Introduction of JICA training course regarding watershed ecosystem management

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1st day:

Visiting field sites of degraded ecosystems and restoration projects

2nd day:

Lectures on 1) structure and function of river and riparian ecosystem, 2)watershed management (hydrology and ecosystem ecology), and 3) restoration of various ecosystems

3rd day:

Workshop (group discussion) and presentation

Important aspect

Joint program between JICA and Graduate School of Agriculture, Hokkaido University

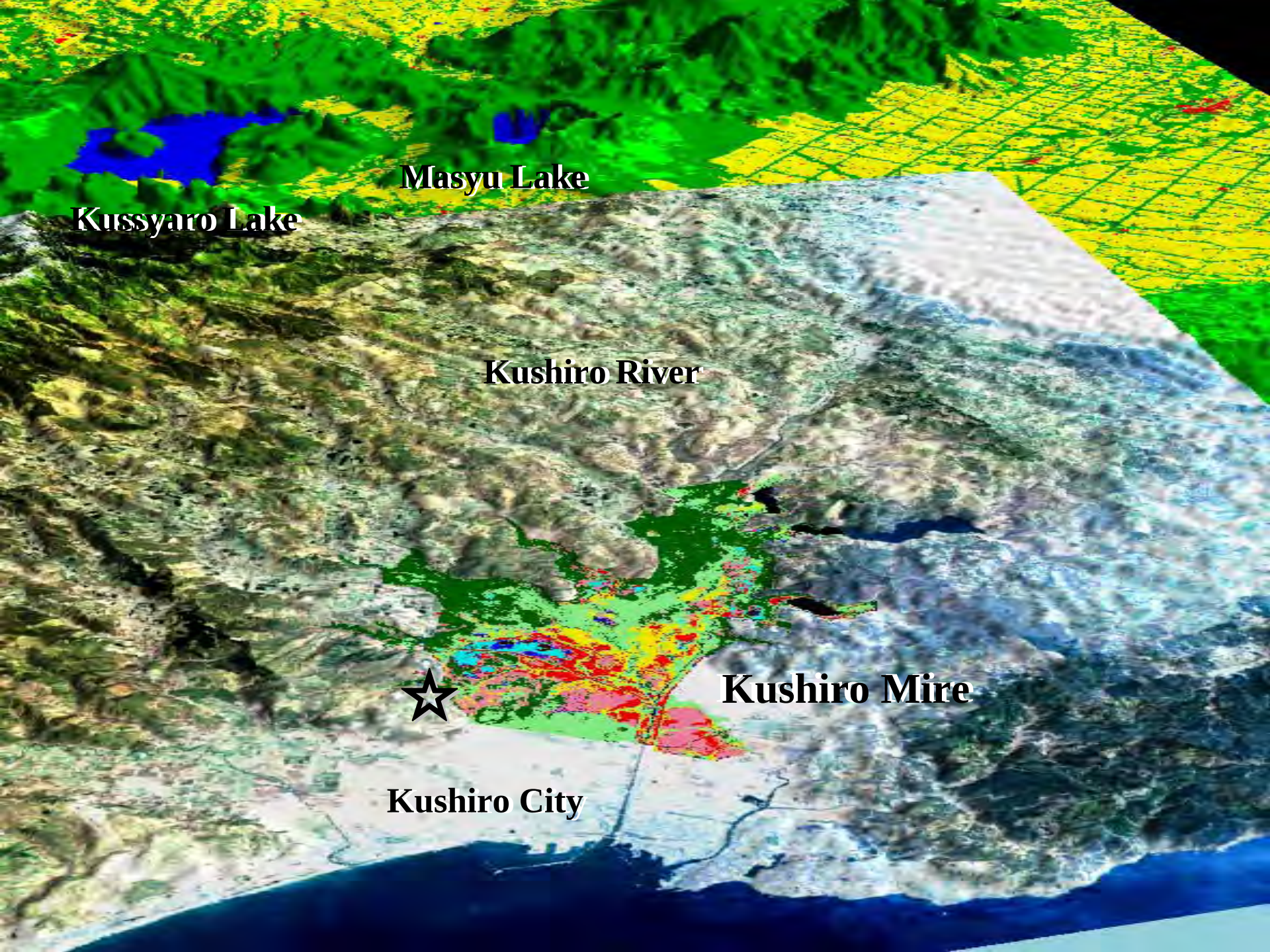
For Japanese graduate students

- **Enhance ability to communicate in English**
- **Understand different perspectives on ecosystem management**
- **Develop new perspectives through discussion**

For foreign trainees

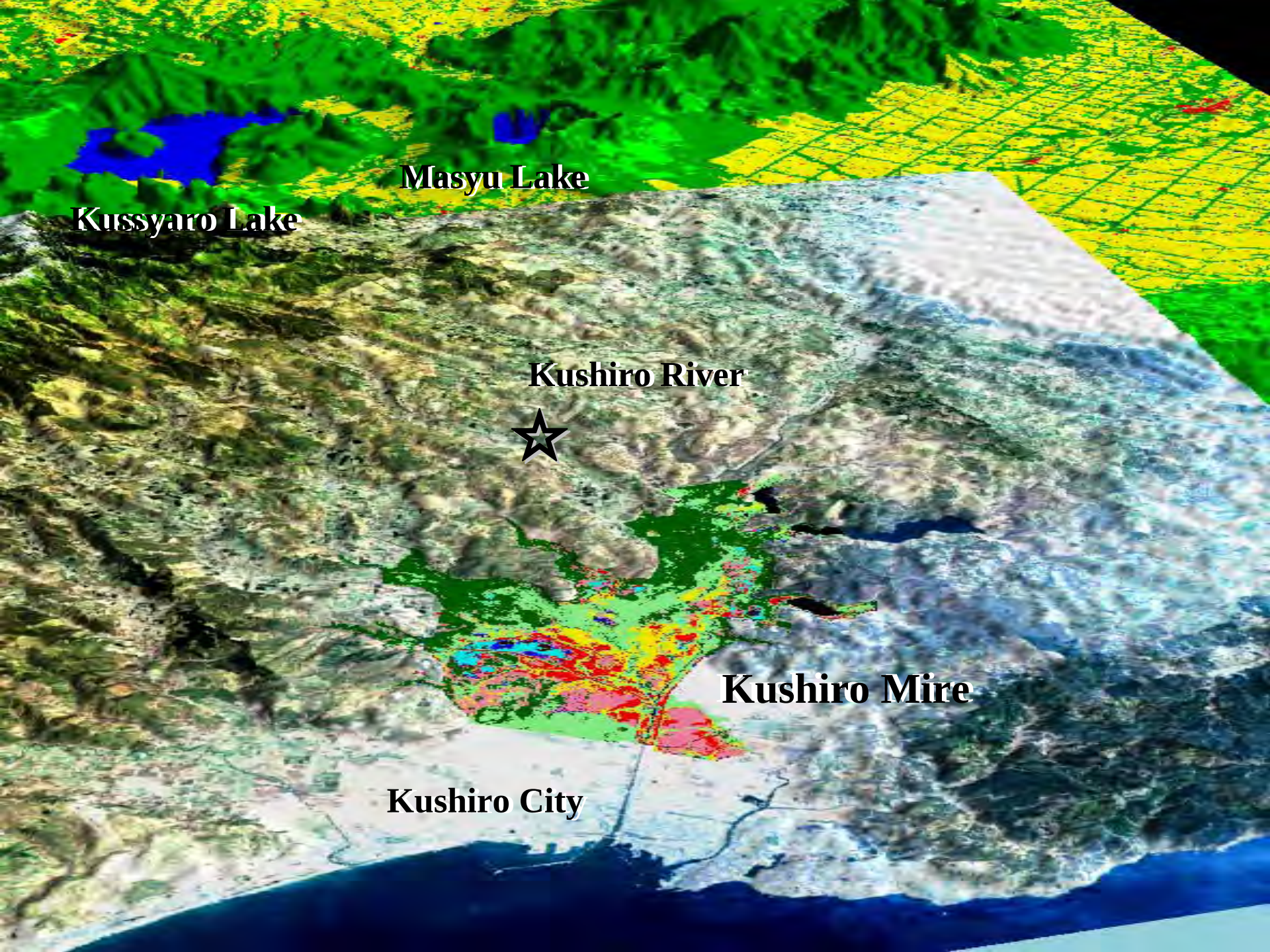
- **Learn ideas and knowledge on ecosystem management in Japan through discussion with Japanese students**

