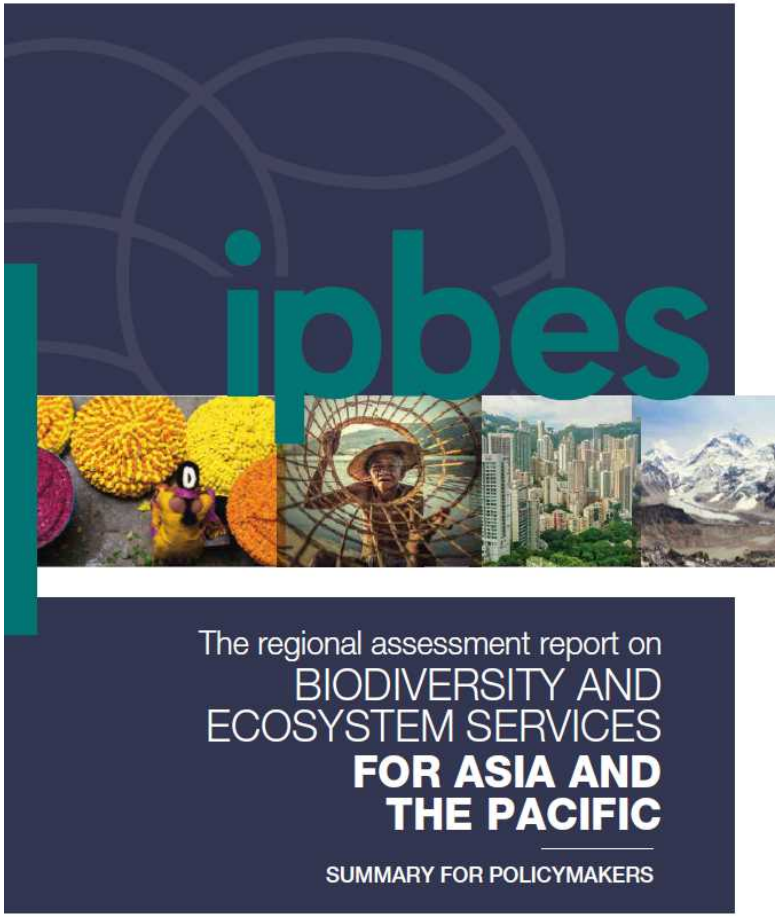

The 11th APBON Workshop
26-28 June 2019, Double Tree by Hilton KL, Kuala Lumpur, Malaysia
Introduction to the workshop
Tetsukazu Yahara, Sheila Vergara and Eun-Shik Kim

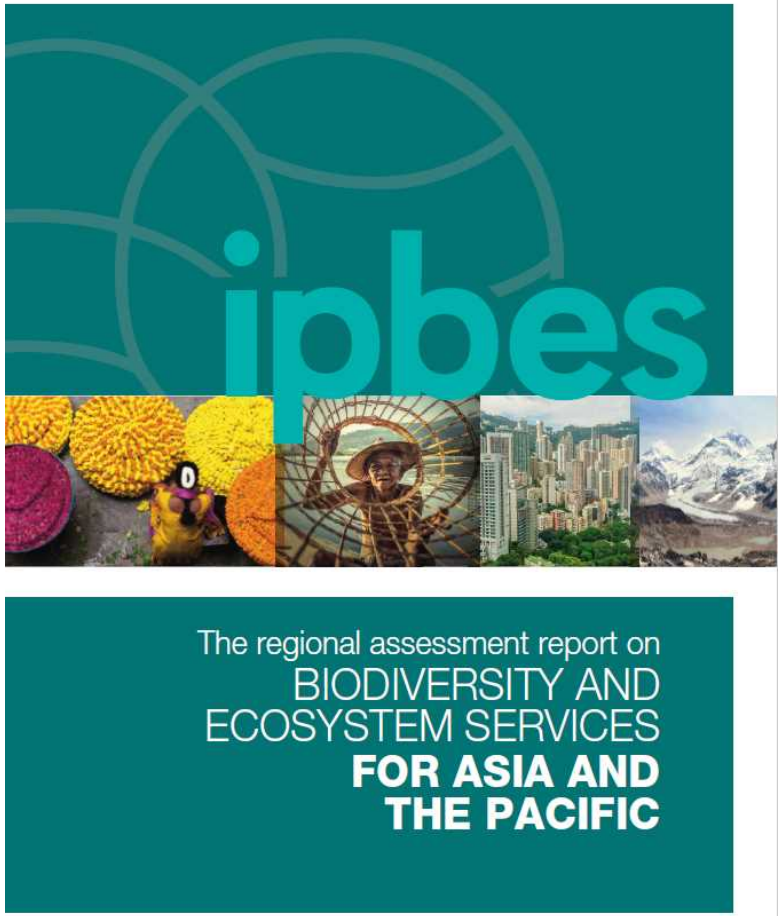
AP BON: A turning point

- A core project S9 sponsored by the Ministry of the Environment of Japan (MoEJ) ended in March 2016.
  - We need to organize new integrative project(s)
- IPBES regional assessment of AP was completed.
  - Some major gaps remain > needs of new observations
- CBD COP15 (Kunming in 2020) is approaching
  - We need to assess our achievements for Aichi targets and develop new targets
- A New GEO Strategic Plan 2016-2025 implemented.
  - GEO BON new structure 2016-2019.
- **Developing a new AP BON work plan**

IPBES AP regional assessment

https://www.ipbes.net/assessment-reports/asia-pacific





IPBES AP regional assessment

Box S2 Data sources of the Asia-Pacific Regional Assessment.

These include among several others the Clearing-House Mechanism (CHM) of the CBD, the Global Biodiversity Outlook, National Specimen Information Infrastructure (NSII), the Global Biodiversity Information Facility, the Indian Bio-resource Information Network, the Group on Earth Observations Biodiversity Observation Network with regional components, the Asia-Pacific Biodiversity Observation Network and subregional or national components, the Japanese Biodiversity Observation Network and the Korea Biodiversity Observation Network; regional initiatives: the Economics of Ecosystems and Biodiversity for South-East Asia; regional research institutes: Bioversity International (Asia-Pacific Oceania division), Ocean Bio geographic Information System, the World Resources Institute, the CGIAR Consortium for Spatial Information, the International Centre for Integrated Mountain Development, the International Union for Conservation of Nature

Transboundary information sharing has also become the focus of effort for conservation and sustainable use of BES such as The Asia Biodiversity Conservation and Database Network (ABCDNet) of the Chinese Academy of Sciences and Asia-Pacific Biodiversity Observation Network (AP BON) (UNEP-WCMC, 2016a), ASEAN Clearing-House Mechanism of the ASEAN Centre for Biodiversity (http://aseanbiodiversity.org), and the Biodiversity Information Sharing Service of the ASEAN Regional Centre for Biodiversity Conservation (https://www.arcbc.org.ph).

STRATEGIC GOAL E: Enhance implementation through participatory planning, knowledge management and capacity building

Regional and national initiatives for BES knowledge sharing are growing, such as Asia-Pacific Biodiversity Observation Network (AP-BON), J-BON (Japan) and K-BON (Korea).

