The project TEEB-Russia

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Biodiversity
Conservation Center
Moscow

Leibniz Institute of
Ecological Urban and
Regional Development

TEEB-Russia 1 (2013-2015)

TEEB-Russia 2 (2018-2019)

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with funds from the German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety (BMU),
and is supported by the Ministry of Natural Resources and Environment of the Russian Federation.**

Biodiversity
Conservation Center
Moscow

Leibniz Institute of
Ecological Urban and
Regional Development

TEEB-Russia 1

2013-2015

The first pilot ES assessment at the national level in Russia

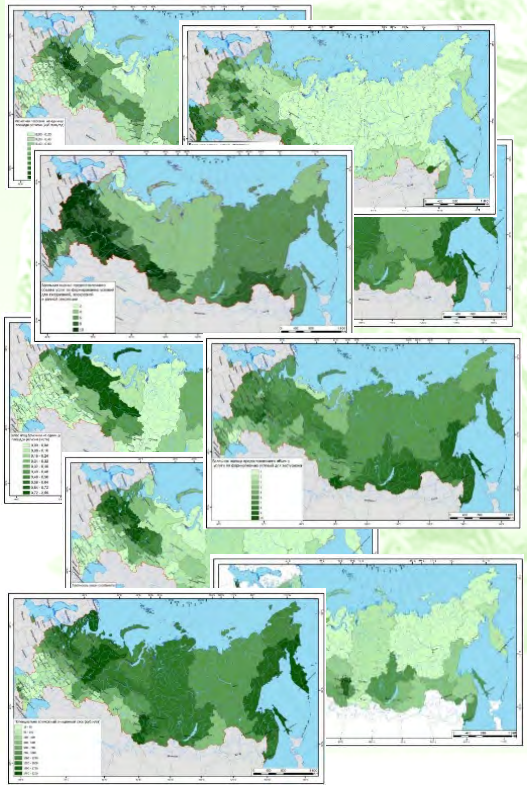
Classification of ES

Category	ES
Provisioning	**1. Wood production** **2. Non-wood production of the forest and other terrestrial ecosystems** **3. Production of fodder on natural pastures and hayfields** **4. Production of freshwater ecosystems, including fish** **5. Game production** **6. Production of honey in natural areas**
Regulating	**1.Athmosphere and climate regulation** 1.1. Biogeochemical climate regulation: carbon storage & regulation of greenhouse gas flows 1.2. Biogeophysical climate regulation 1.3. Air purification by vegetation
	2. Hydrosphere regulation 2.1. Regulation of runoff volume & runoff variability (runoff stabilization) 2.2. Assurance of water quality by terrestrial ecosystems 2.3. Assurance of water quality by freshwater ecosystems
	3. Soil formation and protection 3.1. Soil protection from erosion: 3.2. Establishment of soil bioproductivity 3.3. Soil self-purification 3.4. Regulation of cryogenic processes
	4. Regulation of biological processes important for the economy and for security - species with economic importance: agricultural pests, forest pests, pollinators, invasive and synanthropic species - species with medical, biomedical and veterinary importance
Informational	**1. Genetic resources of wild species and populations** **2. Information on the structure and functioning of natural systems that can be used by humans** **3. Aesthetic and educational importance of natural systems** **4. Ethical, spiritual, and religious importance of natural systems**
Recreational	**Establishment of natural conditions for recreation:** **– daily and weekend recreation, recreation at summer cottages,** **– educational and active tourism in nature** **– resort recreation (except seacoasts)**

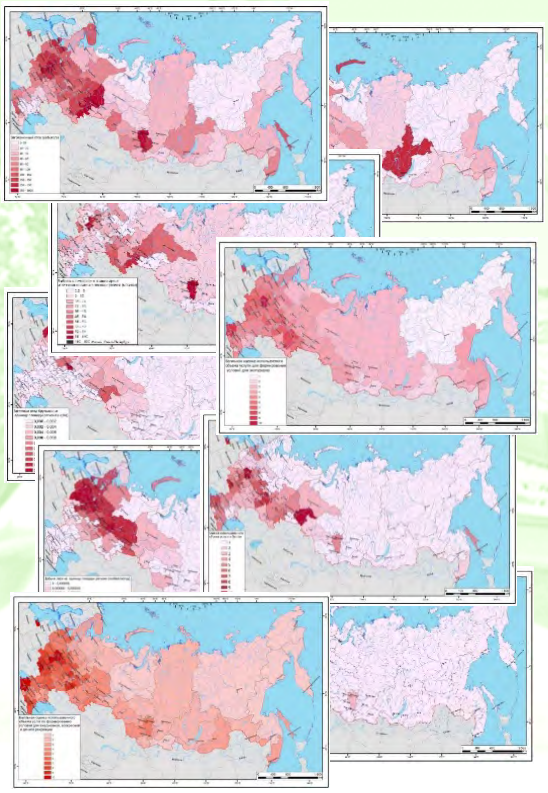
TEEB-Russia 1 (2013 - 2015)

Evaluation of ES in **physical terms** for subjects of Russia

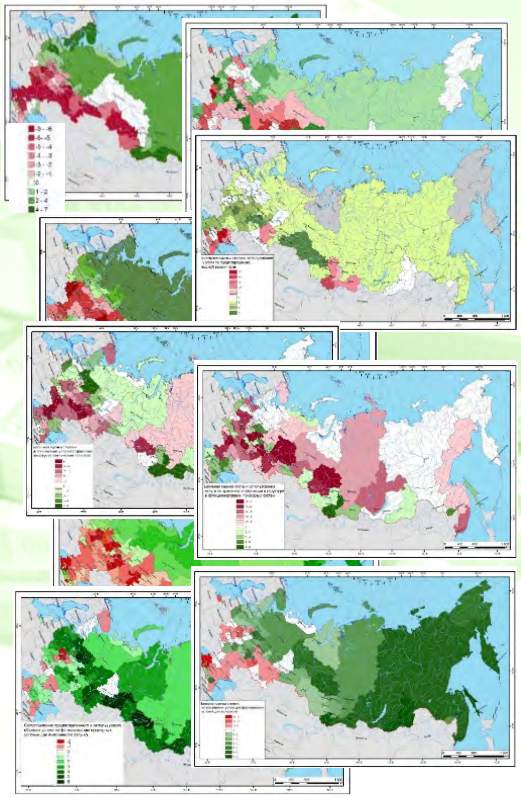
ES **provided** by ecosystems (potential ES)



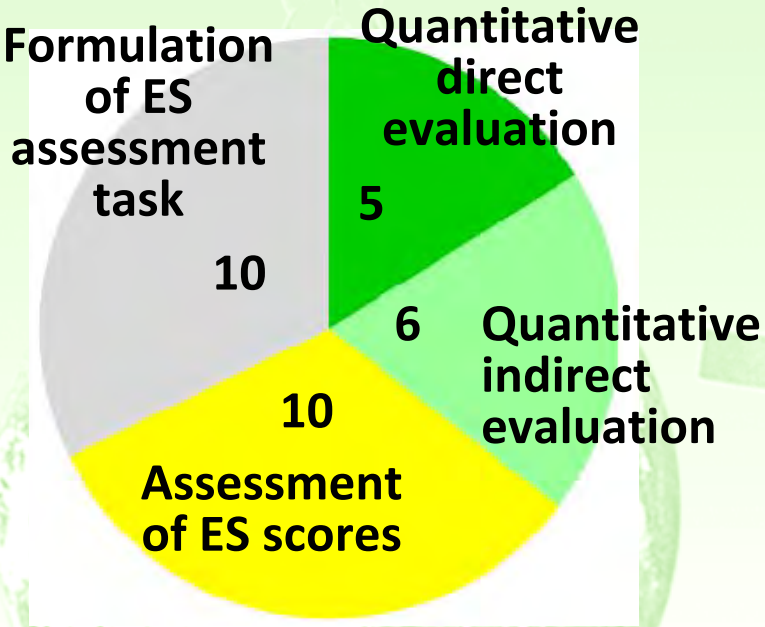
ES **consumed** by people and economy



The **degree** of ES **use** and the degree of **satisfaction** of need for services



Methods of ES assessment



31 ES were considered in the Prototype Report

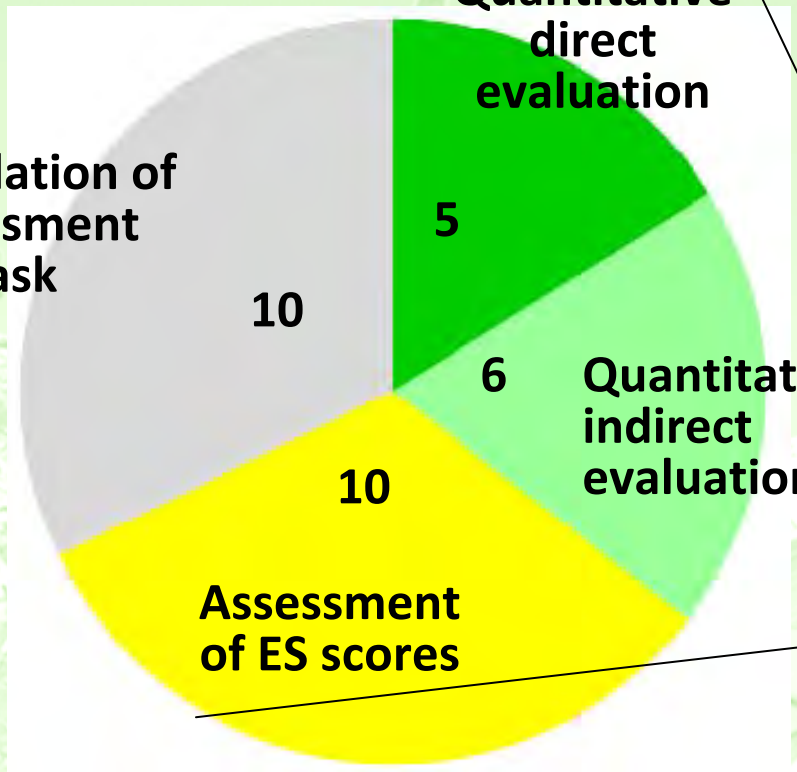
1. Direct quantitative evaluation when statistical data are available on supplied, demanded and consumed ES.

2. Indirect quantitative evaluation based on a combination of other quantitative data on regional ecosystems and economy.

3. Estimation of ES scores if there is no data for quantitative ES evaluation and it is only possible to estimate factors affecting it. Scores of supplied ES show the relative intensity of natural factors that determine the performance of ES. Scores of demanded and consumed ES show the relative intensity of social and economic factors that determine the need for ES and their use.

