



Title	Linkages in forested watershed environments
Author(s)	YOSHIOKA, Takahito
Citation	国際会議「持続可能な農業と環境」．平成20年7月2日～平成20年7月6日．札幌市
Issue Date	2008-07-03
Doc URL	http://hdl.handle.net/2115/34416
Type	conference presentation
File Information	31-O15.pdf



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Linkages in forested watershed environments

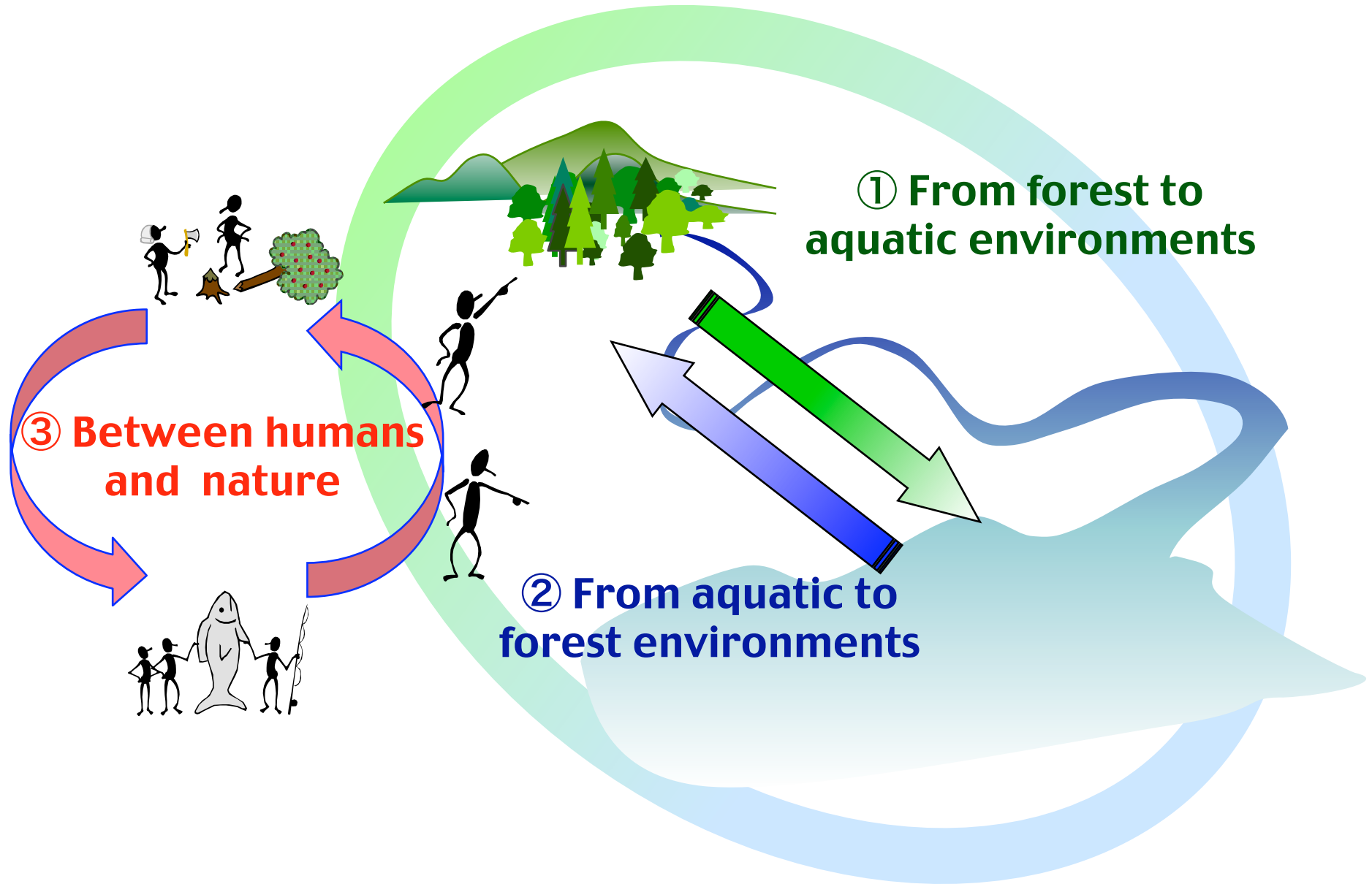
Takahito YOSHIOKA



Field Science
Education and Research Center
