

TPM11 - Session 4

PRA6. Biodiversity Conservation
- Biodiversity conservation



Biodiversity conservation

Hiroya Yamano, Koichi Goka
(National Institute for Environmental
Studies, Japan)

Biodiversity Research Program

Project 1

**Assessment at the
landscape and
genetic levels**

Project 2

**Clarification of
current status and
future predictions**

**Proposal for
biodiversity-
friendly land use
design**

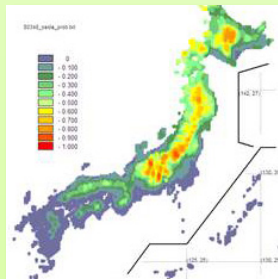
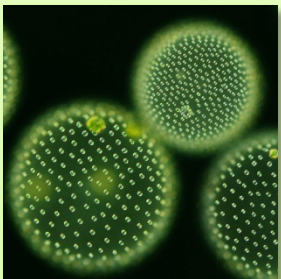
**Wide-scale
biodiversity and
environmental data
DNA barcoding
techniques**

Application

Project 3

**Impact of human
activities and
countermeasures**

**Proposal for
countermeasures
for emergency
issues**



Biodiversity Conservation Project in NIES

人為的環境攪乱要因の生物多様性影響評価と管理手法に関する研究

Ecological impact assessment and control measures of artificial environment disrupters

Subtheme 1

外来生物・鳥インフル
Invasive species and
infectious disease

Subtheme 2

組換え生物
GMO

Subtheme 3

温暖化
Global warming

生物多様性影響・生態系影響評価
Ecological impact assessment

防除戦略
Control strategies

管理手法
Management

将来予測
Estimation

生物多様性条約ポスト2010「愛知ターゲット」に対する貢献
Contribution to the Aichi Targets of CBD

Assessment and control of ecological impacts caused by invasive species and wild life disease

鳥インフルエンザ
Bird-flu virus



人為的環境攪乱による
感染症パンデミック
Pandemic of emerging
disease by artificially
disturbance of
environment

Intensive poultry
using anti

ウィルスの進化加速
Acceleration of the virus
evolution

人為的持込み
Artificial
introduction



外来昆虫
Invasive insects

人為的環境攪乱による
生物学的侵入
Biological invasion
caused by artificially
disturbance of
environment

林道開闢
forestry
path on

病原体拡散
Pathogen
expansion

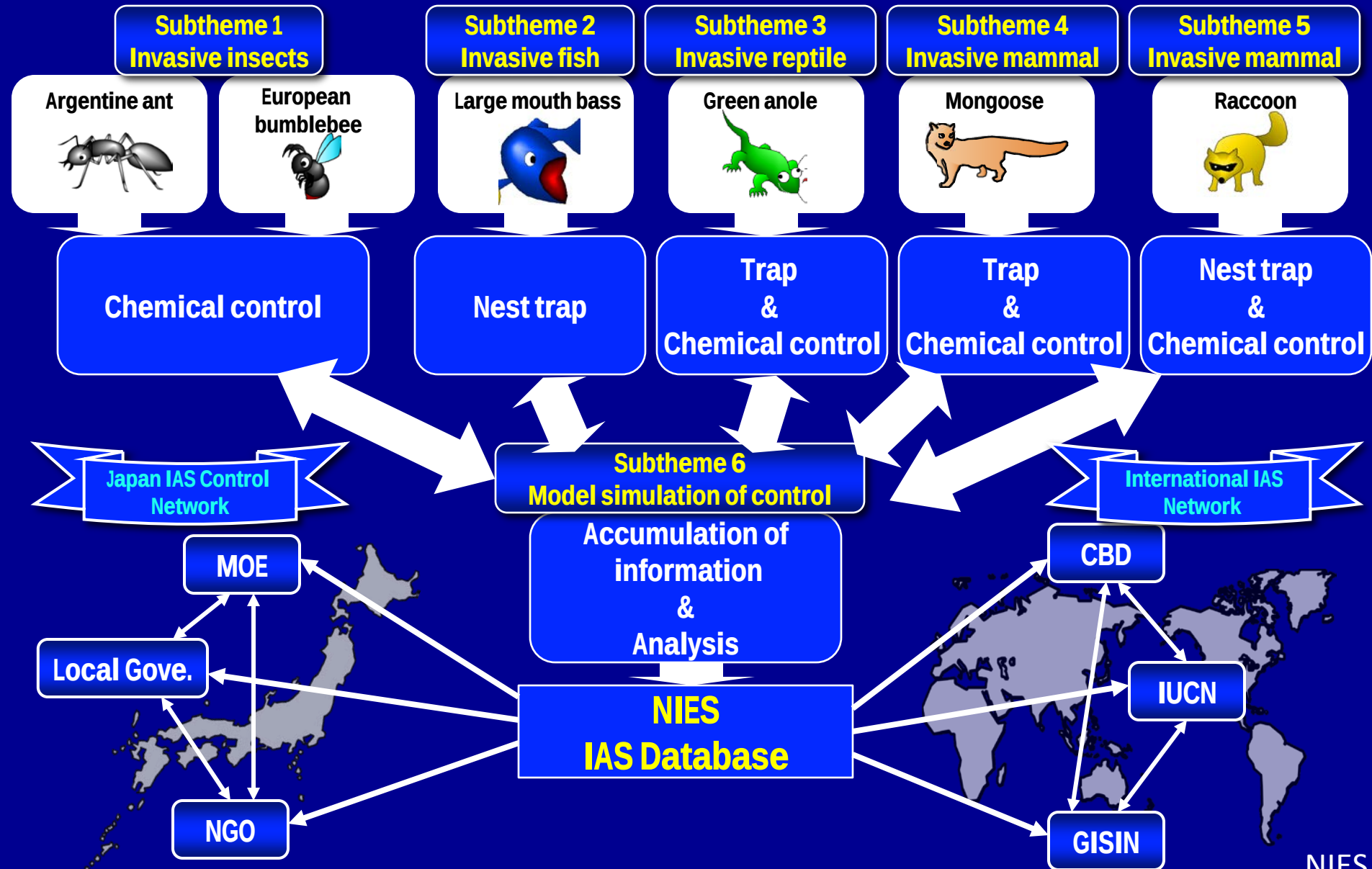
国際移送
World pet
trade



カエルノボカビ
Chytrid fungus

Development of new methods for eradication of invasive alien species

We need to make control of alien species to advance to a new stage



11th TPM
Kawasaki, Japan
2014.11.11~15

1st Management Plan of Alien Organisms in Korea

KIL Jihyon
National Institute of Environmental Research,
Ministry of Environment, KOREA



