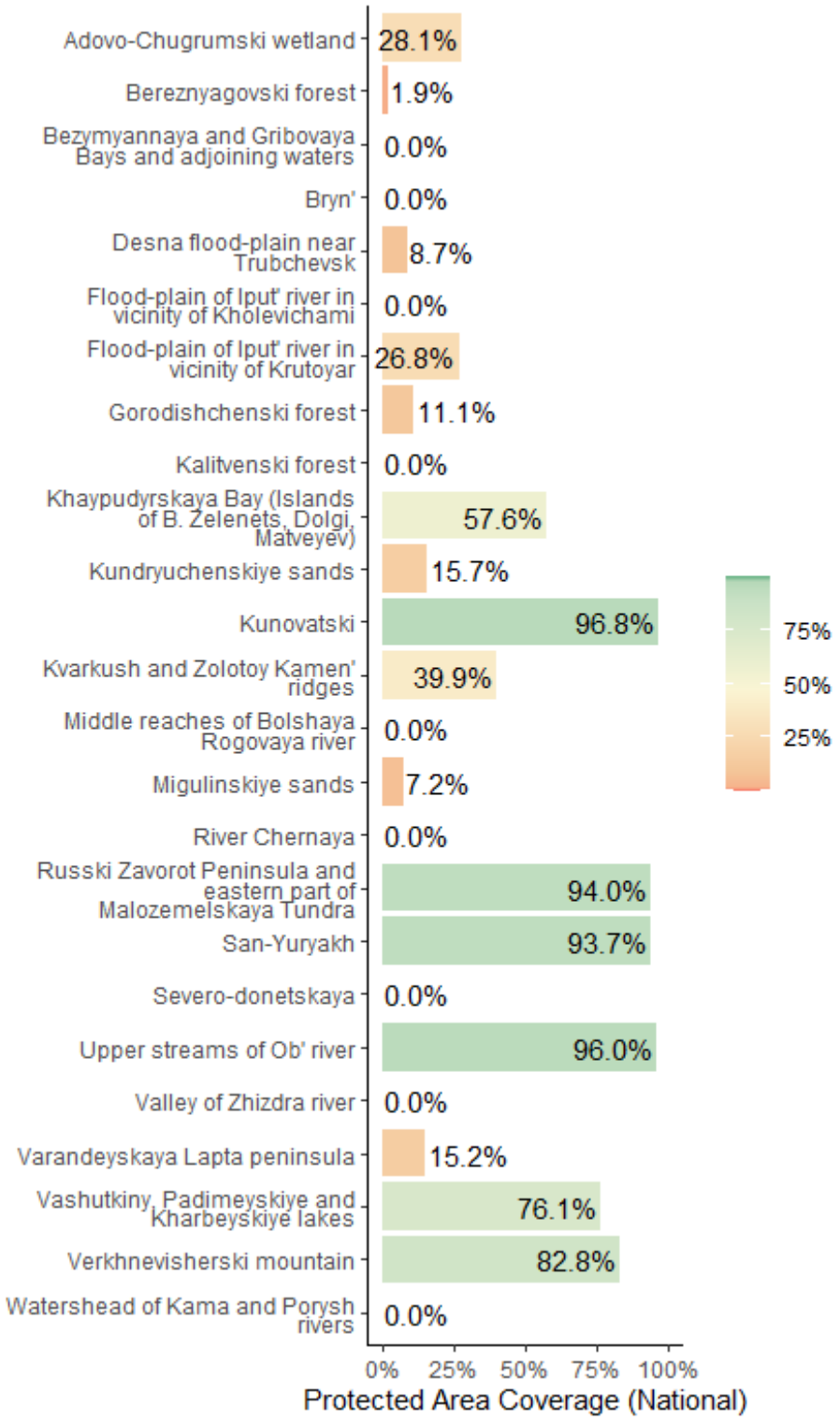

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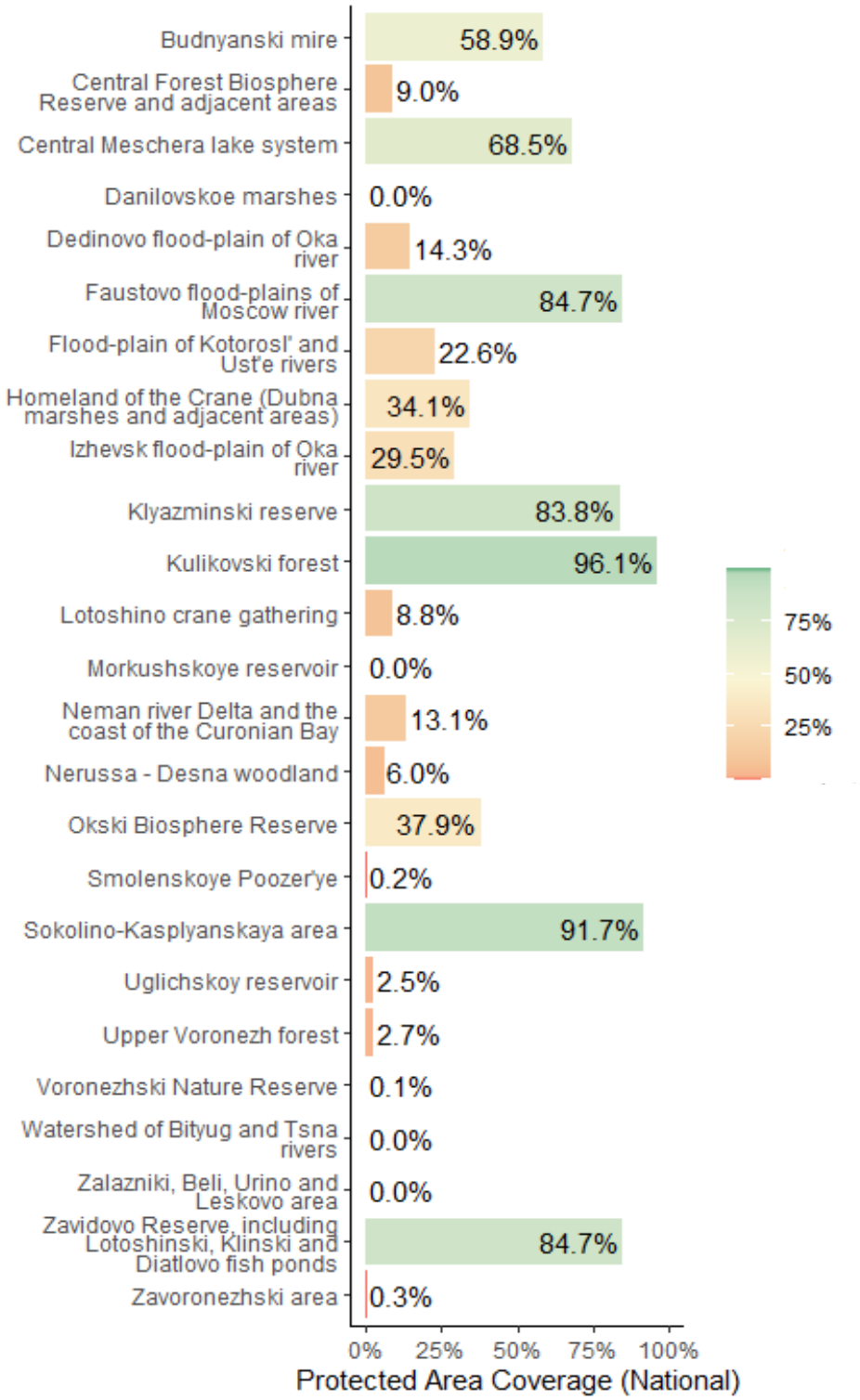