Kyoto University

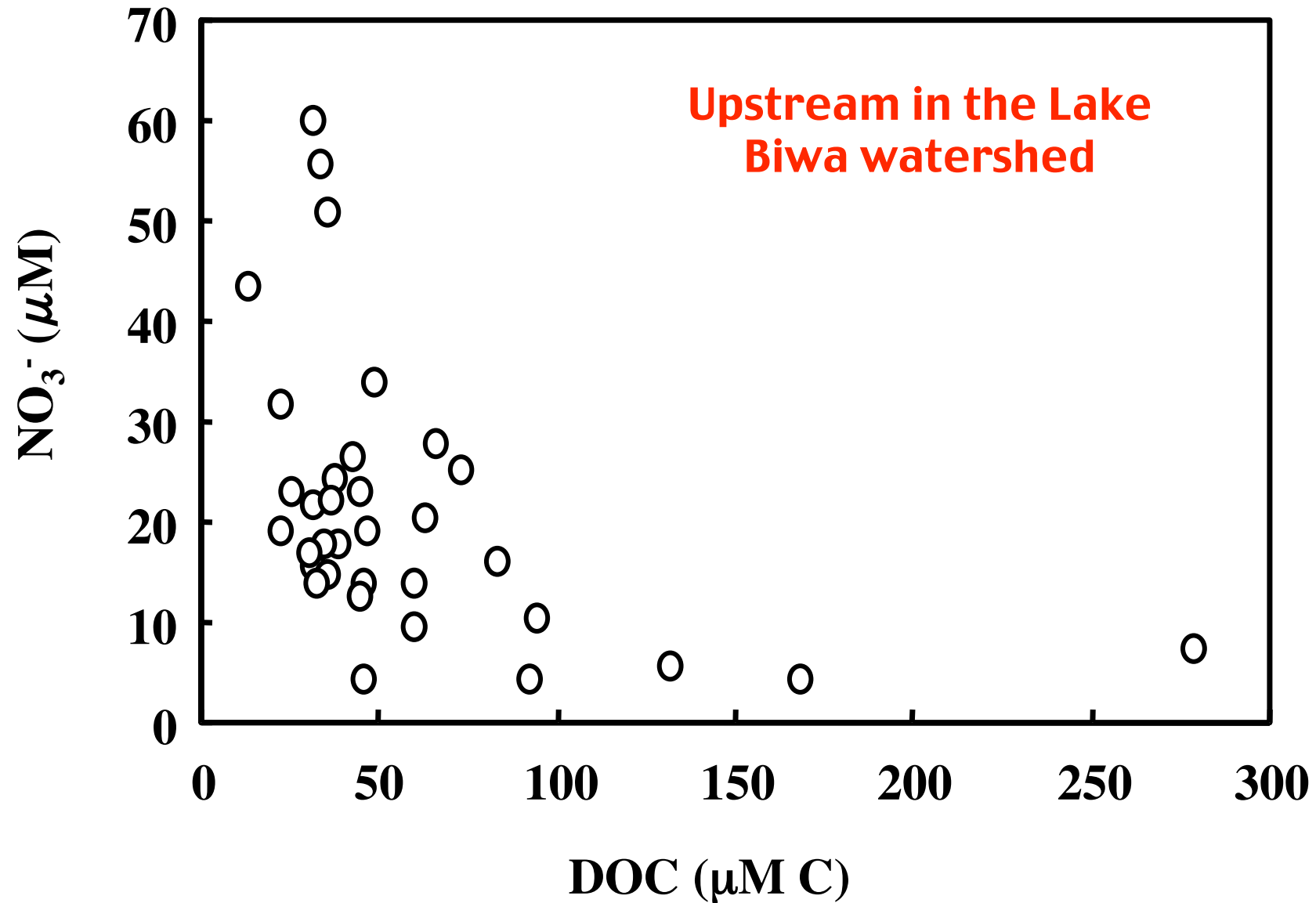
The International Conference On Sustainable Agriculture For Food, Energy And Industry 2008
“Sustainability on Food Feed, Fiber, Water, Energy: Science, Technologies, and Global Strategies” 2008/7/3, Sapporo, Japan

Three types of biogeochemical linkages in forested watershed environments



① Forest → Aquatic

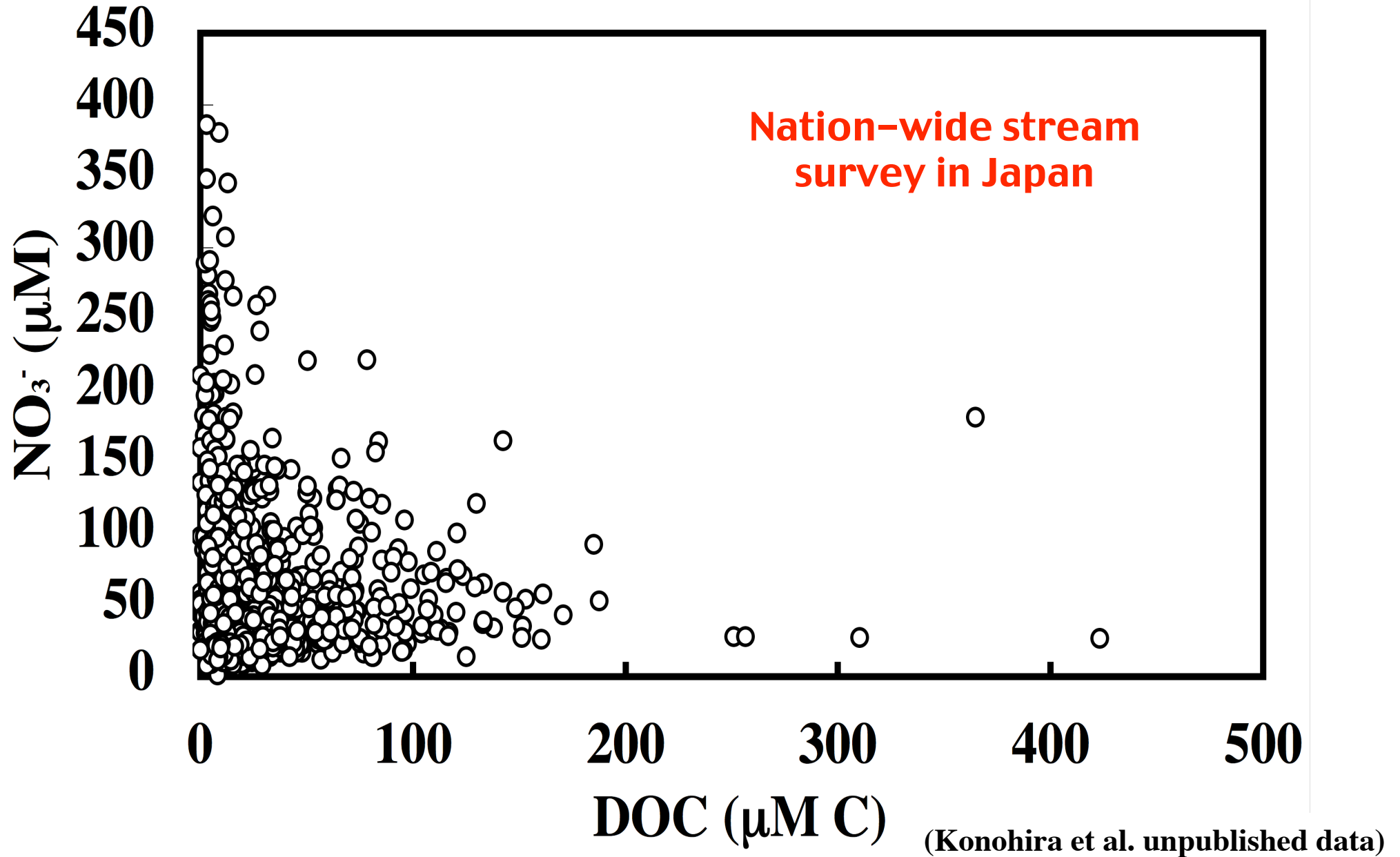
Relationship between stream DOC and NO_3^-