The first day:
Visiting field sites of degraded ecosystems
and restoration projects


Masyu Lake
Kussyaro Lake
Kushiro River
Kushiro Mire
Kushiro City

1988

2001


Masyu Lake
Kussyaro Lake
Kushiro River
Kushiro Mire
Kushiro City

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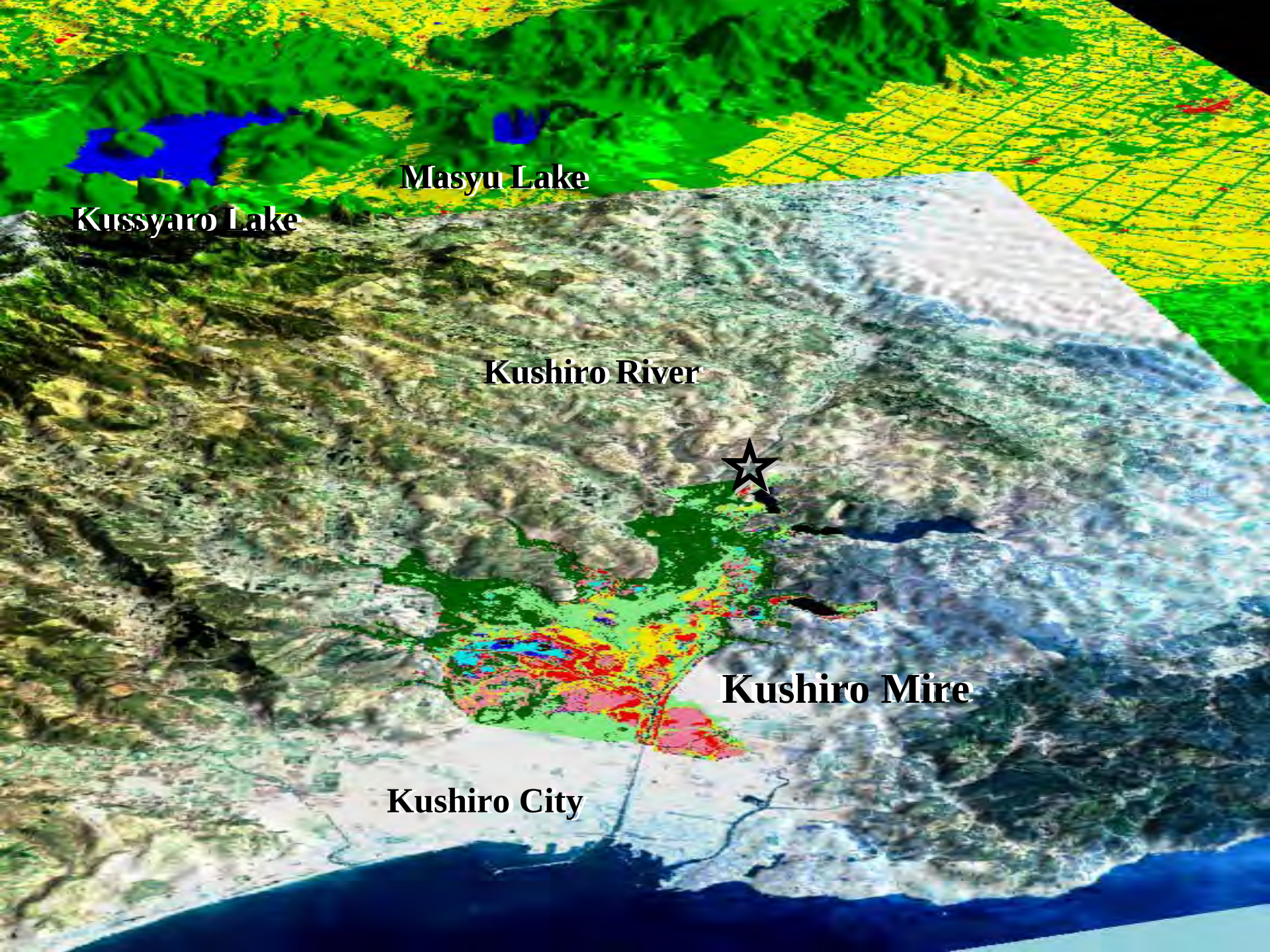
The channelized reach and St.3 in the Kuchoro River.

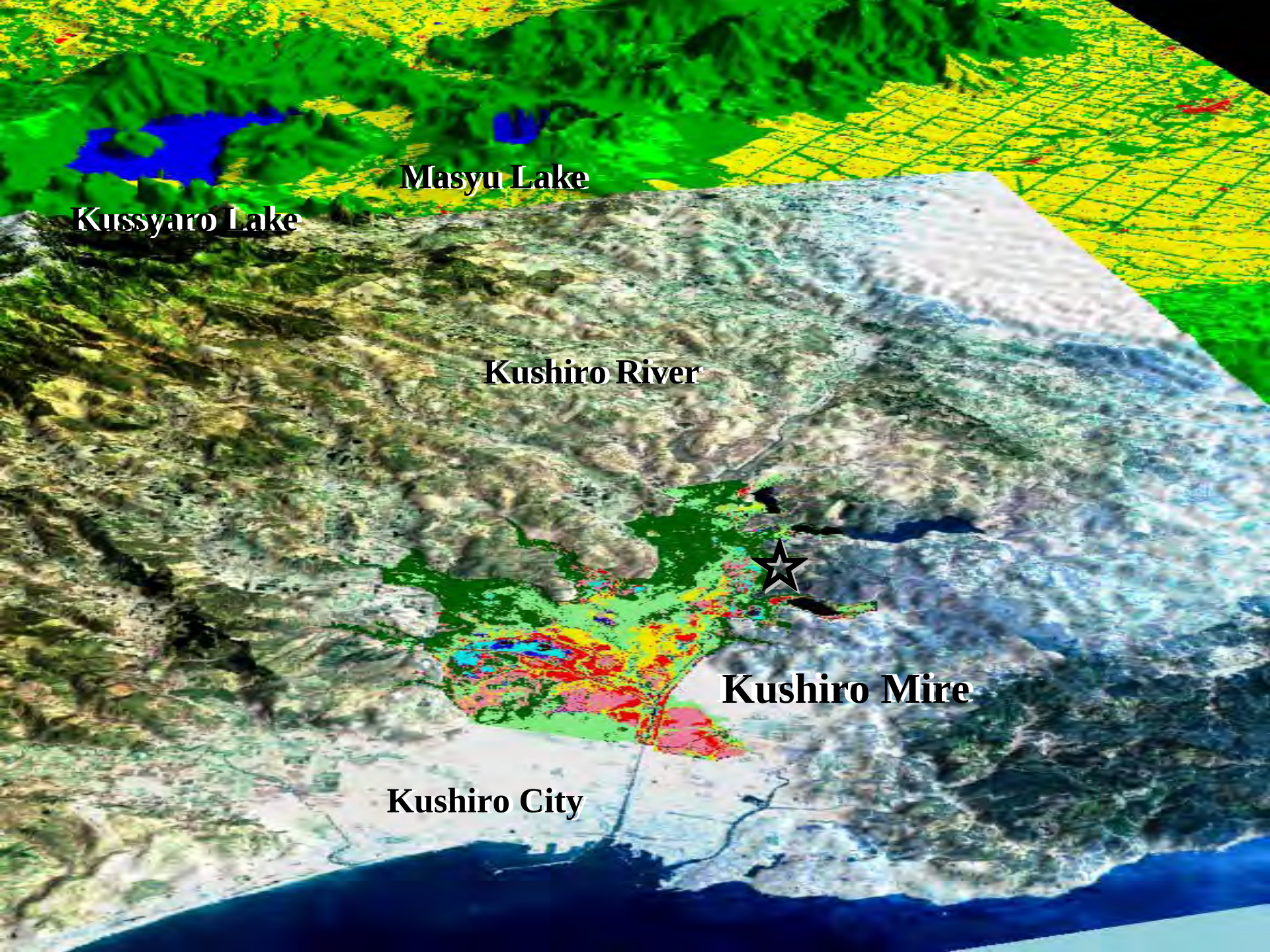
The lower reach from St.3

Low level(1996,May)