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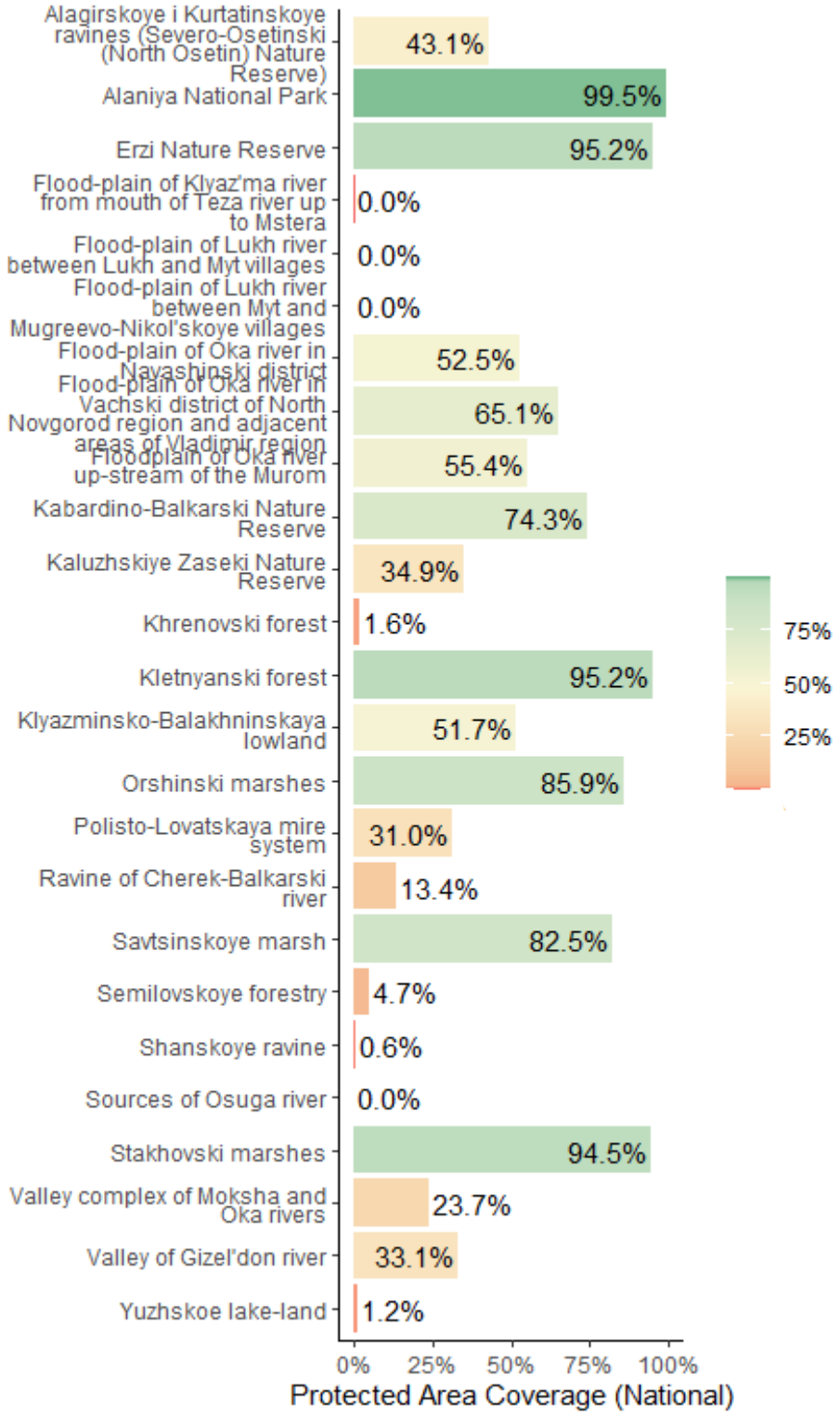

