

# Relationship Between Agehama-style Salt Making and Noto’s Satoyama and Satoumi: From a Viewpoint of Landscape Ecology

揚げ浜式製塩と能登の里山里海～景観生態学の観点から ●Koji ITO<sup>1</sup>, Tatsuya NOGAMI<sup>2</sup>

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2: Ishikawa Prefectural Government

## 1 揚げ浜式製塩法とは?

Whats’s Agehama style salt production?

This is a traditional regional livelihood which is being conducted in salt farms on the coast of Noto Peninsula, Japan, and has continued for at least 400 years. It is one of the main components of “Noto’s Satoyama and Satoumi”, Globally Important Agricultural Heritage System (GIAHS), that is unique to Noto peninsula requiring ecological services of both satoyama and satoumi.



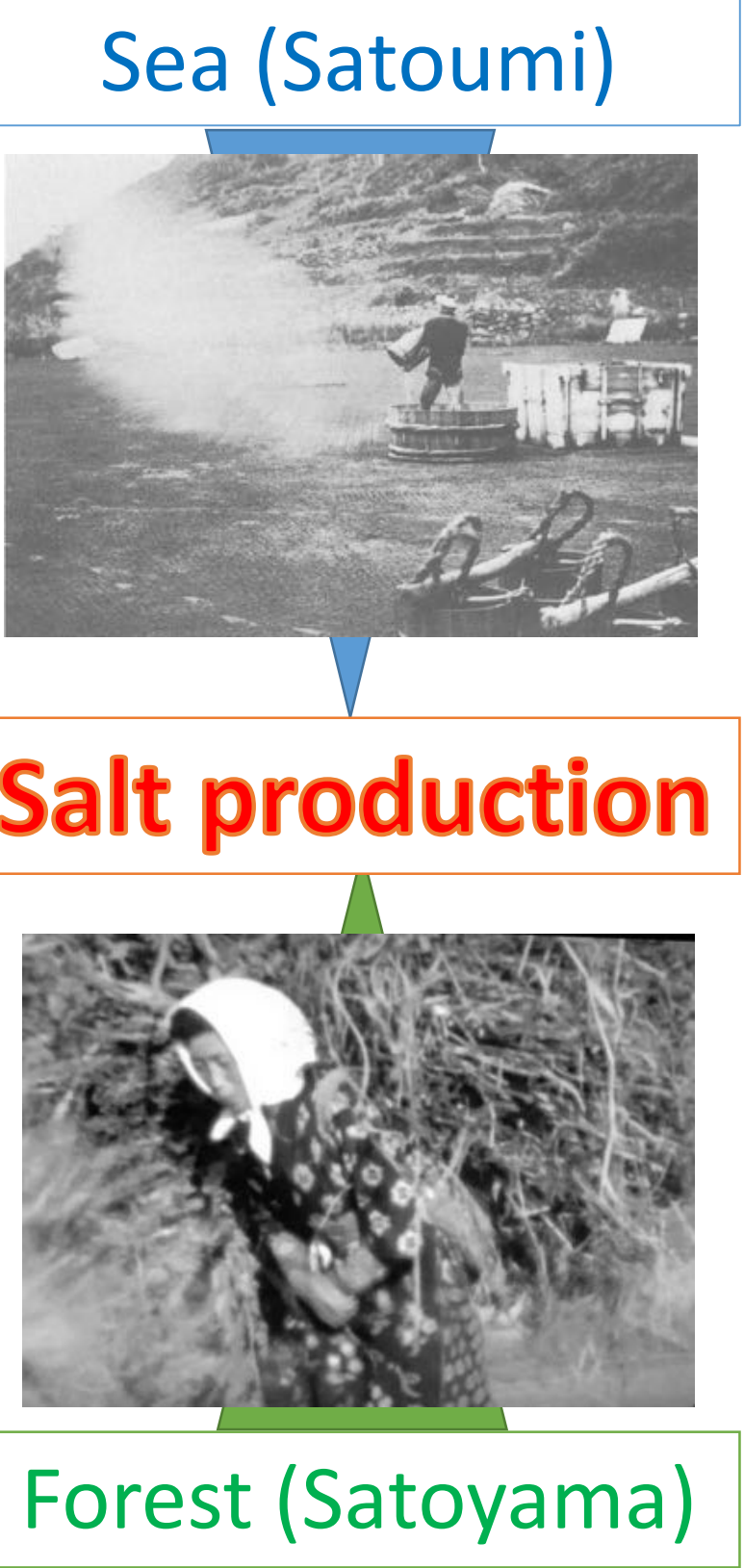
(Fig.1) Salt farm landscape at Ookawa-hama Beach, Wajima city, Ishikawa pref. in c. 1950 (Picture cited from Iwanami photo book series “Noto”)

## 2 揚げ浜式製塩法と里山里海

Agehama style salt production using Satoyama & Satoumi

**Nutshell**

- Large amount of firewood obtained from satoyama forest is indispensable for the traditional salt making method.
- But now most companies are making salt by using woody construction waste instead of satoyama firewood.