MINISTRY OF
ENVIRONMENT

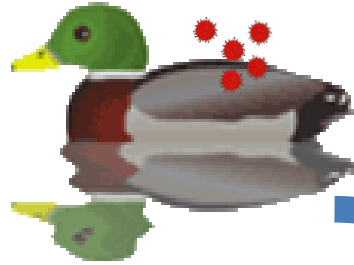


National Institute of
Environmental Research

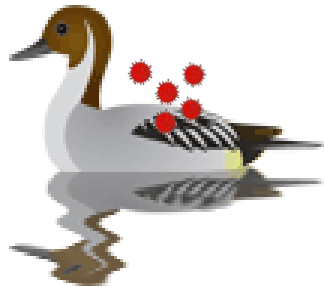


Potential risk map for avian influenza and common carrier birds in Japan

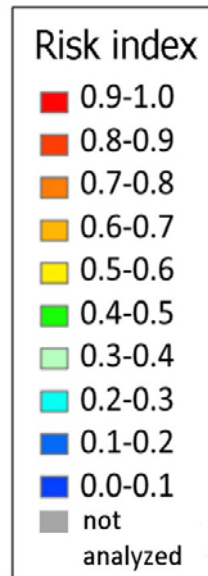
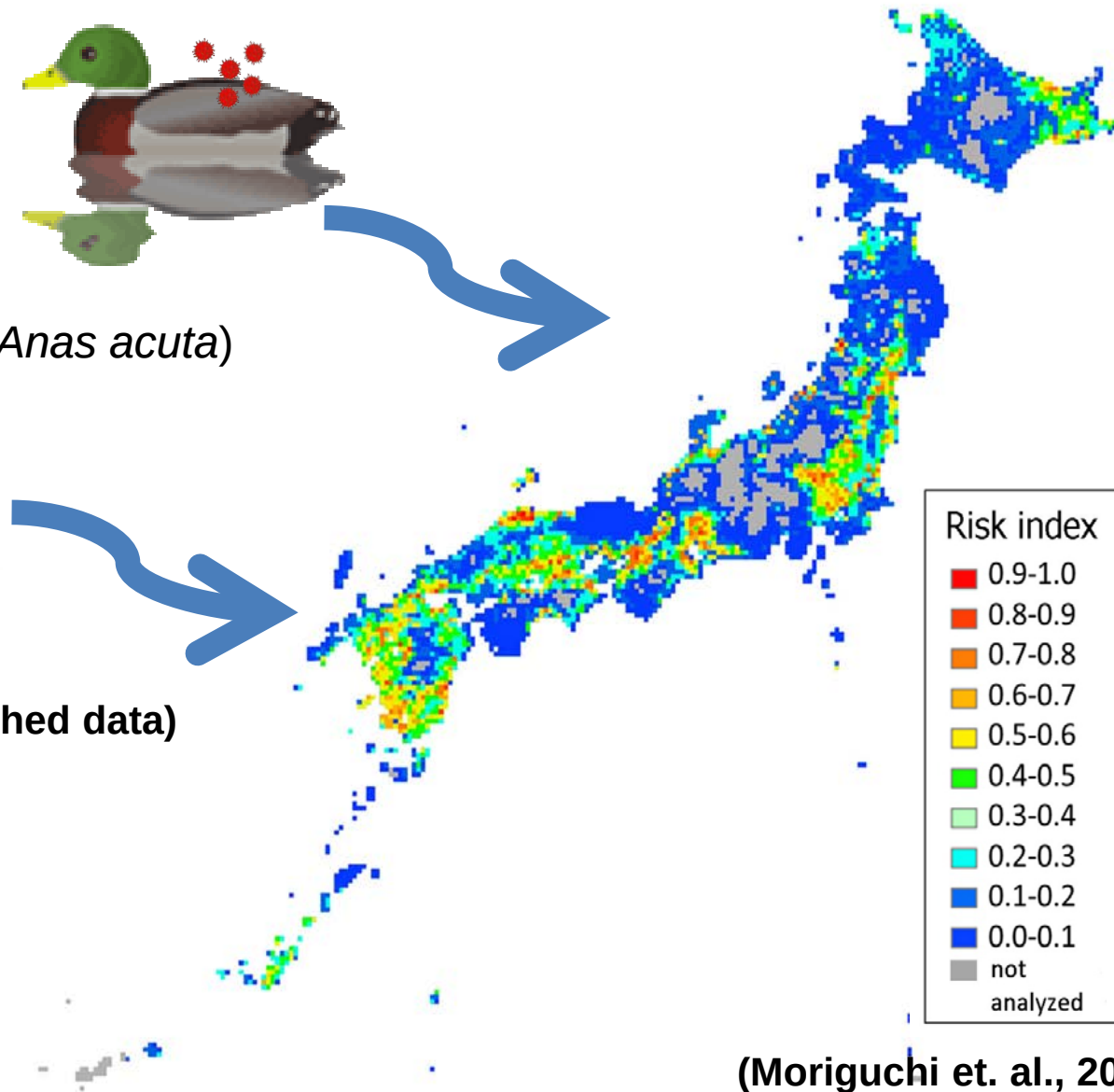
Mallard (*Anas platyrhynchos*)



Northern Pintail (*Anas acuta*)



(Onuma, unpublished data)



High risk area

Low risk area

(Moriguchi et. al., 2013)