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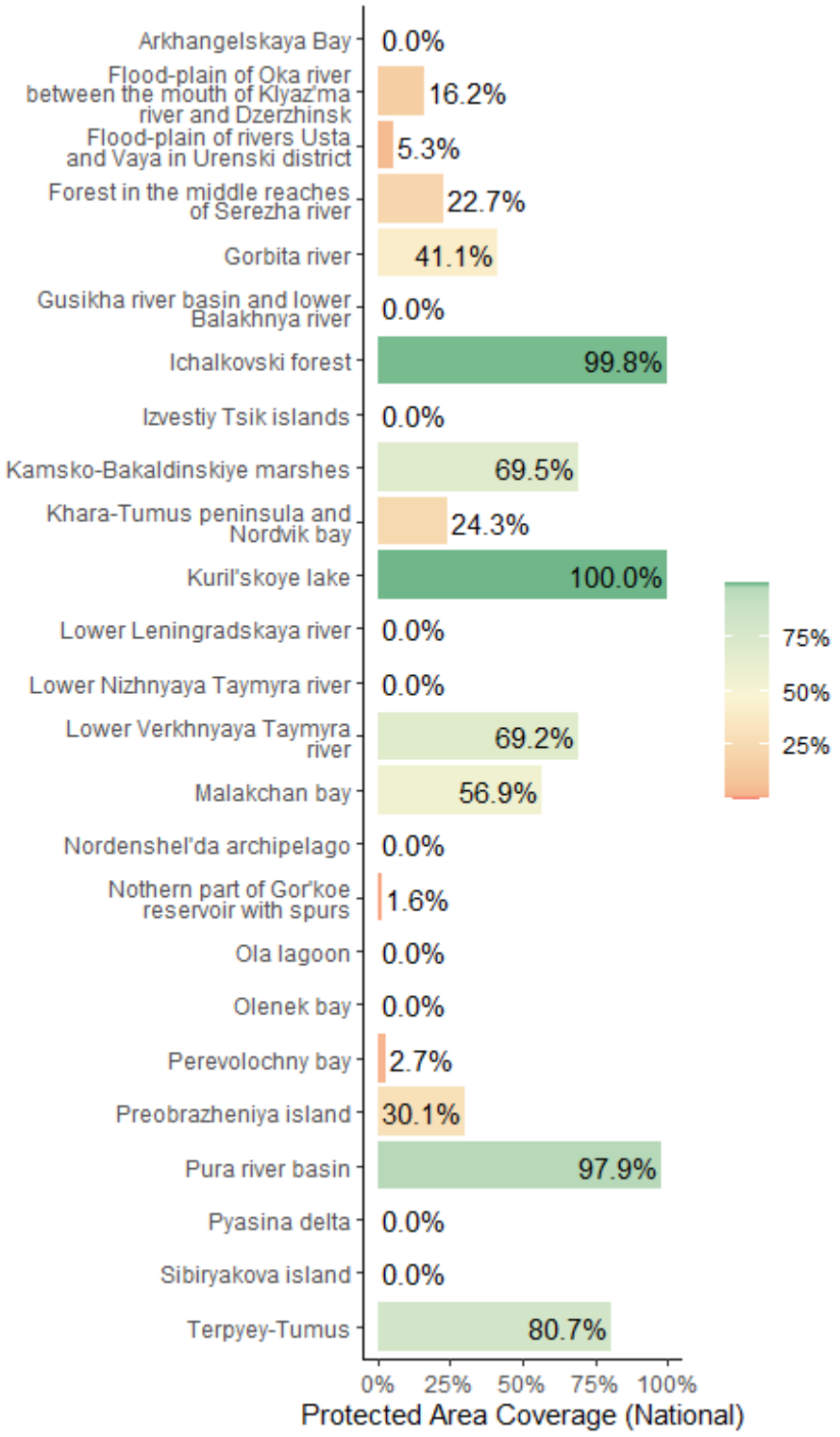

