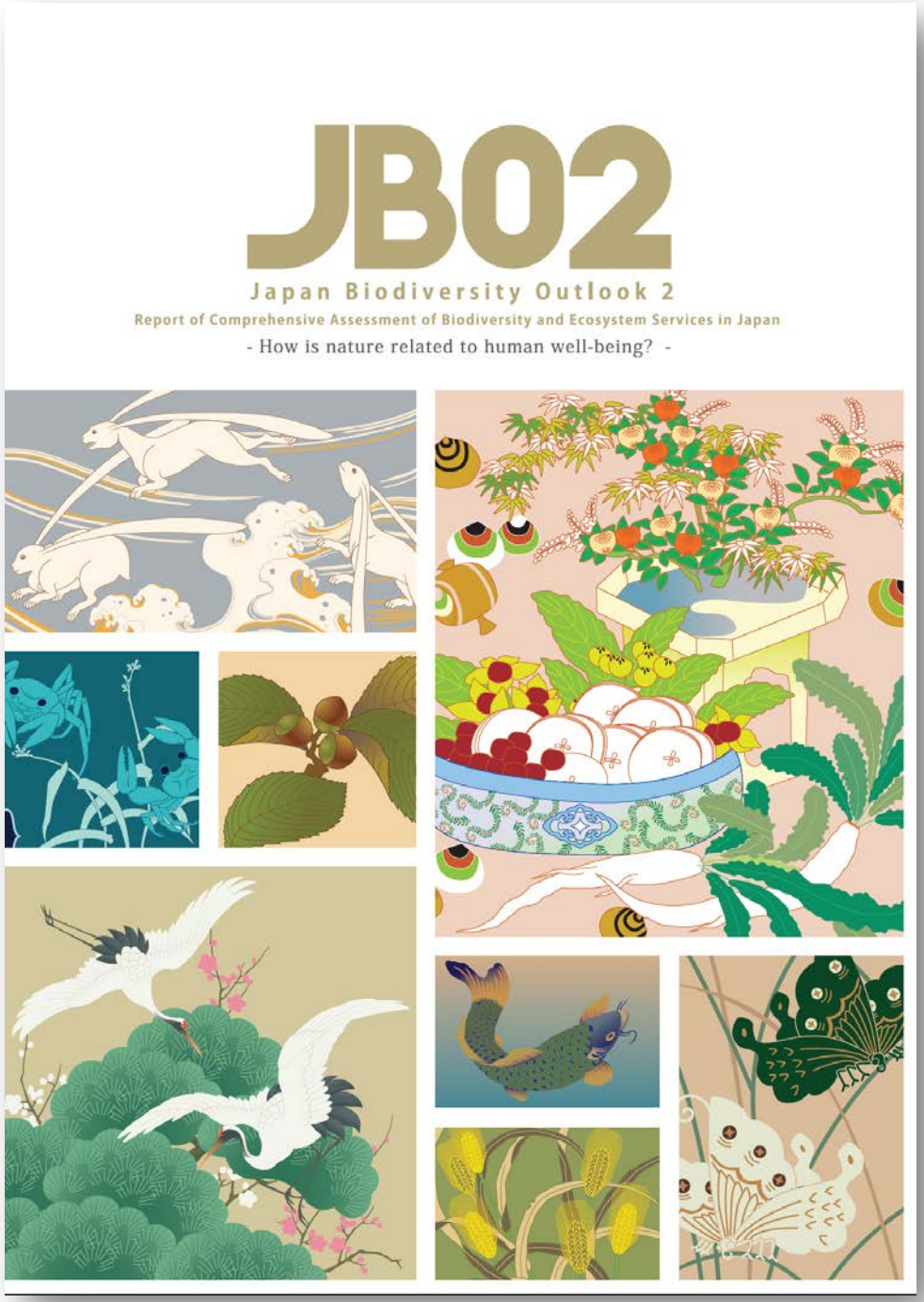


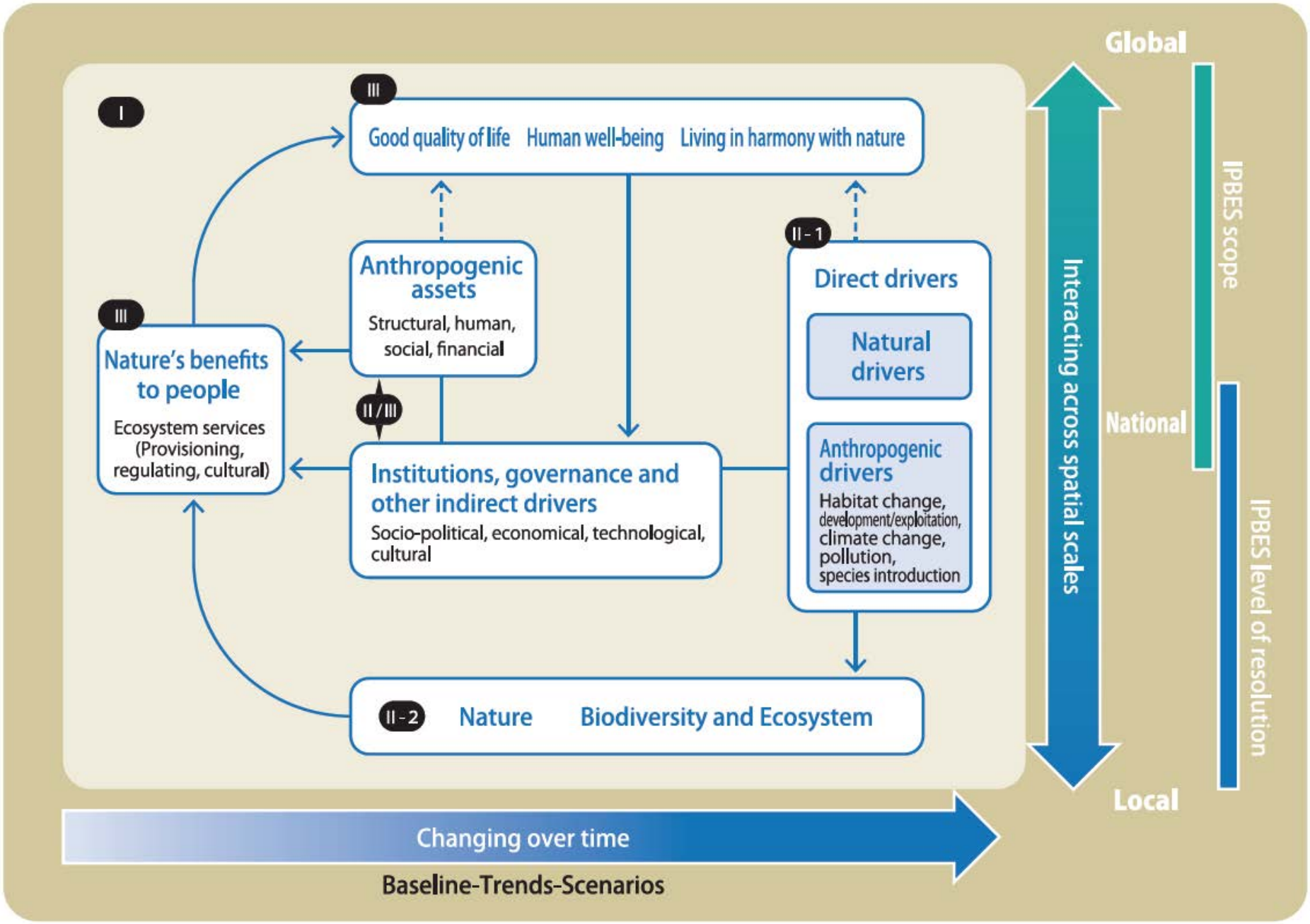
Japan Biodiversity outlook 2
(March 2016)