4. Statement of the task of ES assessment, if data were not available in the project.

Comparison of regions



21 ES
63 maps

Too much information for direct perception by officials and decision makers

1 North-West

2 Central

3 Volga

4 South

5 Caucasus

6 Ural

7 Siberia

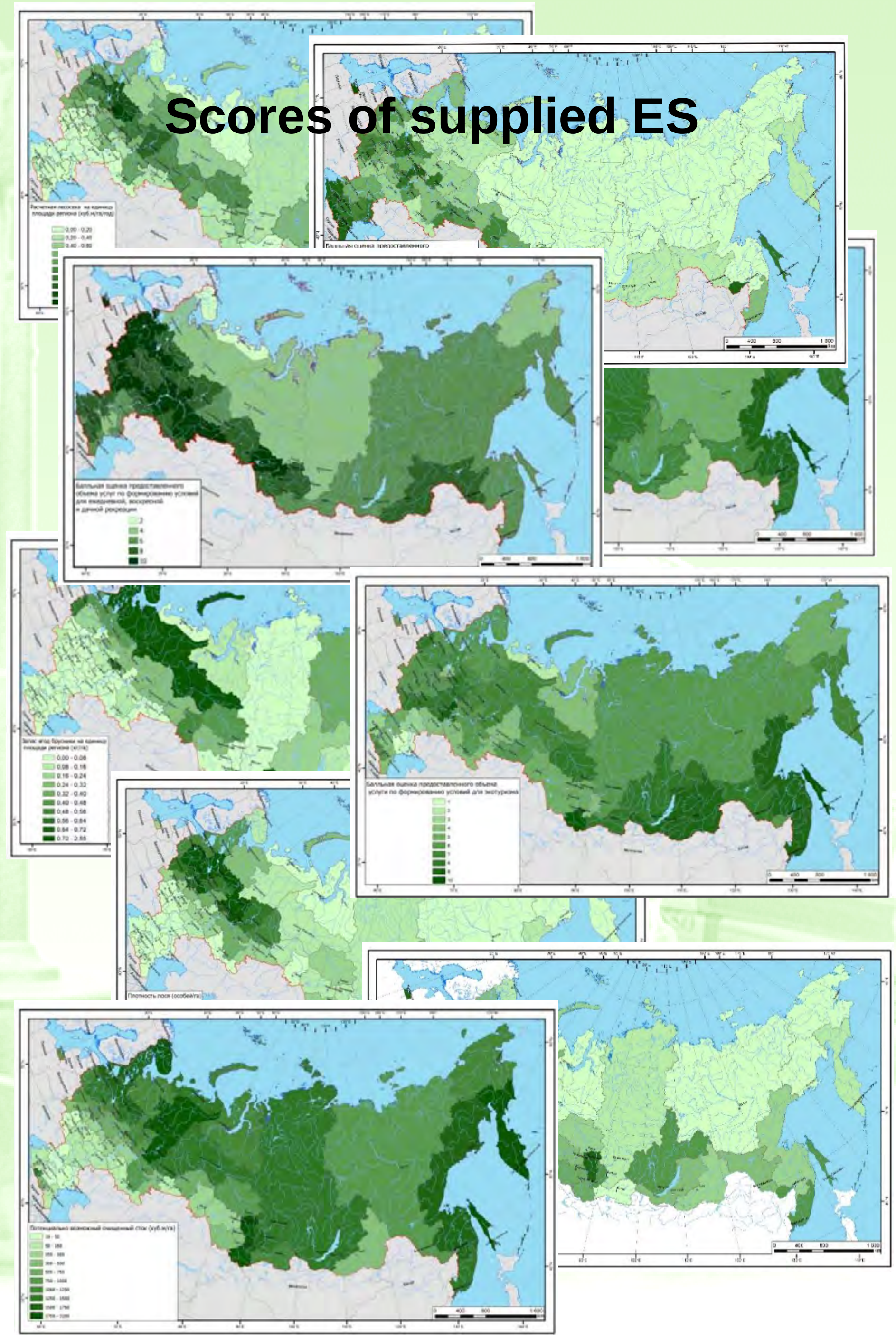
8 Far East

83 REGIONS

Ecosystem Services

	ПРОДУКЦИОННЬ				СРЕДООБРАЗУЮЩИЕ										ИНФОРМАЦ			РЕКРЕАЦ	
	Продукция древесины	Недревесная продукция	Природные пастбища	Охотничья продукция	Хранение запасов углерода	Регуляция потоков CO2	Очистка воздуха растительностью	Обеспечение объема стока	Регулирование вариабельности стока	Очищение стока наземными экосистемами	Очищение воды в водоемах	Защита от эрозии СХ земель	Самоочищение почв	Опыление	Хранение генетических ресурсов	Информация о структуре и функционировании	Эстетическое и познавательное знач	Ежедневный и воскресный отдых	Туризм на природе
	Балльная оценка ПРЕДОСТАВЛЕННОГО объема услуг																		
Северо-Западный ФО																			
Архангельская область	3	10	2	1	3	3	2	6	3	6	6	2	7	2	4	2	5	4	6
Вологодская область	9	9	2	3	3	4	2	7	2	9	8	2	8	2	8	2	8	8	7
Ленинградская область	6	7	2	3	3	3	10	7	2	8	9	2	8	2	8	5	9	10	6
Калининградская область	2	3	1	10	2	2	8	6	5	5	8	3	5	3	8	10	10	10	6
Мурманская область	1	10	3	1	7	9	2	8	2	10	10	2	10	2	2	4	5	2	6
Ненецкий автономный округ	1	1	5	1	6	9	1	8	2	6	7	1	3	1	1	3	4	2	2
Новгородская область	8	5	1	6	2	2	4	7	2	8	8	3	6	3	8	6	8	10	7
Псковская область	4	7	1	7	3	3	3	6	3	6	8	5	7	5	8	6	8	10	8
Республика Карелия	4	10	2	2	3	3	2	7	2	8	9	2	10	2	6	3	6	4	6
Республика Коми	5	10	2	1	4	5	3	9	2	10	8	2	6	2	4	2	5	4	7
Центральный ФО																			
Белгородская область	1	2	1	6	9	10	4	2	1	1	3	10	3	10	1	4	1	8	7
Брянская область	4	6	5	5	2	1	7	3	10	2	4	8	6	8	7	7	6	10	6
Владимирская область	4	6	1	6	2	5	9	4	6	4	4	6	4	6	7	8	7	8	6
Воронежская область	1	2	1	2	7	10	4	2	8	1	2	10	1	10	2	3	1	10	8
Ивановская область	4	6	1	4	2	1	7	5	3	4	5	7	8	7	7	9	8	8	6
Калужская область	4	3	3	8	2	2	8	4	6	4	5	6	8	6	7	7	8	10	6
Костромская область	10	8	1	3	2	1	3	6	2	9	6	3	8	3	8	7	9	10	8
Курская область	1	2	1	3	7	9	6	2	1	1	3	10	3	10	2	7	2	10	6
Липецкая область	1	2	1	3	5	7	5	3	6	1	4	10	5	10	2	5	1	10	6
Московская область	2	6	1	7	4	4	7	4	5	4	5	6	7	6	7	6	7	8	6
Орловская область	1	2	1	2	4	5	4	3	8	1	4	10	3	10	2	8	3	10	6
Рязанская область	2	3	1	3	6	8	4	3	7	2	4	9	3	9	5	4	3	8	6
Смоленская область	6	6	2	8	2	1	3	5	4	5	4	6	8	6	7	5	7	10	6
Тамбовская область	1	3	1	2	7	9	3	3	7	1	2	10	3	10	2	3	1	10	8
Тверская область	6	6	1	6	2	2	4	7	2	7	7	4	8	4	8	3	7	10	7
Тульская область	1	3	2	7	4	5	8	3	8	1	4	10	3	10	5	5	4	8	6
Ярославская область	7	6	1	9	1	1	7	6	2	6	7	5	8	5	8	8	8	10	4
Приволжский ФО																			
Кировская область	7	7	2	3	2	2	4	6	3	6	6	5	8	5	7	3	6	8	7
Нижегородская область	6	7	1	3	2	2	9	4	5	3	4	7	5	7	6	5	5	8	8
Оренбургская область	1	2	10	2	5	7	2	2	7	1	1	10	1	10	2	2	1	8	4
Пензенская область	2	3	1	2	5	7	6	2	1	1	2	10	5	10	2	4	1	10	8
Пермский край	8	8	1	2	2	2	4	7	2	9	7	3	9	3	8	3	7	3	7
Республика Башкортостан	5	4	3	3	4	5	5	5	2	4	3	7	4	7	6	4	3	10	6
Республика Марий Эл	4	10	1	4	3	1	7	4	5	4	4	6	5	6	7	9	8	10	6
Республика Мордовия	3	4	1	2	4	6	4	3	7	2	3	9	6	9	4	7	4	10	8
Республика Татарстан	2	3	1	2	4	5	7	3	6	2	4	10	3	10	4	4	3	10	6
Самарская область	1	2	8	4	6	8	6	3	7	1	1	10	1	10	3	6	3	10	4
Саратовская область	1	2	7	3	5	6	2	2	1	1	1	10	2	10	3	3	1	8	4
Удмуртская Республика	4	6	1	6	2	1	10	5	3	4	5	7	7	7	7	8	7	10	6
Ульяновская область	4	3	1	4	6	7	6	2	10	2	2	9	4	9	3	8	4	10	9
Чувашская Республика	2	5	1	4	3	3	8	3	6	2	4	8	3	8	5	9	5	10	10
Южный ФО																			
Астраханская область	1	1	4	1	1	1	2	1	1	1	1	4	7	4	7	8	8	6	1
Волгоградская область	1	2	6	1	3	4	2	2	1	1	1	8	2	8	4	5	3	6	3
Краснодарский край	1	2	2	2	4	5	6	3	10	1	6	9	2	9	4	9	4	8	3
Республика Адыгея	2	1	3	4	5	7	10	4	9	2	9	7	5	7	6	10	7	8	8
Республика Калмыкия	1	1	6	1	1	1	1	1	1	1	1	2	5	2	5	7	7	4	1
Ростовская область	1	2	4	1	4	5	4	1	1	1	6	10	1	10	2	5	1	8	5
Северо-Кавказский ФО																			
Ингушская Республика	1	1	7	8	4	5	3	3	10	1	5	6	5	6	5	10	6	8	8
Кабардино-Балкарская Республика	1	1	4	3	4	4	8	6	4	3	8	7	5	7	7	10	8	8	7
Карачаево-Черкесская Республика	2	1	2	4	4	4	3	9	2	7	10	5	7	5	9	10	10	6	6
Республика Дагестан	1	2	3	1	3	3	7	1	1	1	4	6	7	6	1	9	5	6	4
Республика Северная Осетия - Алания	1	1	4	3	4	4	10	6	4	3	8	7	7	7	7	10	8	8	6
Ставропольский край	1	2	9	1	4	4	6	1	1	1	2	8	4	8	3	8	4	8	4
Чеченская Республика	2	1	8	2	3	4	8	1	1	1	2	6	6	6	6	10	7	8	6
Уральский ФО																			
Курганская область	2	3	10	10	5	6	3	1	1	1	2	10	1	10	6	6	6	10	6
Свердловская область	6	7	2	4	4	6	9	5	2	7	5	3	7	3	8	3	7	6	4
Тюменская область	6	8	5	2	10	10	2	3	4	3	2	4	2	4	8	4	7	8	6
Ханты-Мансийский автономный округ-Югра	3	9	2	1	10	10	2	6	2	8	7	2	4	2	5	1	5	4	7
Челябинская область	2	3	9	10	5	7	7	4	1	3	3	7	2	7	5	7	6	10	4
Ямало-Ненецкий автономный округ	1	4	4	1	6	8	2	6	2	7	8	1	4	1	2	1	4	4	4
Сибирский ФО																			
Алтайский край	2	2	1	3	5	6	3	4	2	2	3	8	4	8	4	6	3	8	5
Забайкальский край	3	5	2	5	3	4	2	4	2	3	7	3	9	3	7	2	5	8	9
Иркутская область	4	8	2	2	2	3	4	6	1	7	7	2	8	2	6	1	6	6	8
Кемеровская область	4	2	1	1	3	3	7	10	1	10	9	5	8	5	8	6	8	8	5
Красноярский край	2	5	2	1	3	4	2	8	2	8	7	2	8	2	2	1	4	4	6
Новосибирская область	2	5	8	3	5	7	3	2	5	2	2	8	2	8	4	5	3	10	5
Омская область	5	10	7	1	6	9	2	2	6	2	1	8	1	8	5	7	5	8	5
Республика Алтай	2	3	1	5	3	4	3	10	1	10	10	2	9	2	10	9	10	6	10
Республика Бурятия	2	4	1	3	3	4	2	7	2	7	8	3	9	3	8	2	6	6	9
Республика Тыва	1	7	1	3	3	3	2	7	2	7	9	3	9	3	10	5	8	6	8
Республика Хакасия	2	1	5	3	3	4	4	10	1	9	10	4	6	4	9	9	9	8	4
Томская область	6	0	2	1	10	10	2	4	4	5	4	2	3	2	5	1	5	4	8
Дальневосточный ФО																			
Амурская область	3	1	2	4	4	5	2	7	1	5	10	2	7	2	6	2	6	8	8
Еврейская автономная область	2	1	1	5	6	7	4	7	2	5	10	2	4	2	8	9	10	6	6
Камчатский край	1	3	3	1	5	7	2	6	2	10	10	1	7	1	1	2	4	6	7
Магаданская область	1	2	3	1	6	7	2	9	1	9	8	1	7	1	2	1	3	6	6
Приморский край	3	4	1	6	3	3	4	8	3	8	10	2	7	2	9	4	9	6	9
Республика Саха (Якутия)	1	9	3	1	4	6	2	6	2	5	5	2	7	2	2	1	4	6	6
Сахалинская область	2	4	2	1	6	8	4	10	1	10	10	2	9	2	6	8	9	6	10
Хабаровский край	2	5	2	1	4	5	2	9	2	9	10	2	8	2	5	1	5	6	9
Чукотский автономный округ	1	1	4	1	4	6	1	9	1	6	8	1	8	1	1	1	3	4	5