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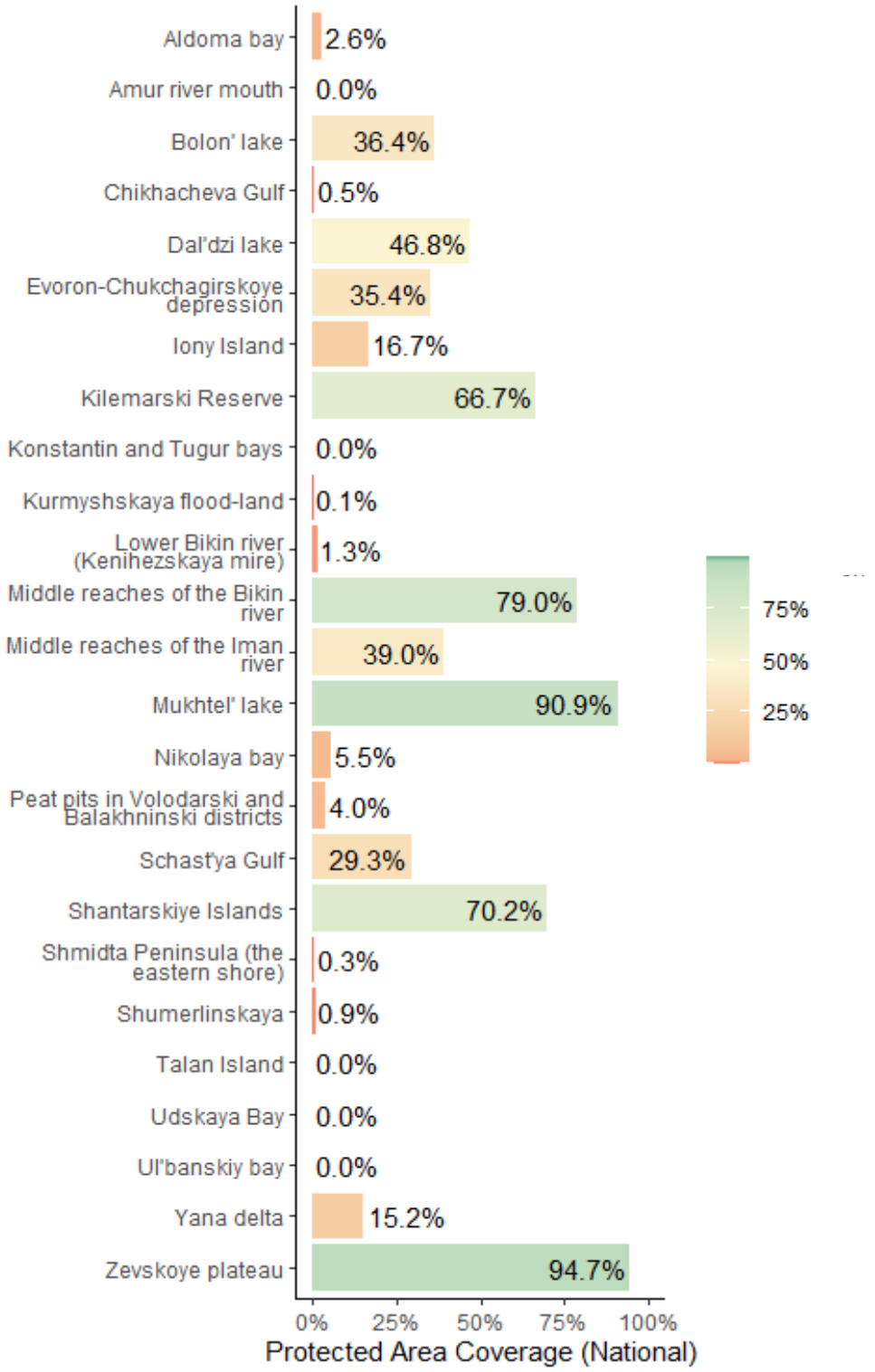