Flooding(1995,Sep,)


Masyu Lake
Kussyaro Lake
Kushiro River
Kushiro Mire
Kushiro City

Re-meandering Project


Masyu Lake
Kussyaro Lake
Kushiro River
Kushiro Mire
Kushiro City

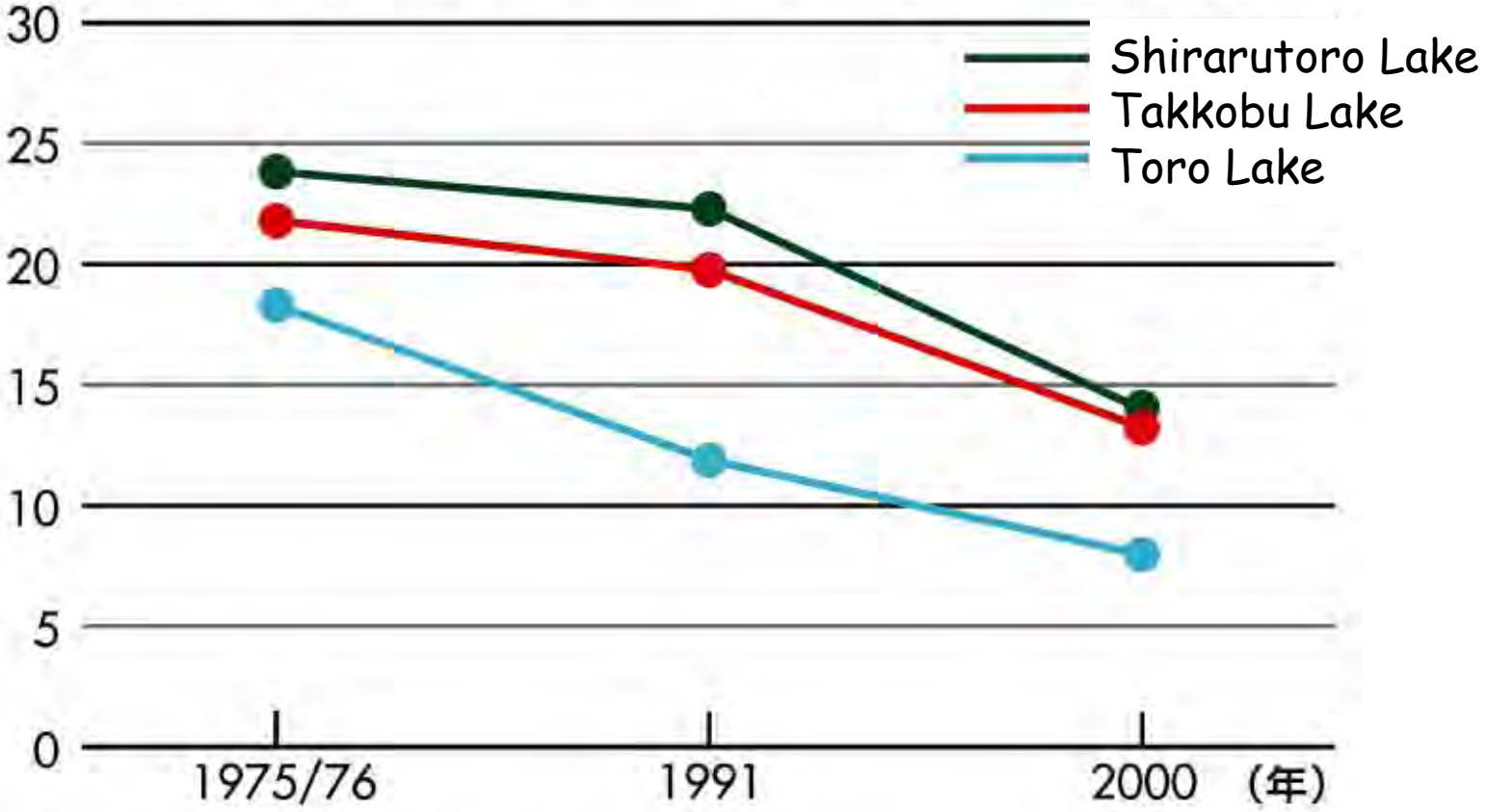
Three lakes in Kushiro Mire

Shirarutoro Lake

Nymphaea tetragona

Nuphar pumilum

Changes in species richness of aquatic plants in the three lakes of Kushiro Mire