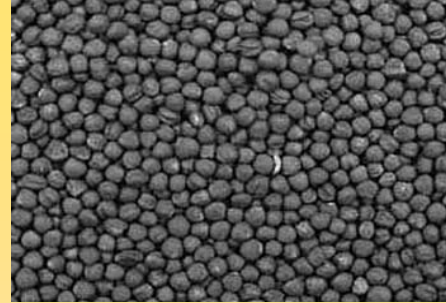
Japan Depends on 4 Major GM Crops



Corn
16.6 Mt



Soybean
4.2 Mt



Oilseed rape
2.1 Mt



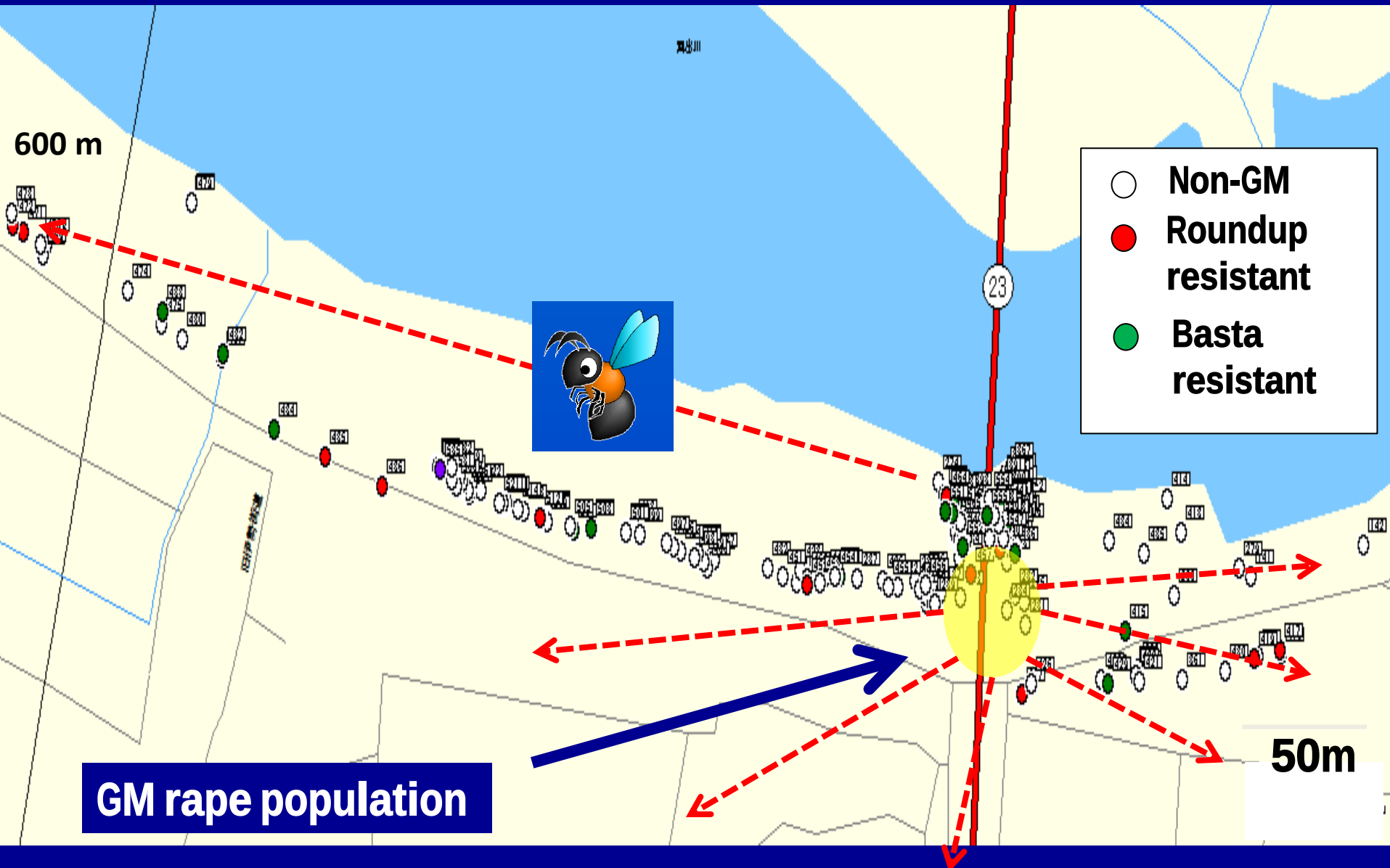
Cotton
0.14 Mt

© Oilseed rape (*Brassica napus*)

- National consumption depends on importation
- Imported seeds can germinate
- Survival over winter
- Insect pollination
- Hybridize with domestic relatives



GM pollen was transferred to 600m



Coral reefs under rapid environmental changes

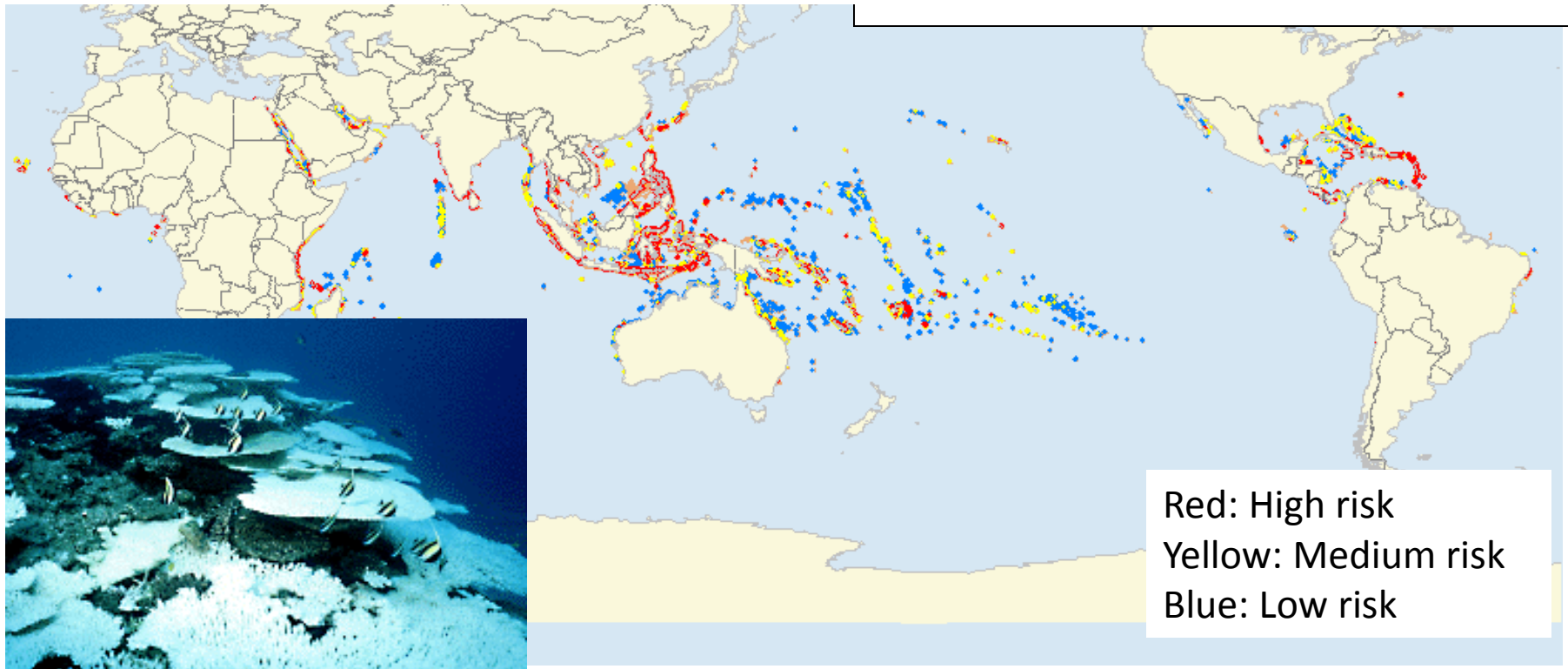
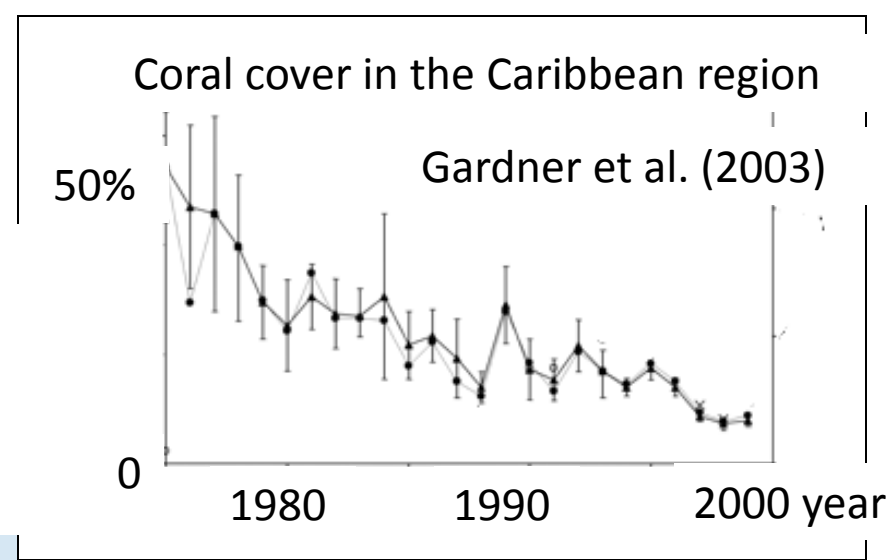
Sea surface temperature (SST) rise