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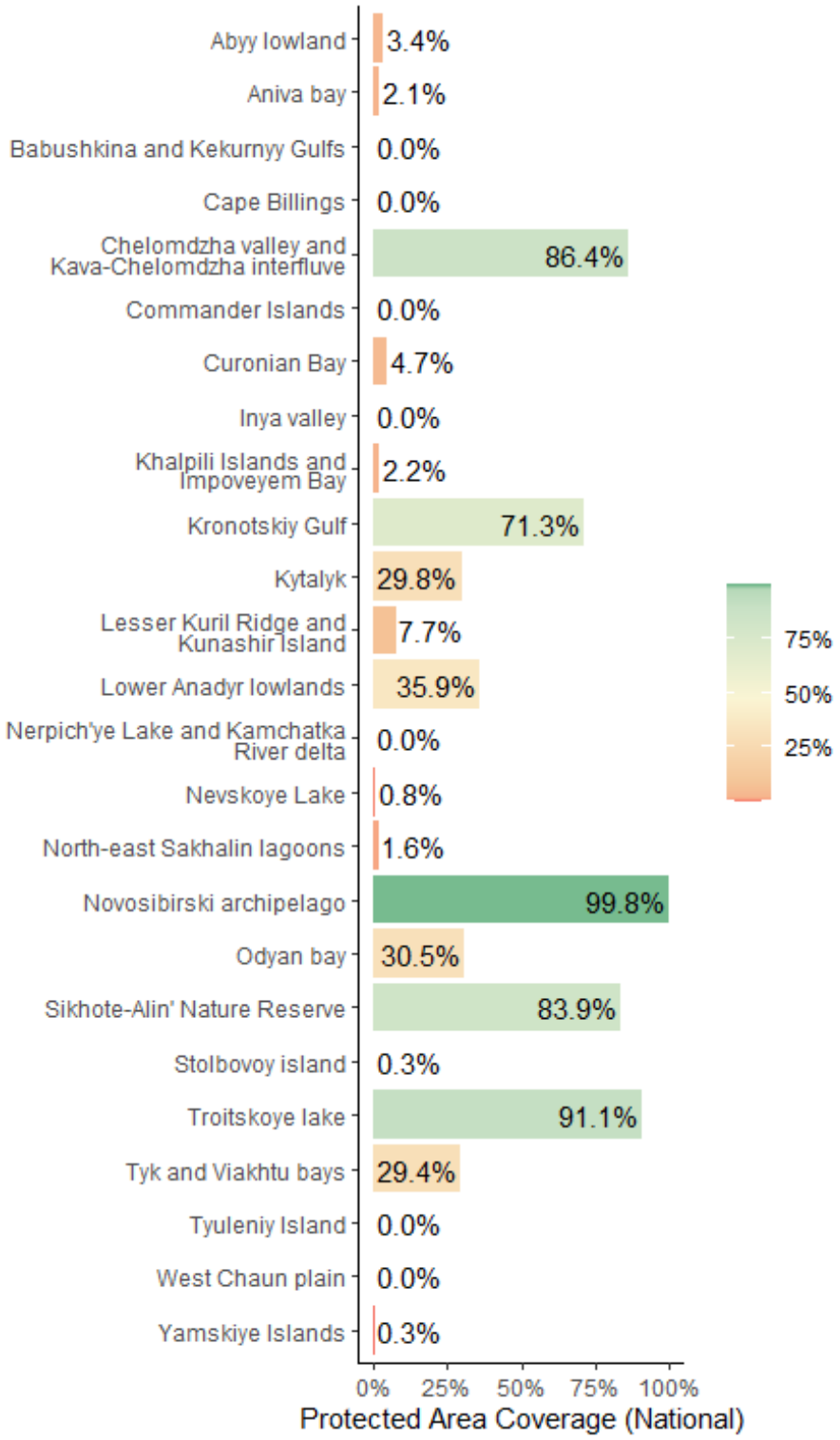