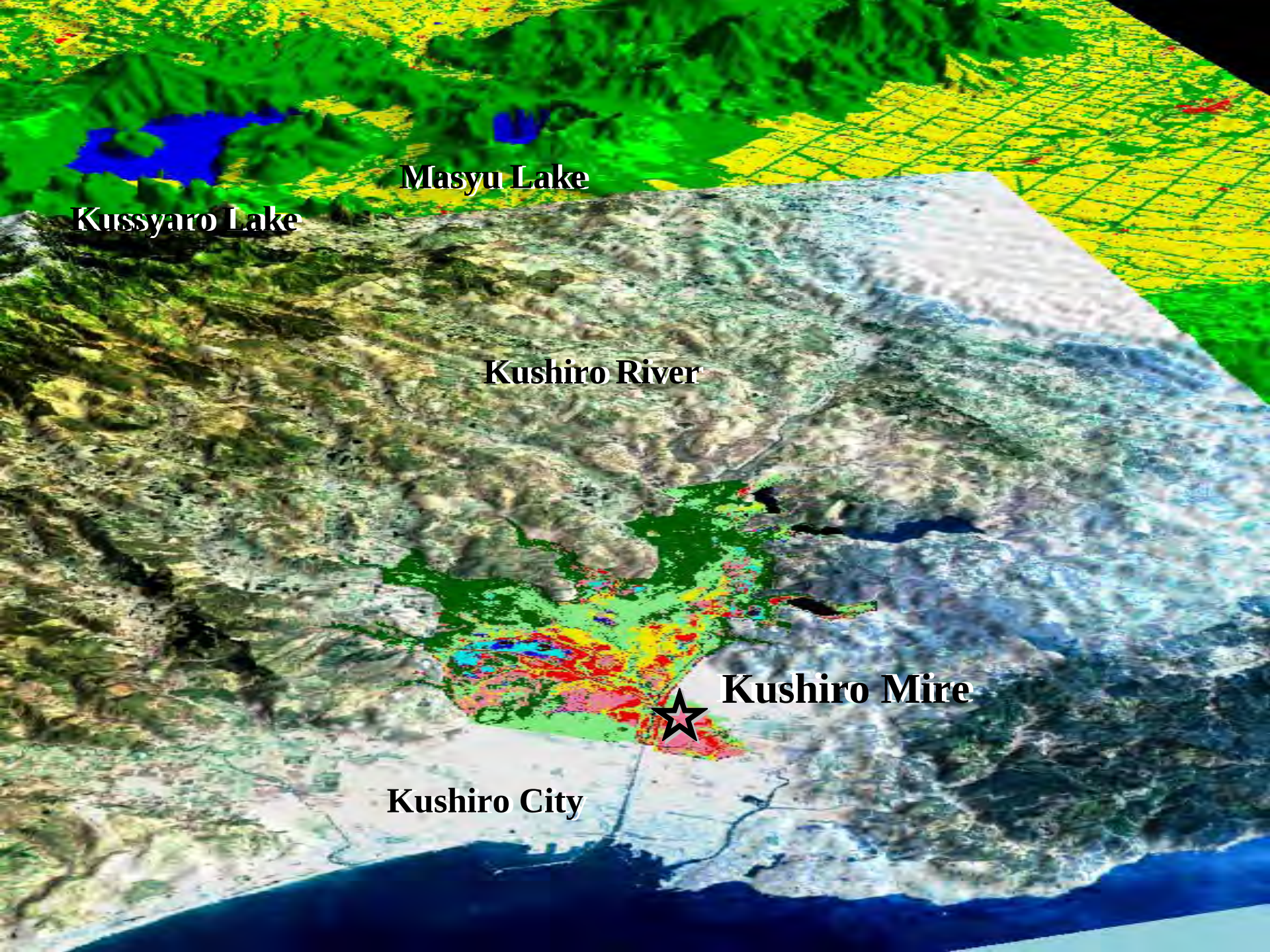


Takkobu District

Bamboo bush field after the clear cutting

Manmade forests

Public involvement

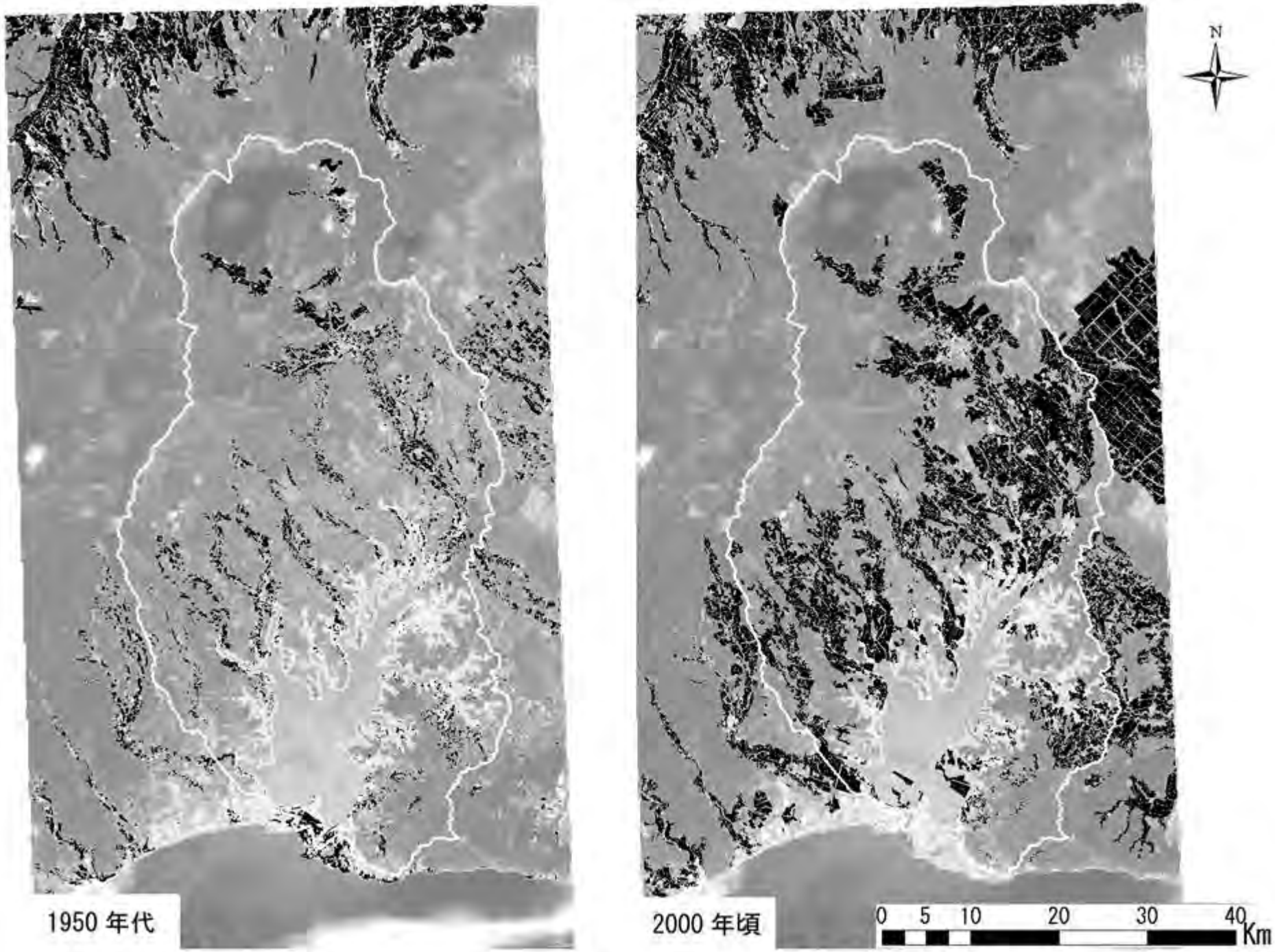

Masyu Lake
Kussyaro Lake
Kushiro River
Kushiro Mire
Kushiro City

The second day: Lectures on the following themes.

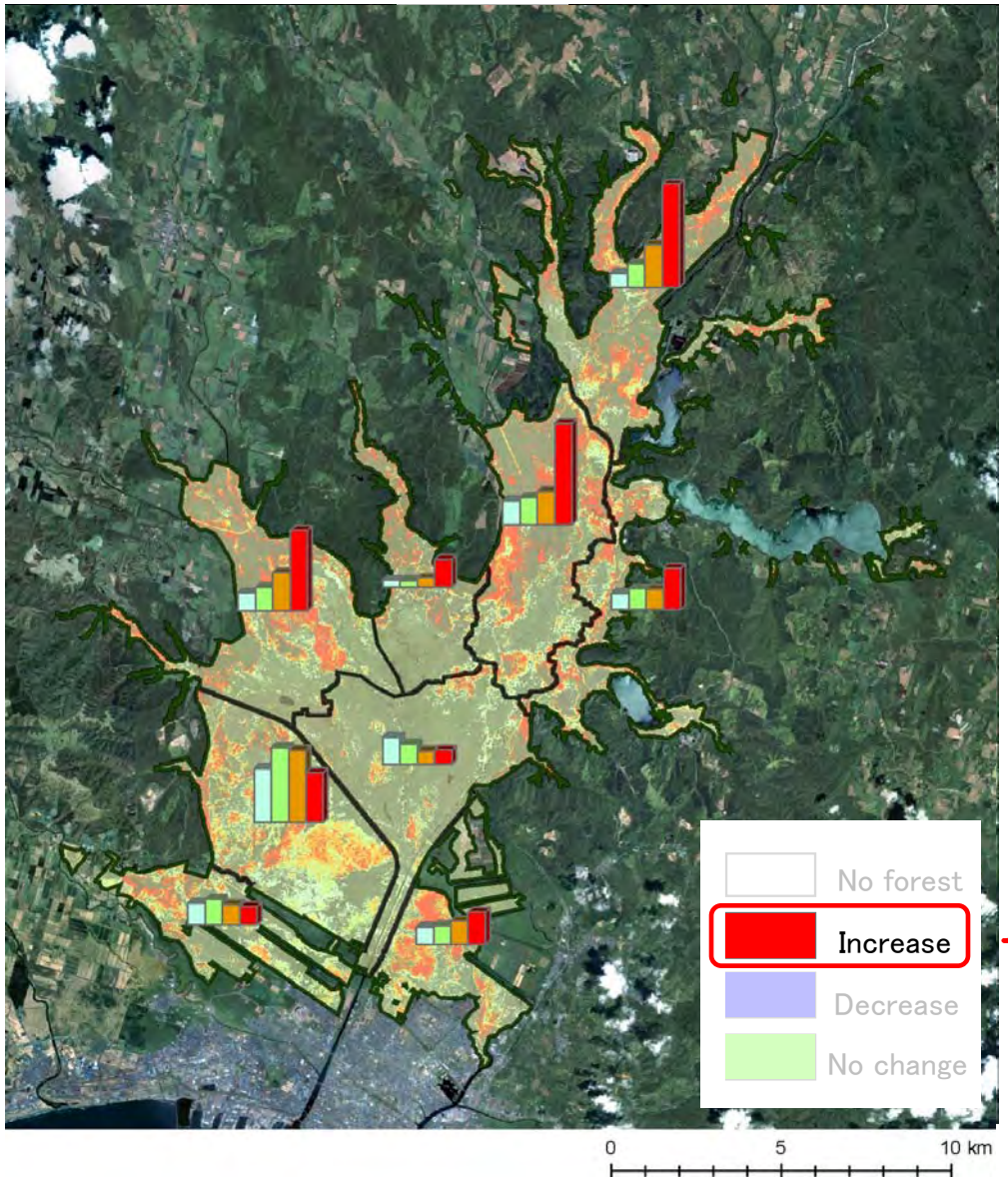
1) Structure and function of river and riparian (wetland) ecosystem