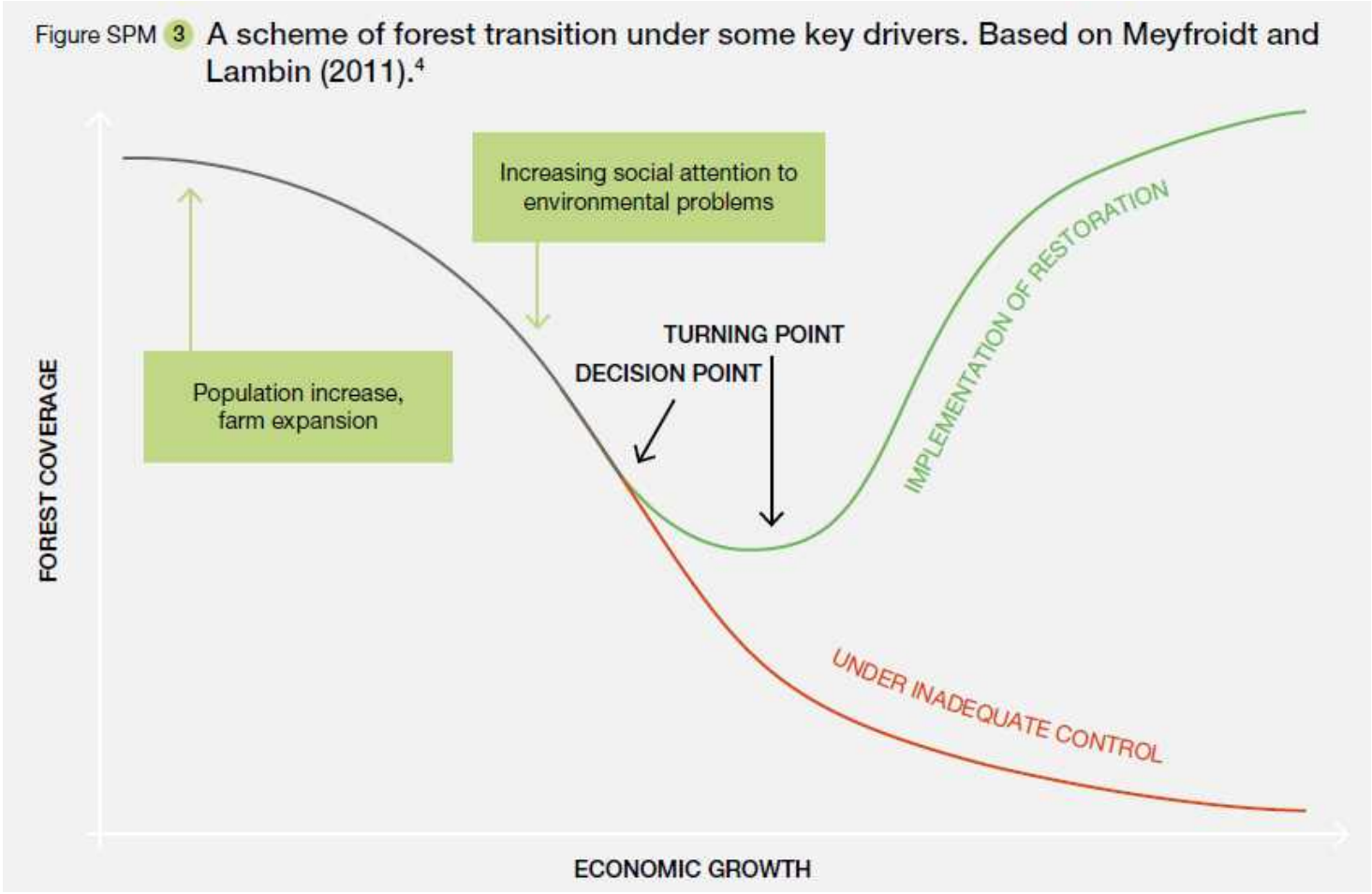
IPBES AP regional assessment

Table 3 1 Recent trends in the change of forest cover in the Asia-Pacific region. Source: FAO (2015c).

Region	Forest area (1000 ha)					ANNUAL RATE OF CHANGE							
						1990-2000		2000-2005		2005-2010		2010-2015	
	1990	2000	2005	2010	2015	1000 ha/yr	%	1000 ha/yr	%	1000 ha/yr	%	1000 ha/yr	%
East Asia	209,198	226,815	241,841	250,504	257,047	1762	0.81	3005	1.28	1733	0.70	1309	0.52
South Asia	87,995	88,348	91,518	93,405	94,086	35	0.04	634	0.70	377	0.41	136	0.15
South-East Asia	242,030	220,956	217,107	214,578	210,742	-2,107	-0.91	-770	-0.35	-506	-0.23	-767	-0.36
West Asia	3,182	3,323	3,368	3,403	3,409	14	0.43	9	0.27	7	0.21	1	0.03
Oceania	176,825	177,641	176,485	172,002	173,524	82	0.05	-231	-0.13	-897	-0.51	304	0.18

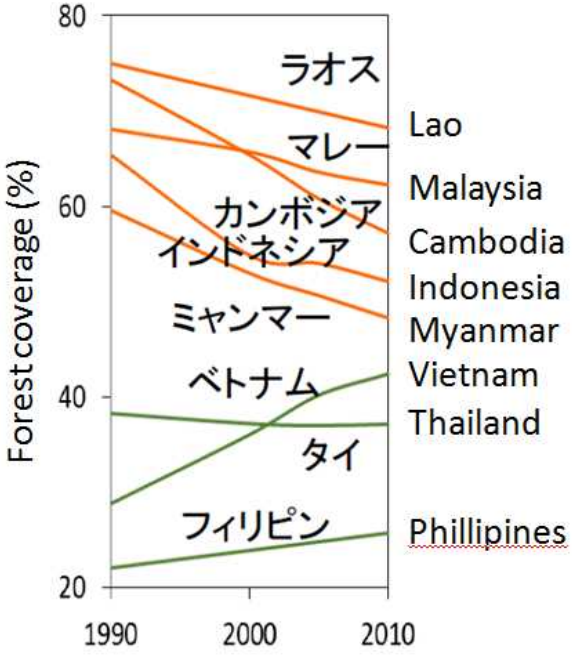
IPBES AP regional assessment

Figure SPM 3 A scheme of forest transition under some key drivers. Based on Meyfroidt and Lambin (2011).[4]