JBO1:

- May, 2010
- Assessment on biodiversity

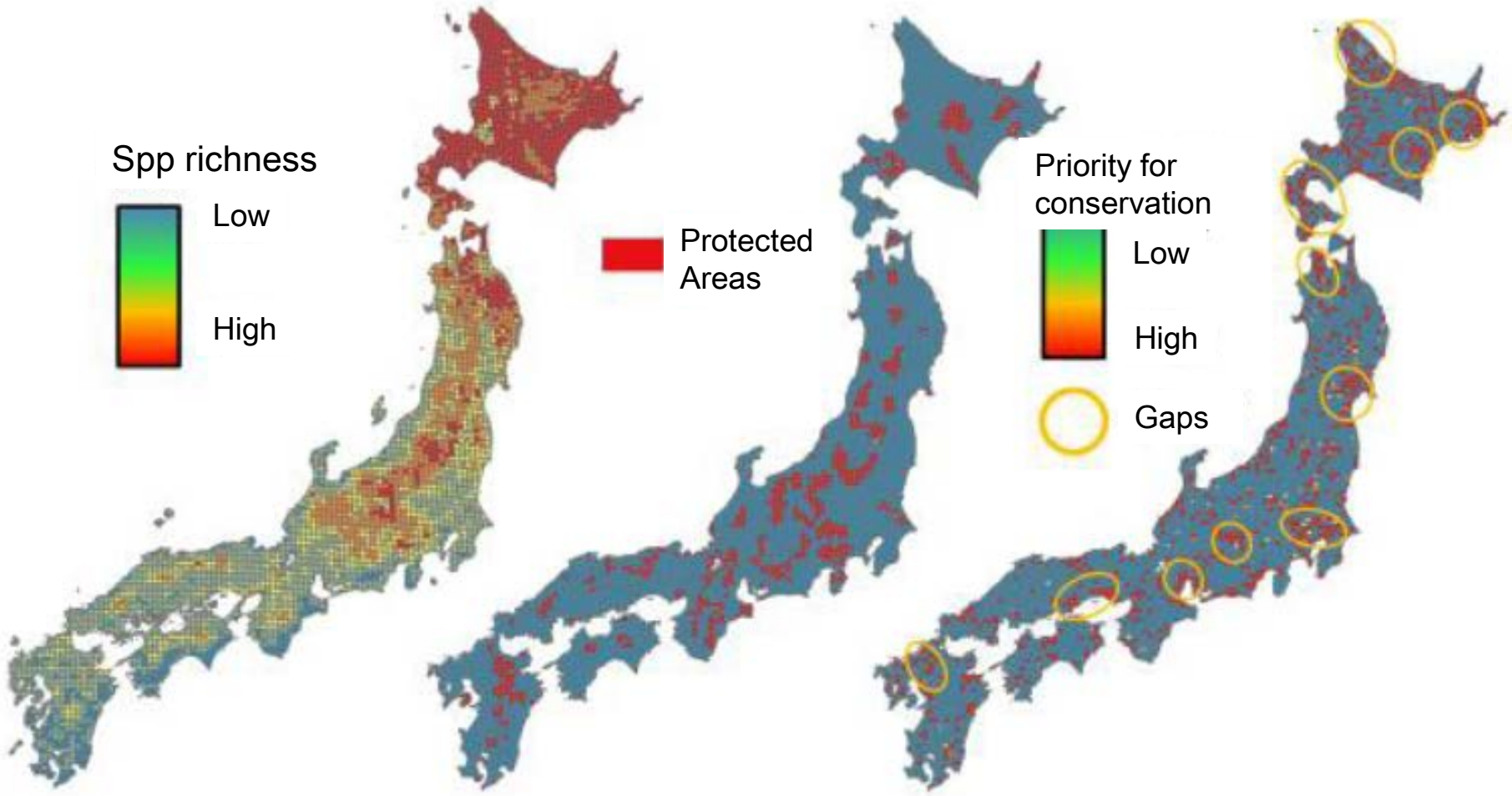
JBO2:

- Recent trends after 2010
- Assessment on biodiversity & ecosystem services
- Combination of GBO & IPBES Report for Japanese ecosystems



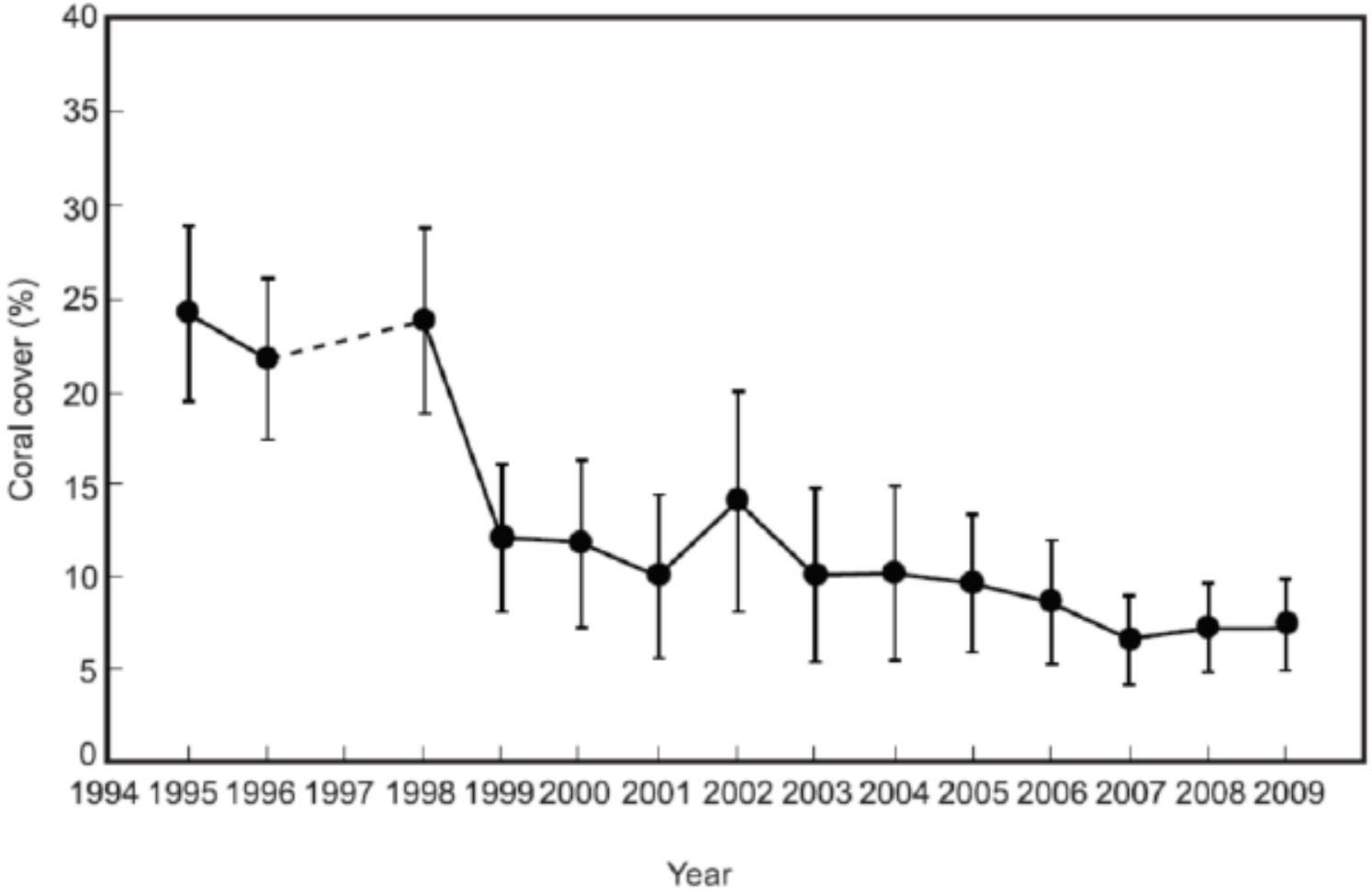
Conceptual Framework of IPBES and Structure of JBO2

Japan Biodiversity Outlook 2 (JBO2)