2) Watershed management from the view point of production, transport and storage of materials (sediment, organic matter and nutrients) in a catchment

3) Restoration of forest, river, riparian and wetland ecosystems


1950 年代
2000 年頃
N
0 5 10 20 30 40 Km

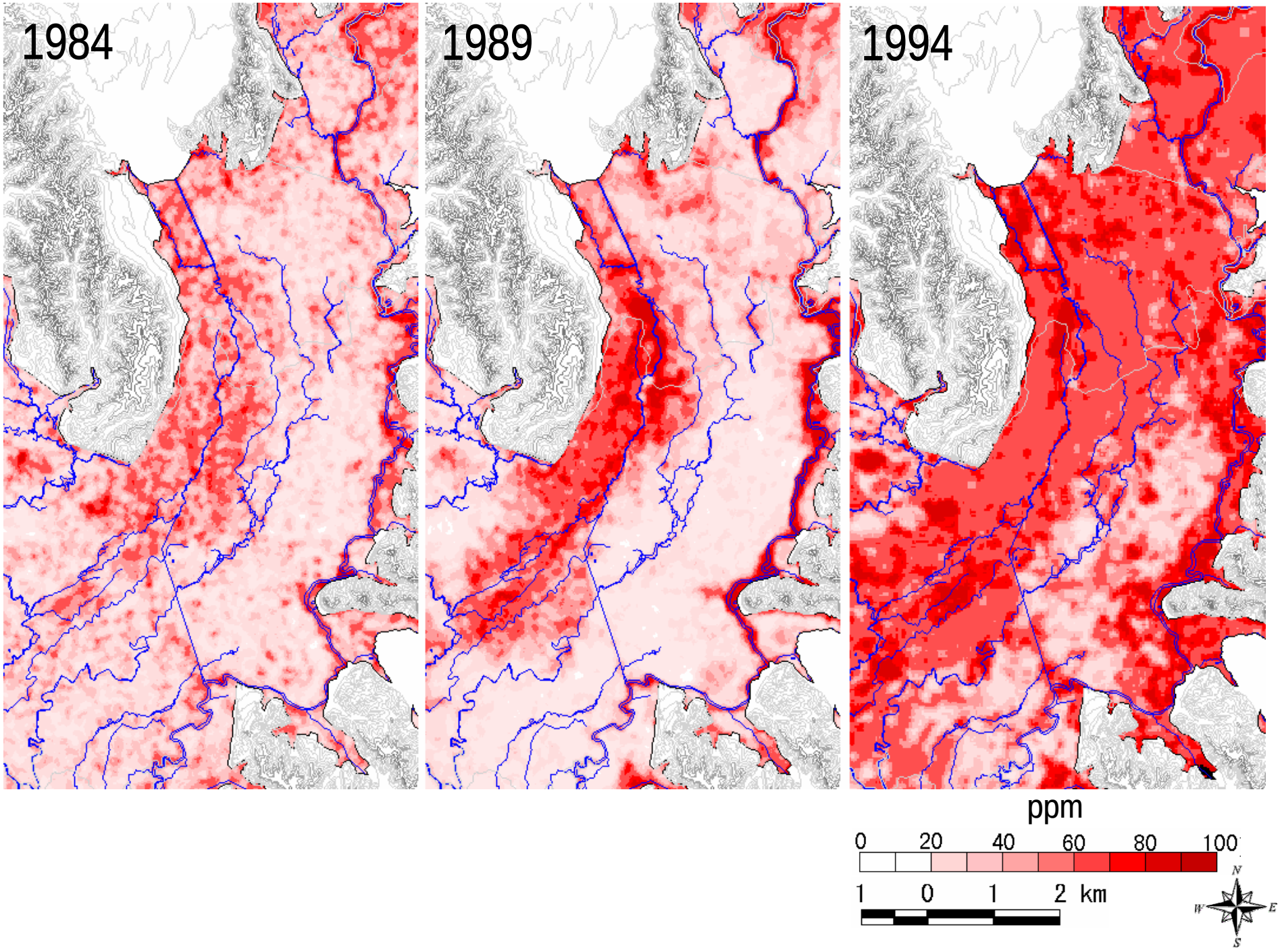
Changes in areas and density of marsh forest between 1977 and 2000