Scores of supplied ES



83 REGIONS

1 North-West

2 Central

3 Volga

4 South

5 Caucasus

6 Ural

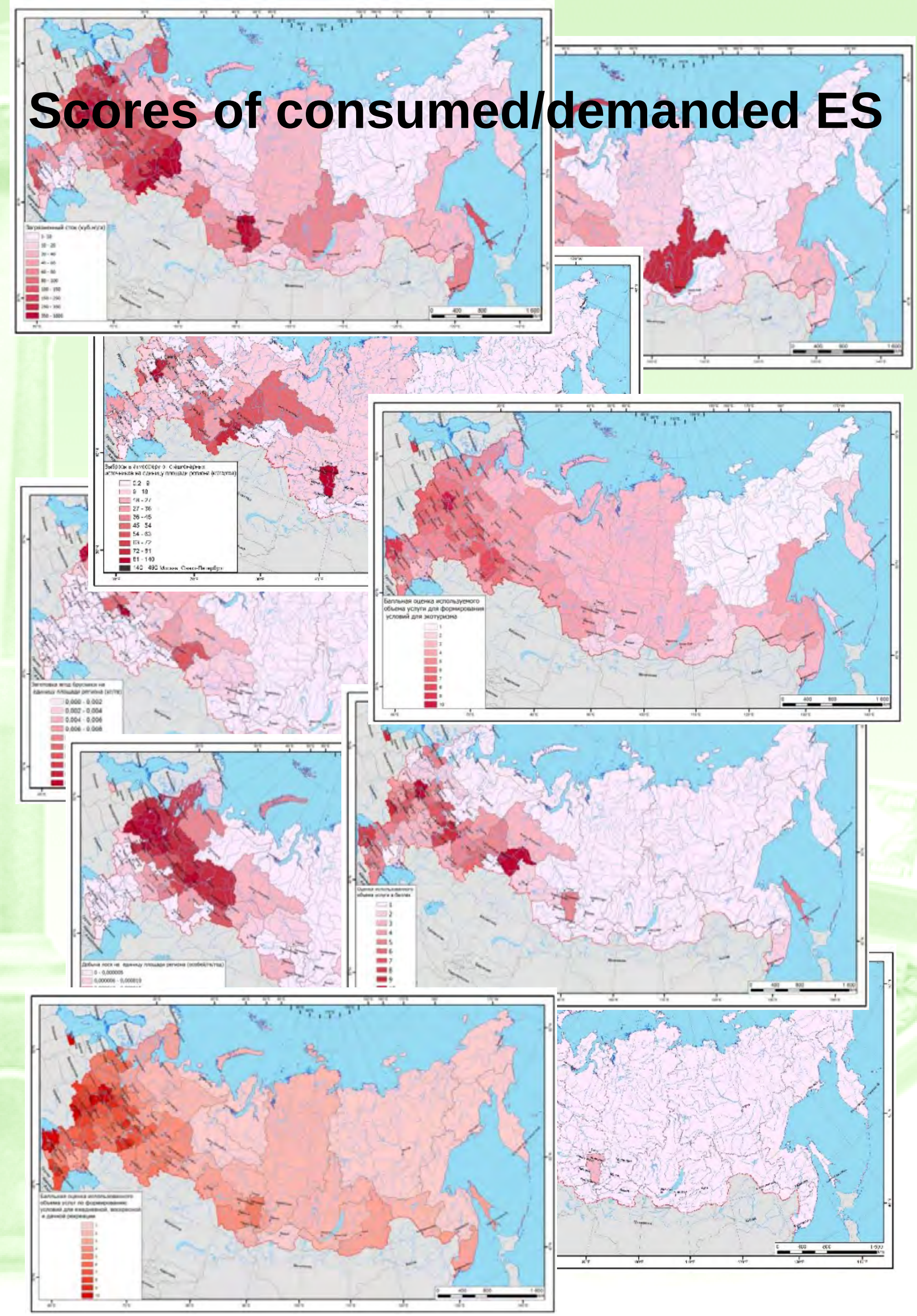
7 Siberia

8 Far East

Балльная оценка ИСПОЛЬЗУЕМОГО объема услуг

Регионы	ПРОДУКЦИОНН IE: Продукция древесины	Недревесная продукция	Природные пастбища	Охотничья продукция	Хранение запасов углерода	Регуляция потоков CO2	Очистка воздуха растительностью	Обеспечение объема стока	Регулирование вариабельности стока	Очищение стока наземными экосистемами	Очищение воды в водоемах	Защита от водной эрозии	Защита от ветровой эрозии	Самоочищение почв	Опыление	ИНФОРМАЦ: Хранение генетических ресурсов	Информация о структуре и функционировании	Эстетическое и познавательное значение	РЕКРЕАЦ: Ежедневный и воскресный отдых	Туризм на природе
Северо-Западный ФО																				
Архангельская область	7	9	2	1	8	5	1	1	1	1	1	1	1	3	2	2	2	2	2	3
Вологодская область	10	8	2	3	8	7	5	2	2	4	2	3	1	4	2	1	1	3	3	5
Ленинградская область	10	7	2	4	8	9	4	10	5	9	3	2	2	6	2	8	8	7	7	5
Калининградская область	3	6	1	10	3	7	3	3	9	9	9	6	6	7	4	8	8	9	9	9
Мурманская область	2	8	2	1	5	4	3	4	1	4	3	1	1	3	2	5	5	3	3	3
Ненецкий автономный округ	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
Новгородская область	10	9	1	8	9	10	2	1	2	4	2	3	3	3	2	6	6	6	6	5
Псковская область	5	10	1	7	5	9	1	2	1	3	1	4	4	4	2	2	2	6	6	5
Республика Карелия	7	10	2	1	6	7	1	1	1	2	2	1	1	3	2	3	3	4	4	5
Республика Коми	5	4	2	1	10	6	3	1	1	3	1	1	1	3	2	3	3	2	2	4
Центральный ФО																				
Белгородская область	2	1	1	8	2	6	8	3	9	3	3	10	8	8	9	7	7	9	8	7
Брянская область	9	9	9	6	5	10	2	2	4	3	3	7	6	6	2	4	4	8	8	7
Владимирская область	10	9	1	9	7	10	2	2	6	10	5	6	5	8	2	9	9	9	9	6
Воронежская область	3	3	1	5	1	3	3	3	6	3	3	10	8	8	10	9	9	6	8	6
Ивановская область	6	10	1	5	7	9	2	3	4	8	5	6	5	6	2	6	6	7	7	6
Калужская область	6	2	4	7	6	9	1	2	5	7	3	6	5	6	2	10	10	8	8	7
Костромская область	10	6	1	2	10	9	2	8	1	4	1	4	3	4	2	1	1	4	4	4
Курская область	2	1	1	4	1	5	2	3	5	3	2	7	8	7	7	8	8	9	8	7
Липецкая область	3	2	1	2	1	3	10	3	7	6	4	10	8	8	9	1	1	9	9	6
Московская область	4	9	1	10	7	10	7	10	10	10	10	5	5	10	2	10	10	10	10	10
Орловская область	2	2	1	4	1	3	1	2	4	3	3	8	9	7	5	1	1	8	8	6
Рязанская область	5	8	1	5	3	4	5	2	4	9	3	8	7	8	3	7	7	7	7	6
Смоленская область	6	9	2	10	5	10	2	2	2	9	2	5	5	6	2	5	5	7	7	6
Тамбовская область	3	4	1	1	2	4	3	1	4	2	2	7	8	7	10	6	6	7	7	5
Тверская область	9	7	1	10	9	10	2	6	2	9	2	4	4	6	2	7	7	6	6	6
Тульская область	2	1	2	10	2	6	10	4	7	10	8	9	9	10	5	8	8	9	8	7
Ярославская область	9	5	1	10	6	9	4	3	5	9	7	4	4	6	2	9	9	7	7	6
Приволжский ФО																				
Кировская область	10	5	2	3	8	9	2	1	1	4	2	4	4	5	2	4	4	4	4	4
Нижегородская область	10	9	1	4	6	9	3	5	7	4	6	5	5	7	3	10	10	7	7	6
Оренбургская область	2	2	8	1	1	3	8	6	3	2	2	9	9	9	6	3	3	5	5	4
Пензенская область	4	2	1	4	3	6	1	2	3	2	3	7	7	7	5	8	8	7	7	7
Пермский край	8	4	1	2	9	10	4	5	4	7	3	3	2	6	2	8	8	4	4	4
Республика Башкортостан	4	2	3	2	5	7	5	2	5	7	3	6	6	8	3	8	8	5	5	8
Республика Марий Эл	10	10	1	3	7	9	3	2	3	2	3	4	4	4	2	3	3	5	5	7
Республика Мордовия	5	5	1	1	4	9	3	1	3	3	2	6	6	6	2	6	6	7	7	5
Республика Татарстан	2	3	1	3	3	7	7	4	8	5	8	7	7	10	5	10	10	8	6	7
Самарская область	2	1	6	6	2	5	8	5	8	5	7	8	7	9	10	10	10	9	9	7
Саратовская область	2	1	7	3	1	3	2	2	3	2	2	8	10	8	10	6	6	6	6	5
Удмуртская Республика	9	5	1	8	7	10	6	3	5	3	3	5	5	5	2	5	5	7	7	5
Ульяновская область	5	8	1	3	4	9	2	2	4	4	3	7	6	7	6	10	10	6	6	5
Чувашская Республика	3	10	1	2	4	9	3	2	7	4	1	6	6	7	2	8	8	9	9	7
Южный ФО																				
Астраханская область	1	1	7	1	1	3	4	6	2	1	2	7	10	6	2	4	4	5	5	3
Волгоградская область	2	1	5	4	1	1	3	2	3	1	2	8	10	8	7	7	7	7	7	5
Краснодарский край	2	2	2	5	3	6	5	9	8	3	9	7	7	10	9	8	8	9	9	8
Республика Адыгея	2	1	4	6	5	7	2	6	5	3	4	6	5	5	10	5	5	8	8	6
Республика Калмыкия	2	1	10	1	1	2	1	2	1	1	1	8	10	5	2	1	1	3	3	3
Ростовская область	2	1	4	4	1	3	3	7	5	2	3	9	9	10	9	9	9	7	7	5
Северо-Кавказский ФО																				
Ингушская Республика	1	1	10	10	3	5	1	8	5	2	2	10	6	8	4	5	5	8	8	4
Кабардино-Балкарская Республика	1	1	9	4	2	4	1	8	5	5	3	7	6	7	5	7	7	8	8	6
Карачаево-Черкесская Республика	2	1	2	9	4	6	3	3	2	4	4	7	6	5	3	6	6	6	6	5
Республика Дагестан	2	1	8	1	1	4	1	9	5	1	2	7	10	8	2	5	5	7	7	5
Республика Северная Осетия - Алания	1	1	7	1	3	5	1	7	7	8	10	7	6	7	3	7	7	9	9	5
Ставропольский край	2	1	10	1	1	3	2	10	5	1	2	8	10	9	7	5	5	6	6	5
Чеченская Республика	2	1	10	1	3	4	2	7	4	2	1	7	7	8	2	4	4	9	9	2
Уральский ФО																				
Курганская область	6	4	6	10	3	6	1	1	1	2	1	6	6	7	2	3	3	4	4	4
Свердловская область	8	6	2	3	9	9	9	2	5	10	4	2	2	7	2	9	9	6	6	4
Тюменская область	4	8	3	3	6	6	1	1	10	2	1	2	1	5	2	7	7	2	2	4
Ханты-Мансийский автономный округ-Юг	3	4	2	1	8	5	7	1	3	1	1	1	1	4	2	3	3	1	1	3
Челябинская область	3	3	5	4	4	8	10	3	6	10	9	6	6	9	2	9	9	6	6	6
Ямало-Ненецкий автономный округ	2	1	2	1	4	4	3	1	1	1	1	1	1	1	1	1	1	1	1	3
Сибирский ФО																				
Алтайский край	3	2	1	2	4	5	2	1	1	3	1	7	10	8	2	4	4	4	4	4
Забайкальский край	3	2	2	3	8	8	1	1	1	1	1	2	2	4	2	1	1	3	3	2
Иркутская область	8	2	2	1	9	7	2	1	1	3	1	1	1	5	2	4	4	2	2	3
Кемеровская область	3	2	1	1	7	9	10	7	5	10	6	4	4	8	2	4	4	6	6	3
Красноярский край	3	1	2	1	5	3	2	1	1	2	1	1	1	2	2	3	3	2	2	3
Новосибирская область	3	3	4	1	4	5	2	2	2	2	1	5	8	8	2	9	9	4	4	4
Омская область	4	3	4	1	5	6	3	1	2	4	2	5	9	9	2	6	6	4	4	4
Республика Алтай	2	2	1	2	7	4	1	1	1	2	1	6	2	2	2	1	1	2	2	2
Республика Бурятия	2	3	1	2	6	6	1	1	1	1	1	2	1	3	2	2	2	2	2	3
Республика Тыва	2	2	1	1	3	1	1	1	1	1	1	4	8	2	2	1	1	1	1	2
Республика Хакасия	2	1	4	1	7	3	3	1	1	10	1	4	9	5	2	1	1	4	4	2
Томская область	4	4	2	1	9	7	2	1	1	1	1	3	1	3	2	6	6	2	2	3
Дальневосточный ФО																				
Амурская область	3	2	2	3	8	4	1	1	1	1	1	1	1	4	2	2	2	2	2	3
Еврейская автономная область	3	1	1	2	7	6	1	1	1	1	1	2	2	2	2	3	3	4	4	3
Камчатский край	2	3	2	1	2	4	1	1	1	1	1	1	1	1	1	2	2	1	1	2
Магаданская область	2	2	2	1	5	1	1	1	1	1	1	1	1	2	1	2	2	1	1	1
Приморский край	3	5	1	5	10	6	2	2	2	3	3	1	1	4	2	7	7	4	4	3
Республика Саха (Якутия)	2	2	2	1	4	3	1	1	1	1	1	1	1	3	2	1	1	1	1	1
Сахалинская область	2	8	2	1	9	9	2	1	5	5	2	1	1	3	2	4	4	3	3	2
Хабаровский край	3	3	2	1	6	3	1	1	1	1	1	1	1	3	2	2	2	1	1	4
Чукотский автономный округ	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Scores of consumed/demanded ES