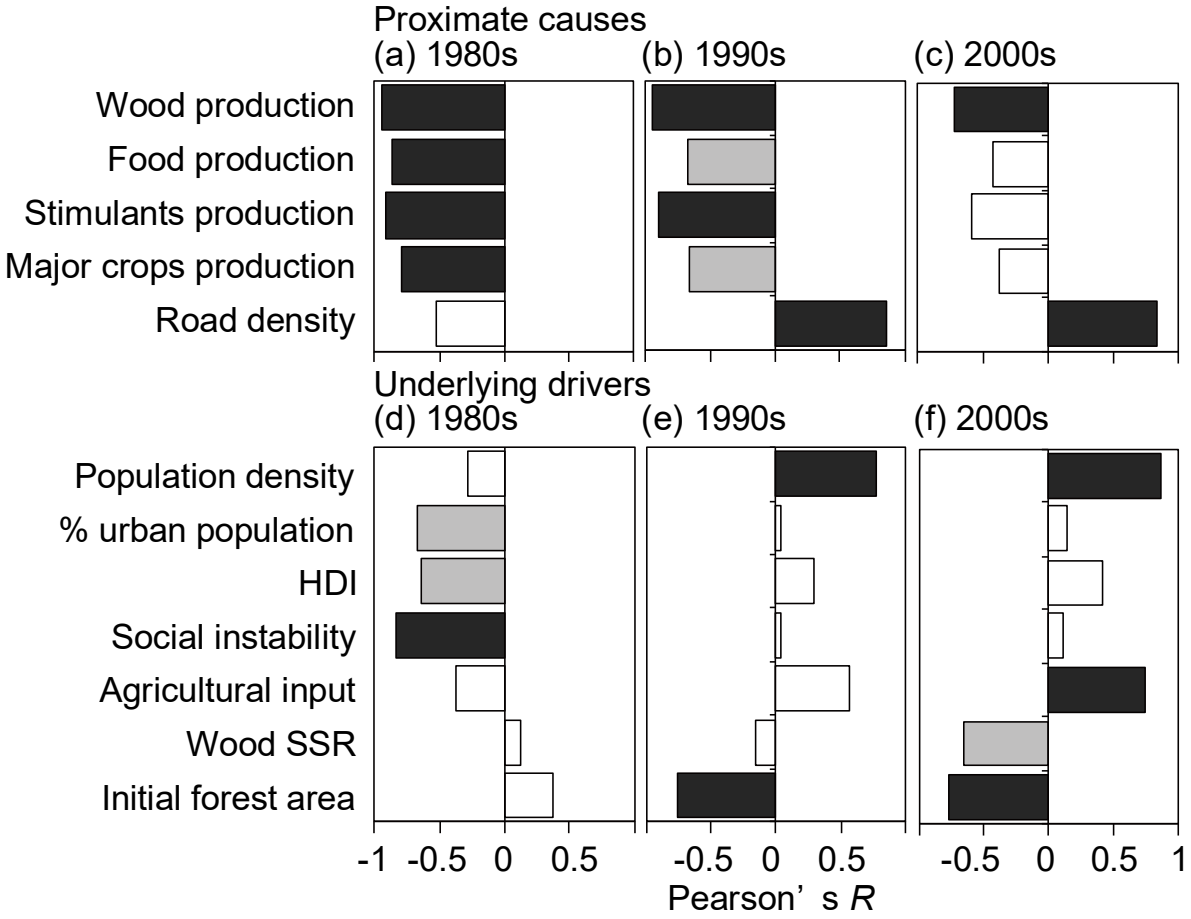


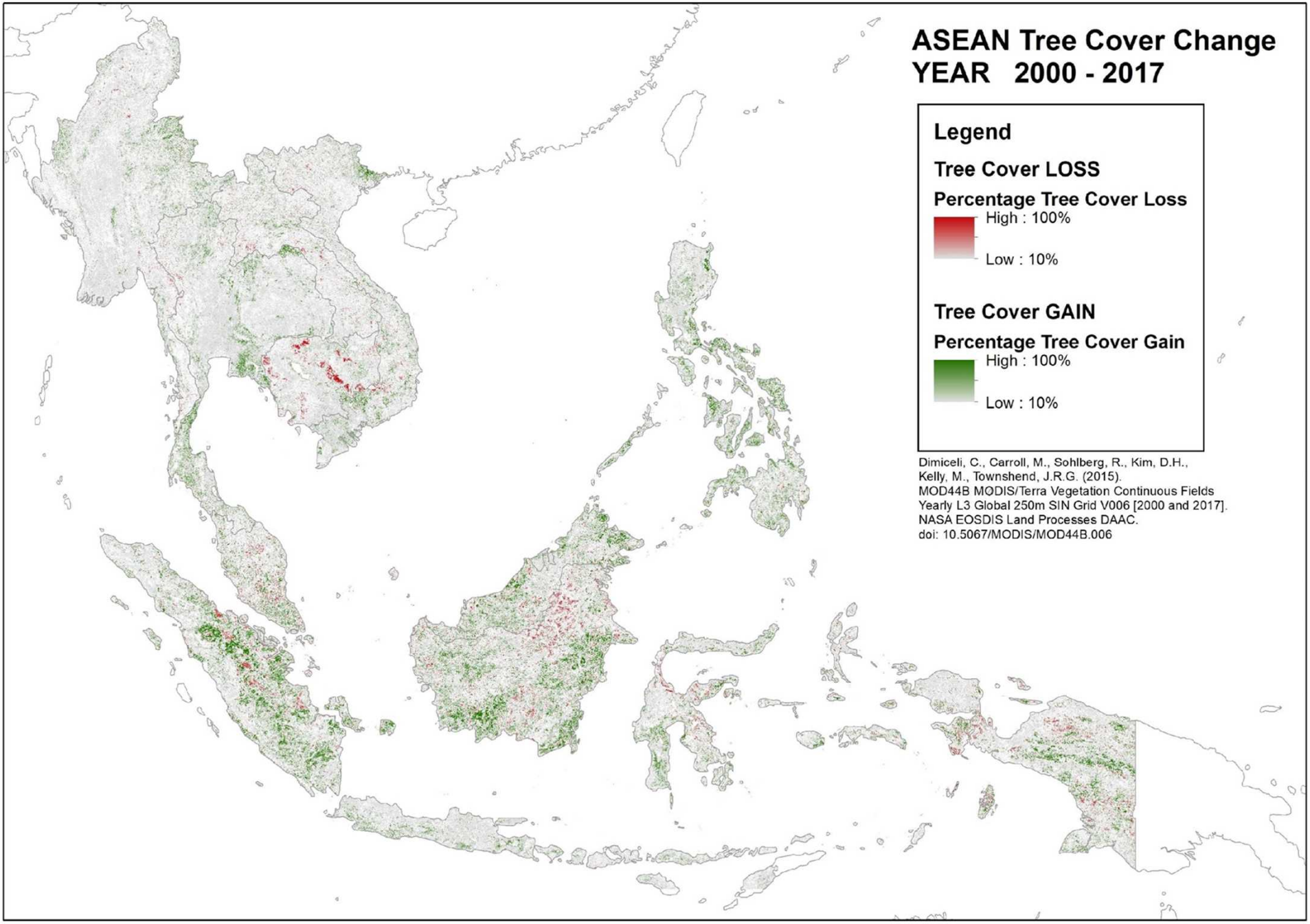
Integrative observations and assessments of Asian biodiversity (sponsored by MoEJ; 2011-2015)

Forest transitions in SE Asia (Imai et al. 2018)



Source: FAO statistics





Provided by Sheilla Vergara (ACB)

Forest loss in Cambodia

Forest Administration established 32 plots in 1998 that have been monitored by 2010 (Toyama et al. 2015).

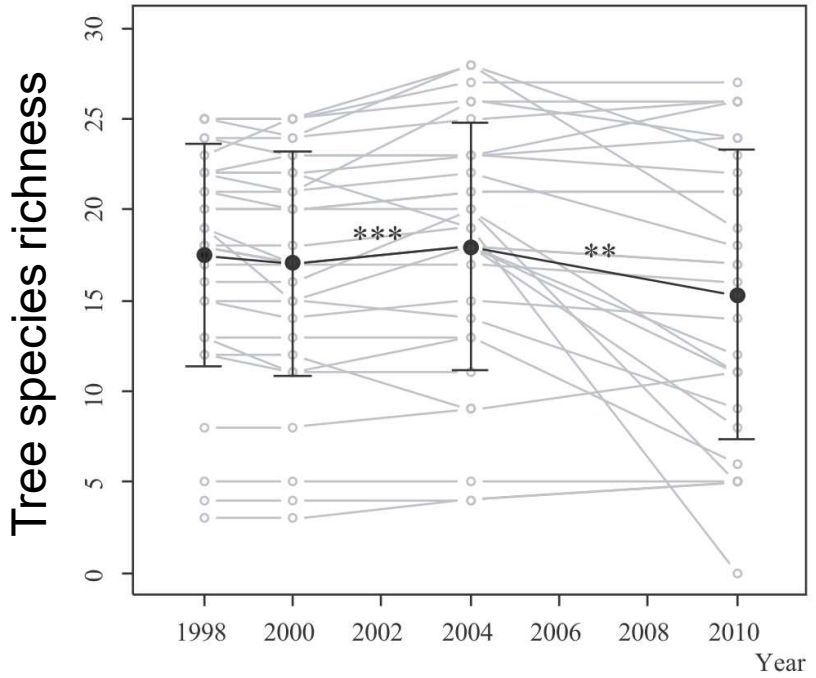
PHILOSOPHICAL TRANSACTIONS B

rstb.royalsocietypublishing.org

Effects of logging and recruitment on community phylogenetic structure in 32 permanent forest plots of Kampong Thom, Cambodia

Hironori Toyama[1], Tsuyoshi Kajisa[1], Shuichiro Tagane[1], Keiko Mase[1], Phourin Chhang[2], Vanna Samreth[3], Vuthy Ma[2], Heng Sokh[2], Ryuji Ichihashi[1], Yusuke Onoda[4], Nobuya Mizoue[1] and Tetsukazu Yahara[1]

Dipterocarp forest in 2009

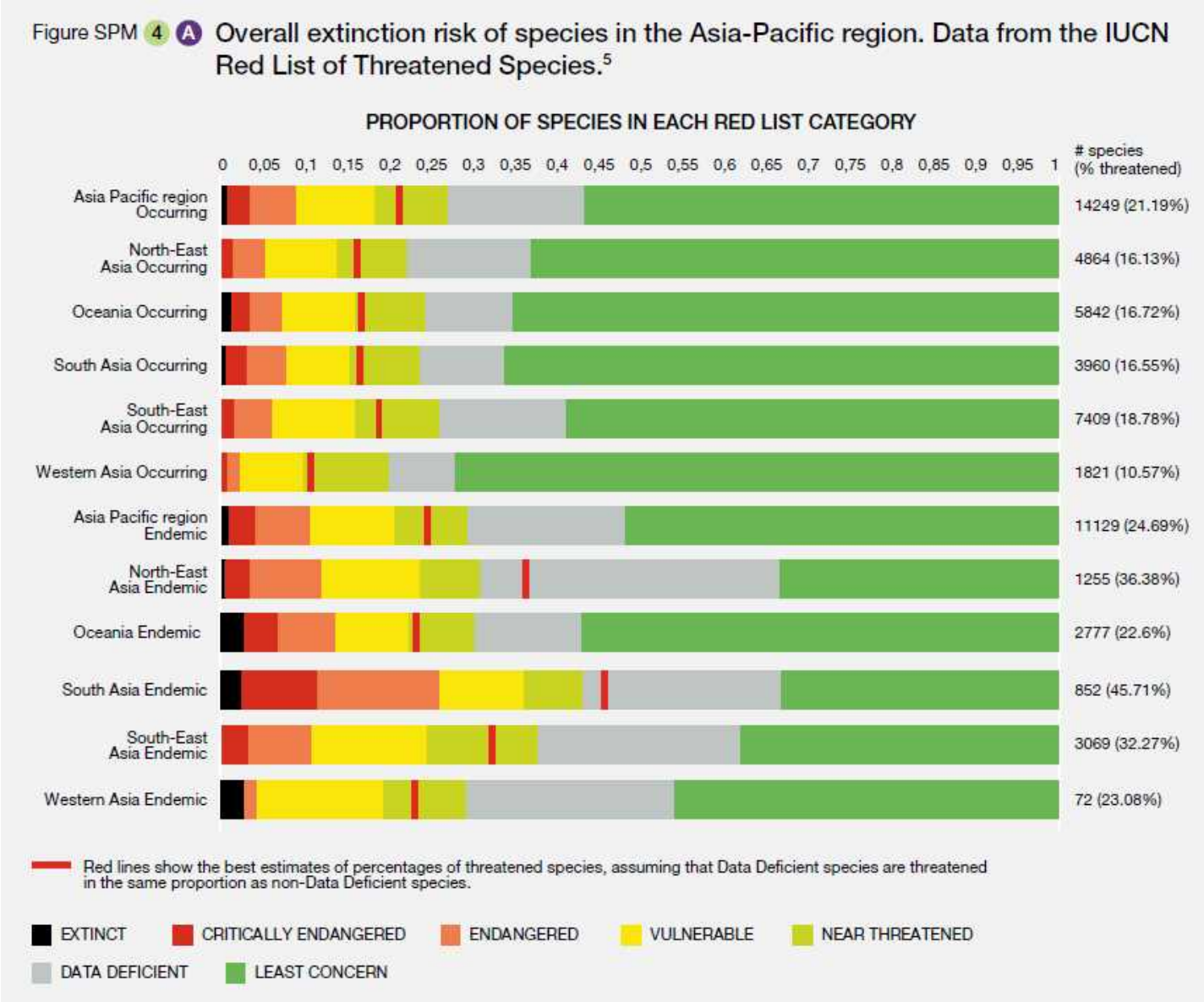


Forests of all 32 plots are logged by 2018

A new species collected in 2010 is lost.

