

**SATOYAMA** is Japanese Word

# What is **SATOYAMA** ?

*Oku-yama*  
(natural forest)

*Yama (Sato-yama)*

Woodland & grassland used by rural people

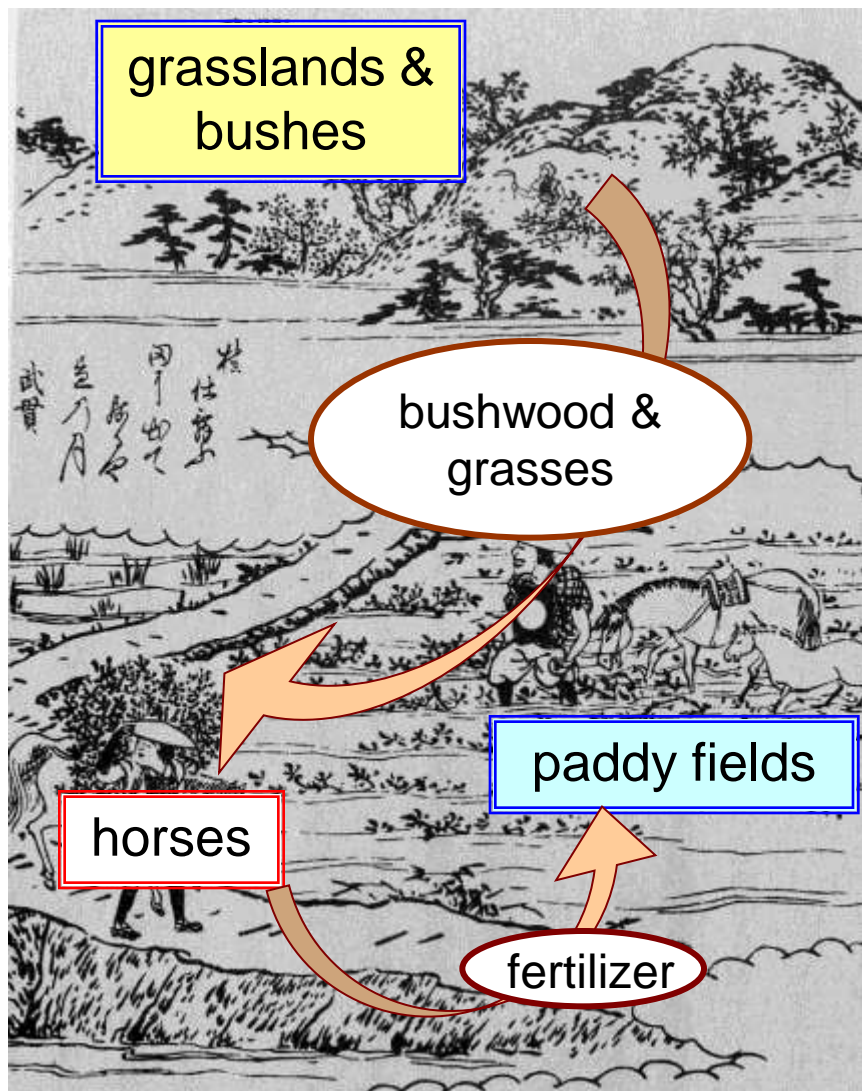
*Mura*  
(settlement)

*Nora*  
(crop fields)

**Nishiwaga T. in Iwate Pref.**

# Satoyama for the multi-productions

## Satoyama use at Edo era



信濃善光寺通りの田園風景 (after Mizumoto,2003)

## Satoyama productions

### Fertilizer (see left figure)

grasses and leaves

### Energy for Power

feeds for horses and cows  
(grasses)

### Energy for Light and Heat

fuels (charcoal & firewood)

### Foods

wild fruits and mushrooms, etc.

### Materials for Building

logs, grasses, etc.