(Konohira and Yoshioka 2005)

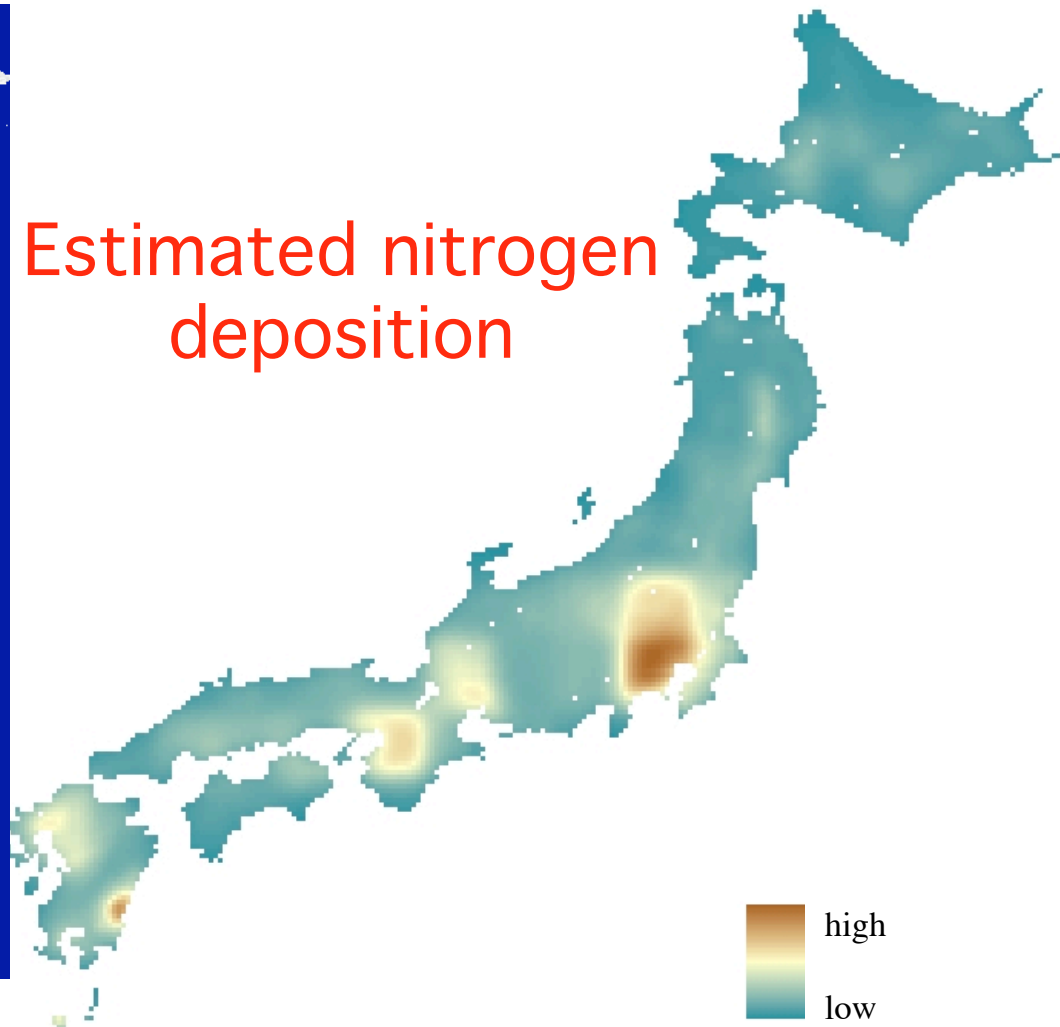
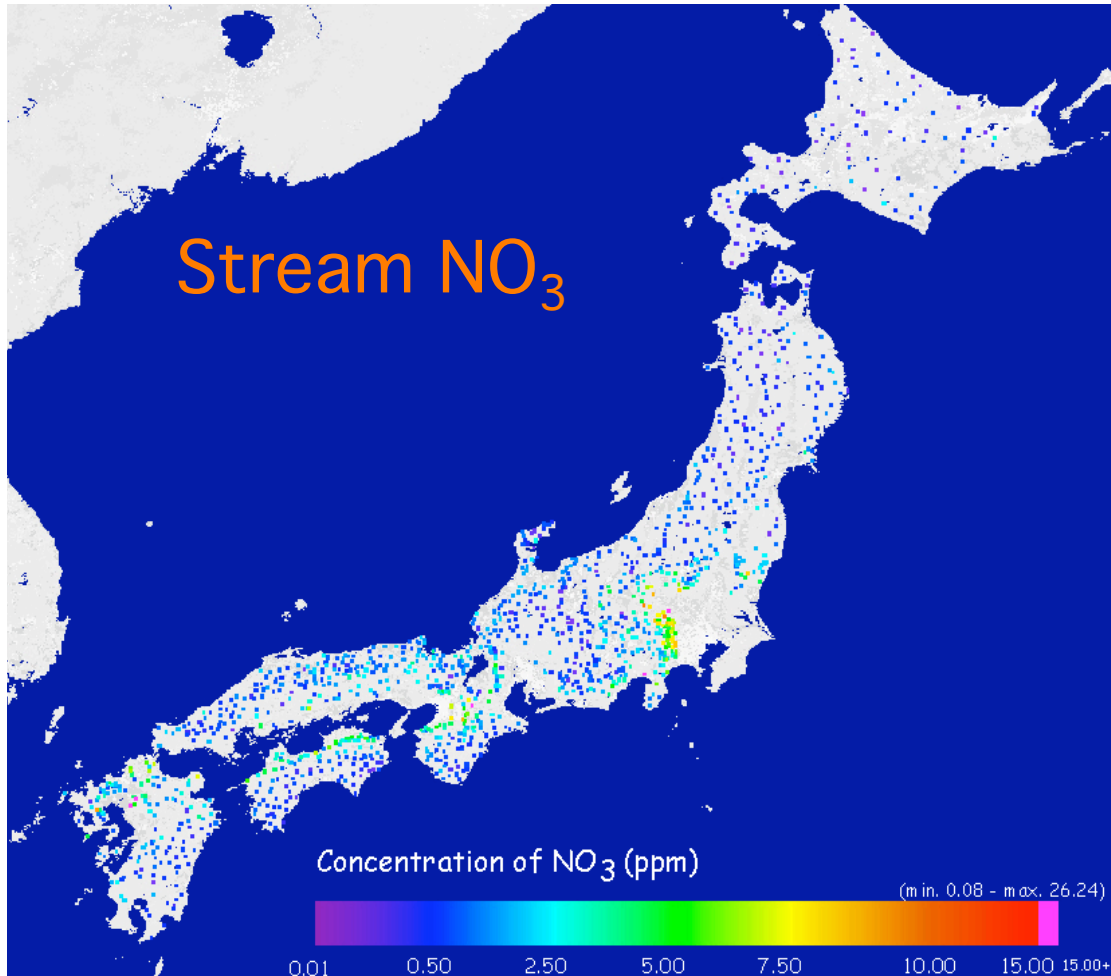
① Forest → Aquatic