Undescribed species of Trigonostemon (Euphorbiaceae)

IPBES AP regional assessment



IPBES AP regional assessment

It is clarified that there are no data available for the vast majority of species/biodiversity, since Red Lists generally and particularly in the Asia-Pacific region (maybe with the partial exception of Australia and New Zealand) are focussed on plants and vertebrates that jointly are likely to account for < 5 per cent of species.

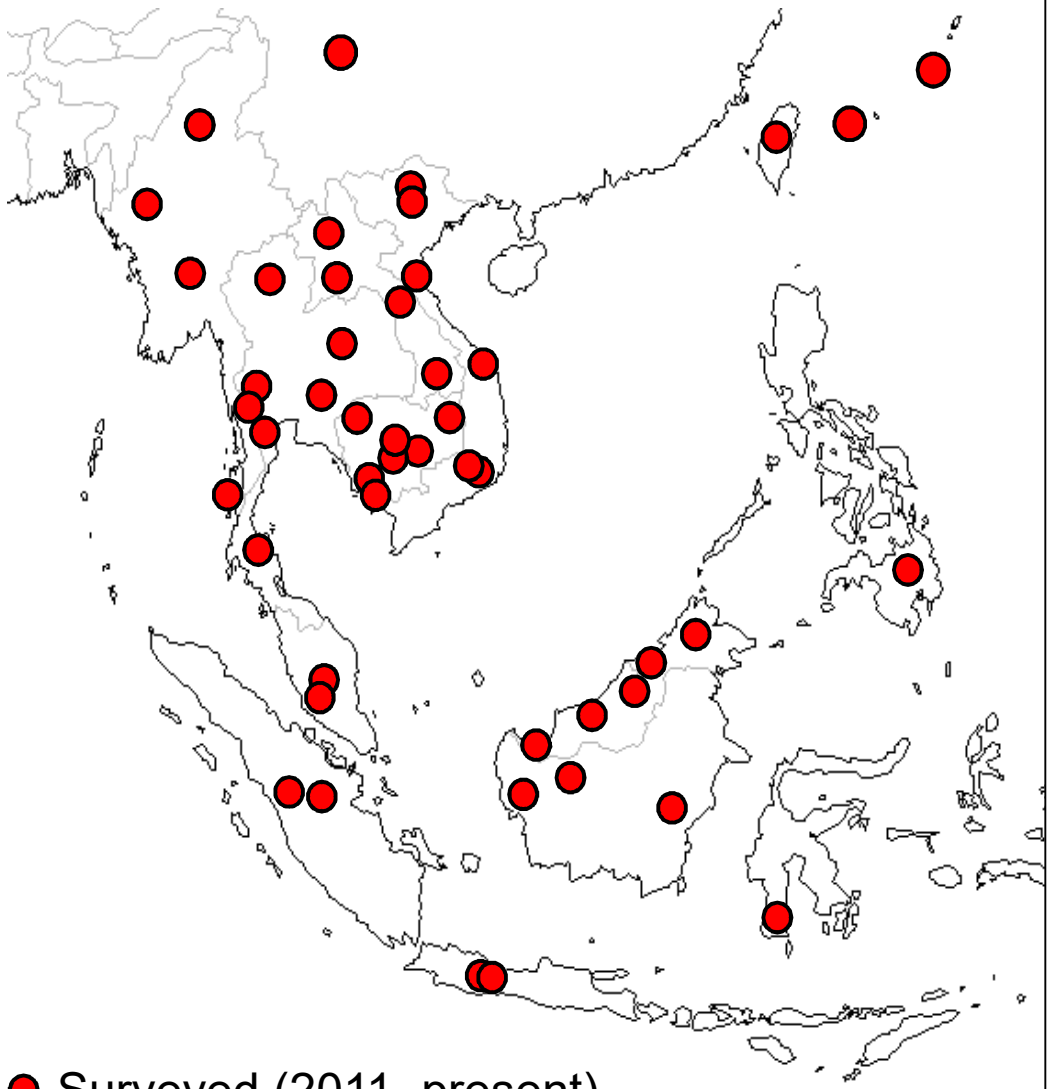
RL accounts for < 5% of species, focusing on plants and vertebrates

An approximation to the current status of biodiversity in the Asia-Pacific region was obtained by disaggregating global biodiversity information products (T. M. Brooks *et al.*, 2016). The IUCN Red List of Threatened Species includes 14,249 species in taxonomic groups that have been comprehensively assessed, of which around 21 per cent are considered threatened, which is similar to the global percentage of 23 per cent. Plants have not been comprehensively assessed yet, but a random global sample of 7000 land plant species gives a similar estimate of 16-21 per cent threatened in the Asia-Pacific region, compared with 22 per cent globally (Brummitt *et al.*, 2015).

Among spp. assessed in AP, 21% are threatened.
A random sample of plants suggests 16-21 % are threatened.

Plant Diversity Assessments

154 plots at 56 locations of 10 countries



● Surveyed (2011- present)

Brunei Dalussalam (UBD)
Kuala Belalong FSC

Cambodia (FA)
Koh Kong, Bokor, Seima, Siem Reap, Kg Thom, Kg Chhnang

China (Guangxi Univ.)
Jiuwanshan NR

Laos (NUoL)
Nam Kading NPA, Nam Ha NPA, Phou Khao Khouay NPA, Dong Hua Sao NPA

Vietnam (ITB, Dalat University)
Ba Vi, Fan Si Pan, Vu Quang, Bach Ma, Ngoc Linh, Bidoup Nui Ba, Hon Ba

Thailand (BKF, KU)
Doi Inthanon, Phu Kradueng, Maeklong, Kaeng Krachan, Khao Soi Dao, Khao Luang, Khao Yai

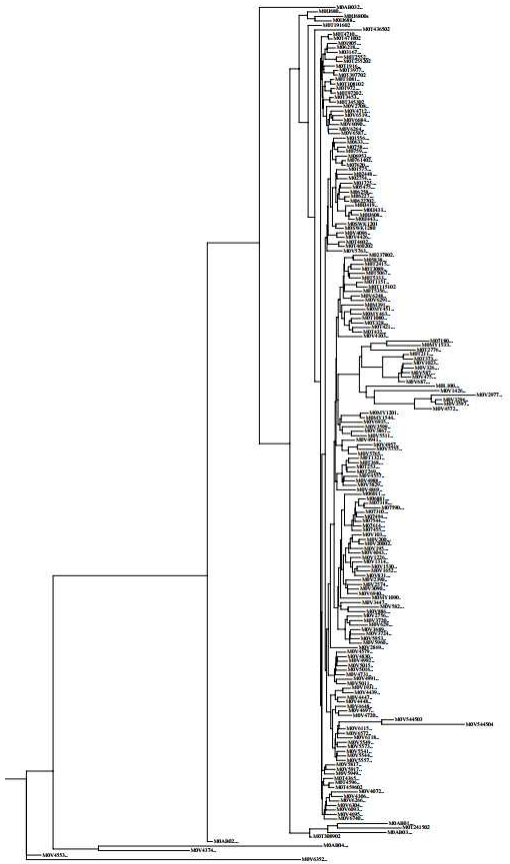
Myanmar
Chin, Lampi Island, Indawgyi, Tanintharyi