North:
Increase of dense forests

Centre:
Very little change

South:
Increase of forest density as a whole


1984
1989
1994
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60
80
100
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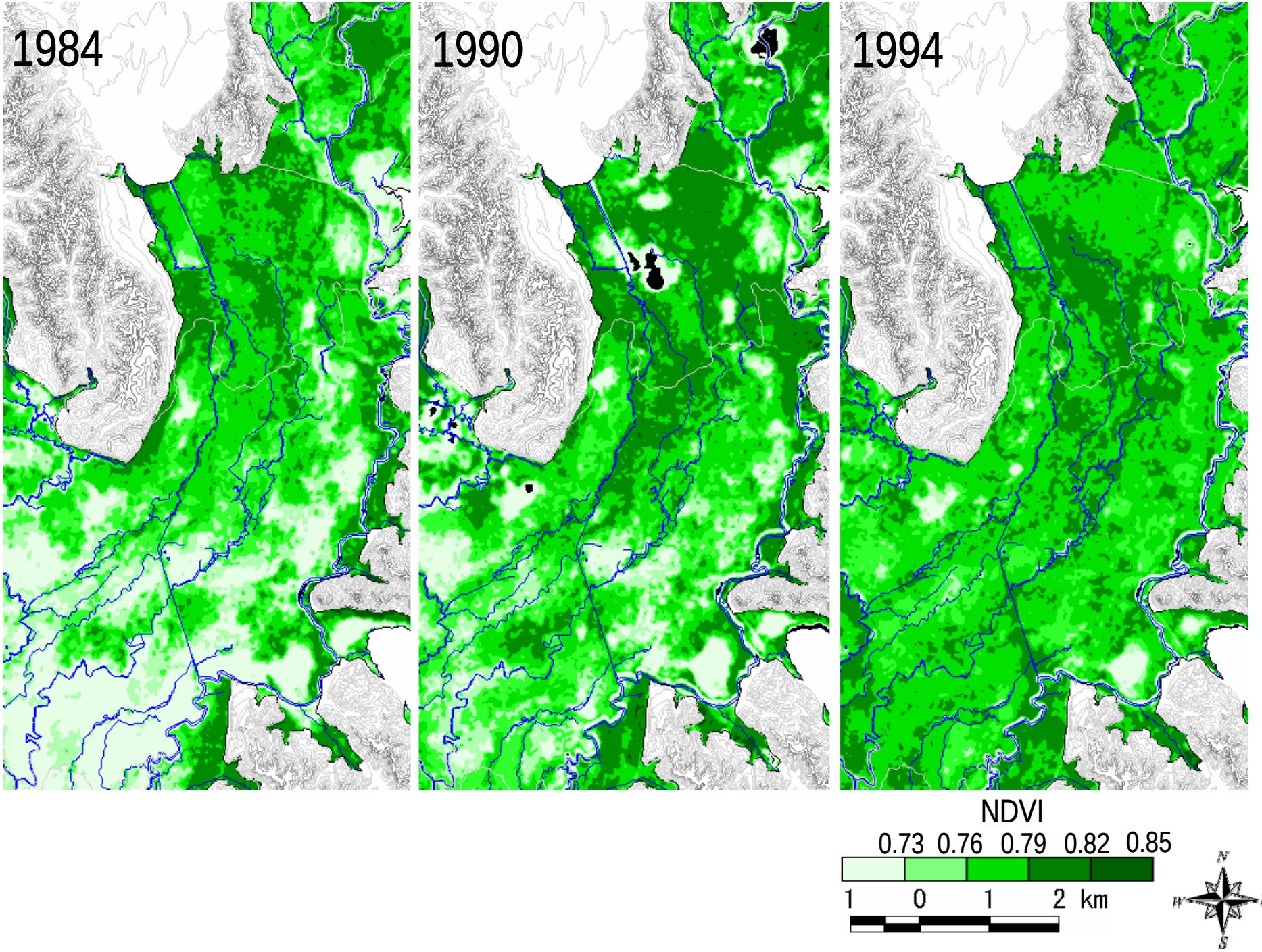
1984
1990
1994
NDVI
0.73 0.76 0.79 0.82 0.85
1 0 1 2 km
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W
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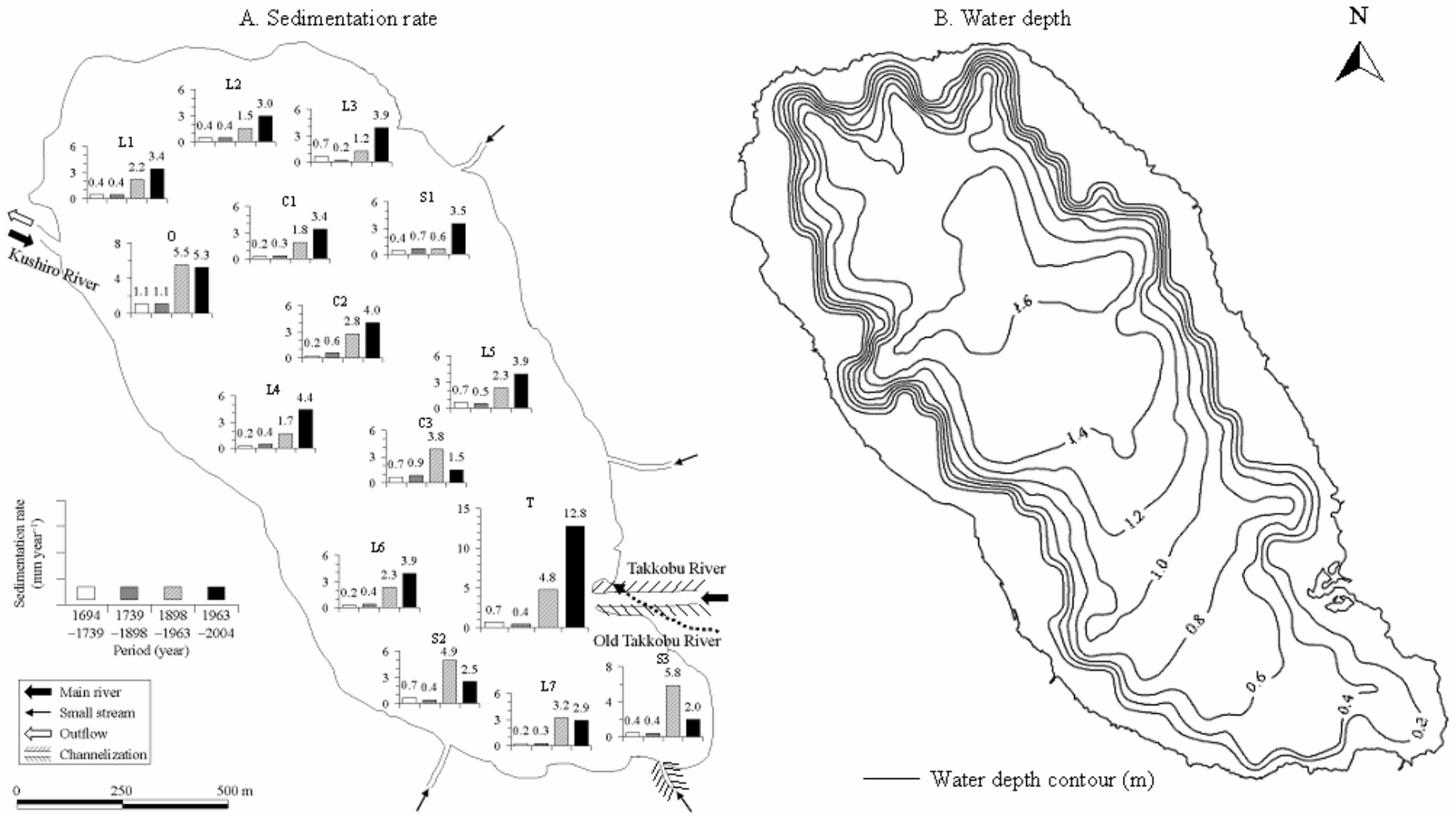
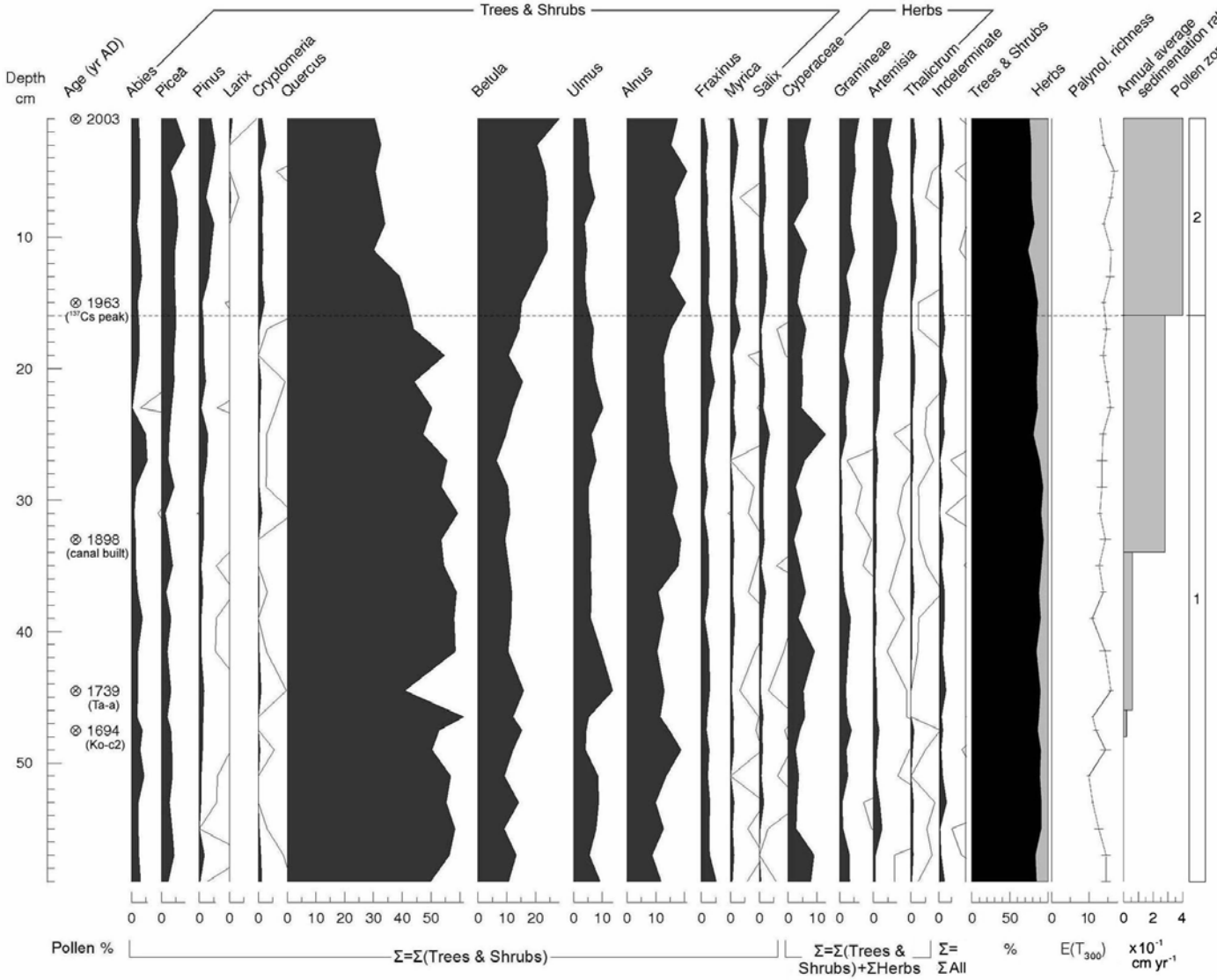
S