Ecosystem Services

83 REGIONS

1 North-West

2 Central

3 Volga

4 South

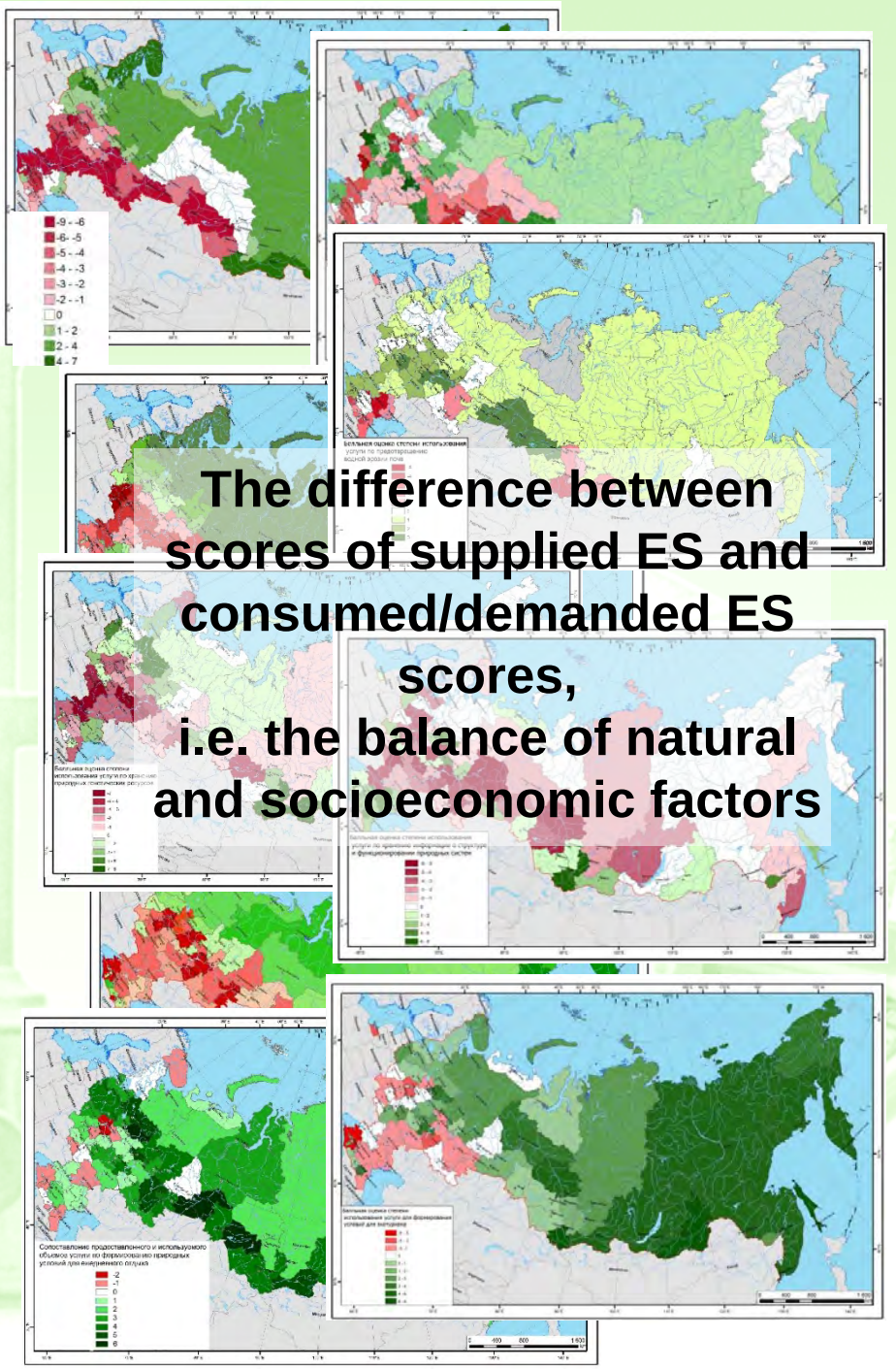
5 Caucasus

6 Ural

7 Siberia

8 Far East

	ПРОДУКЦИОННЫЕ				СРЕДООБРАЗУЮЩИЕ														ИНФОРМАЦ		РЕКРЕА	
	Продукция древесины	Недревесная продукция	Природные пастбища	Охотничья продукция	Хранение запасов углерода	Регуляция потоков CO2	Очистка воздуха растительностью	Обеспечение объема стока	Регулирование вариабельности стока	Очищение стока наземными экосистем	Очищение воды в водоемах	Защита от водной эрозии СХ	Защита от ветровой эрозии СХ	Самоочищение почв	Опыление	Хранение генетических ресурсов	Информация о структуре и функциони	Эстетическое и познавательное значе	Ежедневный и воскресный отдых	Туризм на природе		
	СООТНОШЕНИЕ природных и социально-экономических факторов																					
Северо-Западный ФО																						
Архангельская область	-4	1	0	0	-5	-2	1	5	2	5	7	1	1	4	0	2	0	3	2	3		
Вологодская область	-1	1	0	0	-6	-3	-3	5	0	5	6	-1	1	4	0	7	1	5	5	2		
Ленинградская область	-4	0	0	-1	-5	-6	6	-3	-3	-1	6	0	0	2	0	3	-3	2	3	1		
Калининградская область	-1	-3	0	0	-1	-5	3	-4	-3	0	-3	-3	-2	-1	0	0	2	1	1	-3		
Мурманская область	-1	2	1	0	2	5	-1	4	6	6	1	1	6	0	0	-3	-1	2	-1	3		
Ненецкий автономный округ	0	0	2	0	5	5	0	7	1	7	6	0	0	2	0	0	2	3	1	0		
Новгородская область	-2	-4	0	-2	-7	-6	2	6	0	4	6	0	0	5	1	2	0	2	4	2		
Псковская область	-1	-3	0	0	-2	-6	2	4	2	3	7	1	1	3	3	6	4	2	4	3		
Республика Карелия	-3	0	0	1	-3	-4	1	6	1	7	7	1	1	7	0	3	0	2	0	1		
Республика Коми	0	6	0	0	-6	-1	0	8	1	7	7	1	1	3	0	1	-1	3	2	3		
Центральный ФО																						
Белгородская область	-1	1	0	-3	-7	4	-4	-1	-8	-2	0	0	2	-5	1	-6	-3	-8	-1	0		
Брянская область	-5	-3	-4	-1	-3	-8	5	1	6	-1	1	1	2	0	6	3	3	-2	2	-1		
Владимирская область	-6	-3	0	-3	-5	-5	7	2	0	-6	-1	0	1	-4	4	-2	-1	-2	-1	0		
Воронежская область	-2	-1	0	-3	6	7	1	-1	2	-2	-1	0	2	-7	0	-7	-6	-7	2	2		
Ивановская область	-2	-4	0	-1	-5	-8	5	2	-1	-4	0	1	2	6	1	1	3	1	1	0		
Калужская область	-2	1	-1	1	-4	-7	7	2	1	-3	2	0	1	2	4	-3	-3	0	2	-1		
Костромская область	0	2	0	1	8	8	1	-2	1	4	5	-1	0	4	1	7	6	5	5	4		
Курская область	-1	1	0	-1	6	4	4	-1	-4	-2	1	3	2	-4	-3	-6	-1	-7	1	-1		
Липецкая область	-2	0	0	1	4	4	-5	0	-1	-5	0	0	2	-3	1	1	4	4	1	0		
Московская область	-2	-3	0	-3	-3	0	-6	-5	-6	-5	-5	1	-3	4	-4	-3	-4	-3	-2	-4		
Орловская область	-1	0	0	-2	3	2	3	1	-4	-2	1	2	1	-4	4	1	7	-5	2	0		
Рязанская область	-3	-5	0	-2	3	4	-1	1	3	1	1	1	2	-5	5	-2	-3	-4	1	0		
Смоленская область	0	-2	0	-1	-3	-8	1	3	2	-4	2	1	1	2	4	2	0	0	3	0		
Тамбовская область	-2	-1	0	1	5	5	0	2	3	-1	0	3	2	-4	0	-4	-3	-6	3	3		
Тверская область	-3	-1	0	-4	-6	-8	2	1	0	-2	5	0	0	2	2	1	-4	1	4	1		
Тульская область	-1	2	0	-3	2	-1	-2	-1	1	-8	-4	2	2	-7	5	-3	-3	-5	-1	-1		
Ярославская область	-2	1	0	-1	-5	-8	3	3	-3	-3	0	1	1	2	3	-1	-1	1	3	-2		
Приволжский ФО																						
Кировская область	-3	2	0	0	-6	-8	2	5	2	2	4	1	1	3	3	3	-1	2	4	3		
Нижегородская область	-4	-2	0	-1	-4	-7	5	-1	-2	-1	-2	2	2	-2	4	-4	-5	-2	1	2		
Оренбургская область	-1	0	2	1	4	4	-7	-4	4	-1	-1	1	1	6	4	-1	-1	-4	3	0		
Пензенская область	-2	1	0	-2	2	1	5	0	-2	-1	-1	3	3	-2	5	-7	-5	-5	3	1		
Пермский край	0	4	0	0	-7	-8	0	2	-2	2	4	0	1	3	1	0	-5	3	4	3		
Республика Башкортостан	1	2	0	1	-1	-2	0	3	-3	-3	0	1	1	-4	4	-2	-4	-2	5	-2		
Республика Марий Эл	-6	0	0	1	-4	-7	4	2	2	2	1	2	1	4	2	4	3	3	5	-1		
Республика Мордовия	-2	-1	0	1	0	-2	1	2	4	1	1	3	3	0	4	-2	1	-3	3	3		
Республика Татарстан	0	0	0	-1	1	-2	0	-1	-3	-3	-4	3	3	7	5	-6	-6	-5	2	-1		
Самарская область	-1	1	3	-2	4	3	-2	-2	-1	-4	-6	2	3	8	0	-7	-4	-6	1	-3		
Саратовская область	-1	1	0	0	4	3	0	0	-2	-1	-1	1	0	-6	0	-3	-3	-5	2	-1		
Удмуртская Республика	-5	1	0	-2	-5	-8	4	2	-2	1	2	2	2	2	5	2	3	0	3	1		
Ульяновская область	-1	-5	0	1	2	-1	4	0	6	-2	-1	2	3	-3	3	-7	-2	-2	4	4		
Чувашская Республика	-1	-5	0	2	-1	-8	5	1	-1	-2	3	2	2	-4	6	-3	1	-4	1	3		
Южный ФО																						
Астраханская область	0	0	-3	0	0	-2	-2	-5	-1	0	-1	-3	-6	1	2	3	1	3	1	-2		
Волгоградская область	-1	1	1	-3	2	3	-1	0	-2	0	-1	0	-2	6	1	-3	-2	-4	-1	-2		
Краснодарский край	-1	0	0	-3	1	-1	1	-8	2	-2	-3	2	2	8	0	-4	1	-5	-1	-8		
Республика Адыгея	0	0	-1	-2	0	0	8	-2	4	-1	5	1	2	0	-3	1	1	-2	-1	2		
Республика Калмыкия	-1	0	-2	0	0	-1	0	-1	0	0	0	-2	-8	0	0	4	6	4	1	-2		
Ростовская область	-1	1	0	-3	3	2	1	-8	-4	-1	3	1	1	8	2	-7	-4	-6	1	0		
Северо-Кавказский ФО																						
Ингушская Республика	0	0	-3	-2	1	0	2	-5	5	-1	3	-2	2	-3	4	0	6	-2	0	4		
Кабардино-Балкарская Республика	0	0	-5	-1	2	0	7	-2	-1	-2	8	0	1	-2	2	0	3	0	0	1		
Карачаево-Черкесская Республика	0	0	0	-5	0	-2	0	6	0	3	5	-2	-1	2	2	3	4	4	0	1		
Республика Дагестан	-1	1	-6	0	2	-1	6	-8	-4	0	2	-1	-4	-1	4	-4	-1	-2	-1	-1		
Республика Северная Осетия - Алания	0	0	-3	2	1	-1	-9	-1	-3	-5	-1	0	1	0	4	0	3	-1	-1	1		
Ставропольский край	-1	1	-1	0	3	1	4	-9	-4	0	0	0	-2	-5	1	-2	3	-2	2	-1		
Чеченская Республика	0	0	-2	1	0	0	6	-5	-3	-1	1	-1	-1	-2	4	2	6	-2	-1	4		
Уральский ФО																						
Курганская область	-4	-1	4	0	2	0	2	0	0	-1	1	4	4	-6	6	3	3	2	6	2		
Свердловская область	-2	1	0	1	-5	-3	0	3	-3	-3	1	1	1	0	1	-1	-6	1	0	0		
Тюменская область	2	0	2	-1	4	4	1	2	-6	1	1	2	3	-3	2	1	-3	5	6	2		
Ханты-Мансийский автономный округ-Юг	0	5	0	0	2	5	-5	5	-1	-7	6	1	1	0	0	2	-2	4	3	4		
Челябинская область	-1	0	4	6	1	-1	-3	1	-5	-7	-5	1	1	6	5	-4	-2	0	4	-2		
Ямало-Ненецкий автономный округ	-1	3	2	0	2	4	-1	5	1	6	6	0	0	3	0	1	0	3	3	1		
Сибирский ФО																						
Алтайский край	-1	0	0	1	1	1	1	3	1	-1	2	1	-2	-4	6	0	2	-1	4	1		
Забайкальский край	0	3	0	2	-5	-4	1	3	1	2	6	1	1	5	1	6	1	2	5	7		
Иркутская область	-4	6	0	1	-7	-4	2	5	0	4	6	1	1	3	0	2	-3	4	4	5		
Кемеровская область	1	0	0	0	-4	-6	-3	3	-4	0	3	1	1	0	3	4	2	2	2	2		
Красноярский край	-1	4	0	0	-2	1	0	7	1	6	6	1	1	6	0	-1	-2	2	2	3		
Новосибирская область	-1	2	4	2	1	2	1	0	3	0	1	3	0	-6	6	-5	-4	-1	6	1		
Омская область	1	7	3	0	1	3	-1	1	4	-2	-1	3	-1	-7	6	-1	1	1	4	1		
Республика Алтай	0	1	0	3	-4	0	2	8	0	8	9	-4	0	7	0	9	8	8	4	8		
Республика Бурятия	0	1	0	1	-3	-2	1	6	1	6	6	1	2	6	1	6	0	4	4	6		
Республика Тыва	-1	5	0	2	0	2	1	6	1	6	6	-1	-5	7	1	9	4	7	5	6		
Республика Хакасия	0	0	1	2	-4	1	1	8	0	-1	8	0	-5	1	2	7	1	5	4	2		
Томская область	2	-4	0	0	1	3	0	3	4	3	-1	1	0	0	-1	-5	3	2	5			
Дальневосточный ФО																						
Амурская область	0	-1	0	1	-4	1	1	6	0	4	8	1	1	3	0	4	0	4	6	5		
Еврейская автономная область	-1	0	0	3	-1	1	3	6	1	4	7	0	0	2	0	5	6	6	2	3		
Камчатский край	-1	0	1	0	3	3	1	7	1	8	7	0	0	6	0	-1	0	3	5	5		
Магаданская область	-1	0	1	0	1	6	1	8	0	8	7	0	0	5	0	0	-1	2	5	5		
Приморский край	0	-1	0	1	-7	-3	2	6	1	5	7	1	1	3	0	2	-3	5	2	6		
Республика Саха (Якутия)	-1	7	1	0	0	3	1	5	1	4	4	1	1	4	0	1	0	3	3	5		
Сахалинская область	0	-4	0	0	-3	0	2	3	-4	5	8	1	1	6	0	2	4	8	3	8		
Хабаровский край	-1	2	0	0	-2	2	1	8	1	8	8	1	1	5	0	3	-1	4	5	5		
Чукотский автономный округ	0	0	2	0	3	5	0	8	0	5	7	0	0	7	0	0	0	2	3	4		