### Other Materials

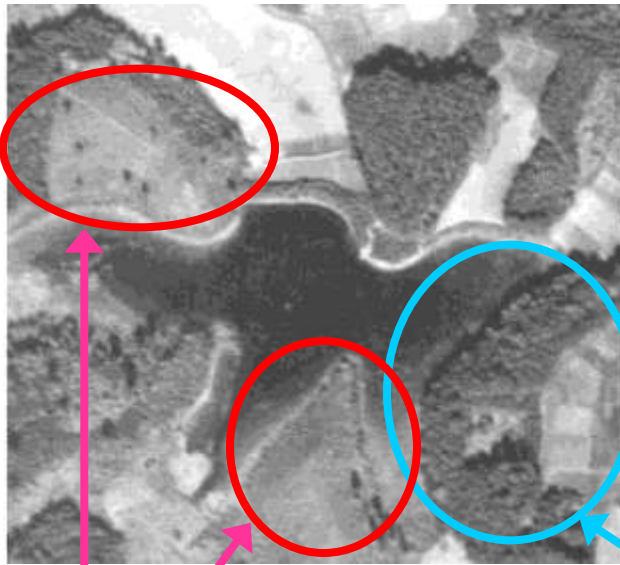
Satoyama was the place for agriculture and forestry production



# Change of *Satoyama* vegetation after energy revolution

After energy revolution, grassland became to no need. People planted pine trees in there. But the forests have changed into oak forests by vegetation succession after abandonment (under use).