Ocean acidification

Terrestrial input (sediment/nutrient discharge)

Overuse

Synergic effect of global and regional stresses



“Reefs at Risk”

(<http://www.reefbase.org>)

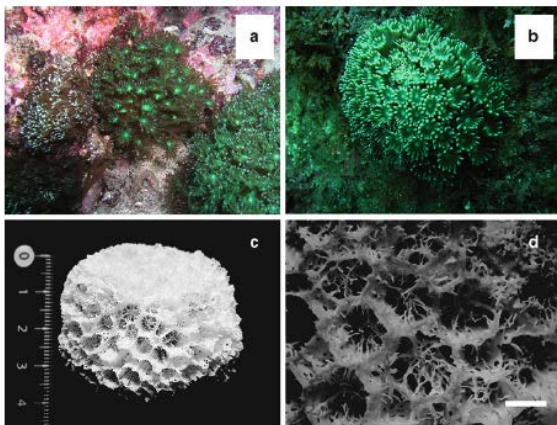
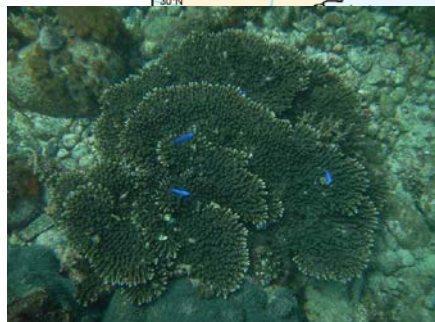


Fig. 6.4 *Alveopora japonica*. (a) Live colony with long polyps extended during the day. (b) Polyp tentacles with white and knob-like tips. (c) Small corallum with hemispherical growth form. (d) Corallites having porous walls and aligned spiny septa. Bar 2 mm

Collaborators:
KIOST, Jeju Univ.

Sugihara et al. (2014) Jeju coral monograph



Acropora hyacinthus recently occurred at Goto Archipelago

nature news

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Published online 21 January 2011 | Nature | doi:10.1038/news.2011.33

News

Coral marches to the poles

Reefs may simply move house when the oceans heat up.

Nicola Jones

Coral reefs are fleeing northwards, according to a new study. One type has been spotted 'sprinting' at 14 kilometres a year, thanks to a lift from ocean currents. That means ocean ecosystems could shift rapidly in the face of