The difference between scores of supplied ES and consumed/demanded ES scores, i.e. the balance of natural and socioeconomic factors

TEEB-Russia 1 (2013 - 2015)

Prototype National Report on Ecosystem Services of Russia.
Volume 1. Terrestrial ecosystem services.

TEEB-Russia 2 (2018 - 2019)

System of Environmental-Economic Accounting

Experimental Ecosystem Accounting

(SEEA-EEA)

Система природноэкономического учета

Экспериментальные экосистемные счета

(СПЭУ-ЭЭС)

Diagram of the analytical part of the project TEEB-Russia 2

Estimates obtained in the project

Drivers

Natural conditions

Climate

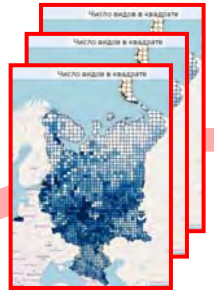
Disturbance of ecosystems

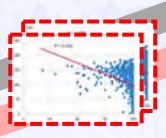
Area

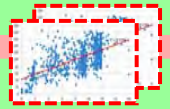
Fragmentation

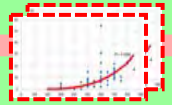
Ecosystem Assets

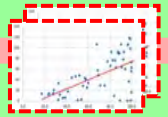
Biodiversity



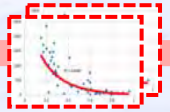








Ecosystem functions



Ecosystem Services

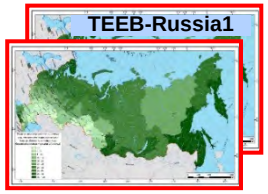


Diagram of the analytical part of the project TEEB-Russia 2

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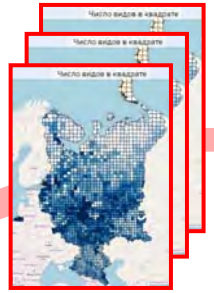
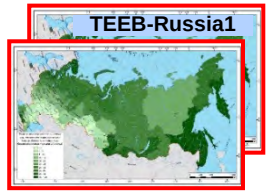


Ecosystem functions

Ecosystem Services



Pilot economic evaluation

TEEB-Russia 2 (2018 - 2019)

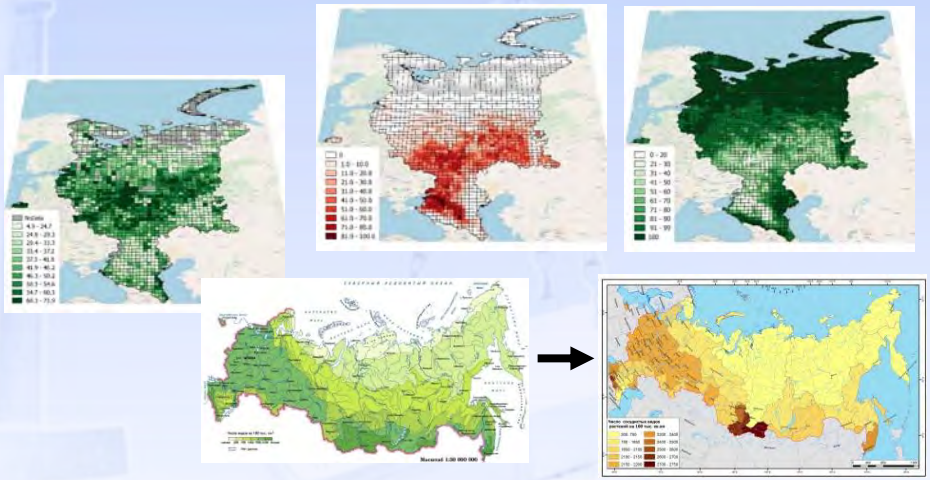
Physical indicators of ecosystem assets and ecosystem services for SEEA-EEA at the national level

Indicators of ecosystem assets:

a) ecosystem area;

b) ecosystem functioning - productivity and phytomass of ecosystems;

c) biodiversity - the number of species of birds and plants (the possibilities of today using other taxonomic groups of organisms as indicators of biodiversity require a special analysis).



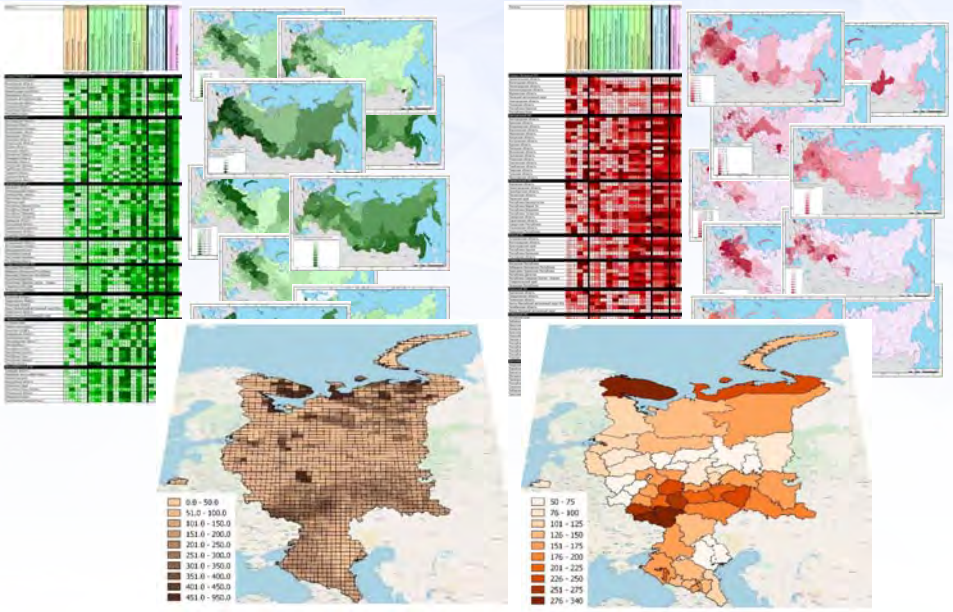
Indicators of ecosystem services:

а) **ES provided** by ecosystems (potential)

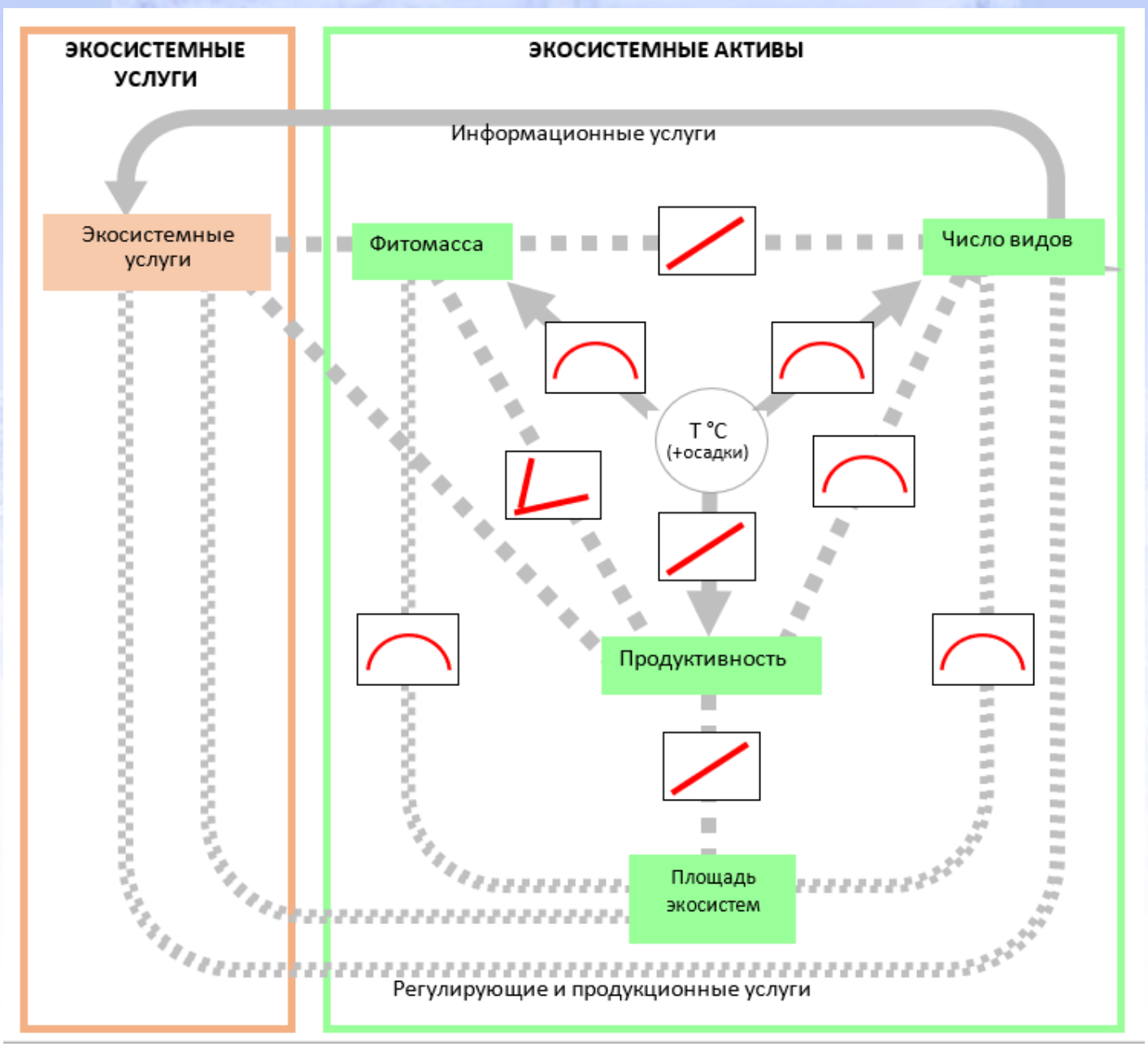
б) **ES demanded** by people and economy

в) **ES consumed** by people and economy

г) **the degree of use of ES and the satisfaction of needs for ES** (are determined by ratios and differences of supplied, demanded and consumed ES).