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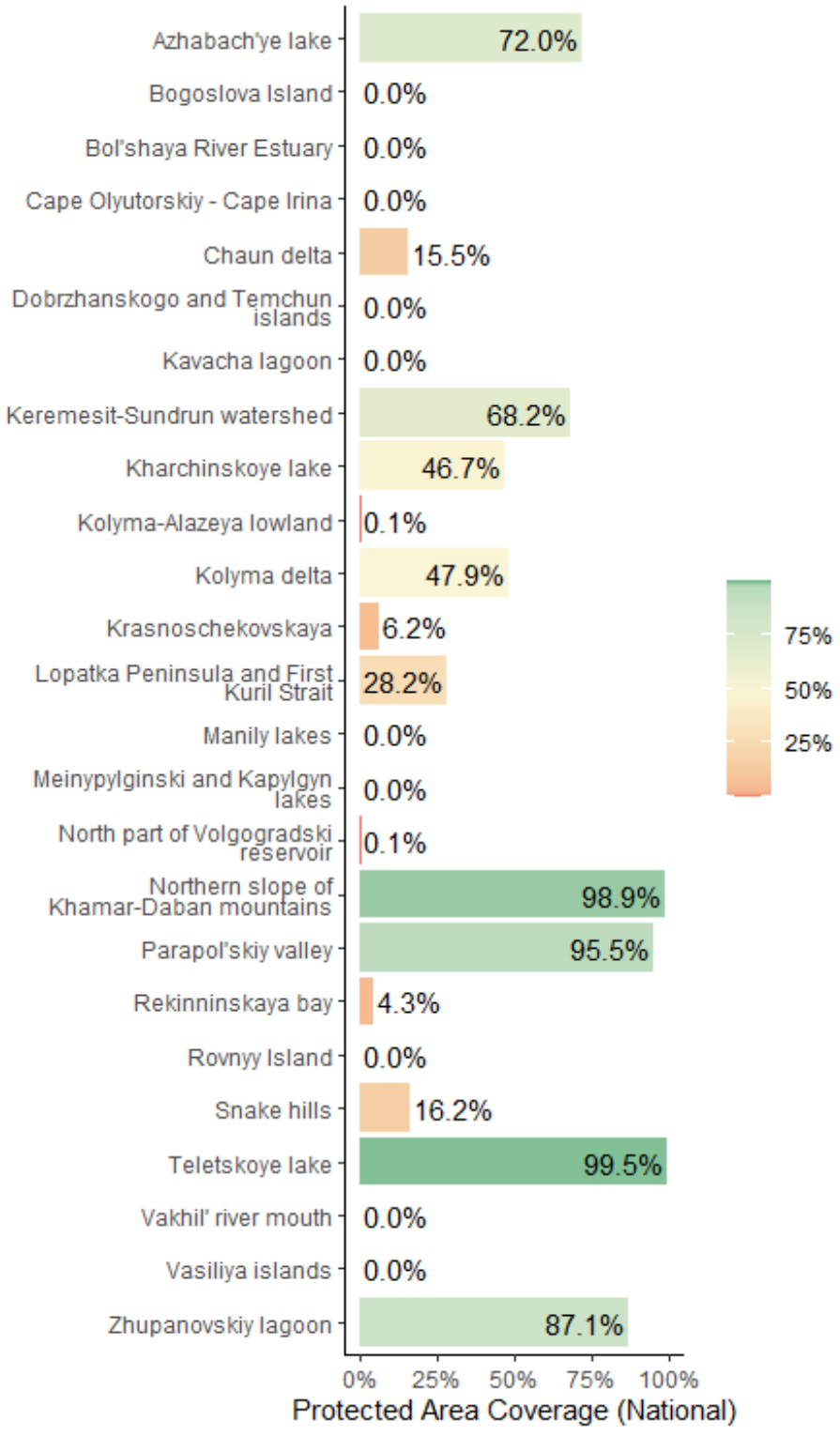

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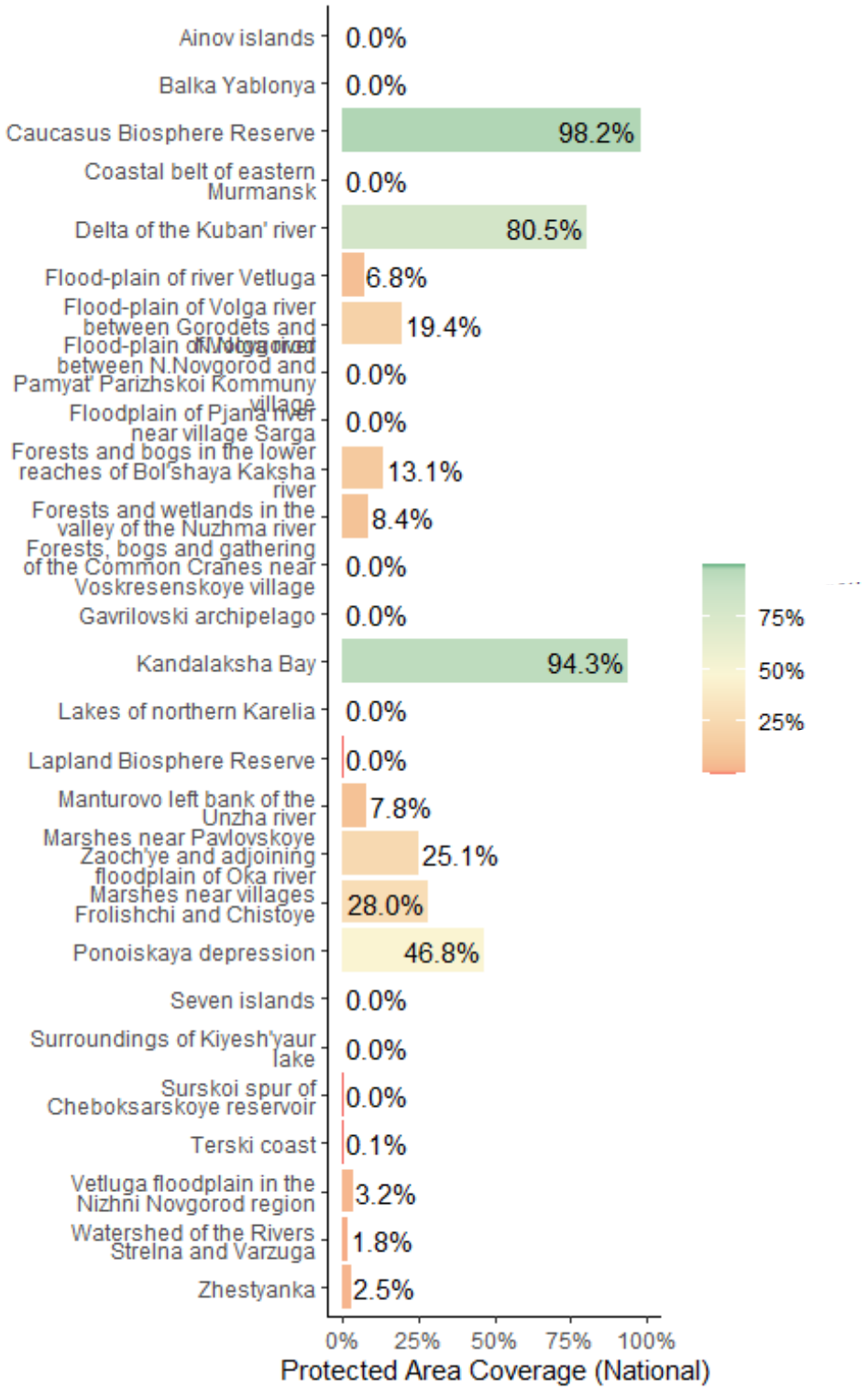