Stories by subject

- Ecology

Stories by keywords

- coral
- coral reefs
- climate change

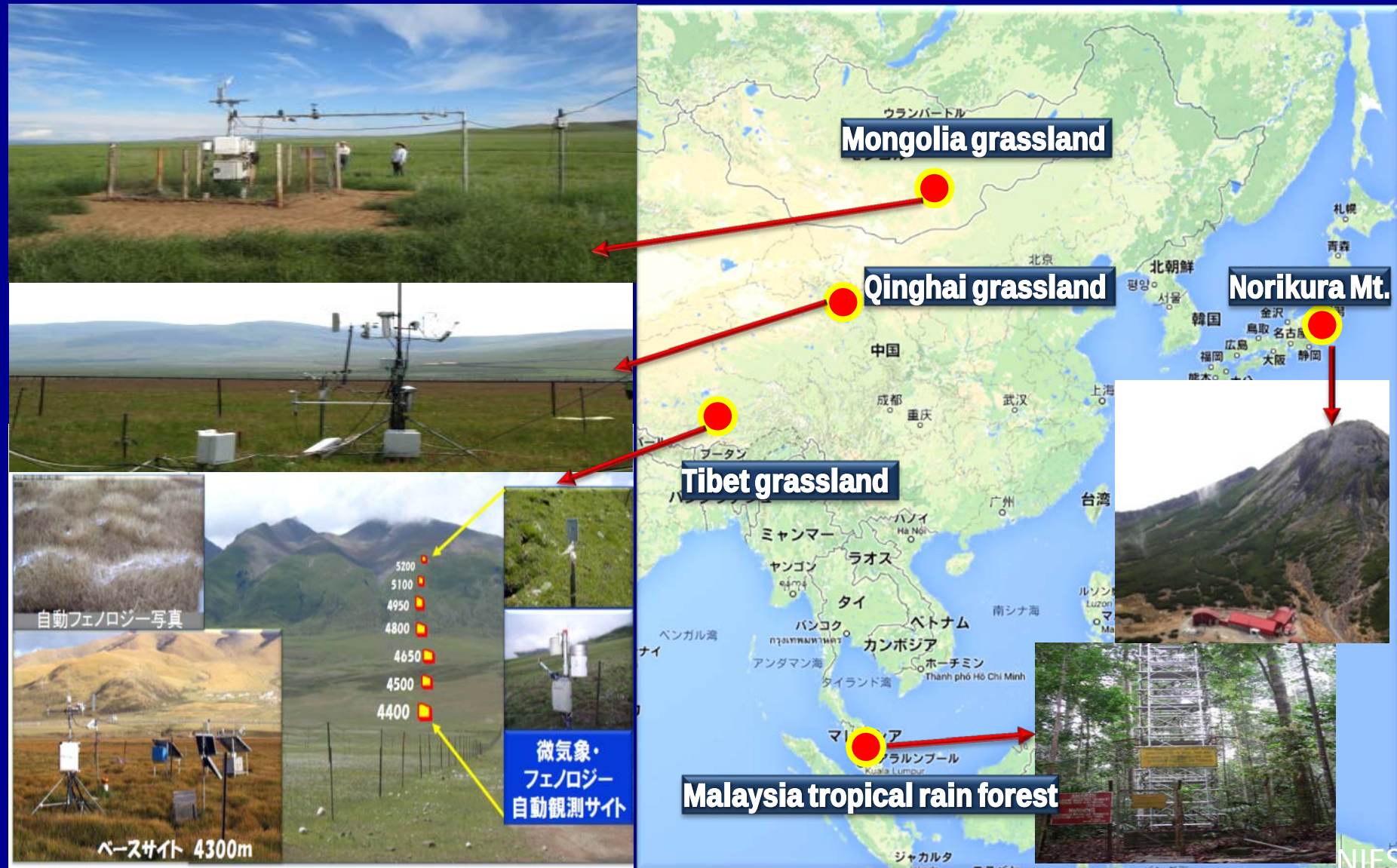
This article elsewhere

Blogs linking to this article

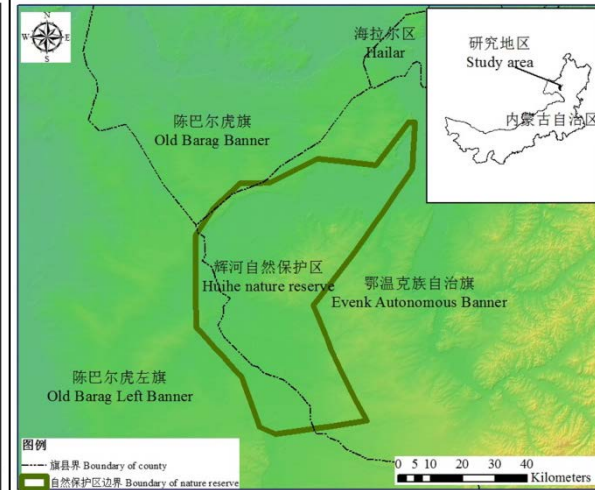
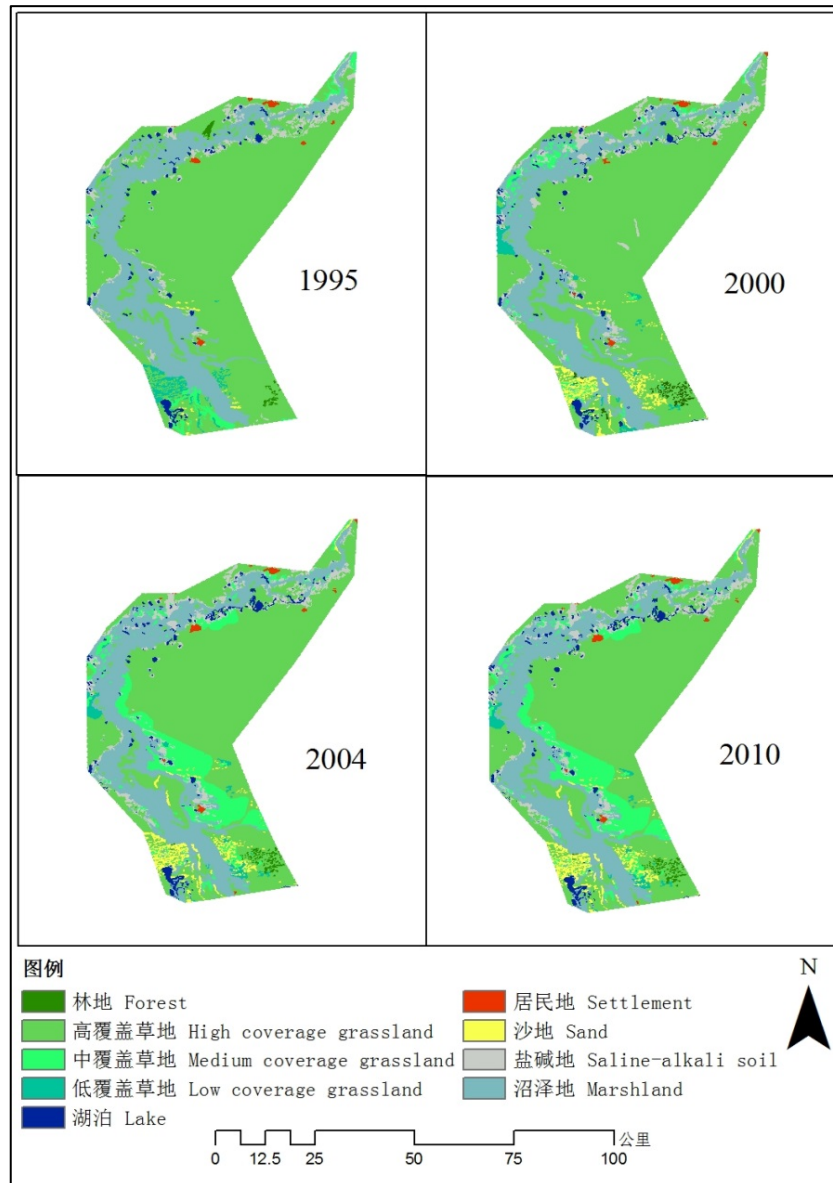
Coral monitoring sites

アジア脆弱生態系の気候変動と生態系変化の長期モニタリング

Long term monitoring of ecological impact caused by climate change to vulnerable flora in Asia

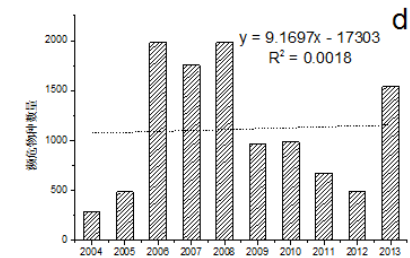
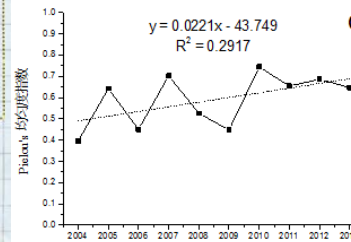
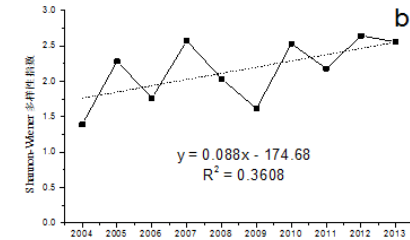
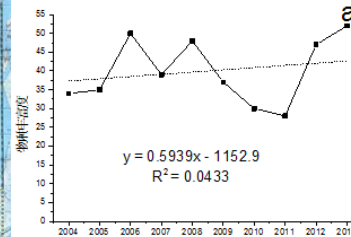
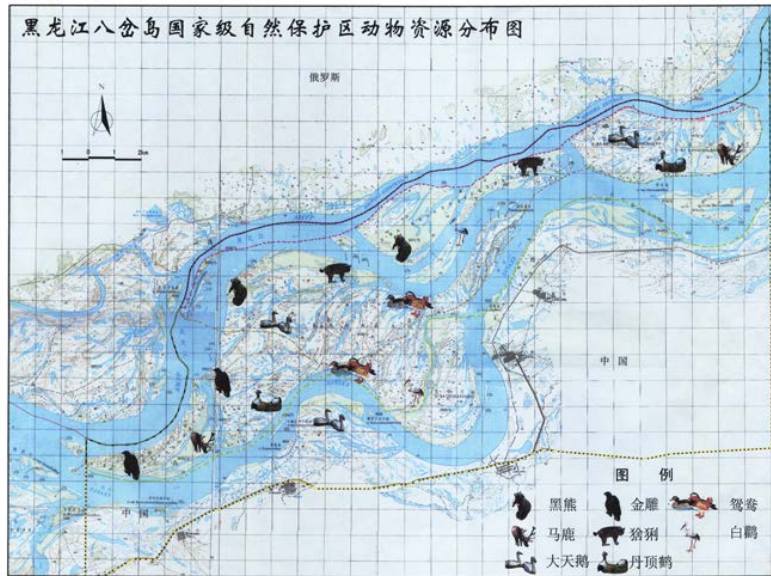