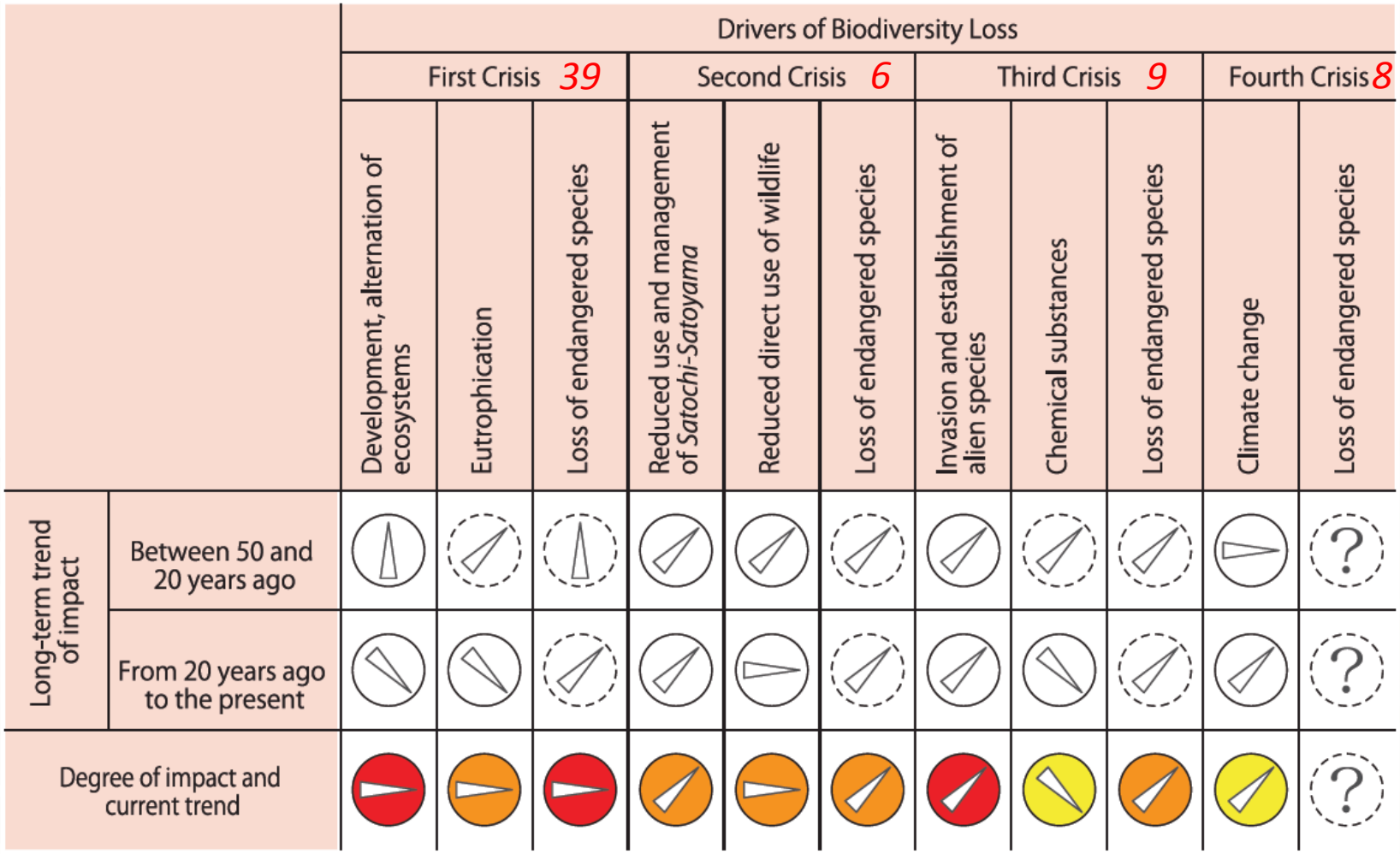


Geographical distribution of bird species richness and gap analyses for conservation priority

Time trend of cover of coral reefs

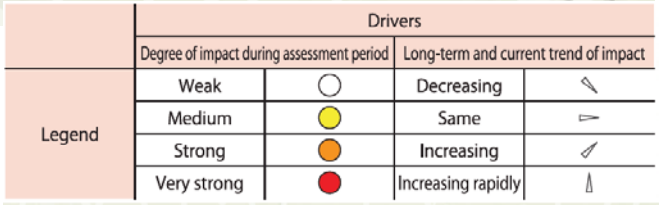


出典）Hongo C, and Yamano H , 2013: Species-Specific Responses of Corals to Bleaching Events on Anthropogenically Turbid Reefs on Okinawa Island, Japan, over a 15-year Period (1995–2009), PLOS ONE, 8, 1-9.



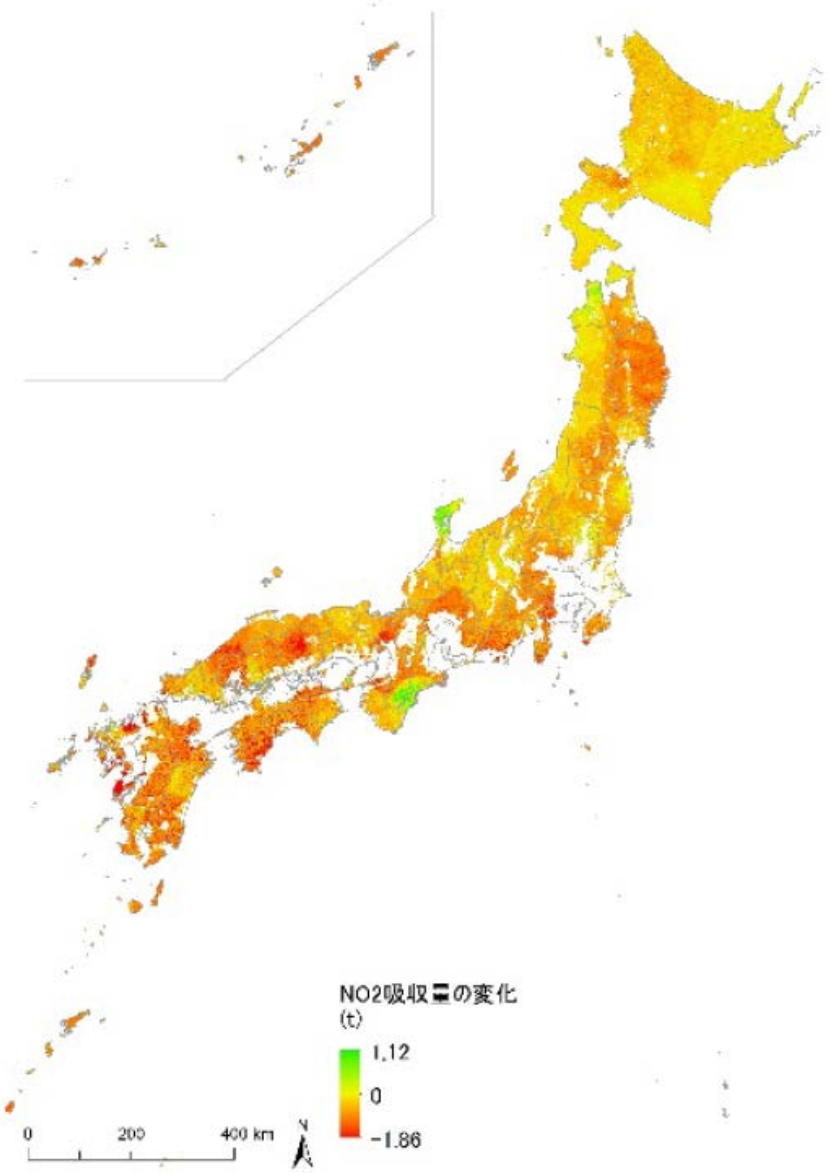
Note: Descriptions of the terms used in the table are as follows:

- First Crisis is the impact on biodiversity caused by development, exploitation, and other human activities, including habitat alternation, direct use, and water pollution.
- Second Crisis is the impact caused by decline in human intervention in nature, including reduced use/management of *Satochi-Satoyama*.
- Third Crisis is the crisis brought by alien species, chemical substances, and other consequences of modern lifestyles and human activities.
- Fourth Crisis is the impact due to climate and other environmental changes, including global warming, increased occurrence of strong typhoons, change in precipitation patterns, decreased fisheries catch, and ocean acidification.

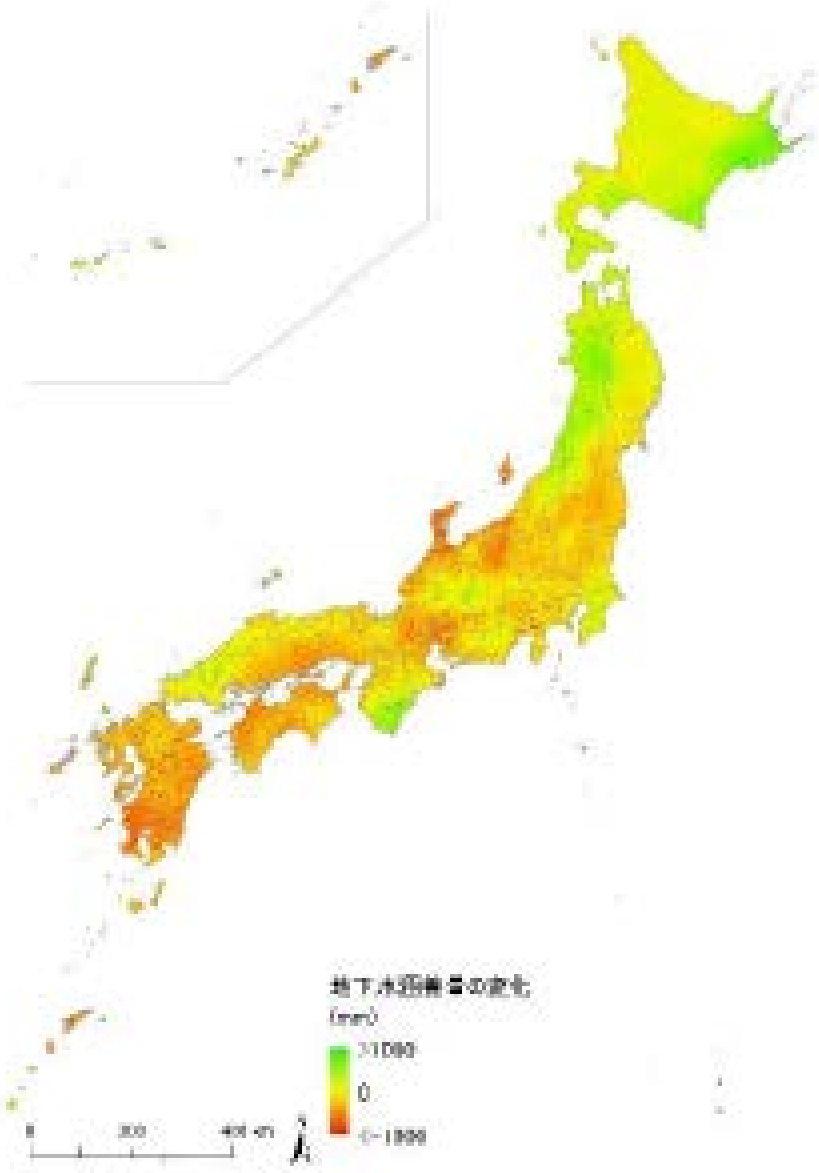


Note: Graphic symbols may not represent all of the multiple factors related to the indicators in question.
Note: Arrows circled by dotted lines indicate that information is insufficient to make accurate assessments.

Japan Biodiversity Outlook 2 (JBO2)



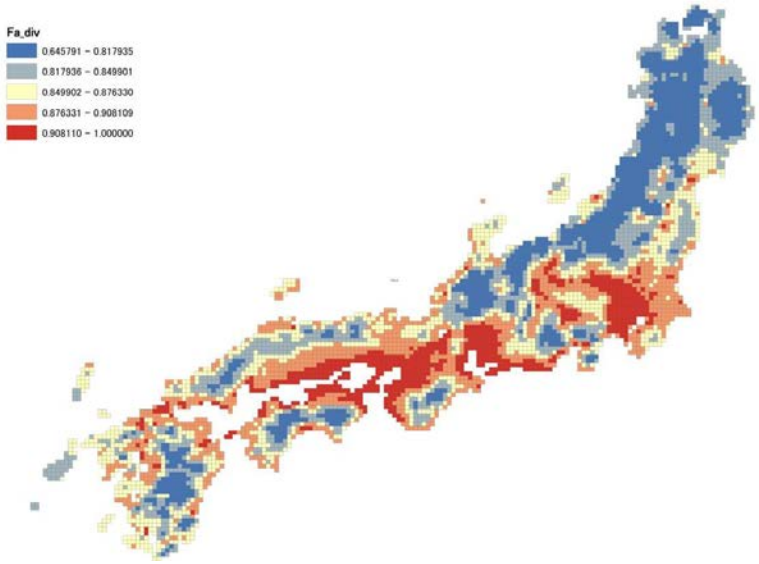
Change in NO2 absorption between 2000 and 2010