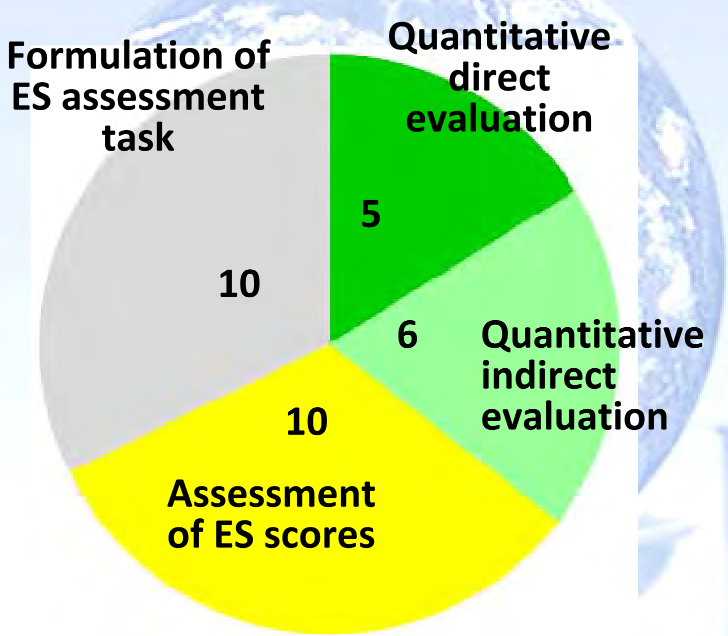
TEEB-Russia 2 (2018 - 2019)



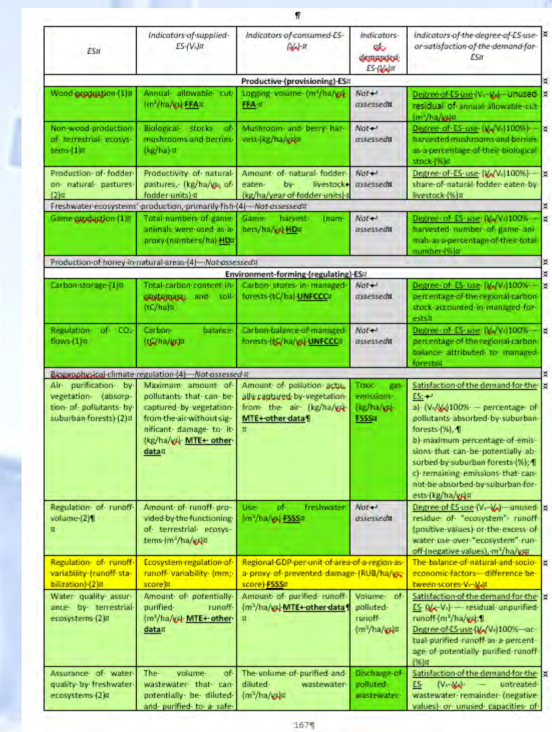
Immediate start of SEEA-EEA formation in Russia is possible

The current state statistics in Russia and available scientific knowledge allow to **quantify at least 1/3 of ES**. **2/3 of the quantitative indicators** of ES in the TEEB-Russia project were obtained from the open databases of Rosstat and other government agencies

31 ES considered in the Prototype Report

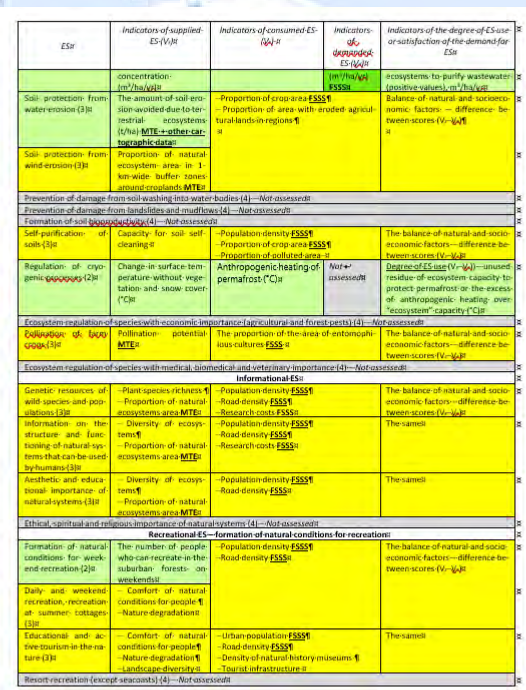


The list of ES indicators used in the Prototype Report



ES	*Indicators of supplied ES (V_s)*	*Indicators of consumed ES (V_c)*	*Indicators of demanded ES (V_d)*	*Indicators of the degree of ES use or satisfaction of the demand for ES*
Productive (provisioning) ES				
Wood production (1)	Annual allowable cut (m³/ha/yr) **FFA**	Logging volume (m³/ha/yr) **FFA**	*Not assessed*	Degree of ES use (V_s–V_c) — unused residual of annual allowable cut (m³/ha/yr)
Non-wood production of terrestrial ecosystems (1)	Biological stocks of mushrooms and berries (kg/ha)	Mushroom and berry harvest (kg/ha/yr)	*Not assessed*	Degree of ES use (V_c/V_s)100%) — harvested mushrooms and berries as a percentage of their biological stock (%)
Production of fodder on natural pastures (2)	Productivity of natural pastures, (kg/ha/yr of fodder units)	Amount of natural fodder eaten by livestock (kg/ha/year of fodder units)	*Not assessed*	Degree of ES use (V_c/V_s)100%) — share of natural fodder eaten by livestock (%)
Freshwater ecosystems' production, primarily fish (4) — *Not assessed*				
Game production (1)	Total numbers of game animals were used as a proxy (numbers/ha) **HD**	Game harvest (numbers/ha/yr) **HD**	*Not assessed*	Degree of ES use (V_c/V_s)100% — harvested number of game animals as a percentage of their total number (%)
Production of honey in natural areas (4) — *Not assessed*				
Environment-forming (regulating) ES				
Carbon storage (1)	Total carbon content in phytomass and soil (tC/ha)	Carbon stores in managed forests (tC/ha) **UNFCCC**	*Not assessed*	Degree of ES use (V_c/V_s)100% — percentage of the regional carbon stock accounted in managed forests
Regulation of CO_2 flows (1)	Carbon balance (tC/ha/yr)	Carbon balance of managed forests (tC/ha/yr) **UNFCCC**	*Not assessed*	Degree of ES use (V_c/V_s)100% — percentage of the regional carbon balance attributed to managed forests
Biogeophysical climate regulation (4) — *Not assessed*				
Air purification by vegetation (absorption of pollutants by suburban forests) (2)	Maximum amount of pollutants that can be captured by vegetation from the air without significant damage to it (kg/ha/yr) **MTE+ other data**	Amount of pollution actually captured by vegetation from the air (kg/ha/yr) **MTE+other data**	Toxic gas emissions (kg/ha/yr) **FSSS**	Satisfaction of the demand for the ES: a) (V_s/V_d)100% — percentage of pollutants absorbed by suburban forests (%), b) maximum percentage of emissions that can be potentially absorbed by suburban forests (%); c) remaining emissions that cannot be absorbed by suburban forests (kg/ha/yr)
Regulation of runoff volume (2)	Amount of runoff provided by the functioning of terrestrial ecosystems (m³/ha/yr)	Use of freshwater (m³/ha/yr) **FSSS**	*Not assessed*	Degree of ES use (V_s–V_c) — unused residue of "ecosystem" runoff (positive values) or the excess of water use over "ecosystem" runoff (negative values), m³/ha/yr
Regulation of runoff variability (runoff stabilization) (2)	Ecosystem regulation of runoff variability (mm; score)	Regional GDP per unit of area of a region as a proxy of prevented damage (RUB/ha/yr; score) **FSSS**		The balance of natural and socio-economic factors — difference between scores V_s–V_c
Water quality assurance by terrestrial ecosystems (2)	Amount of potentially purified runoff (m³/ha/yr) **MTE+ other data**	Amount of purified runoff (m³/ha/yr) **MTE+other data**	Volume of polluted runoff (m³/ha/yr)	Satisfaction of the demand for the ES (V_d–V_s) — residual unpurified runoff (m³/ha/yr); Degree of ES use (V_c/V_s)100% — actual purified runoff as a percentage of potentially purified runoff (%)
Assurance of water quality by freshwater ecosystems (2)	The volume of wastewater that can potentially be diluted and purified to a safe	The volume of purified and diluted wastewater (m³/ha/yr)	Discharge of polluted wastewater	Satisfaction of the demand for the ES (V_s–V_d) — untreated wastewater remainder (negative values) or unused capacities of

167



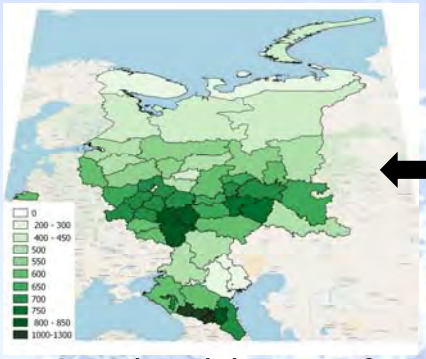
ES	*Indicators of supplied ES (V_s)*	*Indicators of consumed ES (V_c)*	*Indicators of demanded ES (V_d)*	*Indicators of the degree of ES use or satisfaction of the demand for ES*
	concentration (m³/ha/yr)		(m³/ha/yr) **FSSS**	ecosystems to purify wastewater (positive values), m³/ha/yr
Soil protection from water erosion (3)	The amount of soil erosion avoided due to terrestrial ecosystems (t/ha) **MTE + other cartographic data**	– Proportion of crop area **FSSS** – Proportion of area with eroded agricultural lands in regions		Balance of natural and socioeconomic factors — difference between scores (V_s–V_c)
Soil protection from wind erosion (3)	Proportion of natural ecosystem area in 1-km-wide buffer zones around croplands **MTE**			
Prevention of damage from soil washing into water bodies (4) — *Not assessed*				
Prevention of damage from landslides and mudflows (4) — *Not assessed*				
Formation of soil bioproductivity (4) — *Not assessed*				
Self-purification of soils (3)	Capacity for soil self-cleaning	– Population density **FSSS** – Proportion of crop area **FSSS** – Proportion of polluted area		The balance of natural and socio-economic factors — difference between scores (V_s–V_c)
Regulation of cryogenic processes (2)	Change in surface temperature without vegetation and snow cover (°C)	Anthropogenic heating of permafrost (°C)	*Not assessed*	Degree of ES use (V_s–V_c) — unused residue of ecosystem capacity to protect permafrost or the excess of anthropogenic heating over "ecosystem" capacity (°C)
Ecosystem regulation of species with economic importance (agricultural and forest pests) (4) — *Not assessed*				
Pollination of farm crops (3)	Pollination potential **MTE**	The proportion of the area of entomophilous cultures **FSSS**		The balance of natural and socio-economic factors — difference between scores (V_s–V_c)
Ecosystem regulation of species with medical, biomedical and veterinary importance (4) — *Not assessed*				
Informational ES				
Genetic resources of wild species and populations (3)	– Plant species richness – Proportion of natural ecosystems area **MTE**	– Population density **FSSS** – Road density **FSSS** – Research costs **FSSS**		The balance of natural and socio-economic factors — difference between scores (V_s–V_c)
Information on the structure and functioning of natural systems that can be used by humans (3)	– Diversity of ecosystems – Proportion of natural ecosystems area **MTE**	– Population density **FSSS** – Road density **FSSS** – Research costs **FSSS**		The same
Aesthetic and educational importance of natural systems (3)	– Diversity of ecosystems – Proportion of natural ecosystems area **MTE**	– Population density **FSSS** – Road density **FSSS**		The same
Ethical, spiritual and religious importance of natural systems (4) — *Not assessed*				
Recreational ES — formation of natural conditions for recreation				
Formation of natural conditions for weekend recreation (2)	The number of people who can recreate in the suburban forests on weekends	– Population density **FSSS** – Road density **FSSS**		The balance of natural and socio-economic factors — difference between scores (V_s–V_c)
Daily and weekend recreation, recreation at summer cottages (3)	– Comfort of natural conditions for people – Nature degradation			
Educational and active tourism in the nature (3)	– Comfort of natural conditions for people – Nature degradation – Landscape diversity	– Urban population **FSSS** – Road density **FSSS** – Density of natural history museums – Tourist infrastructure		The same
Resort recreation (except seacoasts) (4) — *Not assessed*				