Biodiversity monitoring in the Northeast China I



- Monitoring the changes of ecosystems and landscape pattern in Huihe national nature reserve

Biodiversity monitoring in the Northeast China II



- Monitoring the migration birds in the wetland nature reserves

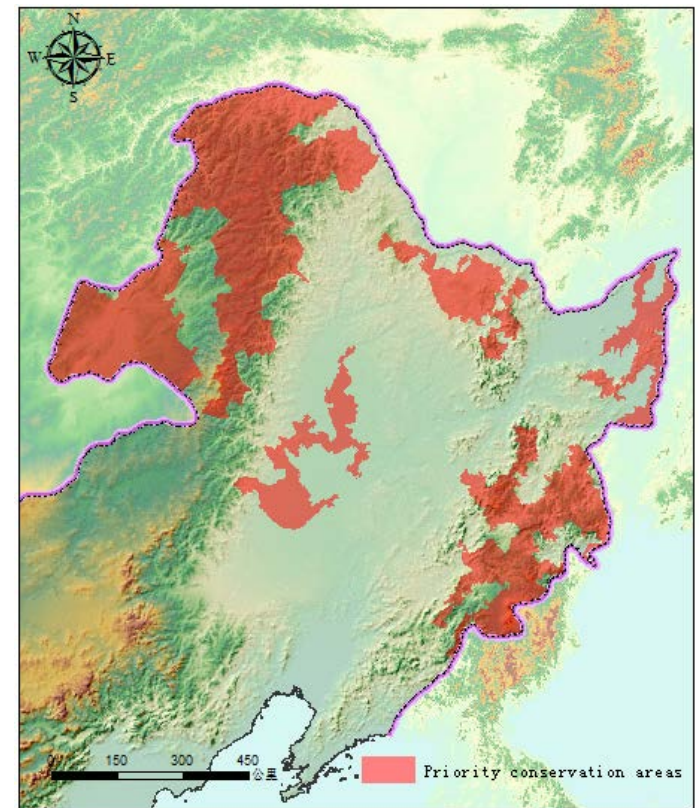
Biodiversity monitoring in the Northeast China III



- Monitoring the the impact of grassland degradation on butterflies in Hulunbeir

Identifying 6 priority conservation areas in the Northeast China

- The Daxing'anling Mountain Area
- The Xiaoxing'anling Mountain Area
- The Hulunbeir Area
- The Three Rivers Plain
- The Changbaishan Mountain Area
- The Songnen Plain





The **E**conomics of **E**cosystem services and **B**iodiversity (**TEEB**)

Brief introduction to China TEEB National Action Plan

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Biodiversity Research Center,
Chinese Research Academy of Environmental Sciences
2014.10 COP12



中国环境科学研究院
Chinese Research Academy Of Environmental Sciences

自然和谐 厚积薄发



Outputs & Achievements



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2014年3月
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DOI: 10.5846/esh20130711877

王伟,田瑜,李俊生. 跨界保护区网络构建研究进展. 生态学报, 2014, 34(6): 1391-1400.
Wang W, Tian Y, Chang M, Li J. A review of transboundary protected areas network establishment. Acta

王伟,田瑜,常明,李俊生
(中国科学院环境基准与风险评估国家重点实验室,北京)

摘要: 跨界保护区网络是生物多样性保护网络的一种特殊形式,对保护国家或地区边界、构建跨界保护区网络已被列入《生物多样性公约》(Convention on Biological Diversity) 涉及生态、环境、经济、政治等多个领域,成为全球保护区研究领域的热点问题之一。处于起步阶段,在如何构建不同尺度的跨界保护区网络等方面的研究仍有待进一步加。特地区域之间等不同尺度跨界保护区网络研究的基础上,阐述了国内外基于“节点”-“连廊”-“网络”模式构建跨界保护区网络建设的情况,对我国未来跨界保护区网络构建研究。关键词: 跨界保护区网络; 跨界保护区尺度; 节点; 廊道

A review of transboundary protected areas network establishment
WANG Wei, TIAN Yu, CHANG Ming, LI Junsheng*
State Key Laboratory of Environmental Criteria and Risk Assessment, Chinese Research Academy of Environ-

Abstract: Current rate of biodiversity loss has been far greater than the natural rate conservation strategy is the establishment of protected areas network. As a special form of the transboundary protected areas (TBPAs) network is designed to protect key ecosystems different countries or regions. The establishment of TBPAs network had been listed in Convention on Biological Diversity, which concerned both ecological/environmental TBPAs network may span international, interprovincial, or regional boundaries transboundary nodes and corridors. However, the establishment mode of TBPAs network scale, the continental scale, and among different countries or regions scale) is still in network in China is still in its initial stage.

In this paper, we review related studies on TBPAs network in different scale TBPAs network establishment based on the “node - corridor” mode. In general, the areas with high conservation value, high species richness, more endangered species, development of transboundary corridor can connect different transboundary nodes into the flow of gene, energy, and substance. We also discuss the TBPAs network status among China, Russia, and Mongolia in the northeast, the TBPAs among China, Russia, and Vietnam in the southwest, and the TBPAs among China, Laos, Myanmar, Thailand, Cambodia, and Vietnam in the southwest. Finally, we recommend potential studies on TBPAs network in China: 1) enhancing the TBPAs network studies in larger scales; 2) proposing TBPAs network method and management model suitable to China; 3) evaluating the effectiveness of TBPAs

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*通讯作者: Corresponding author: E-mail: lijsh@cares.org.cn

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全国草地类自然保护区的成效评

辛利娟, 王伟, 新勇超, 刁兆岩, 李俊生
(中国科学院环境基准与风险评估国家重点实验室, 北京 100012)

摘要: 在集成分析国内外自然保护区生态评估研究进展的基础上, 结合 DPSIR 模型关于草地生态系统的长期数据, 尝试最大程度客观地评估我国草地类自然保护区的成效。首先, 根据自然保护区生态评估标准, 结合草地类自然保护区的设计思路, 筛选出能够反映自然保护区生态评估成效、又能有效获取国内外约 15 个指标, 并尝试结合已有的国家相关技术规范和相关研究资料, 将各指标的评估对象、生态功能与环境相互作用等方面的具体参数, 实际应用中, 这些指标的评估周期以及已有资料数据等不同进行组合, 从而在一定程度上反映自然保护区的成效。关键词: 生态评估成效; DPSIR 模型; 评估参数; 评估标准

中图分类号: S912.6 文献标识码: A 文章编号: 1001-0629(2014)01-0075-08

Indices of ecological effects of grassland nature reserves

XIN Lijuan, WANG Wei, JIN Yongchao, DIAO Zhao-yan, LI Junsheng
(Chinese Research Academy of Environmental Science, Beijing 100012)

Abstract: Based on quantitative reports and literatures about effectiveness and the status indicators from DPSIR model, 15 key indicators assigned to 5 indicators to evaluate the ecological effects of grassland nature reserves. analyzed the corresponding quantitative parameters of the indicator about protection function and environmental factors according to the relevant regulations and authorities. These indicators can be selected to assess subjects and goals, evaluate data in practice. Therefore, these indices possible represented the ecological effectiveness.