Change in underground water charge between 1976 and 2009

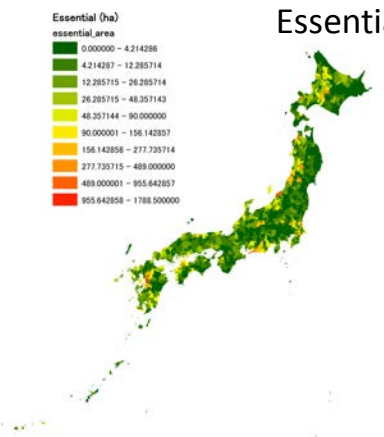
Evaluating pollination services in japan

Genetic diversity of Japanese honey bee

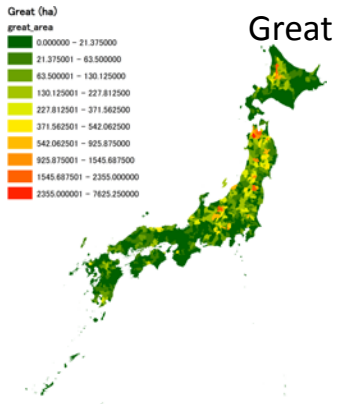


Utilization of pollination service according to the dependence of pollinators

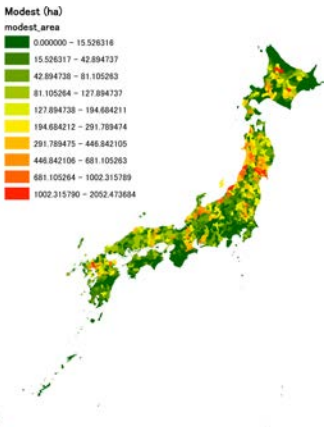
Essential