Relationship between stream DOC and NO_3^-



① Forest → Aquatic

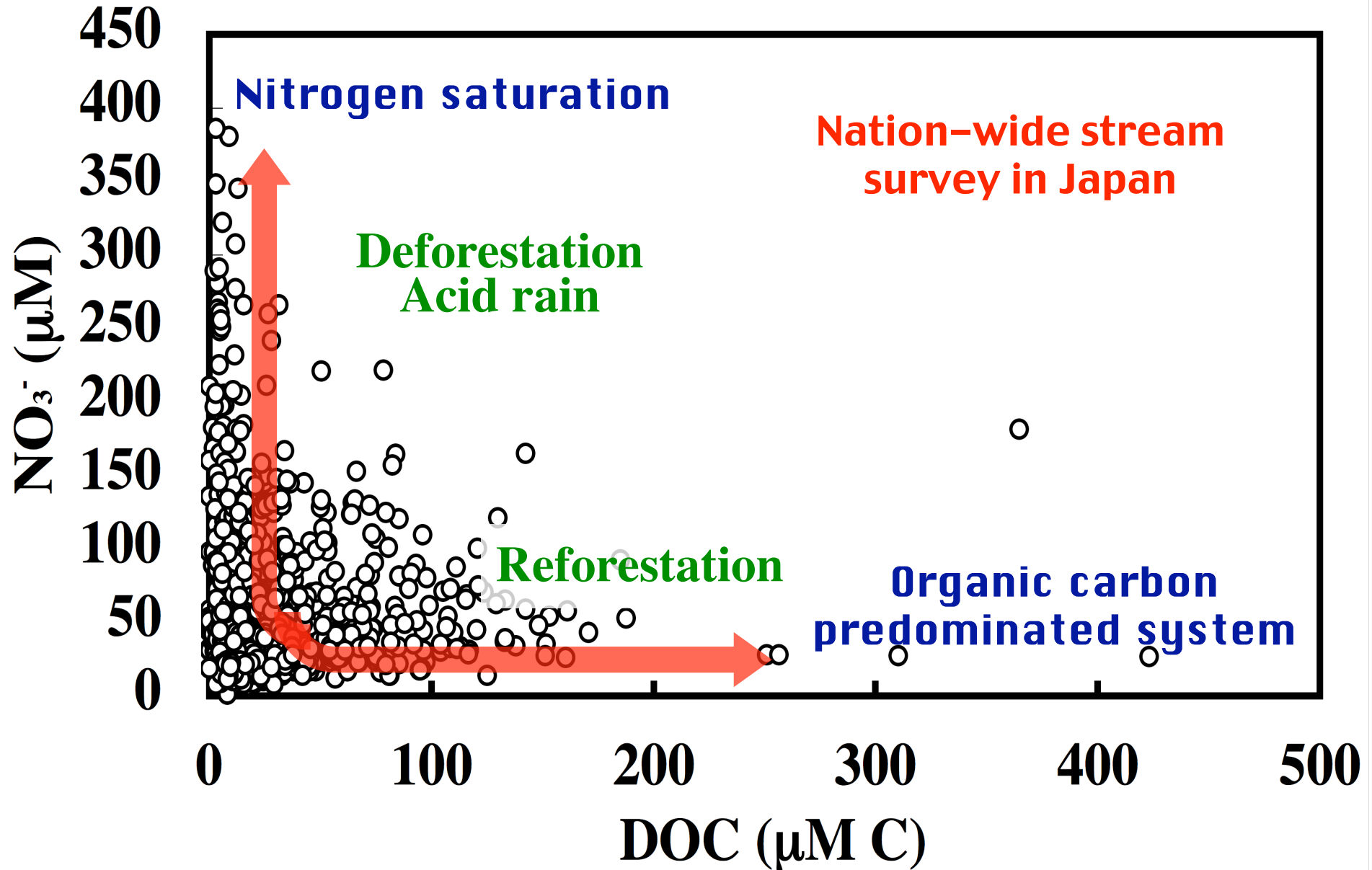
Nationwide survey on stream hydrochemistry



(Shindo et al. 2005)

① Forest → Aquatic

Nationwide survey on stream hydrochemistry



Linkage from aquatic to forest environments

Nutrient supply from aquatic to forest environments by anadromous fishes and aquatic invertebrates