Malaysia (FRIM, RDID, BRC)
Fraser's Hill, Pasoh, Lambir Hills, Bintulu, Batan Ai

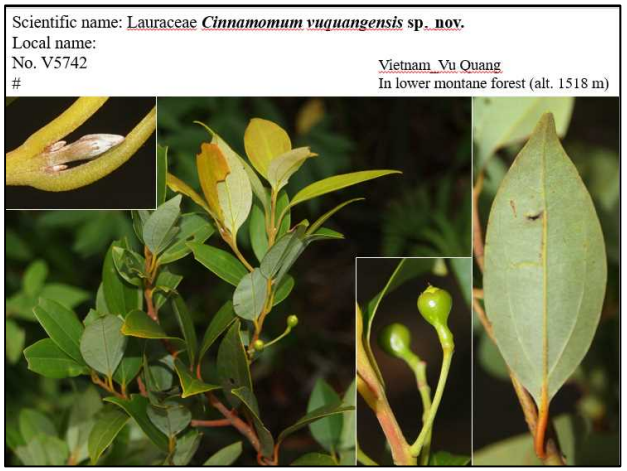
Indoneseia (LIPI, Andalas Univ., Hasanudin Univ.)
Gn. Gede Pangrango NP, Gn. Halimun (Java), Bantimulung Bulusarung (Sulawesi), Gn. Gadut, Pekambaru (Sumatra), Mandor, Serimbu (W. Kalimantan), Bukit Bangkirai (E. Kalimantan)

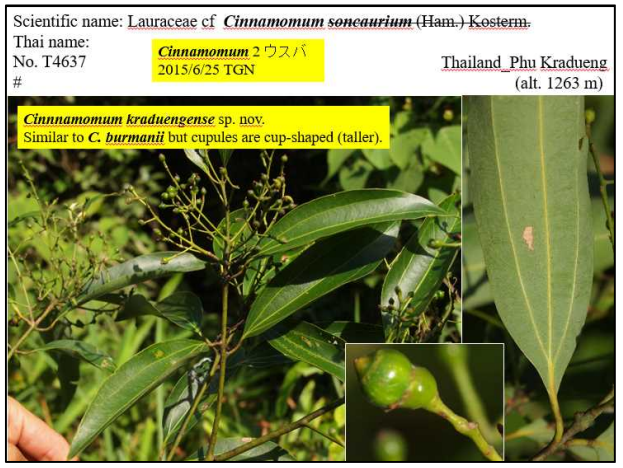
Phillipines (DENR)
Banahao

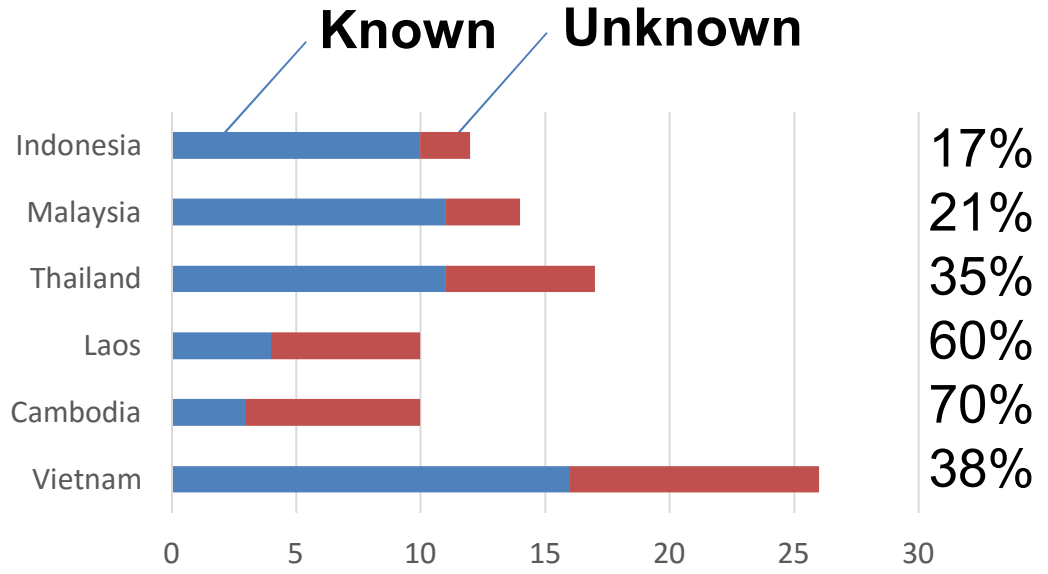
Proportion of new species in *Cinnamomum*, Lauraceae



MIG-seq tree

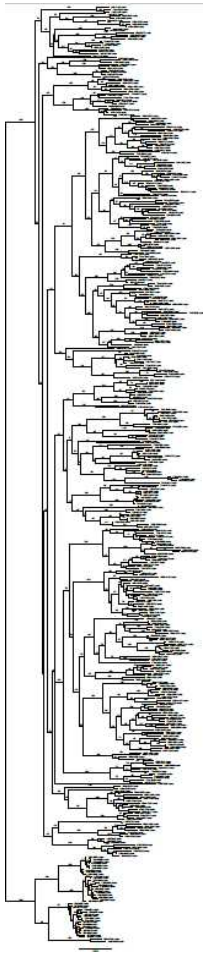




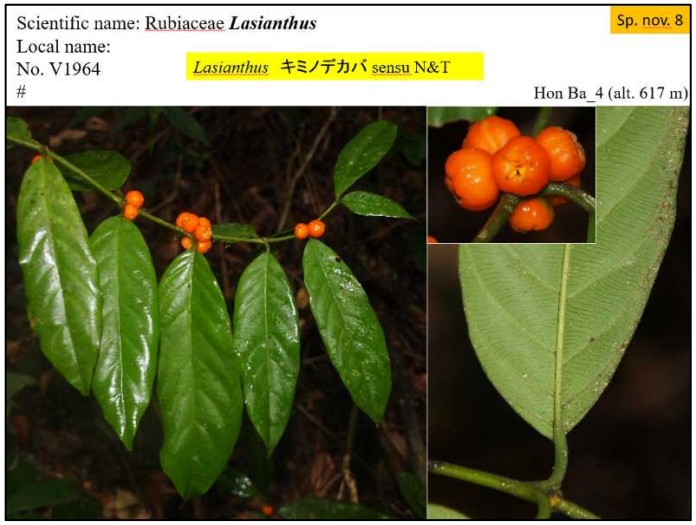


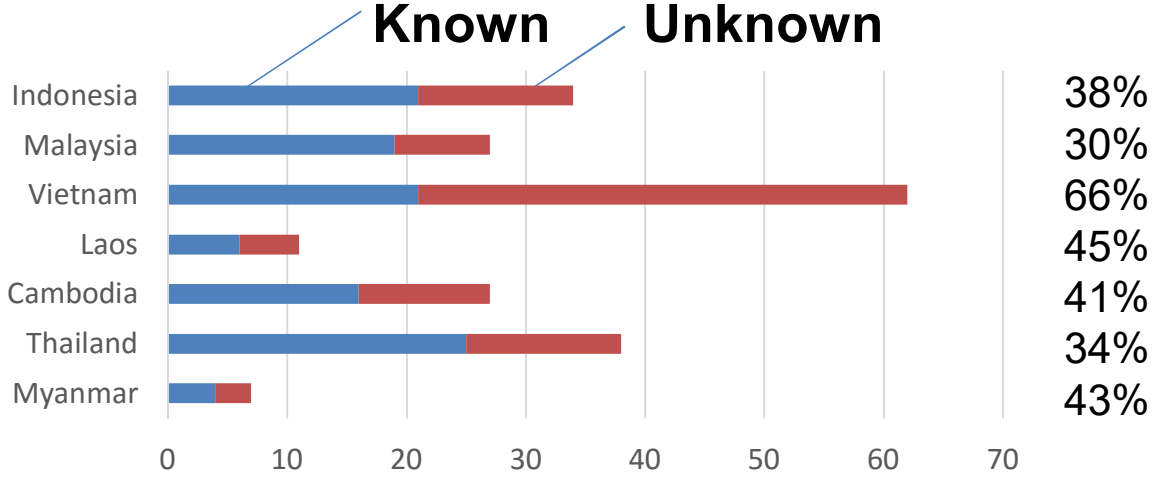
Among 104 species, **31 spp.（30%）are undescribed.**

Proportion of new species in *Lasianthus*, Rubiaceae



MIG-seq tree





Among 146 species, **77 spp.（53%）are undescribed.**

Proportion of new plant species in tropical Asia

Nation	National Parks	Spp. identified	Proportion of new spp. (%)	Proportion of new records (%)	Spp. unidentified
Cambodia	Bokor	747	**24 (3.2%)**	102 (13.6%)	57
Laos	Nam Kading	188	**9 (4.7%)**	34 (18.1%)	351
Vietnam	Bidoup Nui Ba (Langbian)	149	**34 (22.8%)**	1 (0.7%)	25
Thailand	Khao Yai	559	**3 (0.5%)**	1 (0.2%)	116
Myanmar	Tanintharyi	270	**5 (1.8%)**	10 (3.7%)	153

On average, 3.9 % of plant species are undescribed.
In Bidoup Nui Ba, Vietnam, 22.8 % of spp. are undescribed.
Samples of Malaysia and Indonesia are not yet assessed.