Key Biodiversity Area Coverage (KBA) in Russian Federation

REFERENCES

Atwood, TB, Witt, A, Mayorga, J, Hammill, E, & Sala, E. (2020). Global patterns in marine sediment carbon stocks. *Frontiers in Marine Science*. https://doi.org/10.3389/fmars.2020.00165

BirdLife International (2021). World Database of Key Biodiversity Areas. Available at: http://www.keybiodiversityareas.org

CBD (2010). Decision adopted by the Conference of the Parties to the Convention on Biological Diversity at its tenth meeting. Decision X/2. Strategic plan for biodiversity 2011–2020. Retrieved from https://www.cbd.int/doc/decisions/cop-10/cop-10-dec02-en.pdf.

CSIRO (2019). Protected area connectedness index (PARCconnectedness). https://www.bipindicators.net/indicators/protected-area-connectedness-index-parcconnectedness

Dinerstein, E., et al. (2017). An ecoregion-based approach to protecting half the terrestrial realm. BioScience 67(6), 534-545.

Donald et al., 2019, The prevalence, characteristics and effectiveness of Aichi Target 11′ s "other effective area-based conservation measures" (OECMs) in Key Biodiversity Areas. Conservation Letters, 12(5).

EC-JRC (2021). DOPA Indicator factsheets: http://dopa.jrc.ec.europa.eu/en/factsheets

FAO (2017). Global Soil Organic Carbon (GSOC) Map - Global Soil Partnership [WWW Document]. URL http://www.fao.org/global-soil-partnership/pillars-action/4-information-and-data/global-soil-organic-carbon-gsoc-map/en/.

Franks, P and Booker, F (2018). Governance Assessment for Protected and Conserved Areas (GAPA): Early experience of a multi-stakeholder methodology for enhancing equity and effectiveness. IIED Working Paper, IIED, London. https://pubs.iied.org/17632IIED

Franks, P. et al. (2018). Social Assessment for Protected and Conserved Areas (SAPA). Methodology manual for SAPA facilitators. Second edition. IIED, London. https://pubs.iied.org/14659iied

Garnett et al. (2018). A spatial overview of the global importance of Indigenous lands for conservation. Nature Sustainability, 1(7), 369.

Global Environment Facility (GEF-5 and GEF-6); all projects can be found online at: https://www.thegef.org/projects

Gloss, L. et al. (2019). International Outlook for Privately Protected Areas: Summary Report. International Land Conservation Network (a project of the Lincoln Institute of Land Policy) and United Nations Development Programme. Summary report, and individual country profiles, available at: https://nbsapforum.net/knowledge-base/resource/international-outlook-privately-protected-areas-summary-report

Hansen, M.C., Potapov, P.V., Moore, R., Hancher, M., Turubanova, S.A., Tyukavina, A., Thau, D., Stehman, S.V., Goetz, S.J., Loveland, T.R., Kommareddy, A., Egorov, A., Chini, L., Justice, C.O., Townshend, J.R.G., (2013). High-Resolution Global Maps of 21st-Century Forest Cover Change. Science 342, 850–853. https://doi.org/10.1126/science.1244693

Hilty, J et al. (2020). Guidelines for conserving connectivity through ecological networks and corridors. Best Practice Protected Area Guidelines Series No. 30. Gland, Switzerland: IUCN. https://portals.iucn.org/library/sites/library/files/documents/PAG-030-En.pdf

IIED 2020. Site-level assessment of governance and equity (SAGE) https://www.iied.org/site-level-assessment-governance-equity-sage.