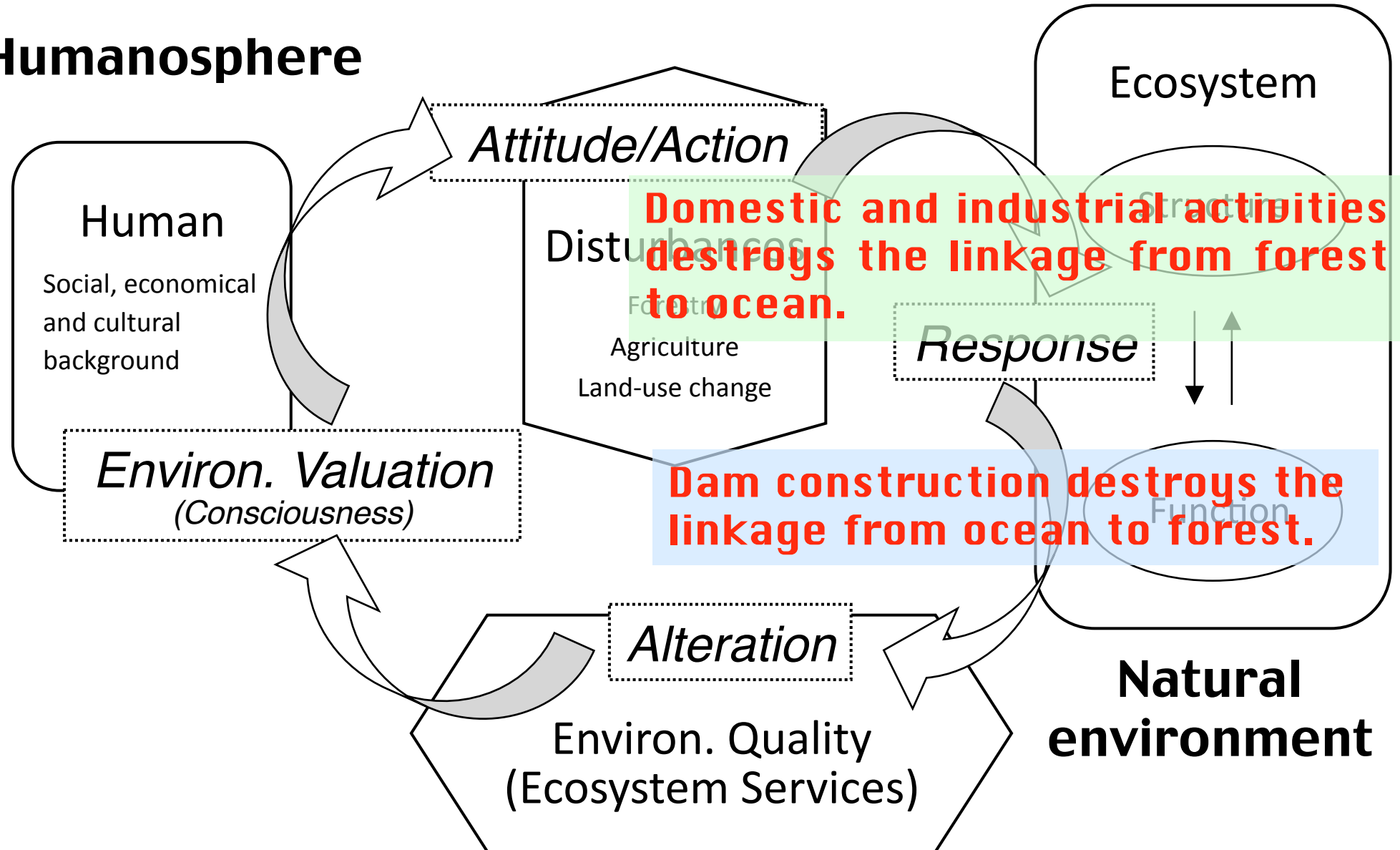
From the isotopic analyses, more than 20% of terrestrial nitrogen was originally derived from salmon in the North Pacific (Helfield & Naiman 2002, Hocking & Reimchen 2002).

③ Humans ↔ Nature

Interaction between humansphere and environment

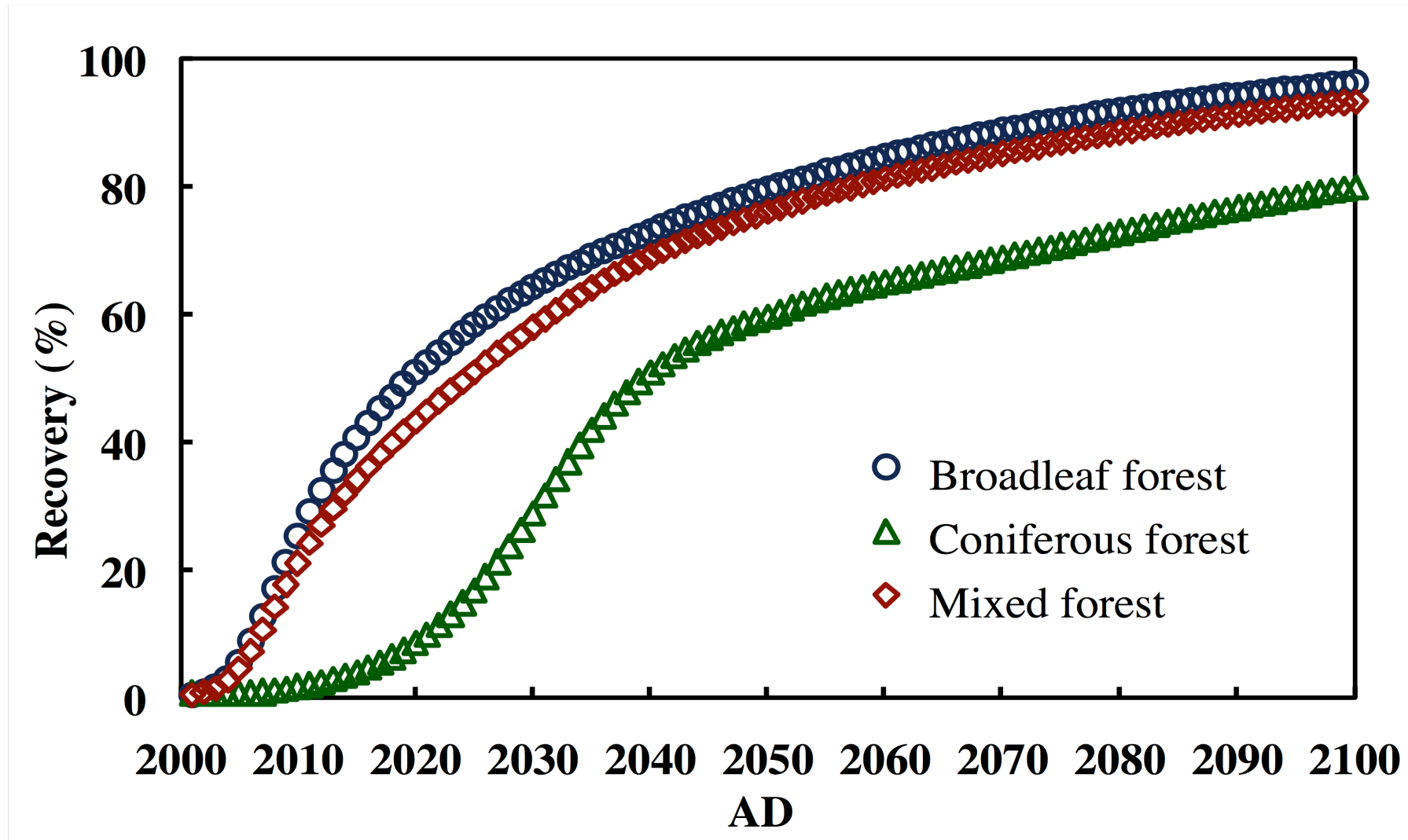
(Modified from the Research Initiatives Subcommittee of the LTER Planning Process Conference Committee and the Cyberinfrastructure Core Team 2007)