Many new species are threatened

Assessments for IUCN Red List categories

E.g.

Phytotaxa 375 (4): 247–260
http://www.mapress.com/j/pt/

Article

ISSN 1179-3155 (print edition)
PHYTOTAXA
ISSN 1179-3163 (online edition)

https://doi.org/10.11646/phytotaxa.375.4.1

Five new species of *Syzygium* (Myrtaceae) from Indochina and Thailand

SHUICHIRO TAGANE[1,2*], VAN-SON DANG[3], PHETLASY SOULADETH[4], HIDETOSHI NAGAMASU[5], HIRONORI TOYAMA[1,6], AKIYO NAIKI[6], KENGO FUSE[1], HOP TRAN[7], CENG-JUI YANG[8], AMORNRAT PRAJAKSOOD[9] & TETSUKAZU YAHARA[1]

Syzygium honbaense Tagane, V.S.Dang & Yahara, *sp. nov.* (Figure 2).

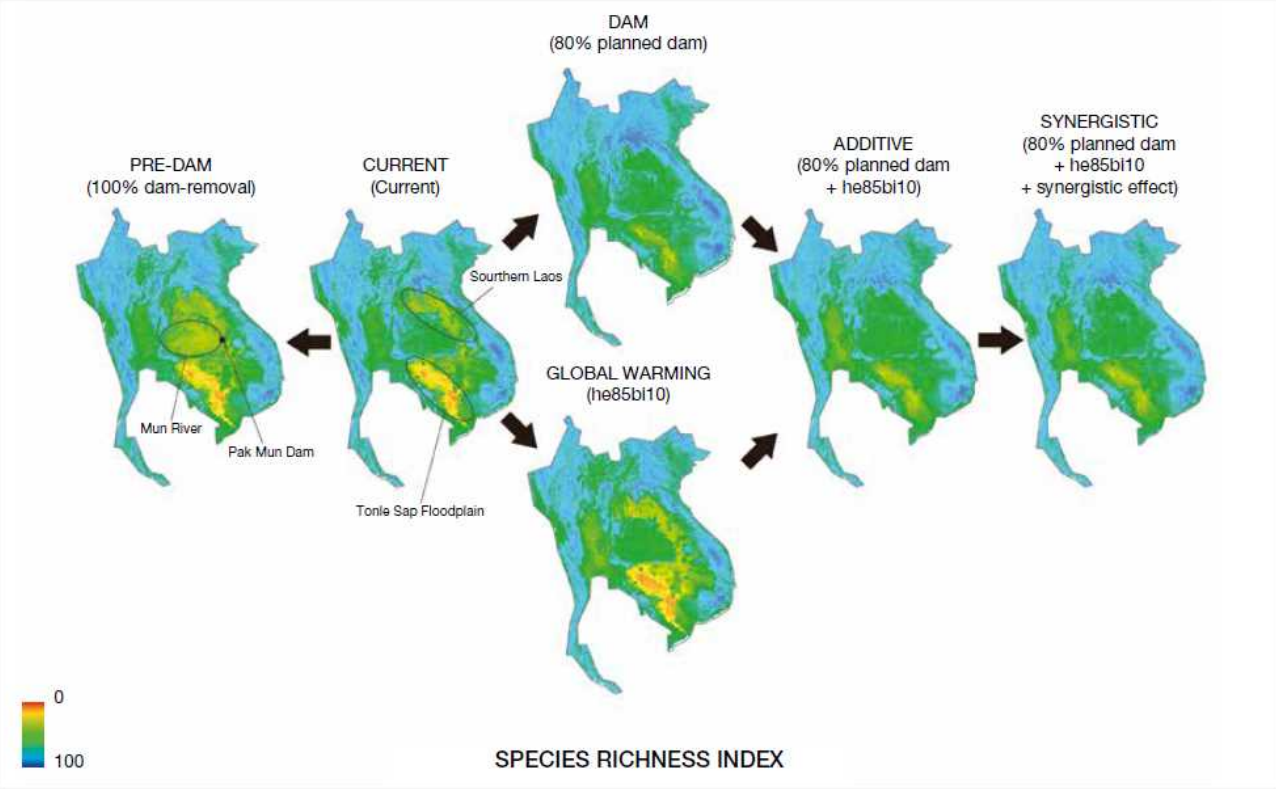
Preliminary conservation assessment:—Critically Endangered (CR). During our intensive botanical surveys in Mt. Hon Ba from 2011 to 2013, only one flowering individual was found at the edge of the evergreen forest, along the road to the summit of Mt. Hon Ba. This situation satisfies the CR (critically endangered) status in criterion D of IUCN Red List Categories (IUCN 2012).

Syzygium phoukhaokhouayense Soulad., Tagane & Yahara, *sp. nov.* (Figure 4).

Preliminary conservation assessment:—Critically Endangered (CR). At present, *Syzygium phoukhaokhouayense* is known from only a single individual in the Phou Khao Khouay National Protected Area, at 905 m elev. The area is close to the Vientiane Capital, and has been relatively intensively surveyed by many botanists (e.g. Newman *et al.* 2007, Souladeth & Meesawat 2012, Lucas *et al.* 2013). However, we could not find any specimen of this species in the major herbaria (BKF, FOF, HN, KAG, NHL, P, RUPP, TNS, VNM), indicating that this is a rare species. This situation is qualified as CR according to IUCN Red List criteria D (IUCN 2012).

IPBES AP regional assessment

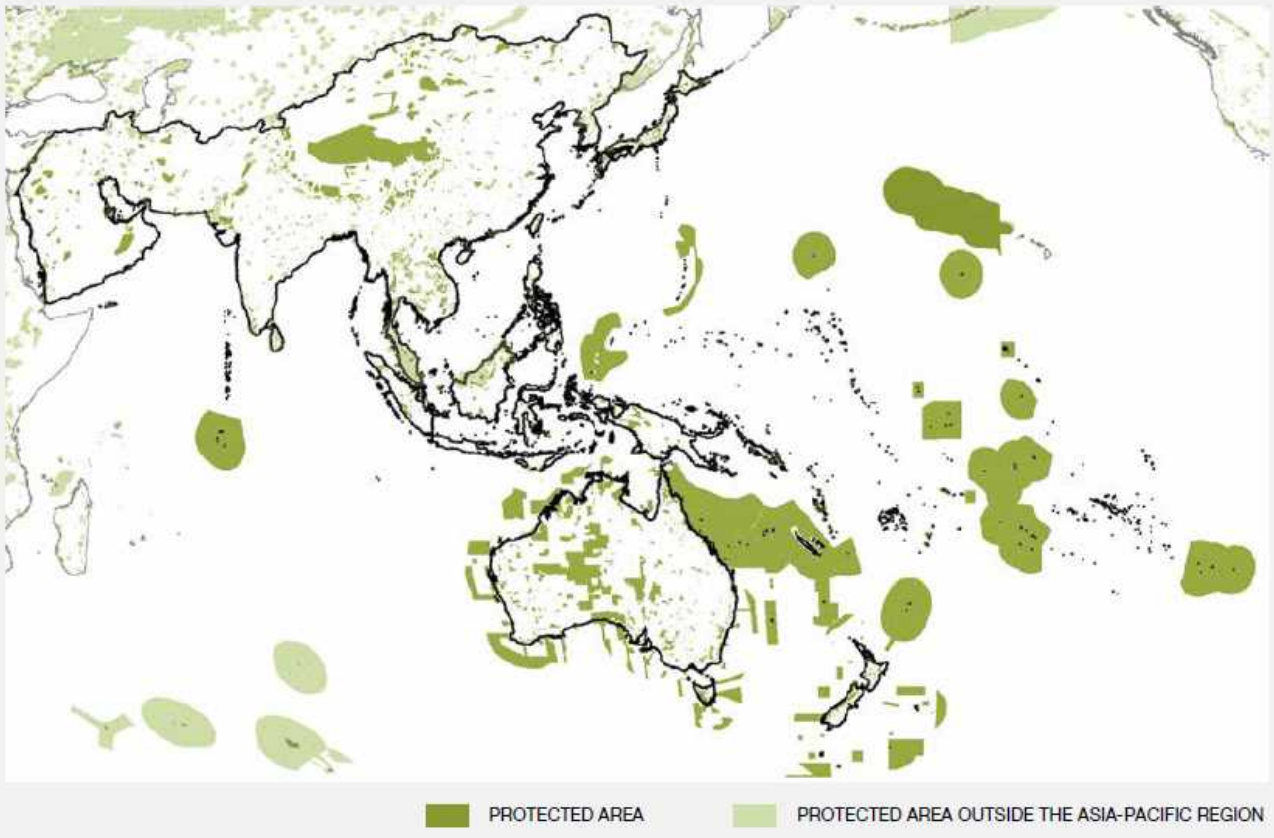
Figure 3 5 Cumulative impacts of various drivers on freshwater fish in the Mekong Basin. Source: Kano et al. (2016).