Key words: ecological protection effectiveness; DPSIR model; assessment parameters
Corresponding author: LI Junsheng E-mail: lijsh@cares.org.cn

随着自然保护区数量和面积的与日俱增, 自然保护区是否有效完成其保护目标的问题也广受争议^[1-3]。近年来, 有诸多学者尝试进行保护区管理有效性评估, 如截至 2008 年, 美国、欧盟、南美以及东南亚等 40 多个国家建立了管理有效性指标体系^[4-6]。大自然保护协会 (The Nature Conservancy, TNC) 针对保护区规划 (Site Conservation Planning) 提出了保护区系统 (Systema), 威胁 (Threats) 保护策略 (Conservation Strategies) (Measures of Conservation) 而, 从保护区取得的生态因子等自然属性作为评价是否得到有效保护以

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第一作者: 辛利娟 (1987), 女, 内蒙古通辽人, 硕士, 主要从事自然保护区评估和生物多样性等方面研究。
E-mail: xln1987@cares.org.cn
通讯作者: 李俊生 (1968), 男, 安徽宣城人, 研究员, 博士, 研究方向为保护生物学与生物多样性评估。E-mail: lijsh@cares.org.cn

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辉河国家级自然保护区土地覆盖与景观格局变化分析

新勇超, 王伟, 辛利娟, 刁兆岩, 李俊生
(中国科学院环境基准与风险评估国家重点实验室, 北京 100012)

摘要: 土地覆盖和景观格局变化是研究自然保护区生态环境变化的重要依据。本研究利用辉河自然保护区 1995—2010 年 4 期的土地覆盖数据, 运用 GIS 技术结合动态和转移矩阵模型对保护区的土地覆盖变化进行了分析。在此基础上, 选择平均斑块面积、聚合度等景观指数对其景观格局变化进行了研究。结果表明, 辉河自然保护区土地覆盖和景观格局变化主要发生在 1995—2010 年间, 且呈减少趋势, 分别减少了 307.38 和 35.29 km²; 从景观格局来看, 1995—2010 年间自然保护区主体的高度草地和沼泽地的各项景观指数均降低, 其中沼泽地平均斑块面积和平均形状指数降低幅度最大。从时间尺度来看, 1995—2004 年是自然保护区土地覆盖和景观格局变化的主要时段, 而 2004 年后各项景观指数变化幅度趋于稳定, 说明保护区保护工作取得成效。关键词: 辉河; 自然保护区; 土地覆盖; 景观格局

中图分类号: S888.6 文献标识码: A 文章编号: 1001-0629(2014)10-1859-08

Changes of land-cover and landscape pattern in Huihe national nature reserve

JIN Yong-chao, WANG Wei, XIN Li-juan, DIAO Zhao-yan, LI Jun-sheng
(Chinese Research Academy of Environmental Science, Beijing 100012, China)

Abstract: Changes in land-cover and landscape pattern are significant components of studies on ecological and environmental changes within nature reserves. Here, we applied change rate and transform matrix model with GIS to analyze Huihe nature reserve land-cover, based on 4 periods of Landsat TM images during 1995—2010. Then, we studied landscape pattern changes with a set of landscape indices such as mean patch area and cohesion index. The results showed that high coverage grassland and marshland are major land-cover types within Huihe nature reserve, which all decreased from 1995 to 2010 (−379.38 km² and −39.29 km²). As to the landscape pattern, all landscape indices of high coverage grassland and marshland fell down, especially the mean patch area index and average shape index of marshland. Considering the changing periods, the degradation of land-cover and landscape pattern mainly happened from 1995 to 2004, whereas it slowed down after 2004. Our results approved that the situation of the grassland and wetland had changed better because of the establishment of national administration, as well as improving management actions.

Key words: Huihe; nature reserve; land-cover; landscape pattern
Corresponding author: LI Jun-sheng E-mail: lijsh@cares.org.cn

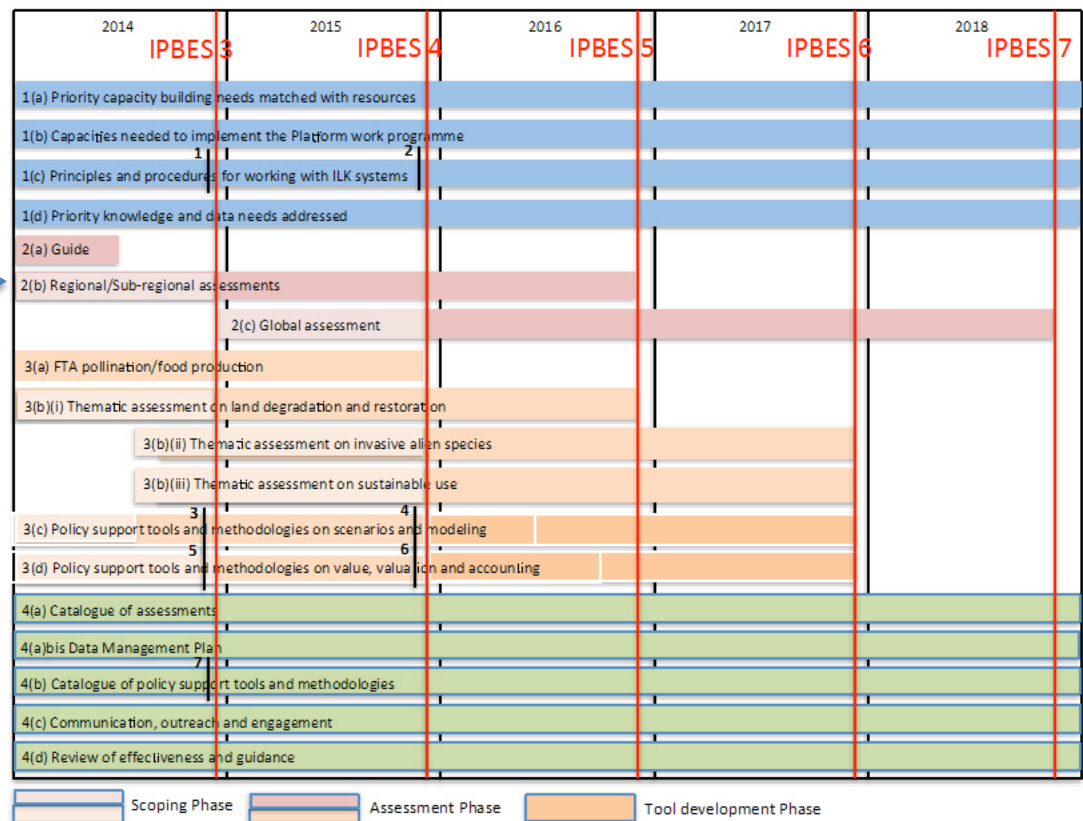
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通讯作者: 李俊生 (1968), 男, 安徽宣城人, 研究员, 博士, 主要从事保护生物学与生物多样性评估方面研究。E-mail: lijsh@cares.org.cn