Humansphere



③ Humans → Nature

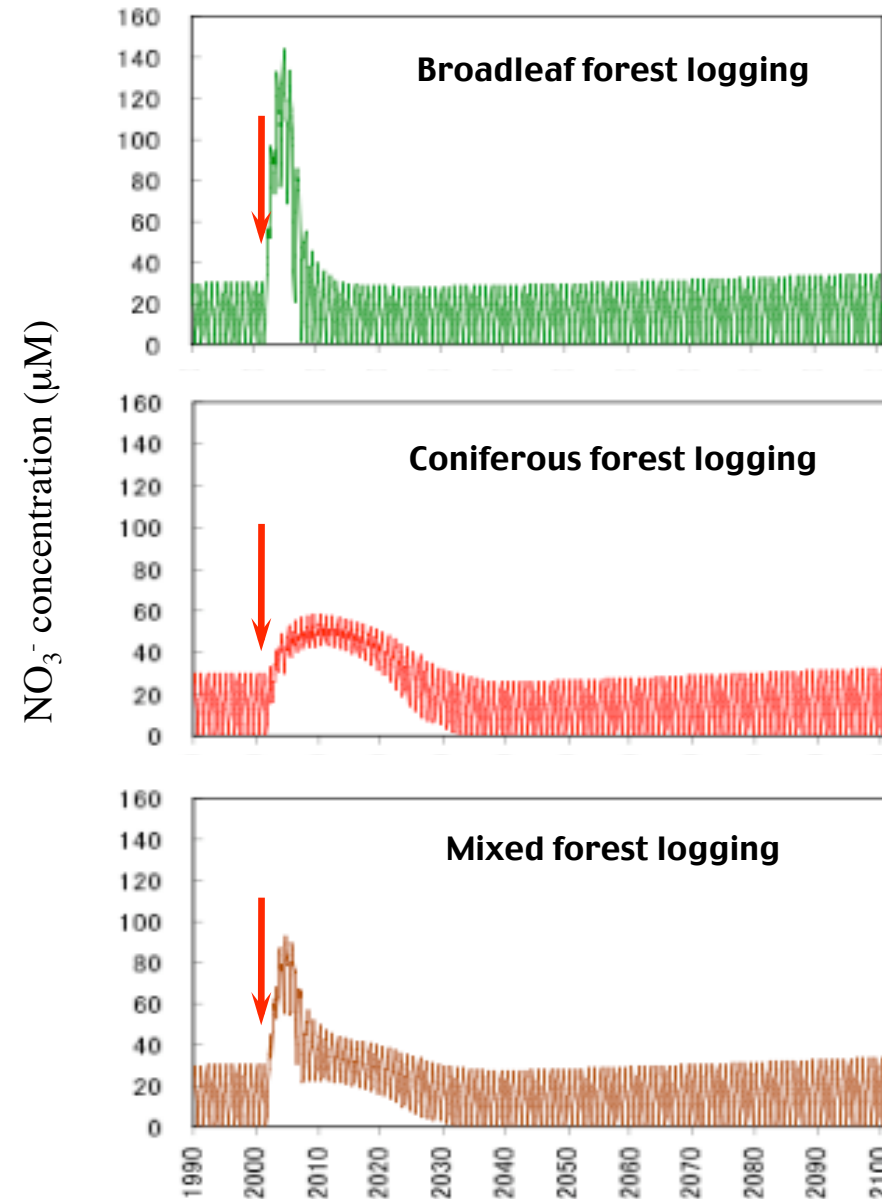
Simulation results of the recovery of forest biomass after logging in 2001, using PnET-CN model



(Shibata *et al.* unpublished data)