### Production process

- ① It begins by spreading seawater on the sand of salt farms. After letting the moisture of the seawater to evaporate by the heat of the sun, the sand is gathered and put into a box-like container (tarefune).
- ② By pouring seawater into the container from above, saltwater with salt concentration higher than seawater (kansui) is obtained.
- ③ The obtained kansui is poured into an iron pan with a diameter of two meters, and by using twigs and firewood, the pan is heated for a whole day and night to precipitate salt crystals.

### Research question

What types of forest were used to collect twigs and firewood for the salt production?

## 3 過去の里山林の景観分析

Analysis of past satoyama forest landscape

### 3-1. Old document on forest landuse inventory

According to the study of Saito (1954), 71% of forests in Uedo village of Suzu City were coppice forests, 57% of which were young forests in 1919. That is, about 40% of the total is presumed to be a young forest for Agehama style salt making.

### 3-2. Past landuse analysis using LUIS (landuse database)



Fig.3 Landuse map of shrub land (c.1900). 荒地  
Green meshes of 2km represents existence of shrub land. Red meshes represents that shrub land was a dominant landuse in the mesh.



Fig.4 Landuse map of mixed-forest (oak and red-pine trees) (c.1900). 混交林  
Green meshes of 2km represents existence of the type of forest. Red meshes represents that the type was a dominant landuse in the mesh.

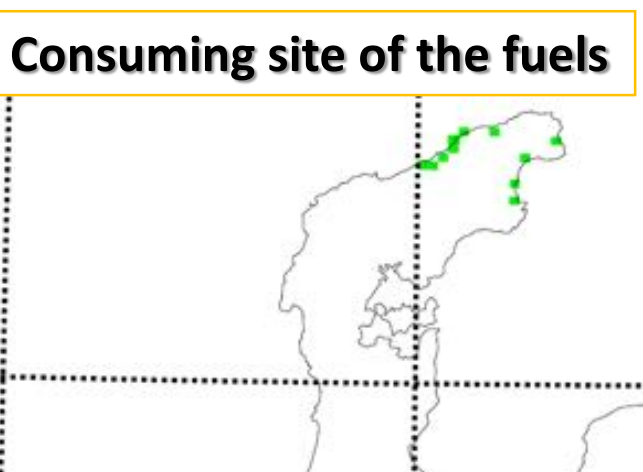


Fig.5 Landuse map of salt farm (c.1900). 塩田  
Green meshes of 2km represents salt farms appearance.

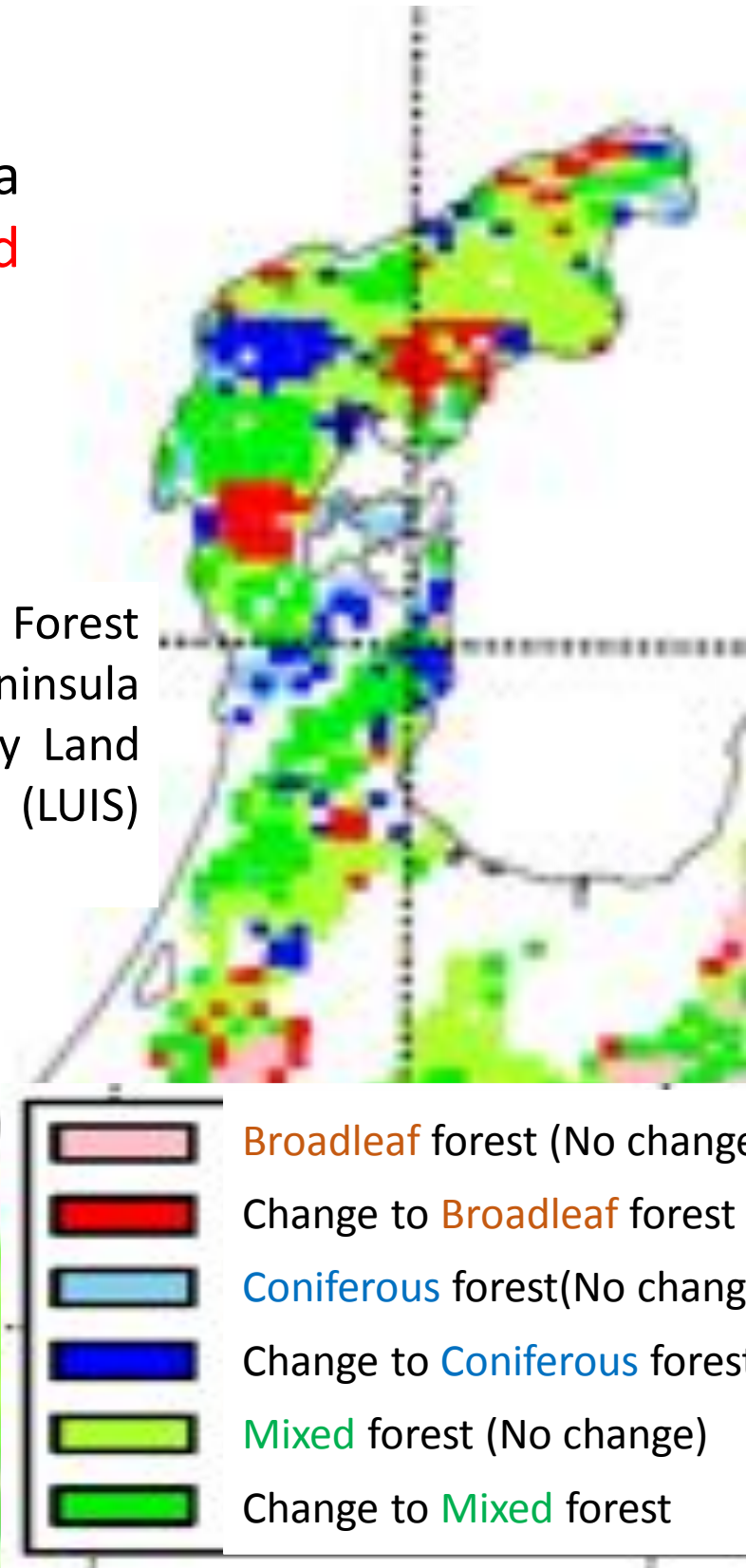
### 3-3. Landuse change analysis using GIS