1947



1974



1984



All photos by GSI Japan

Grassland meadow

plantation

Pine plantation

under use

Mixed forest of pine & oak

Cedar plantation (growing)

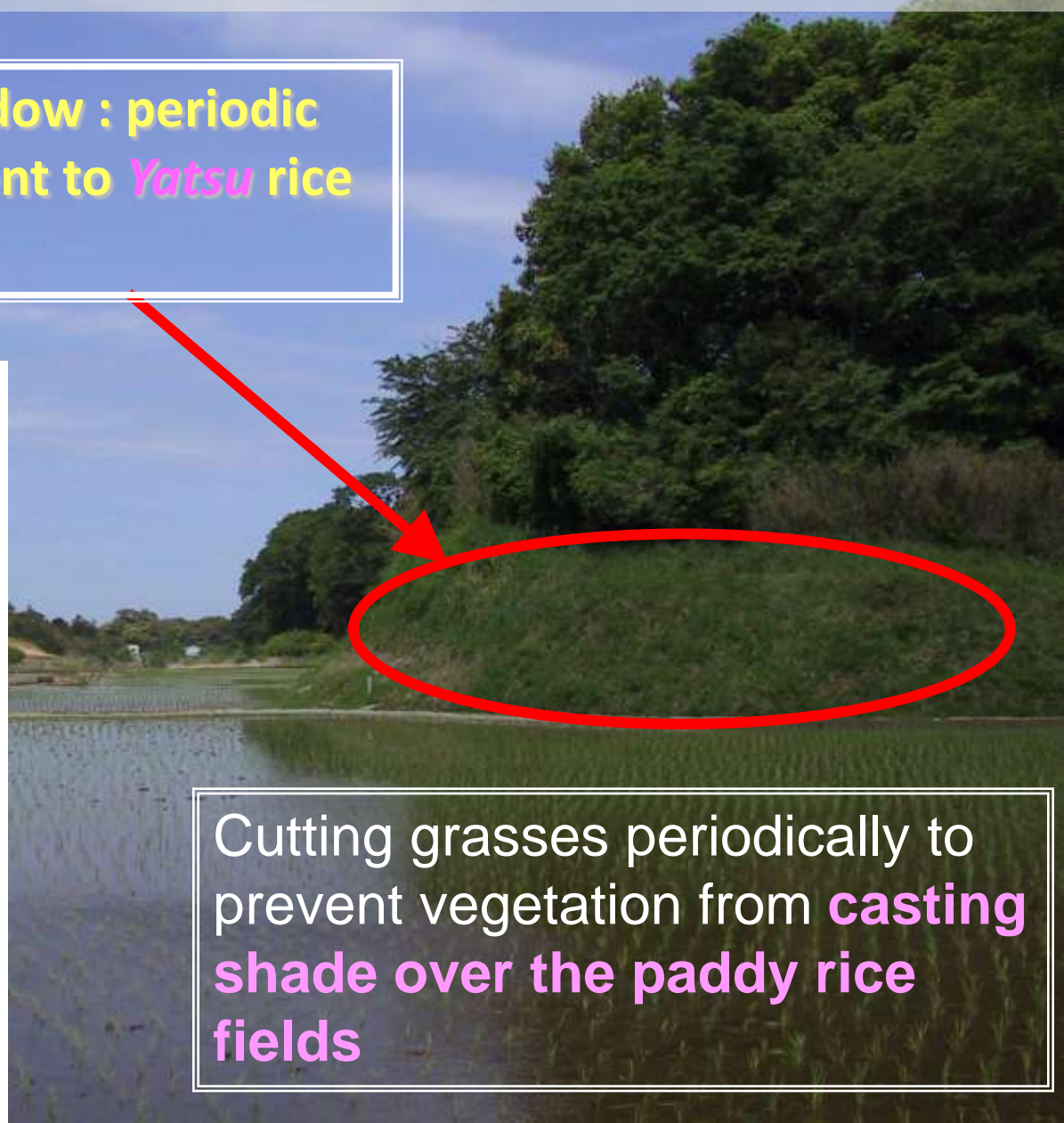
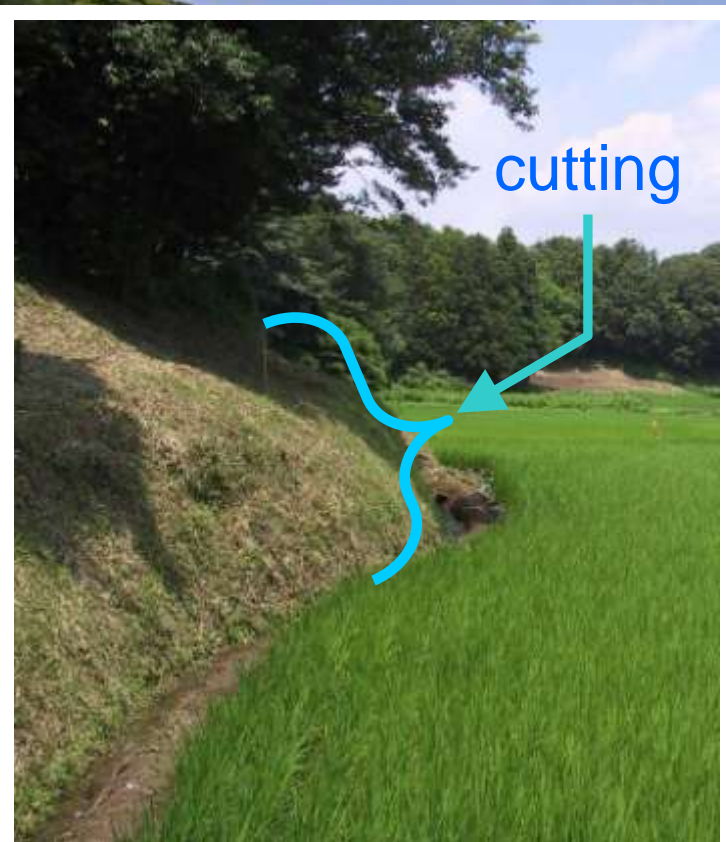
# Habitat Changes by Under Use