Fish bidodiversity index	PRE-DAM	CURRENT	DAM	GLOBAL WARMING	ADDITIVE	SYNERGISTIC
Mean species richness index	39.6	37.3	32.8	41.1	36.1	34.2
Mean habitable area index (km^2)	637,097	613,626	564,744	586,691	546,480	511,394
Proportion of threatened species	0.0%	4.7%	16.0%	35.0%	39.7%	40.5%

IPBES AP regional assessment

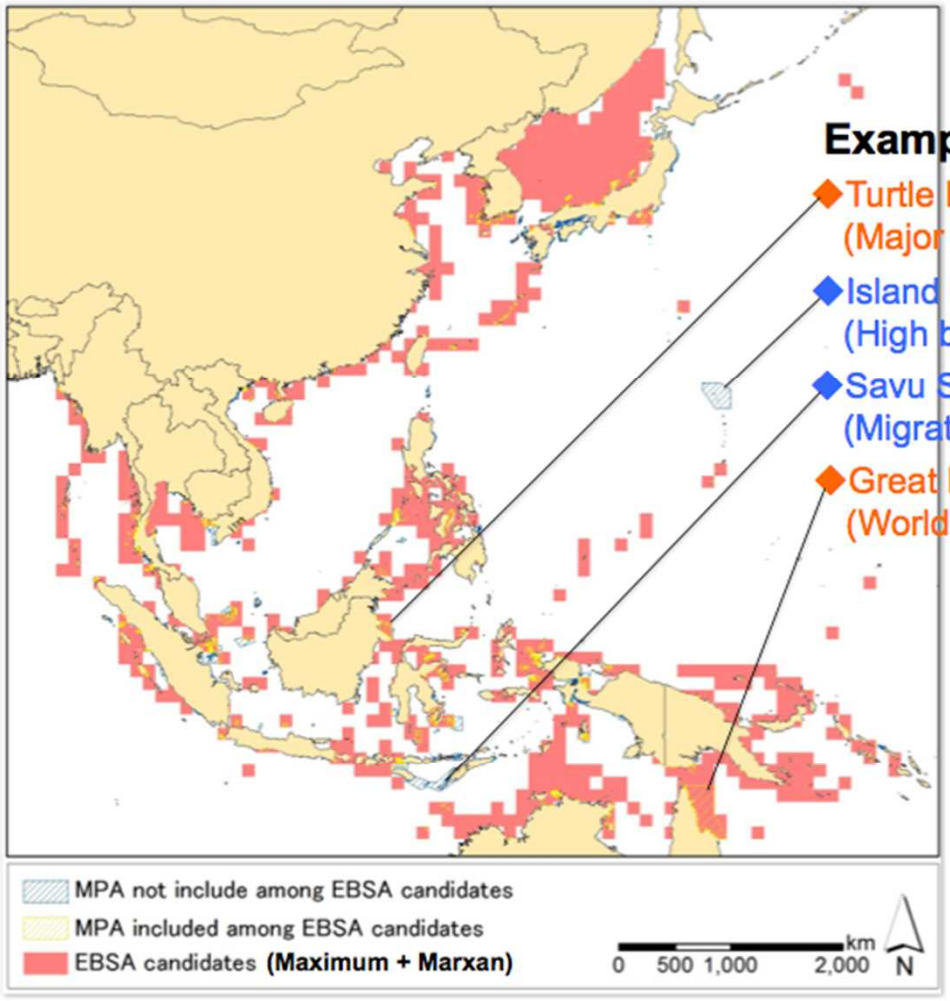
Figure 3 10 A Protected Area coverage in the Asia-Pacific region. Source: UNEP-WCMC & IUCN (2018).



Comparative study on issues of Marine Protected Area

Yamakita and Sudo et al. EBSAs in East and South East Asia (Marine Policy 2017)

Contribution to marine science and policy making on sustainable use



Examples of Agreements and Disagreements

- Turtle Islands Heritage Protected Area
  (Major nesting area of marine turtles)
- Island Unit of Mariana Trench Marine National Monument
  (High biodiversity of seamounts and hydrothermal vents)
- Savu Sea Marine Protected Area
  (Migration corridor for threatened species, high nutrient)
- Great Barrier Reef Marine Park
  (World largest coral reefs)

Sea area within Asia-Pacific region	Rate (%)
Marine Protected Area (MPA)	1.1
MPA included among EBSA candidates	0.5
MPA not included among EBSA candidates	0.6
EBSA candidate not overlap with MPA	13.9

Total area of EBSAs became 14.4% of the study area.
Only 45% of MPAs overlapped with EBSA candidates.

nature
International journal of science

Correspondence | Published: 10 February 2016

Social sciences

IPBES disciplinary gaps still gaping

Alice B. M. Vadrot, Jens Jetzkowitz & Lindsay C. Stringer

Nature **530**, 160 (11 February 2016) | Download Citation

The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) convenes this month to approve summaries for policymakers of the first assessments at its fourth plenary.

Despite early calls for IPBES to draw on a broader range of disciplines than did the Intergovernmental Panel on Climate Change (see E. Turnhout *et al. Nature* **488**, 454–455; 2012), the social sciences and the humanities remain markedly under-represented. They make up less than 10% of the membership of IPBES expert groups, instead of the recommended 30%. These disciplines should play a bigger part in IPBES assessments and in implementing the first IPBES work programme for 2014–18.

nature ecology & evolution

Correspondence | Published: 04 June 2018

Global gaps in soil biodiversity data

Erin K. Cameron, Inês S. Martins, Patrick Lavelle, Jérôme Mathieu, Leho Tedersoo, Felix Gottschall, Carlos A. Guerra, Jes Hines, Guillaume Patoine, Julia Siebert, Marten Winter, Simone Cesarz, Manuel Delgado-Baquerizo, Olga Ferlian, Noah Fierer, Holger Kreft, Thomas E. Lovejoy, Luca Montanarella, Alberto Orgiazzi, Henrique M. Pereira, Helen R. P. Phillips, Josef Settele, Diana H. Wall & Nico Eisenhauer

Nature Ecology & Evolution **2**, 1042–1043 (2018)

Focus Article

Climate change, tree pollination and conservation in the tropics: a research agenda beyond IPBES

Fernando Ramírez[1*] and Jose Kallarackal[2]

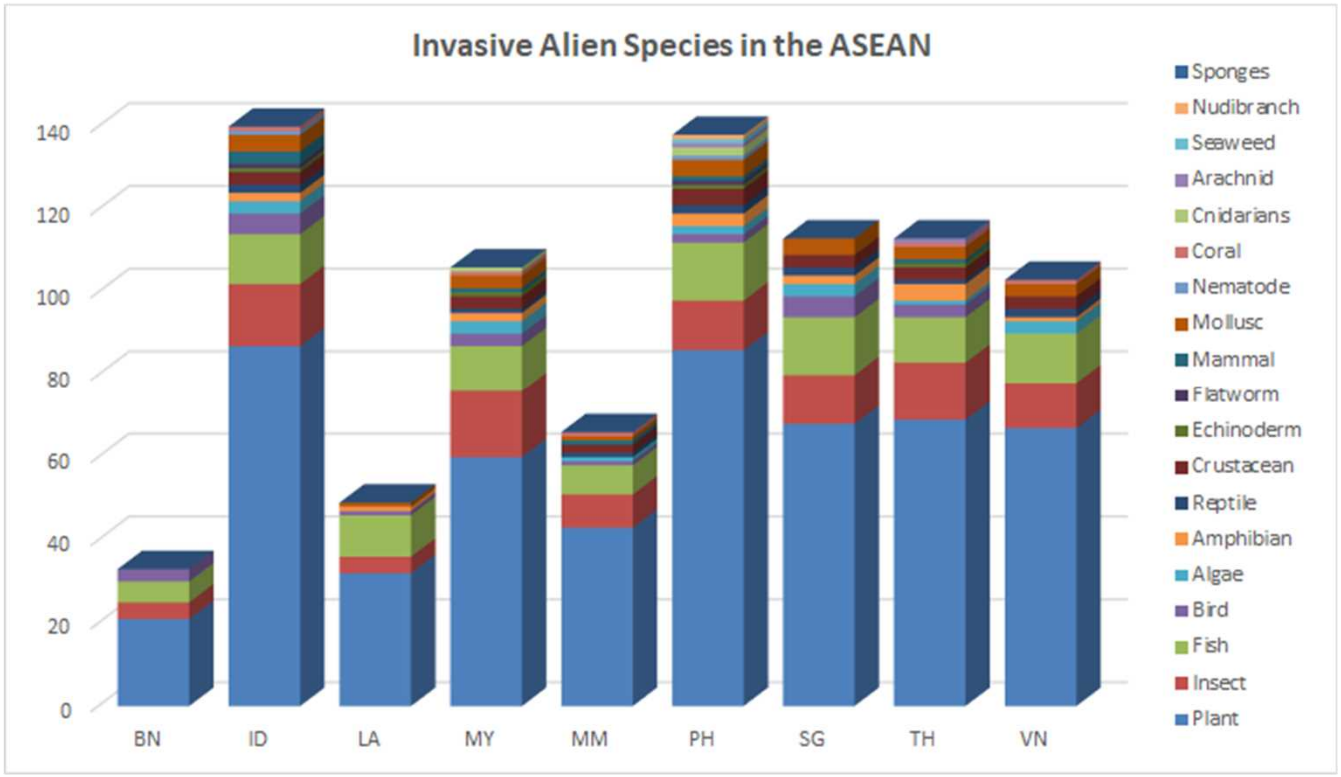
Edited by Josef Settele, Domain Editor, and Mike Hulme, Editor-in-Chief