③ Humans → Nature

Simulation results of stream NO_3^- concentration after tree cutting in 2001



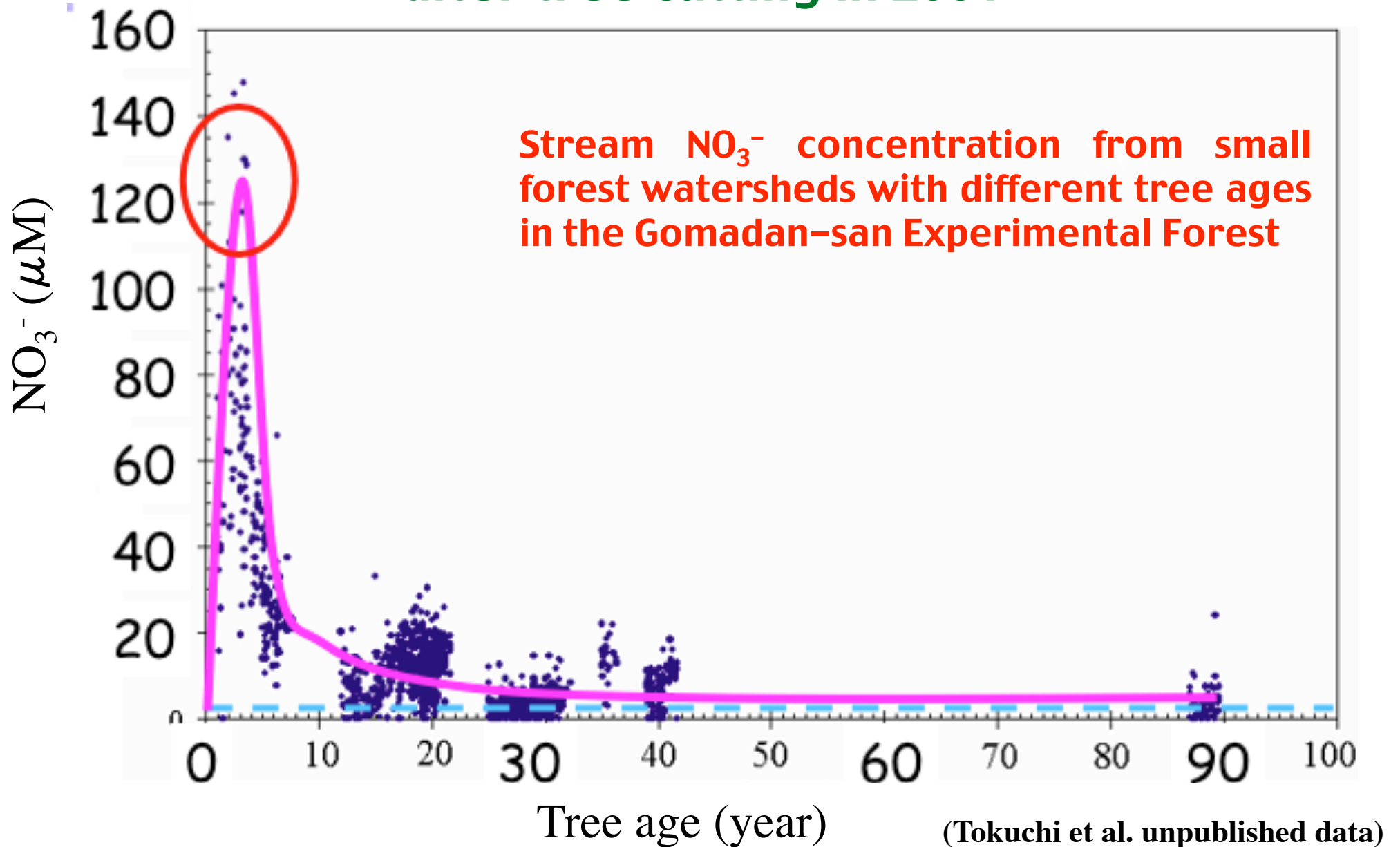
Red arrows: year of tree cutting



(RIHN Brochure 2007-2008)