(A) Spatial variation of sedimentation rates in Lake Takkobu between 1694 and 2004, and (B) present contour map of water depth.



Pollen and sedimentation rate data of Lake Takkobu sediment
(Unfilled pollen percentages show ×10 exaggeration).
The dating analysis was carried out by Ahn et al. (2006).
The sedimentation rates show the average values for the four dated periods.

Conservation Measures for Kushiro Mire

1) Prevention sediment inflow by establishing riparian forests and sediment ponds

Riparian forests

Wetlands for sediment trap

2) Increasing water retention and reducing sediment production by afforestation

3) Restoration of wetlands

5) Restoration of meandering river channels

6) Conservation of water quality and groundwater drainage networks

7) Conservation of wildlife habitats

8) Landscape conservation

9) Public participation in monitoring and management of the wetlands

10) Common understanding of conservation and recreational use of wetlands

11) Promotion of environmental education

12) Development of promotion and cooperation among towns and cities

Council of the restoration project
More than 100 people!

The third day: Workshop and presentation

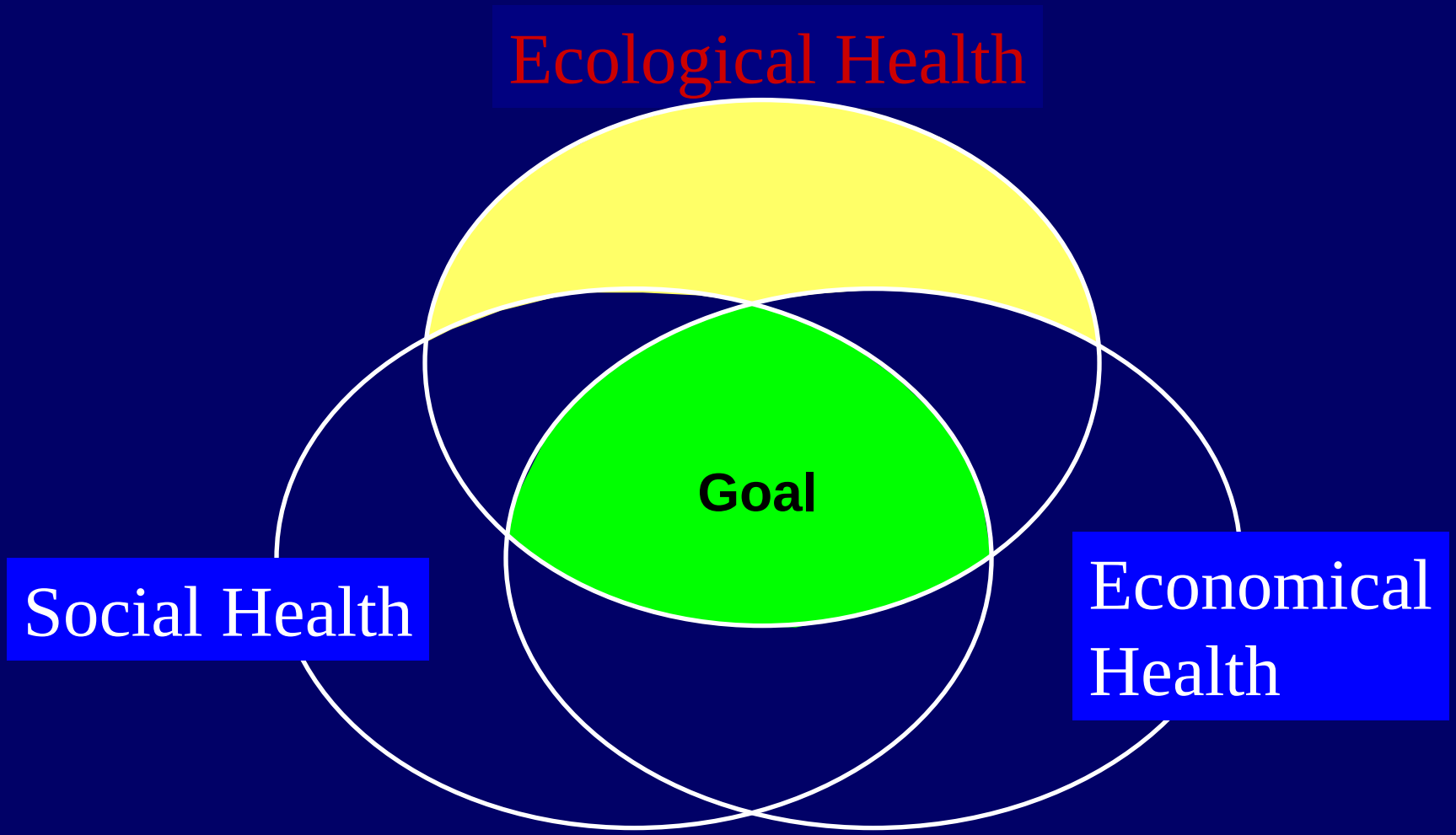
Themes of presentation

1. Restoration of forests, rivers and wetlands in Kushiro Watershed
   → Current status of ecosystems and future direction of ecosystem restoration.