It was revealed that forest landscape of Noto Peninsula has been mainly composed of a mixed forests (oak and red-pine trees) from the late Edo period (around 1850) to the present. In recent years, vegetation succession has progressed, and it continues to change from mixed forest to broadleaf forest (red meshes).

#### Nutshell

- In around 1900 when salt production was the most popular in Noto, surrounding forests near salt farm were managed as young forests due to the source of twigs and firewood.
- Since the early Showa era (around 1930), when Noto’s salt production industry declined, application of biomass from forests shifted from salt production to charcoal production. Furthermore, the charcoal production has also declined since the 1960s and the use of biomass from forests has declined markedly up until today.

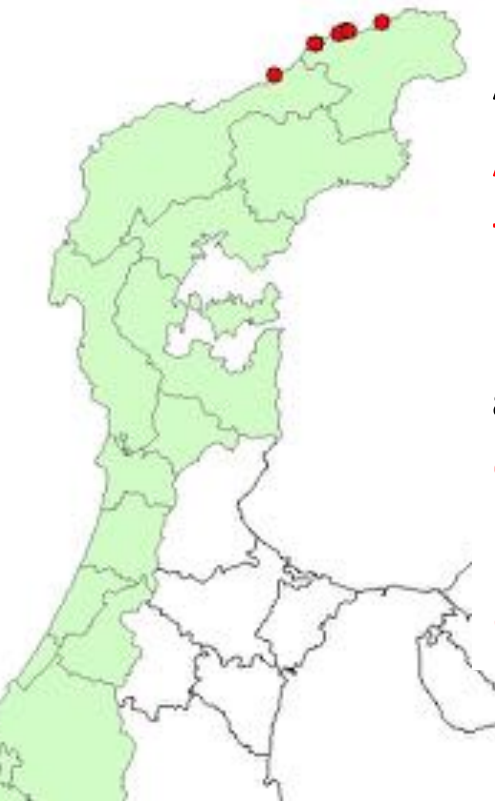
(Right, Fig.6) Change of Forest Landscape in Noto peninsula (1850-1985) analyzed by Land Use Information System (LUIS)



\* Land Use Information System (LUIS)  
<http://db.cger.nies.go.jp/dataset/luis/ja/index.html>

## 4 現在の塩田と希少植物保全との関係

Plant conservation with Agehama-style salt production



After the war, the Agehama-style salt farm decreased to 1, but recently it has been gradually recovering as consumer demand for natural salt has developed.

(Fig.8) The current location of Agehama style salt-farms. There are 7 companies in Noto peninsula.



(Fig.9) Twigs on firewood using for traditional salt making in Noto salt farm village (Suzu city, Ishikawa Pref.)

Recently, the efforts to use twigs from satoyama forest and thinned wood from artificial conifer forests as fuel are reviving in the agehama style salt making, and it is drawing attention as a good practice of GIAHS.

Let’s make it a symbol of satoyama conservation along with salt production industry!



(Fig.10) Flower of Lilium medeoloides var. sadoinsulae. This species habits on steep slope of deciduous forest floor, and on big bare rock in Northern part of Noto peninsula.

Reduced use of satoyama forest has also caused a problem in conservation of rare wild plants. As an example, we have conducted conservation research for a perennial plant which is designated as a prefectural endangered species, Lilium medeoloides var. sadoinsulae (Fig.4).

This species is growing in a forest that was once shrub land and mixed-forest near the coast of the northern Noto Peninsula, and a deep involvement with the salt production is inferred.

#### AcKnowledgements

The landuse data is provided from LUIS Web in the Global Environmental Database, Center for Global Environmental Research, National Institute for Environmental Studies, Japan. The land use information data in this study was created by Yukio Himiyama, Hokkaido University of Education, and Shouchirou Arizono, Aichi University.