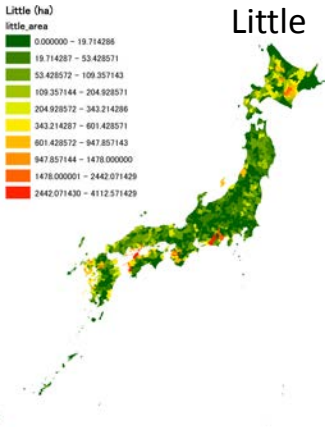
Great



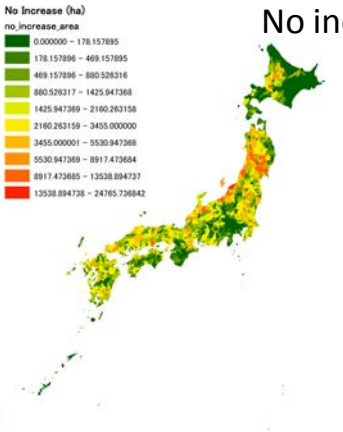
Modest



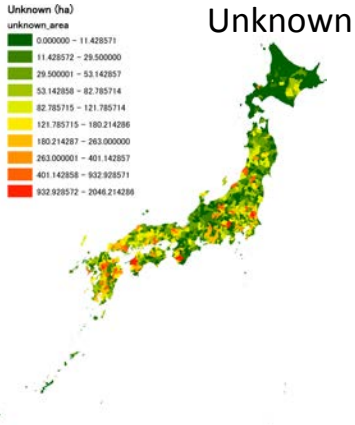
Little



No increase

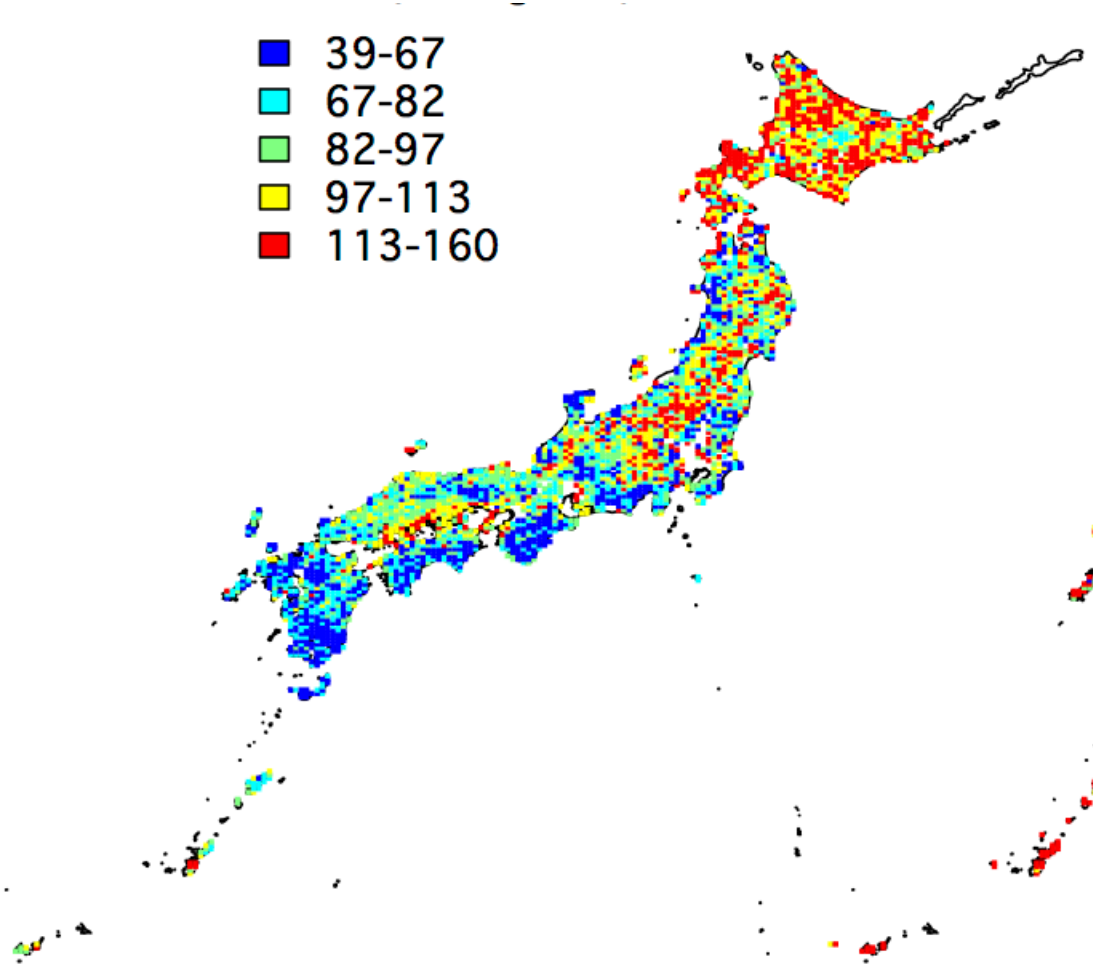


Unknown

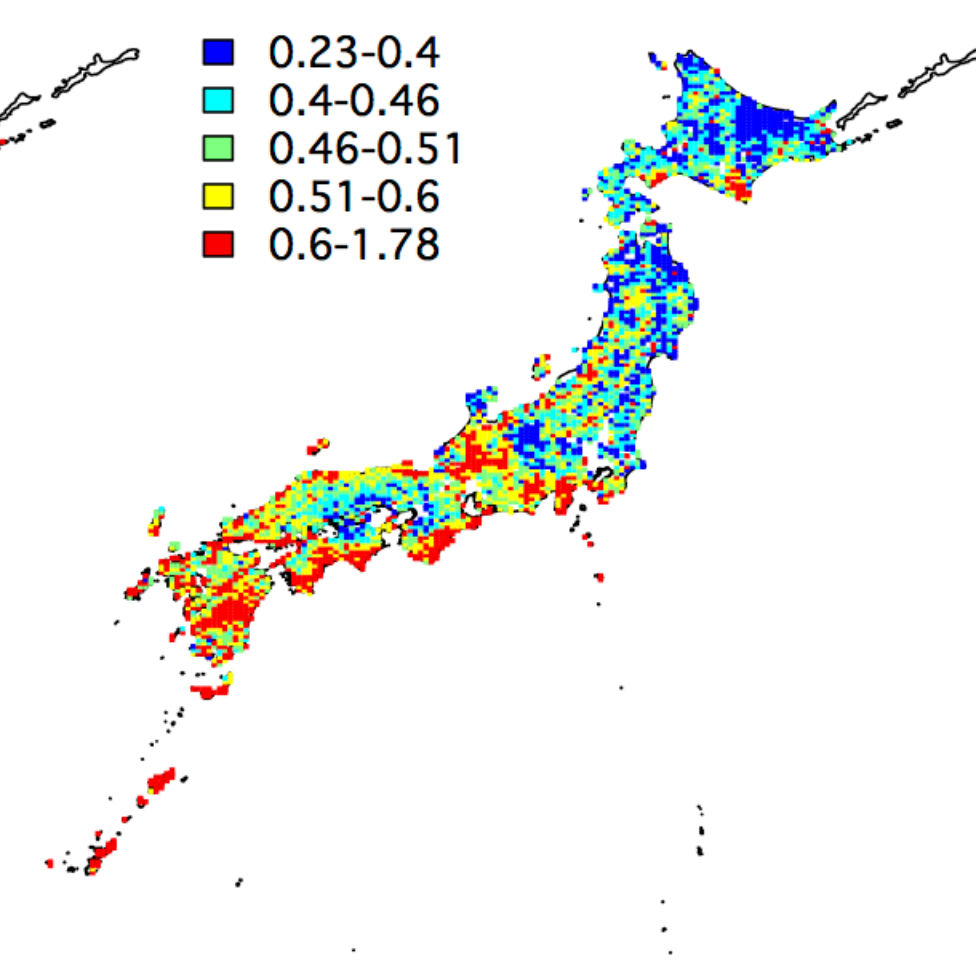


Ecosystem functions estimated by the data bases on forest plots and functional traits