Regionally differentiated structure of EES-SPEU

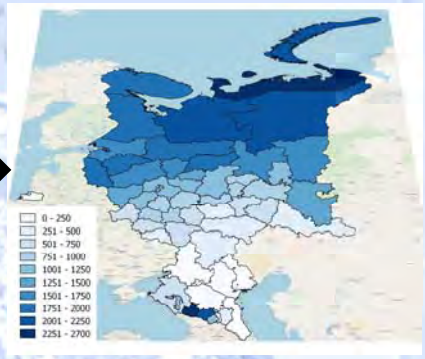
must take into account the specifics of regions with different **environmental conditions**, with varying degrees of **anthropogenic transformation** and **economic development**

.

Low species richness in the northern and arid regions do not make them less important for maintaining ES and preserving biodiversity of Russia. Undisturbed biodiversity levels are adaptations to various natural conditions and provide the most effective ecosystem functioning and regulating ES.

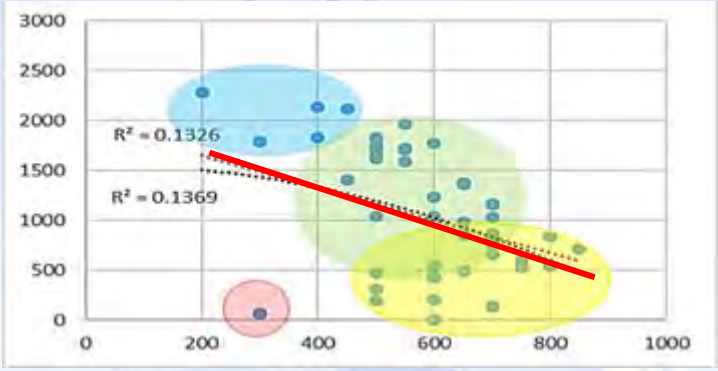


Species richness of local flora

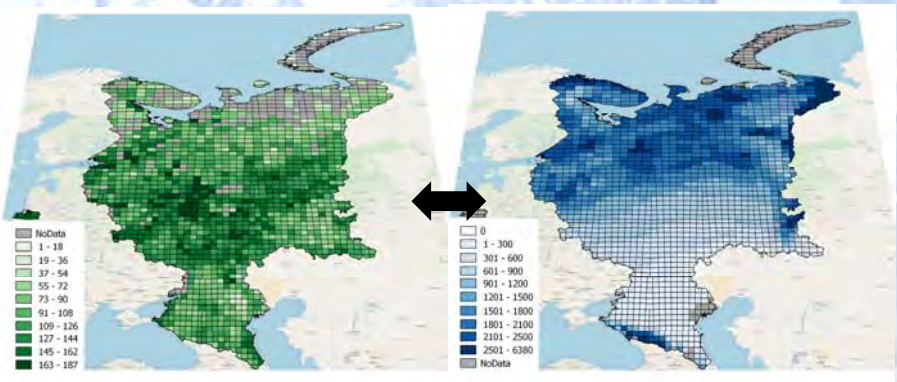


The volume of runoff provided by terrestrial ecosystems, $m^3/ha/y$

“Ecosystem runoff”, $m^3/ha/y$



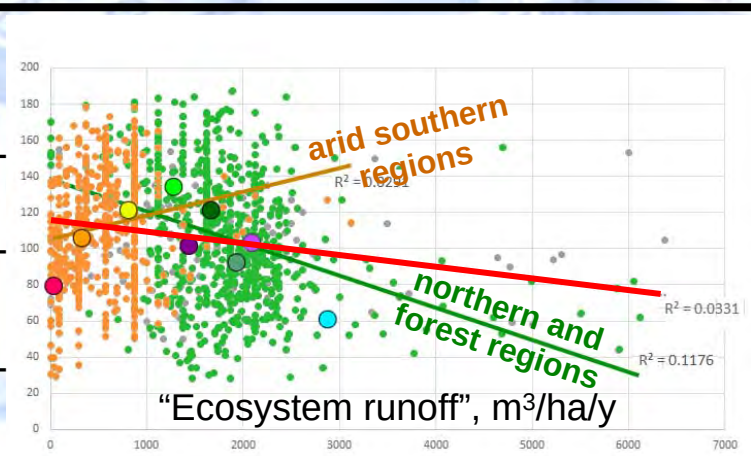
Species richness of local flora



Number of bird species per square

The volume of runoff provided by terrestrial ecosystems, $m^3/ha/y$

Number of bird species per square



Biodiversity indicators in SEEA-EEA

Biodiversity indicators should be included in SEEA-EEA.

The dynamics of biodiversity decline in any locality or on average for the region indicates the degradation of ecosystem assets and services

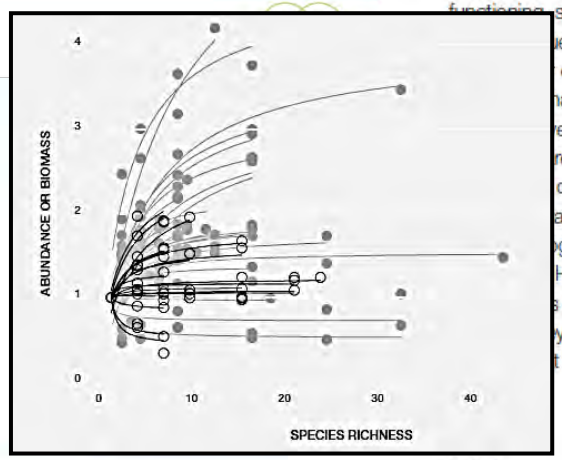
3.2 THE RELATIONSHIP BETWEEN BIODIVERSITY AND ECOSYSTEM FUNCTIONS AND SERVICES

3.2.1 General importance of biodiversity for ecosystem functions and services

Theoretical, experimental and field studies have proven that biodiversity is one of the key factors in determining the mean level and stability of ecosystem properties and

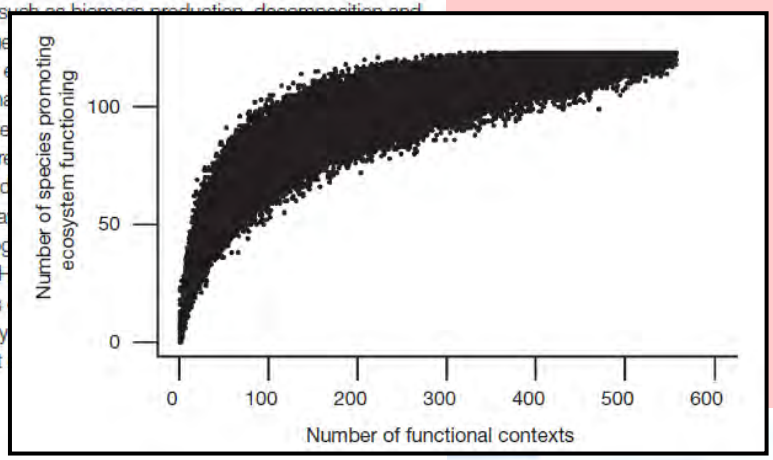
Biodiversity is one of the key factors in determining the mean level and stability of ecosystem functioning and hence, ecosystem services.

Biodiversity loss impairs ecosystem functioning and ES.

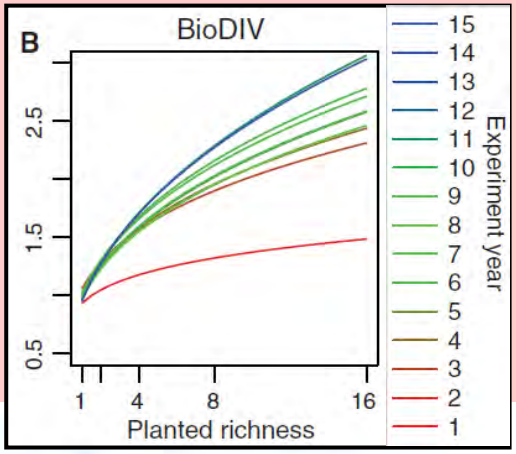


Cardinale et al., 2006

196



Isbell et al., 2011



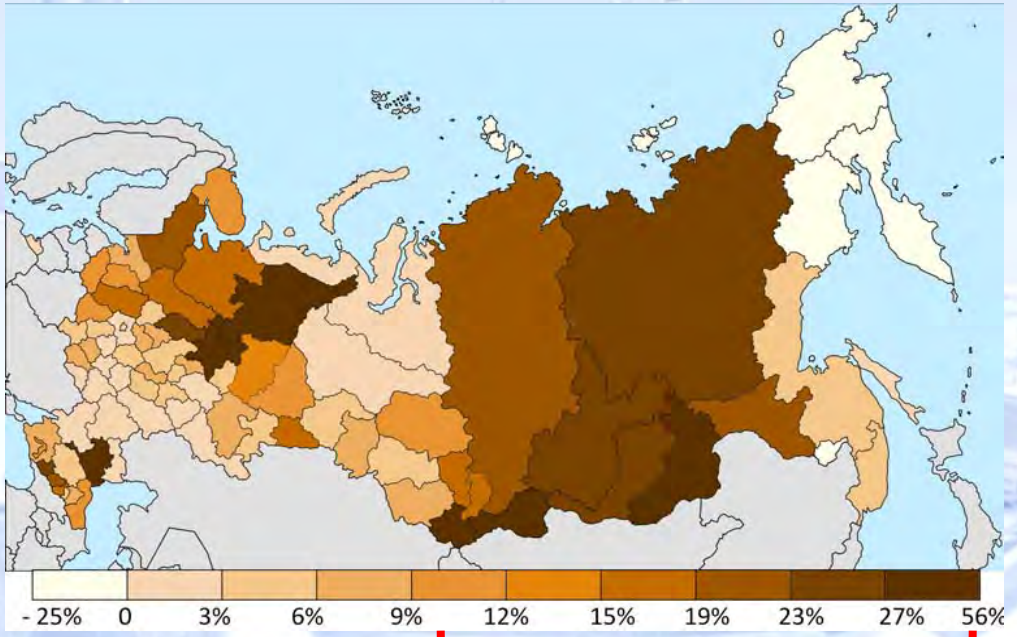
Reich et al., 2012

Ecosystems and ecosystem services of Russia: why important

Ecosystem assets and ecosystem services of Russia have a decisive influence on the well-being of the country's population and constitute an essential component of national wealth. EA and ES volume is comparable with the needs of the population and the economy, both in physical and in monetary terms.