Need to enhance networking



2014-2016

Regional/sub-regional
assessments



Networking activities

J-BON

Japanese Biodiversity Observation Network (日本生物多様性観測ネットワーク)

日本語トップ

ENGLISH



J-BONについて

総会・ワークショップ

設立趣意書

課題と推進体制

ABOUT J-BON

J-BON is a network of researchers, NGOs and policymakers which coordinates various research activities, observation networks, and databases on ecosystems and biodiversity in order to enhance biodiversity observation activities in Japan. J-BON collaborates with AP-BON and GEO BON to contribute to the global biodiversity observation activities.

CALENDAR

2014年11月
火 水

3 4 5
10 11 12
17 18 19

Ecological Research Monographs



Shin-ichi Nakano · Tetsukazu Yahara
Tohru Nakashizuka *Editors*

Asia-Pacific Biodiversity Observation Network

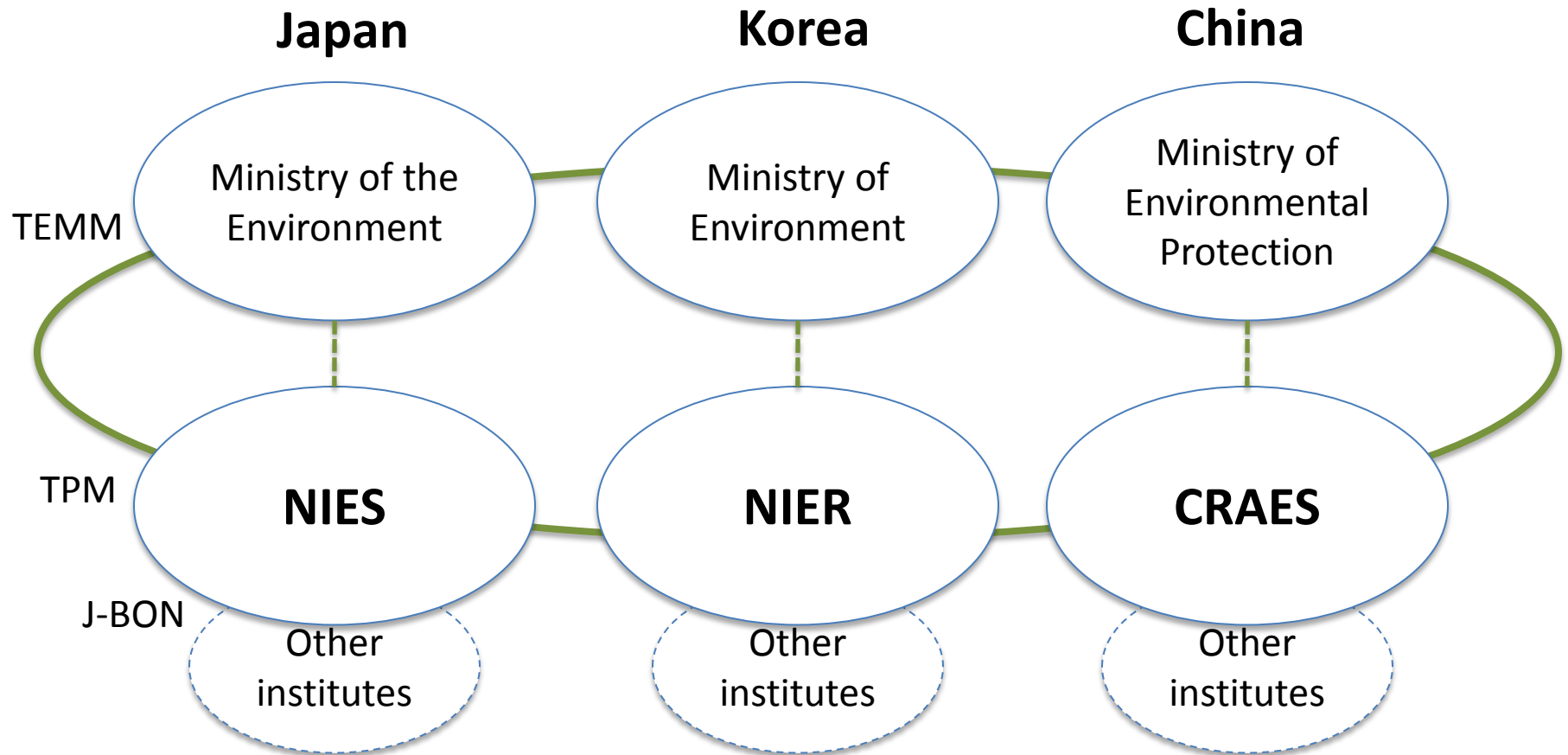
Integrative Observations and Assessments

Japanese Biodiversity Observation Network (J-BON)

Chair: Tetsukazu Yahara

Secretariat: Hiroya Yamano

Asia-Pacific Biodiversity Observation Network



Networking under science-policy framework (e.g., TEMM and TPM) is a key to improve assessment of biodiversity and ecosystem services in the Asia region

TPM11 Biodiversity Workshop

Naohisa OKUDA

Ministry of the Environment, Japan

Japan's biodiversity policies relevant to the science-policy interface- In relation to the CBD and the IPBES –

Lile HU

CRAES

Brief introduction to China TEEB National Action Plan

Xiushan LI, Dianxia FU

CRAES

The Valuation on Forest Ecosystem Services and Biodiversity in Diebu County, China

Hiroya YAMANO

NIES

Coral reefs in a changing world - Climate change and land-based pollution issues and conservation strategies –

Kaori HIRAYAMA, Yoshihiro MUTO

Kawasaki City

Efforts for biodiversity conservation in Kawasaki City

Jihyon KIL

NIER

Management plan of alien organisms in Korea

Koichi GOKA

NIES

Development of integrated control methods and systems for invasive alien animals