A social experiment for the reconstruction of resilience in "Satoyama Social-Ecological System" in Japan

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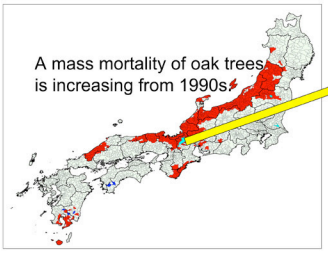
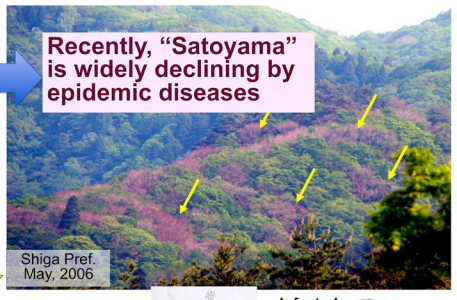
Background of the research

Wide declining of "Satoyama" forest

"Satoyama" is managed woodlands surrounding rural communities, in which people have been forming a traditional socio-ecological system to utilize the wood resources.

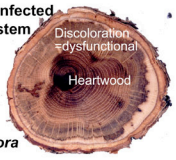
Area of "Satoyama" is wide and covers 30% of the forest area in Japan





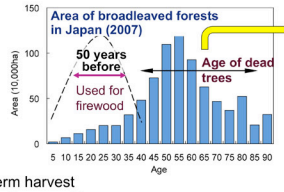
Vector of the pathogen *Platypus quercivorus*

Pathogen *Raffaelea quercivora*

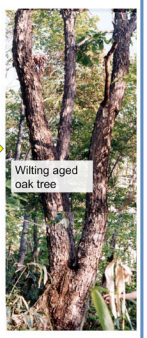


Reason of the recent decline

- Due to the **Energy revolution** from 1950s, charcoal production ended and coppices were left unmanaged.
- Therefore, **aged oak stands** suitable for the propagation of vector beetle increased.



Traditional short term harvest for charcoal production was 15 to 30 years intervals



To recover healthy "Satoyama", rejuvenation of secondary forests by the reutilization of biomass will be effective.

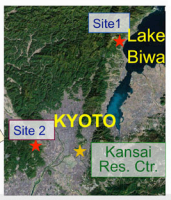
Another problem on "Satoyama" management

NPOs, volunteers and local governments are trying to re-manage once abandoned Satoyama. However, cut logs are mostly unused and left in the stands. Activities without knowledge on the forest health promote decline and are not always contributing to the sustainability of forests.

What is the social experiment?

The purpose is to develop the way to sustain healthy "Satoyama" by volunteers, NPOs and local governments

- Site 1: Shiga Pref. Severe damage of oak trees
- Site 2: Kyoto Pref. Just the start of infection



Outline of the social experiment

Utilization of biomass

Economy

Families
Schools

Logs

Supply

Activation of community

- Cutting
- Production of firewood

Citizens, NPOs Governments Researchers

Monitoring changes in life style

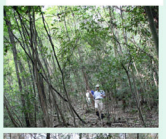
Monitoring of regeneration

Present activities and investigations

- **Demonstration of techniques, utilization of cut logs, and education program started in 2008.**
- **Citizens and researchers are cooperating on this subject as below.**

1. Survey, Cutting & monitoring

Survey & cutting Oct. & Dec.2009



Wood chopping May, 2010

Monitoring of regeneration May, 2010

Trees thicker than 20cm were cut by the professional (forestry association).

2. Using logs as fuel

Monitoring

- Energy usage
  Comparing to the cost of gas and electricity
- Room temperature
- Working hours for wood chopping and stove maintenance

etc.

Accumulated data will be used to promote the utilization of biomass obtained from Satoyama.

3. Education of participants

Seminar

Education programs on the forest ecosystem, health, and managements are necessary to obtain good results.

To recover healthy forests, we are promoting the restart of "Satoyama management" with the utilization of biomass.