The total value of estimated **consumed ES** is less than **4%** Russia's GDP

In many regions, the value of currently used ES **exceeds 10%** of GRP

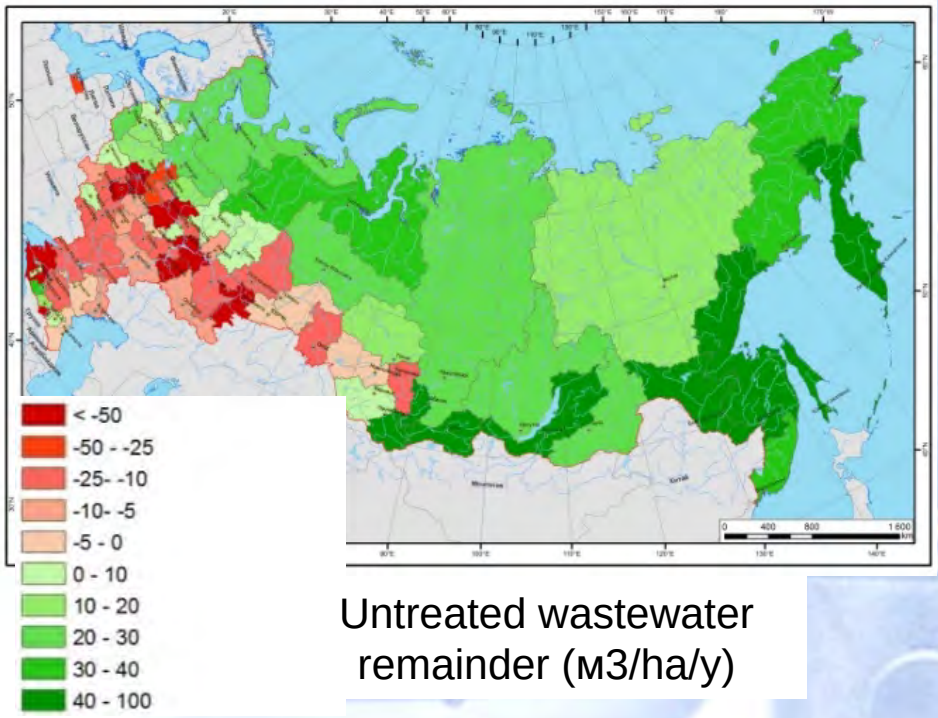


Total consumed ES value expressed as a percentage of GRP (%)

Ecosystems and ecosystem services of Russia: why important

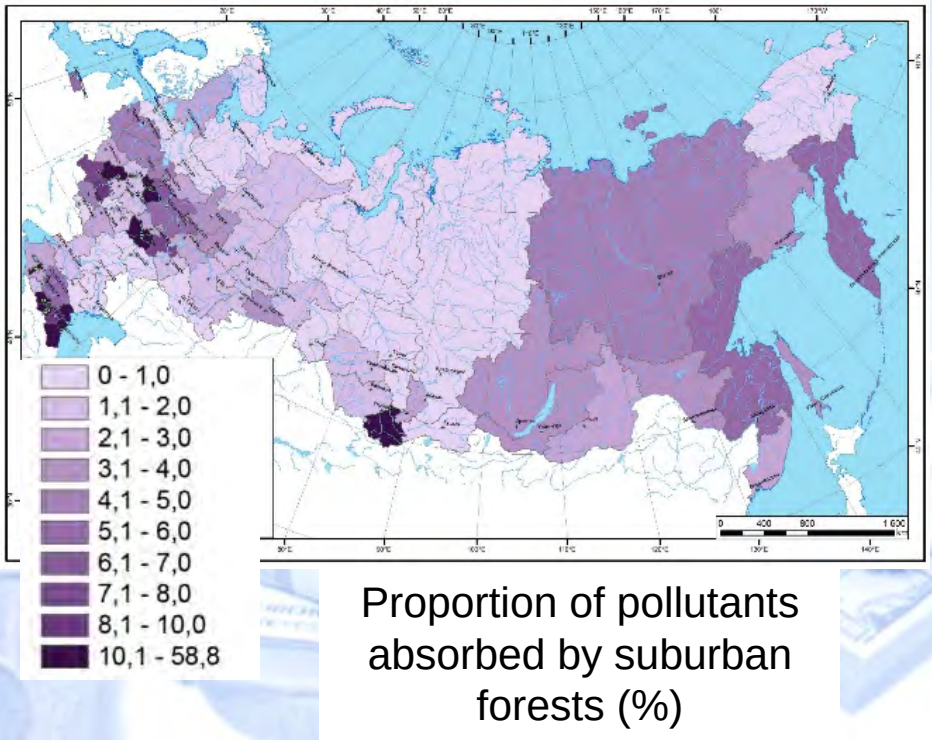
In a number of regions, negative anthropogenic press has already exceeded the capacity of some of the most important regulating ES

Water purification in freshwater ecosystems



Untreated wastewater remainder (м3/ha/y)

Air purification by suburban forests

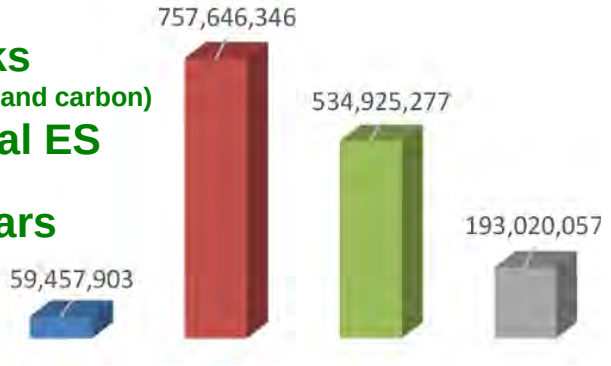


Proportion of pollutants absorbed by suburban forests (%)

Ecosystems and ecosystem services of Russia: why important

Value ratio of ecosystem assets and fixed assets in the economy

1a) Stocks
(bioresources and carbon)
+ potential ES
(regulating)
for 10 years

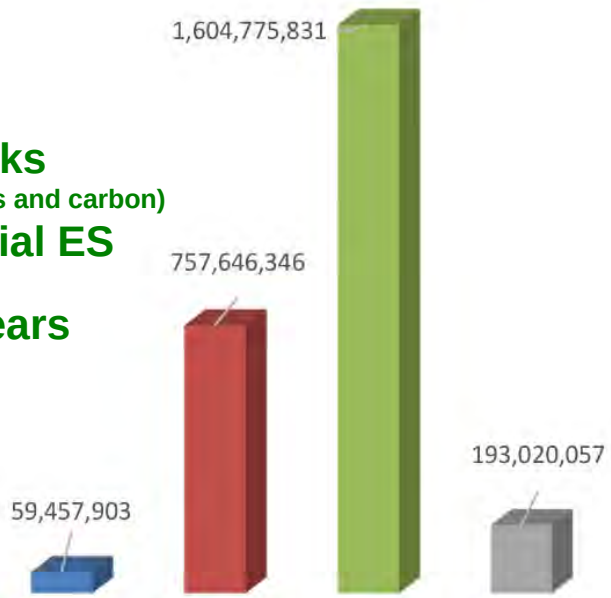


2) Potential ES
for 10 years

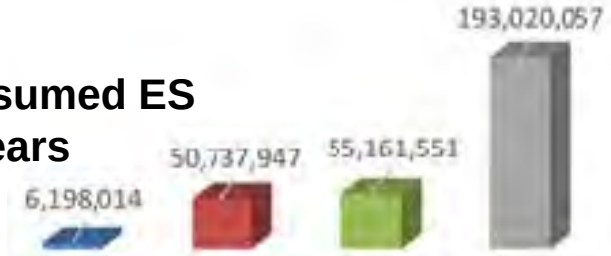
4a) Consumed ES
for 10 years

Provi-sioning EA | **Carbon EA** | **Regu-lating EA** | **Fixed assets**

1b) Stocks
(bioresources and carbon)
+ potential ES
(regulating)
for 30 years



4b) Consumed ES
for 30 years



Provi-sioning EA | **Carbon EA** | **Regu-lating EA** | **Fixed assets**

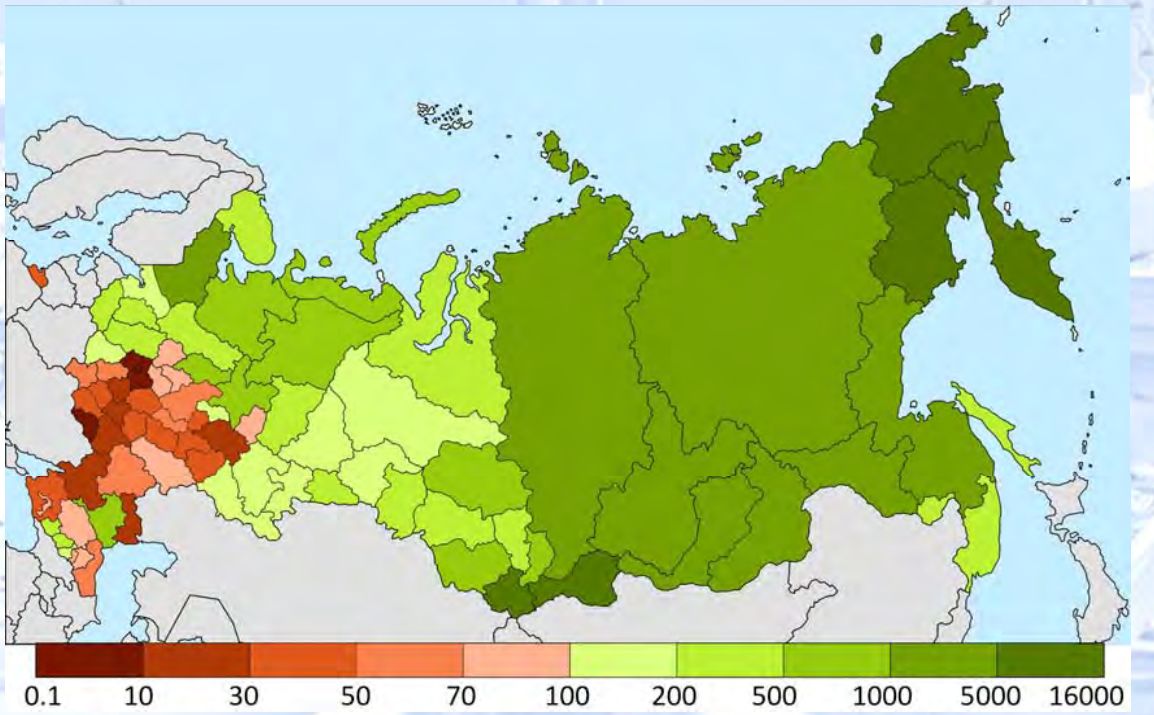
Regionally differentiated structure of EES-SPEU

must take into account the specifics of regions with different **environmental conditions**, with varying degrees of **anthropogenic transformation** and **economic development**

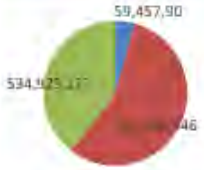
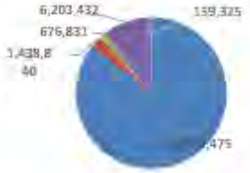
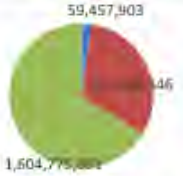
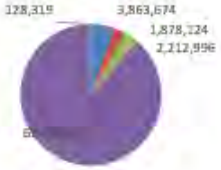
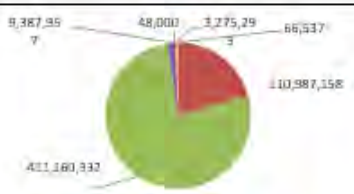
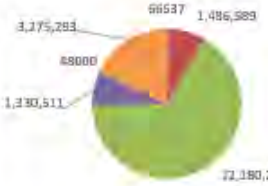
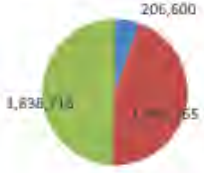
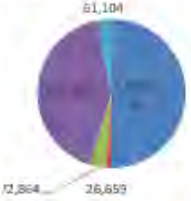
.

The distribution of the economic value of ecosystem services and assets across regions is extremely uneven and varies by tens or even hundreds of times

Valuation of ecosystem assets by the amount of potential ES for 10 years



total value of ecosystem assets, expressed as a share (%) of the value of regional fixed assets

Метод оценки	Все активы	Продукционные активы	Регулирующие активы
	Все средооб. услуги Регулир. цикла углерода Другие регулир. услуги	Продукция древесины Недревесная продукция (грибы) Недревесная продукция (ягоды) Продукция природных пастбищ Охотничья продукция (копытные)	Очистка воздуха Регулирование объема стока Очистка воды наземными экос-ми Очистка воды водными экосис-ми Снижение ущерба от наводнений Предотвращение водной эрозии
1а Запасы и потенц. ключ. объем за 10 лет, млн руб			
1б Запасы и потенц. ключ. объем за 30 лет, млн руб			
2. Потенц. ключ. объем за 10 лет, млн руб			
3. Потенц. ключ. и использованный объемы за 10 лет, млн руб			
4. Использованный объем за 10 лет, млн руб/год			

Спасибо за внимание

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