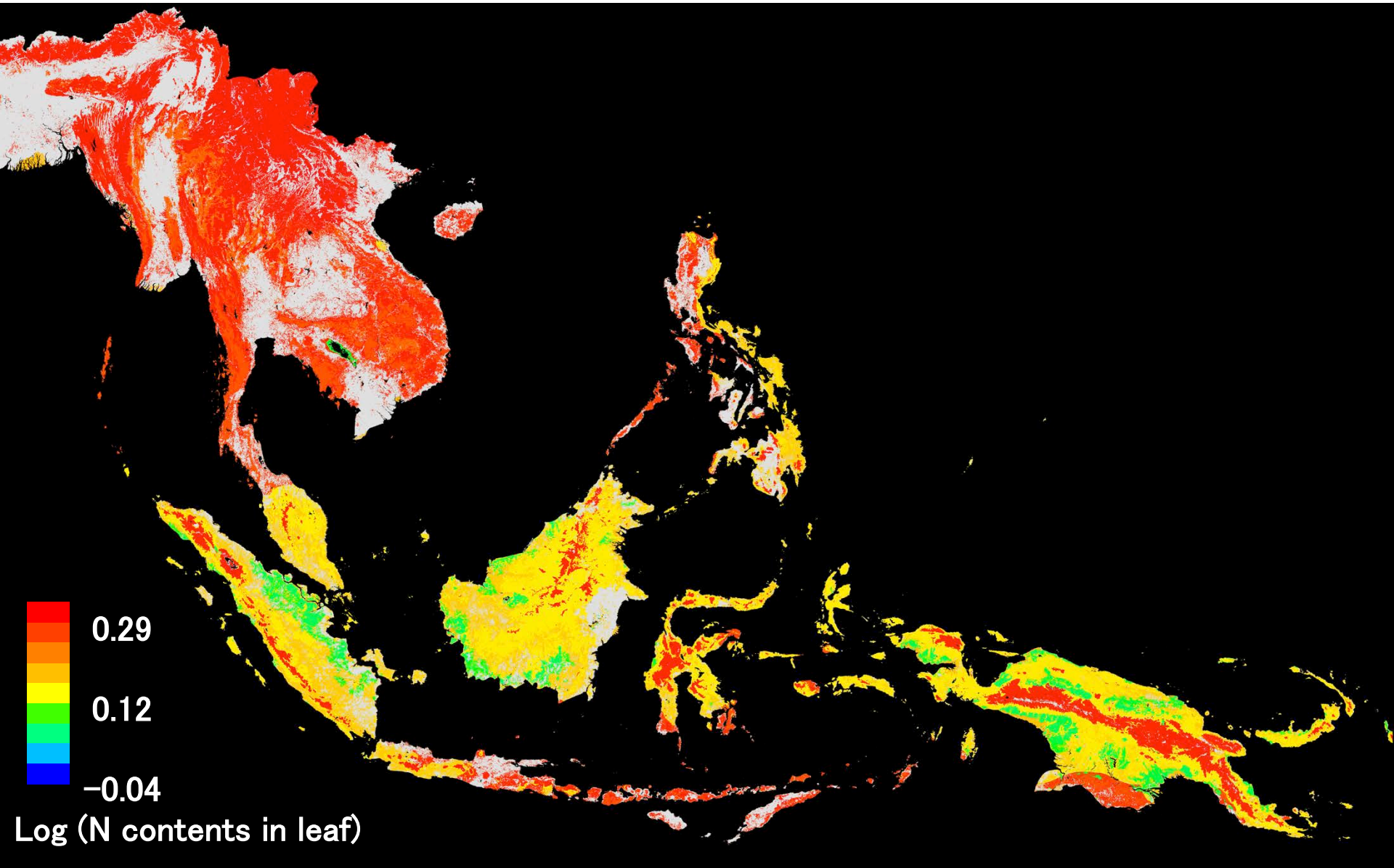
Maximum photosynthesis rate
(nmol $g^{-1}s^{-1}$)



Decomposition coefficient,
K ($year^{-1}$)



Functional traits in SE Asia



		Assessment Result			Number of indicators
		Between 50 and 20 years ago	From 20 years ago to present	Overuse or underuse*	
Provisioning services	Agricultural crops	↓	↘	Underuse (based on data)	9
	Non-timber forest products	↗	↘	Underuse (based on questionnaire)	2
	Seafood	↗	↘	Overuse (based on data)	9
	Freshwater	–	→	Overuse (based on questionnaire)	1
	Timber	↘	→	Underuse (based on data)	5
	Raw materials	↘	↘	Underuse (based on data)	4
Regulating services	Climate	–	↘	–	3
	Air quality	–	→	–	4
	Water	–	↘	–	1
	Soil	→	–	–	3
	Disaster mitigation	↗	→	–	1
	Biological control	–	↘	–	1
Cultural services	Religion/festivals	↓	↘	–	3
	Education	↘	→	–	3
	Landscape	–	↘	–	1
	Traditional arts & crafts	↘	↘	–	6
	Tourism/recreation	↗	↘	–	2
Dis-service	Damage caused by wild animals	–	↗	–	4

Quantitative trend in services received

Legend	Result of quantitative assessment
	Increasing ↑
	Slightly increasing ↗
	Same →
	Slightly decreasing ↘
	Decreasing ↓
	Where data is insufficient
	Increasing ↑
	Slightly increasing ↗
	Same →
	Slightly decreasing ↘
	Decreasing ↓

Note: Graphic symbols may not represent all of the multiple factors related to the indicators in question.
Note: Arrows surrounded by dotted lines indicate that data is insufficient to make quantitative assessment.

Japan Biodiversity Outlook 2 (JBO2)

■ Key Findings of This Assessment

- Biodiversity remains on a declining trend driven by the same major factors (1st to 4th Crises) as those of the previous assessment.
- Impact of climate change on species distribution and ecosystems has been reassessed to be of great certainty.
- Many domestic ecosystem services have been either declining or remaining at the same level compared to the past years.
- Domestic provisioning services have been declining compared to the past years.
- Decline of provisioning services is caused by overuse, habitat destruction and others, and underuse.
- Dependence on imported food and resources and reduced domestic production are underlying causes of underuse.
- Regulating services are declining and disservices are increasing due to reduced human activities, etc.
- Cultural services rooted in local communities and natural environment are diminishing.
- While opportunities to interact with nature on a daily basis have decreased, people looking into eco-tourism and other ways to reconnect with nature are increasing.

■ Challenges

- Enhance mainstreaming of biodiversity into various strategies to raise awareness and encourage actions.
- Develop personnel to implement cross-sectoral efforts, and foster collaboration among related organizations.
- Recognize the "sound material-cycling socio-ecological sphere" and develop a mechanism for supporting sustainable use and management of biodiversity and ecosystem services.
- Recreate a vision regarding appropriate land management by taking the population decrease into account.
- Promote the use, management, and governance of ecosystems based on updated scientific findings and traditional wisdom.
- Promote the planned and balanced use of domestic resources.
- Provide social support for consumers to buy more sustainable products.
- Effectively utilize ecosystem services for promoting health.
- Incorporate ecosystem services in the implementation of various projects and programs.

Contribution of JBON to JBO2

- JBON and its observation greatly contributed to JBO2, with much development after JBO1
- Recent researches made possible to estimate and present ecosystem services in geographical maps
- There still remains some challenges to quantify cultural services
- Geographical information including time trend gives useful information for biodiversity policy, regional planning, and ecosystem accounting
- Basic parameters necessary to estimate *BD* and *ES* should be observed periodically to detect their changes