IUCN (2016). A Global Standard for the Identification of Key Biodiversity Areas, Version 1.0. First edition. Gland, Switzerland: IUCN. https://portals.iucn.org/library/sites/library/files/documents/2016-048.pdf

IUCN-WCPA (2017). IUCN-WCPA Task Force on OECMs collation of case studies submitted 2016-2017. https://www.iucn.org/commissions/world-commission-protected-areas/our-work/oecms/oecm-reports

Joint Research Centre of the European Commission (JRC) (2021), The Digital Observatory for Protected Areas (DOPA) Explorer 4.1 [On-line], [Apr/2021], Ispra, Italy. Available at: http://dopa-explorer.jrc.ec.europa.eu

Kothari, A., et al. (Eds) (2012). Recognising and Supporting Territories and Areas Conserved By Indigenous Peoples And Local Communities: Global Overview and National Case Studies. Secretariat of the CBD, ICCA Consortium, Kalpavriksh, and Natural Justice, Montreal, Canada. Technical Series no. 64.

Lausche, B., Laur, A., Collins, M. (2021). *Marine Connectivity Conservation 'Rules of Thumb' for MPA and MPA Network Design*. Version 1.0. IUCN WCPA Connectivity Conservation Specialist Group's Marine Connectivity Working Group.

McDonald, R.I., Weber, K., Padowski, J., Flörke, M., Schneider, C., Green, P.A., Gleeson, T., Eckman, S., Lehner, B., Balk, D., Boucher, T., Grill, G., Montgomery, M., (2014). Water on an urban planet: Urbanization and the reach of urban water infrastructure. Global Environmental Change 27, 96–105. https://doi.org/10.1016/j.gloenvcha.2014.04.022

National Biodiversity Strategy and Action Plan (NBSAPs); most recent NBSAP is available at: https://www.cbd.int/nbsap/search/

Newbold, T., Hudson, L.N., Arnell, A.P., Contu, S., Palma, A.D., Ferrier, S., Hill, S.L.L., Hoskins, A.J., Lysenko, I., Phillips, H.R.P., Burton, V.J., Chng, C.W.T., Emerson, S., Gao, D., Pask-Hale, G., Hutton, J., Jung, M., Sanchez-Ortiz, K., Simmons, B.I., Whitmee, S., Zhang, H., Scharlemann, J.P.W., Purvis, A., (2016). Has land use pushed terrestrial biodiversity beyond the planetary boundary? A global assessment. Science 353, 288–291. https://doi.org/10.1126/science.aaf2201

Sala, E. et al. (2021). Protecting the global ocean for biodiversity, food and climate. Nature, 592(7854), 397-402. https://doi.org/10.1038/s41586-021-03496-1

Saura, S. et al. (2018). Protected area connectivity: Shortfalls in global targets and country-level priorities. Biological Conservation, 219, 53-67.

Saura, S. et al (2017). Protected areas in the world's ecoregions: How well connected are they? Ecological Indicators, 76, 144-158.

Spalding, M.D., et al. (2012). Pelagic provinces of the world: a biogeographic classification of the world's surface pelagic waters. Ocean & Coastal Management 60, 19–30.

Spalding, M.D., et al. (2007). Marine ecoregions of the world: a bioregionalization of coastal and shelf areas. BioScience 57(7): 573–583.

Spawn, S.A., Sullivan, C.C., Lark, T.J., Gibbs, H.K., (2020). Harmonized global maps of above and belowground biomass carbon density in the year 2010. Scientific Data 7, 112. https://doi.org/10.1038/s41597-020-0444-4

Stishov & Dudley (2018), *Protected areas of the Russian Federation and their categories.* Moscow: World Wide Fund for Nature (WWF)

Stolton, S. et al. (2014). The Futures of Privately Protected Areas. Gland, Switzerland: IUCN.

UNEP-WCMC and IUCN (2021) Protected Planet Report 2020. UNEP-WCMC and IUCN: Cambridge UK; Gland, Switzerland.

UNEP-WCMC and IUCN (2021), Protected Planet: The Global Database on Protected Area Management Effectiveness (GD-PAME) [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UNEP-WCMC and IUCN (2021), Protected Planet: The World Database on Protected Areas (WDPA) [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UNEP-WCMC and IUCN (2021), Protected Planet: The World Database on Other Effective Area-based Conservation Measures (WD-OECM) [On-line], [May/2021], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net.

UN Ocean Conference Voluntary Commitments, available at: https://oceanconference.un.org/commitments/

Williams, B.A., Venter, O., Allan, J.R., Atkinson, S.C., Rehbein, J.A., Ward, M., Marco, M.D., Grantham, H.S., Ervin, J., Goetz, S.J., Hansen, A.J., Jantz, P., Pillay, R., Rodríguez-Buriticá, S., Supples, C., Virnig, A.L.S., Watson, J.E.M., (2020). Change in Terrestrial Human Footprint Drives Continued Loss of Intact Ecosystems. One Earth 3, 371–382. https://doi.org/10.1016/j.oneear.2020.08.009

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