2. Eco-tourism using natural resources of Kushiro Wetlands

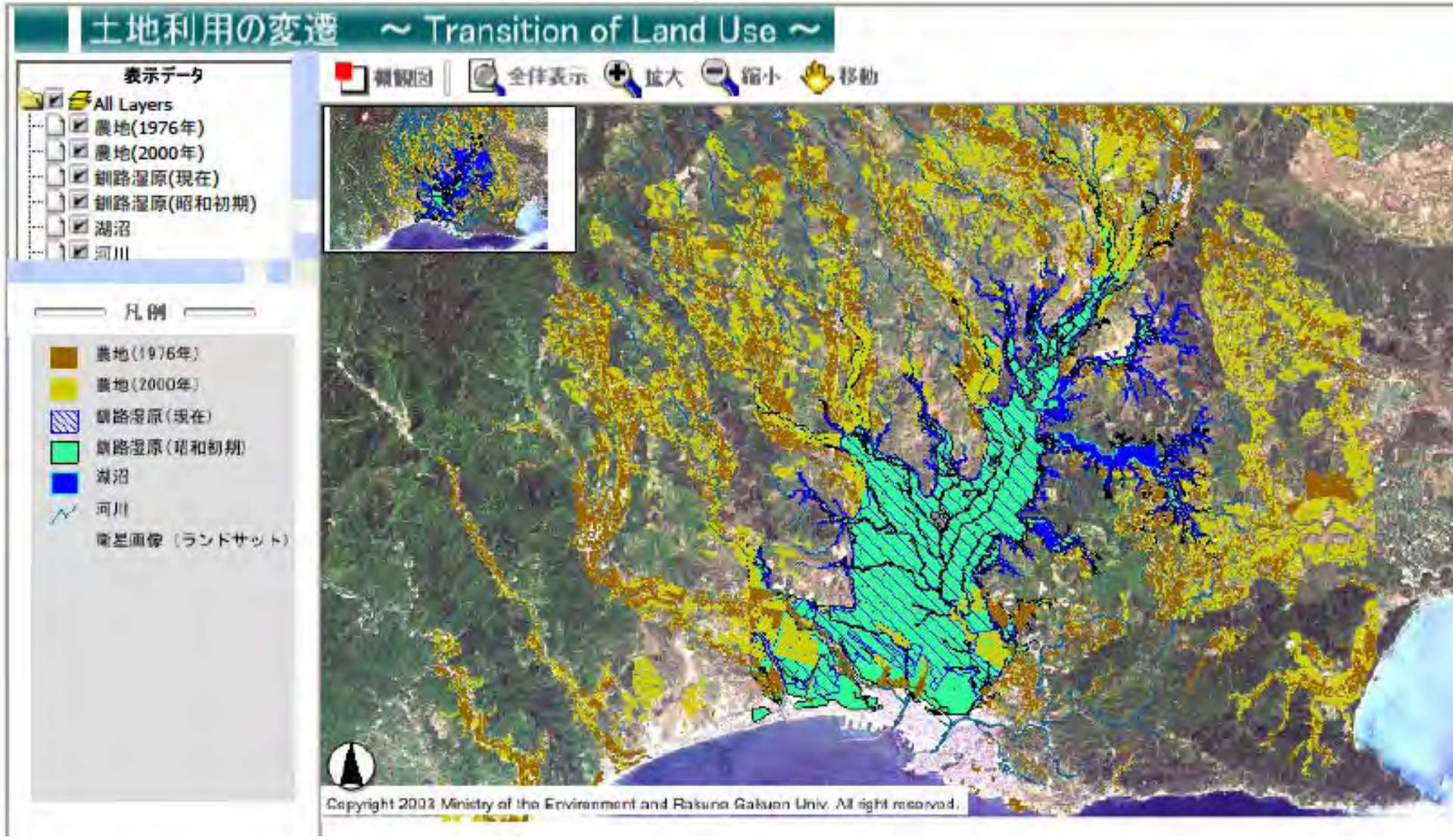
3. How can we determine priority of restoration sites?

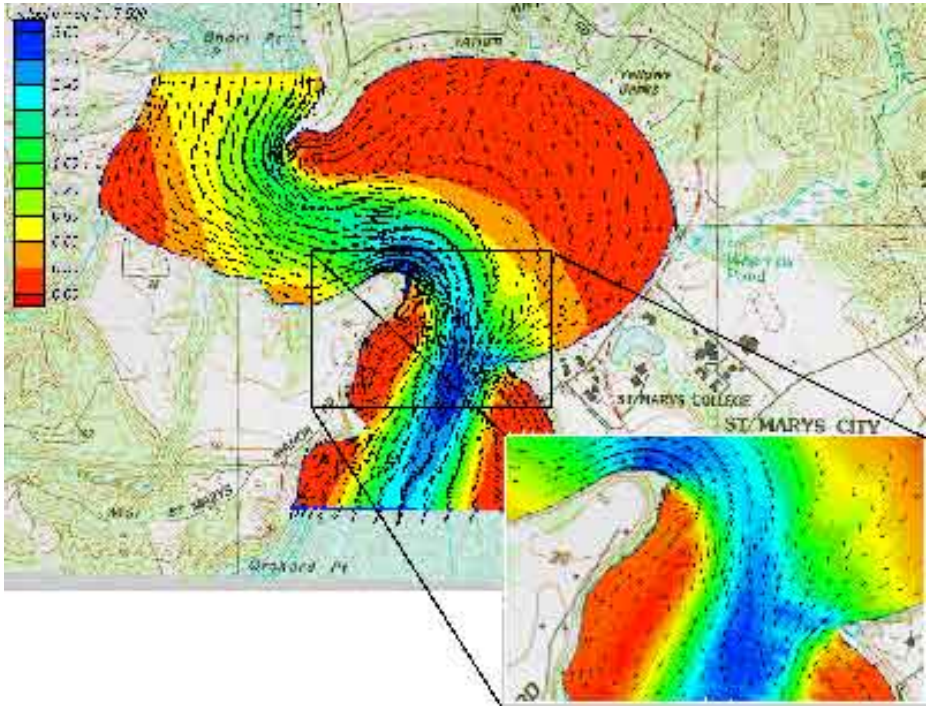
4. How can we reach an agreement in the restoration council when the opinions are polarized?


Ecological Health
Goal
Social Health
Economical Health

If I have another several days,

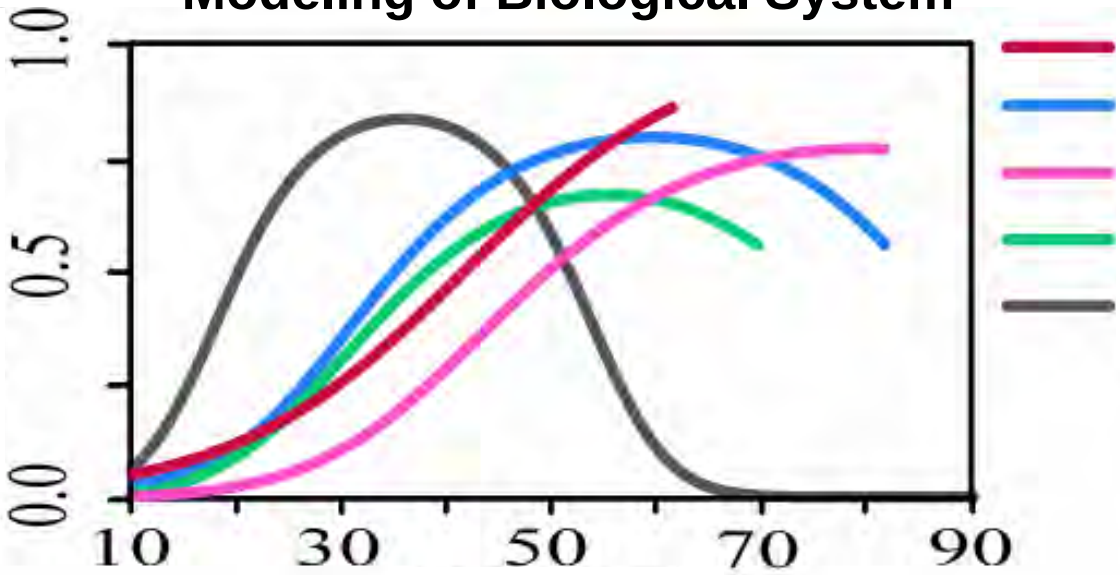
Web GIS

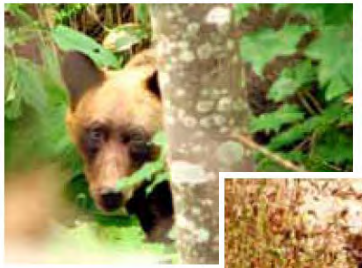




Ground- and Surface Water Modeling System

Modeling of Biological System





ヒグマ

エゾライチョウ

ダイモンジソウ(露岩

カツラ大径木