# Farming Practices and Biodiversity

Traditional verge meadow : periodic cutting grassland adjacent to *Yatsu* rice paddy



Cutting grasses periodically to prevent vegetation from **casting shade over the paddy rice fields**



# Lost of paddy and forest mosaic - Field Abandonment -

*Ushiku City near Tsukuba*

1960

Photo by GSI Japan



Paddy  
(non-improved)

1974

Photo by GSI Japan



Wet grassland  
(*Phragmites australis*)

2002



Woodland  
(dwarf bamboo & oak)



# If farmers stop their management in / around paddy fields?

Urbanization of forest



Urbanization of paddy



Urbanization of landscape



Field Abandonment  
(occupied by alien species)



Field Abandonment  
(succession to forest)



# Effect of Landscape changes on biodiversity in *Satoyama* grasslands

## Common species became threatened

Ex) The Japanese traditional seven flowers of autumn

*Miscanthus sinensis*



*Pueraria lobata*



*Lespedeza bicolor*



*Eupatorium japonicum*



*Dianthus superbus* var. *longicalycinus*



*Platycodon grandiflorus*



*Patrinia scabiosifolia*





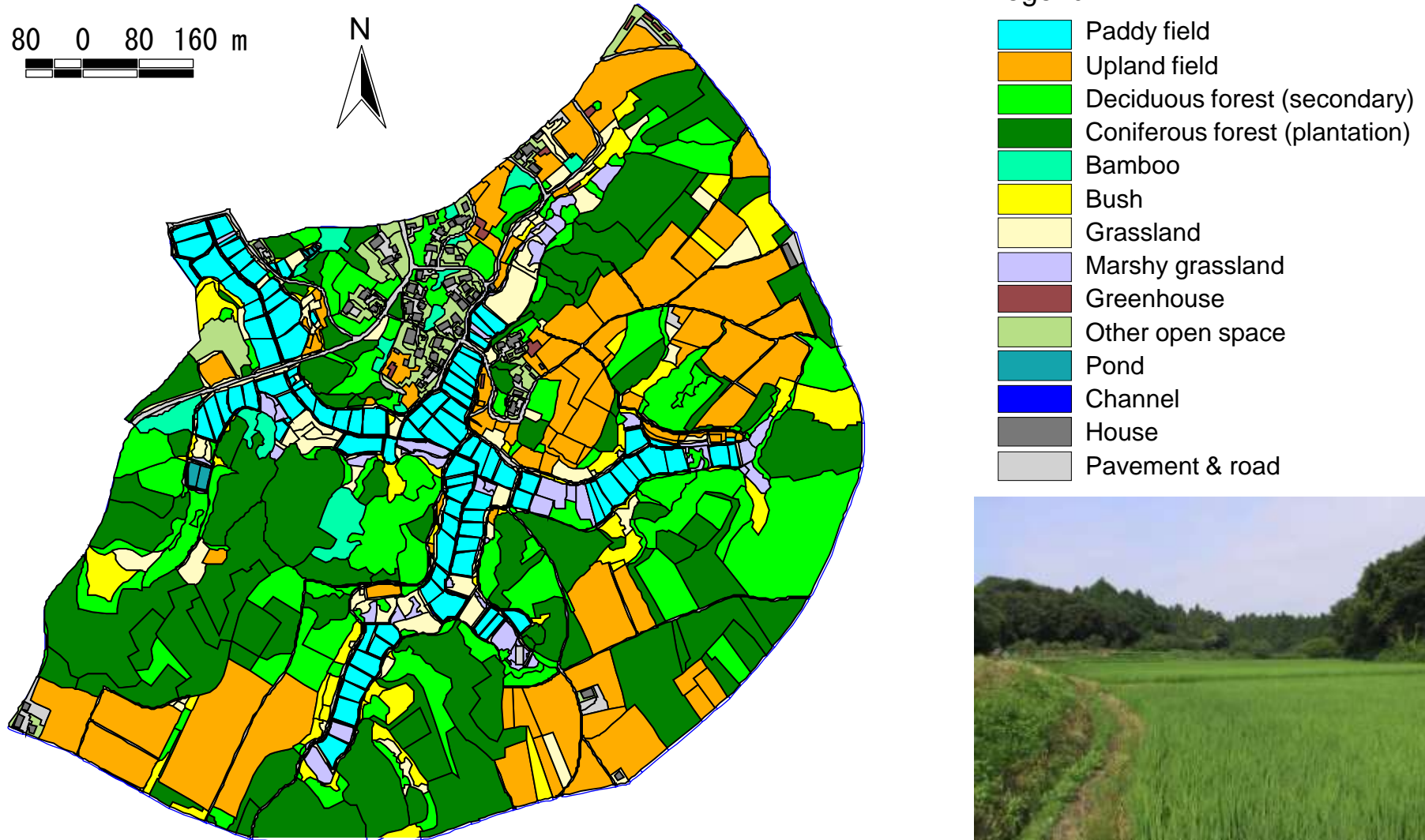
# Other common species became threatened

Ex) species depend on paddy fields



# Mosaic of Agricultural Landscape

Highly Heterogeneous *Yatsu* Paddy Landscape of a Rural Community in Southern Ibaraki, Japan





# Landscape of “Paddy – Satoyama – Okuyama”

**Na-meuang village**

**(Feuang Dist., Vientiane Prov., Lao PDR)**



# Landscape Structure in Na-meuang Village

houses  
and  
paddy

Sato-yama  
(production forest)

Oku-yama  
(protected forest)

2011/10/2 13:46  
2011/10/2 2011/10/5

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Google earth

2007

18° 31'32.01" N 102° 02'11.61" E 標高 320 m

高度 7.72 km



# SATOAYAMA land use in Na-meuang Village





# Change of Laos Agriculture & Satoyama Landscape

Introducing of Commercial Agriculture  
By Foreign Capital (China, Thailand etc.)



Kenthao Dist., Xaignabouly Prov.



***Thanks for your attention***



**Fukushima Pref.**