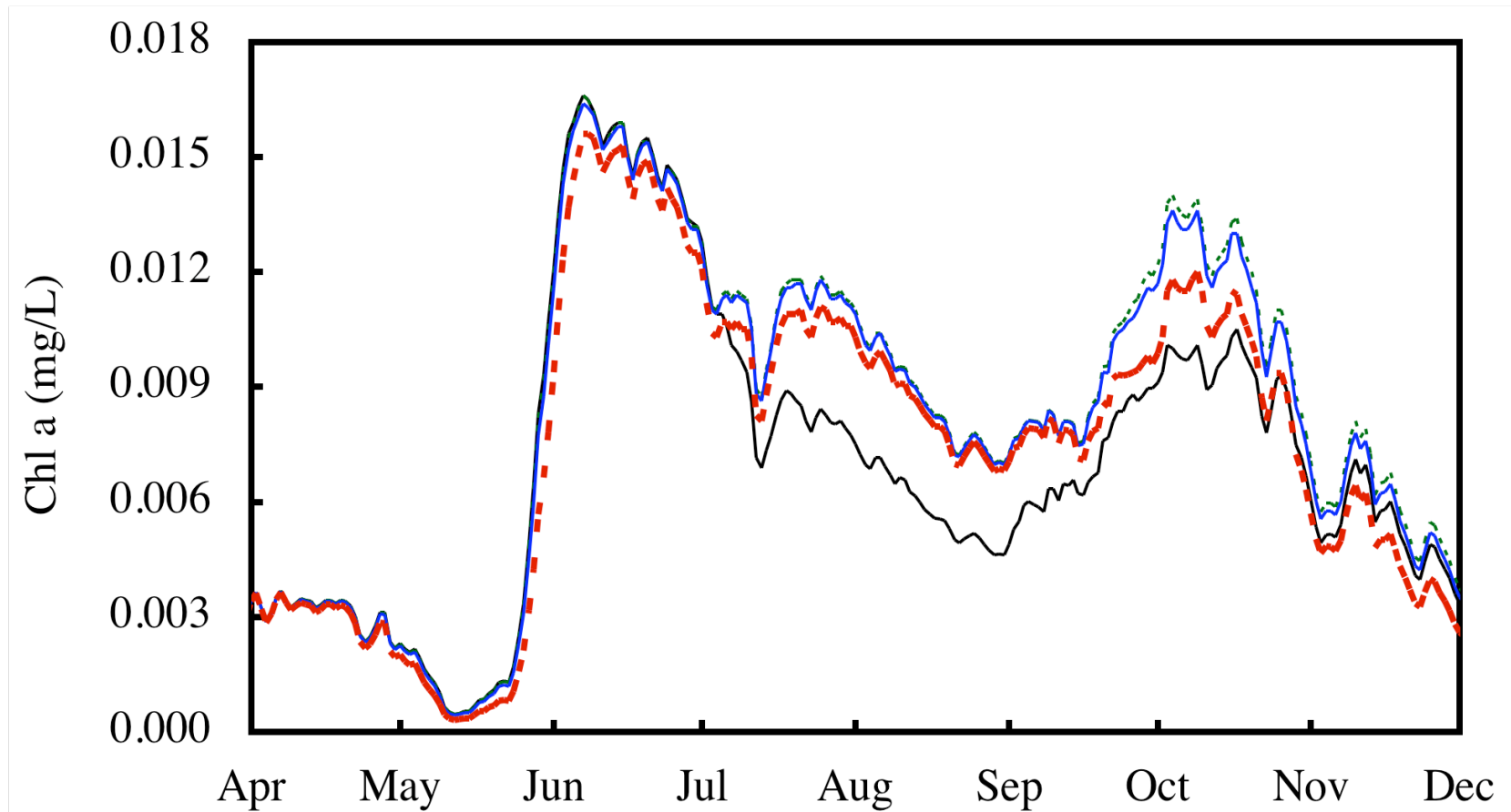
③ Humans → Nature

Simulation results of stream NO_3^- concentration after tree cutting in 2001



③ Humans → Nature

Simulation results of chlorophyll *a* concentration near the river mouth of Akaishi River



Phytoplankton biomass change at the mouth of an inflow river (3 years after tree cutting).

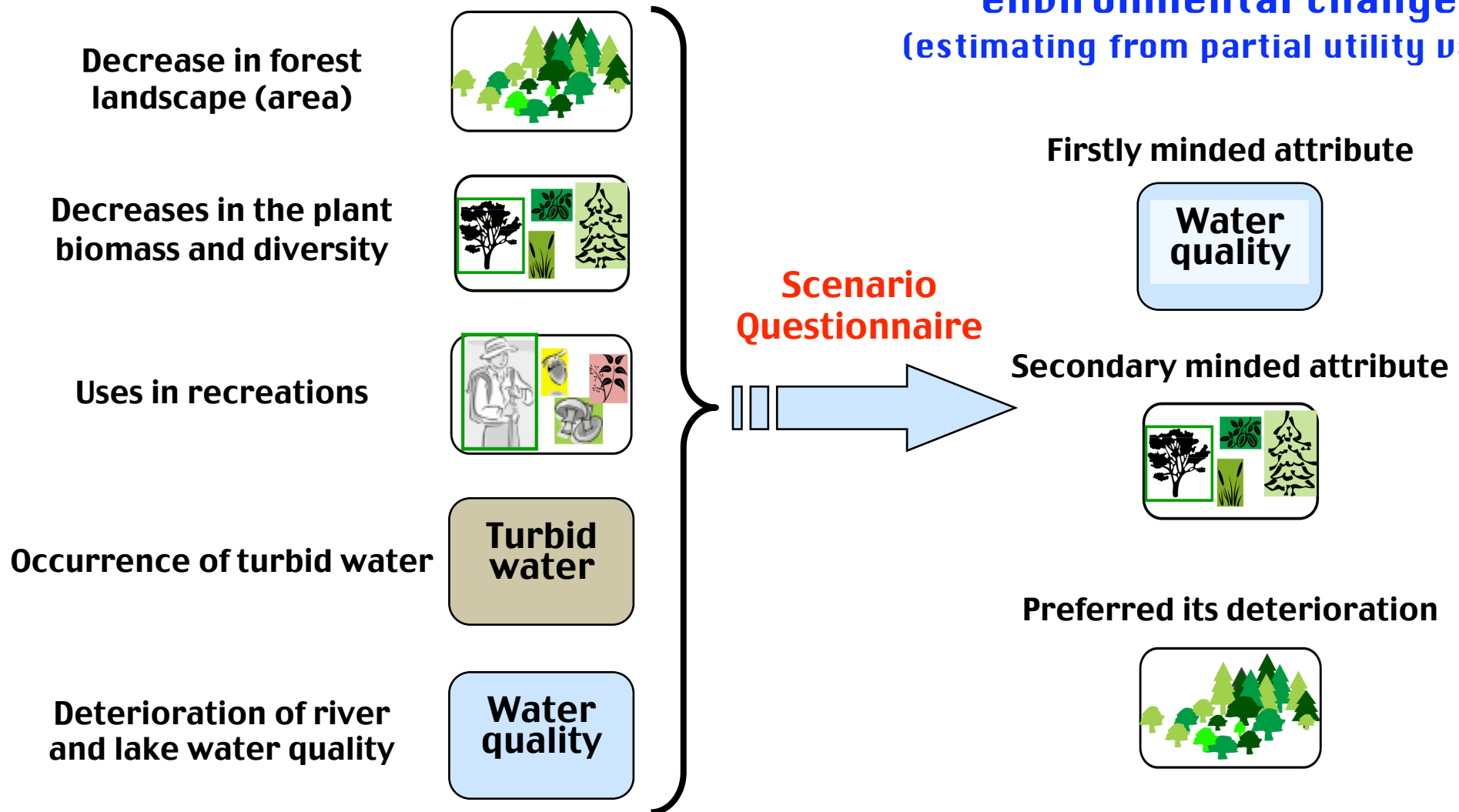
Tree cutting areas are as follows: **Green, 0.8 km²**; **blue, 4 km²**; **red, 20 km²**.

(Kutsukake *et al.* unpublished data)

③ Nature → Humans

Results of Scenario Questionnaire

People's preferences on environmental changes
(estimating from partial utility values)



Preparation Procedure for Scenario Questionnaire