Tree-pollinator interactions are important ecosystem services that are threatened by global warming and climate change. Very few investigations have focused on fruit-tree pollination interactions in the tropics. In this paper, we analyze knowledge gaps proposed by the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) with special reference to the tropics and associated with (1) the effects of climate change on plant-pollinator interactions and (2) pollinator diversity and population attributes within the context of nature conservation.

How to cite this article:
WIREs Clim Change 2018, 9:e502. doi: 10.1002/wcc.502

Aichi Targets achievements

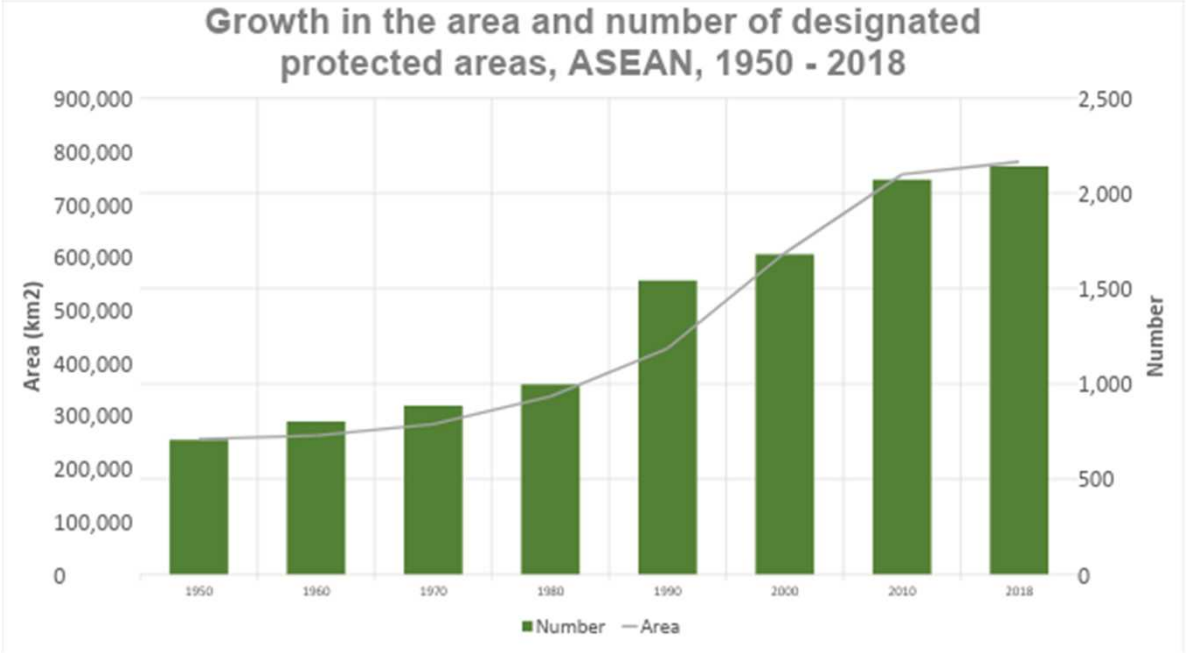
AICHI TARGET 9



Provided by Sheilla Vergara (ACB)

Aichi Targets achievements

AICHI TARGET 11



Source:
IUCN and UNEP-WCMC (2019), The World Database on Protected Areas (WDPA) [On-line], [April 2019]. Cambridge, UK: UNEP-WCMC. Available at: www.protectedplanet.net.

Provided by Sheilla Vergara (ACB)

The Beijing 2018 call on biodiversity observations for post-2020 decision-making

GEO BON Secretariat

November 12, 2018

News from: News from the GEO BON secretariat

Tags: Beijing call | BON | CBD | post-2020 target

We, the Group on Earth Observation Biodiversity Observation Network (GEO BON), have gathered scientists and practitioners from 25 countries, on the occasion of our 10th anniversary, in Beijing, to discuss the future of biodiversity monitoring globally. **We call on the Parties to the CBD to significantly step up their efforts on the collection, analysis and delivery of biodiversity observations to advance the world towards the 2050 Vision for Biodiversity.**

BON in “master sites”

Synonyms: “top sites”, “super sites”, “LTER hubs”, “sentinel sites” etc.

	UNESCO BR	Forest GEO
Japan	Yakushima	
Korea	Jeju Island	
China	Xishuangbanna	Xishuangbanna
Taiwan		Lienhuachih
Vietnam	Langbian	Bidoup
Laos		
Cambodia	Tonle Sap	
Thailand	Mae Sa-Kog Ma	Doi Inthanon
Myanmar	Inlay Lake	
Malaysia	Crocker Range	Pasoh, Lambir
Brunei		Kuala Belalong
Singapore		Bukit Timah
Indonesia	Cibodas	
Phillipines	Pallawan	Palanan

Vegetation damaged by deer browsing in Jeju Island

Kim *et al. Journal of Ecology and Environment* (2017) 41:22
DOI 10.1186/s41610-017-0037-0

Journal of Ecology and Environment

RESEARCH Open Access

Disturbance in seedling development of Korean fir (*Abies koreana* Wilson) tree species on higher altitude forests of Mt. Hallasan National Park, the central part of Jeju Island, Korea

Eun-Shik Kim[1*], Jong-Won Lee[2], Im-Joon Choi[1], Wontaek Lim[2], Junghwan Choi[2], Choong Hyeon Oh[3], Sung-Hoon Lee[4] and Young-Sun Kim[1]

http://www.ajudaily.com/view/20160622082009279

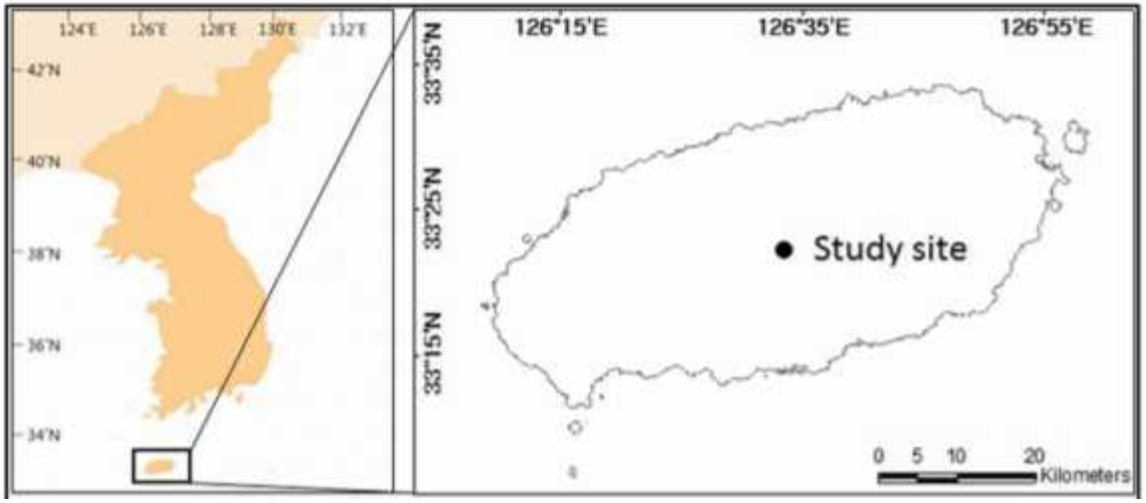


Fig. 4 A photo of the seedling of Korean fir whose stem tips have been browsed (31 July 2016, photo by Eun-Shik Kim)

AP BON: key questions

- How can we contribute to CBD COP 15?
- What are publications/deliberables we can make by 2020?
- How can we contribute to AOGEO?
- What are major gaps to be bridged in future?