



Economic Valuation of Oku-Aizu Forest Ecosystem Reserve in Japan

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Short title: Valuing forests for different protection strategies, Japan

Key Message: The total economic value for the Oku-Aizu forest reserve of US\$ 685,960,348 shows strong willingness to pay for the conservation of the forest.

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An explanatory meeting with local residents,
Tadami
Courtesy: Kentaro Yoshida



Picking wild mushrooms
Courtesy: Ken Sugimura

1. What is the problem?

Oku-Aizu is the name of region including four small towns and it means the inner part of Aizu region. It is located in the Southwest of Fukushima Prefecture, Japan (150 km north of Tokyo). The total area of Oku-Aizu forest ecosystem reserve is 83,890 ha (838.9 square km). There are 29 forest ecosystem reserves in Japan, including world heritage sites, designated by the Forestry Agency. Among all the reserves, Oku-Aizu forest ecosystem reserve is the largest in area. Oku-Aizu has a greater portion of buffer zone because of the sustainable use of forest ecosystem services for self-sufficiency of local people (Yoshida, 2010).

2. Which approach was taken?

Choice experiments were used to estimate the economic value of Oku-Aizu forest ecosystem reserve. A choice set used for conjoint analysis consisted of three profiles (hypothetical

protected area) and one status-quo scenario. Each profile had four area attributes and one price attribute.

3. What ecosystem services are considered, and how?

The primary ecosystem services considered here is forest preservation. The reserve consists of a “Core Zone (7,715 ha) and Buffer Zone (76,175 ha). The buffer zone surrounds the core zone. In the buffer zone, only local people are permitted to enter the forests in order to pick up the small amount of mushrooms and edible wild plants for self-consumption. Green Corridor (161,798 ha) forests are also designated outside of the forest ecosystem reserve in order to facilitate coming and going of wild animals, etc, between core zones. *Fagus crenata* (one of the most favorite trees of Japanese), *Quercus crispula*, etc, and 178 rare species of plants are found in this area. With regard to fauna, Golden eagle (*Aquila chrysaetos*), Northern Goshawk (*Accipiter gentilis*), the Japanese Serow (*Capricornis crispus*) and many endangered and rare species are also found in this area (ibid).

4. What input was required?

The data were collected through two questionnaire surveys; regional mail survey and nationwide internet survey from two samples of a random population. The questionnaires were identical in each case. The number of questionnaires delivered to households in Tadami-machi was 900, out of that 550 questionnaires were mailed back. The data were analyzed by a conditional logit model and individual WTP for different policy scenarios; base case with/without corridor, strict protection, and minimum use case were determined. The total economic value was calculated by multiplying individual WTP with the number of households (Yoshida, 2010). The total economic value for the Oku-Aizu forest reserve and its corridor from nationwide internet survey data came out to be 61,736,431,316 yen (US\$ 685,960,348) with individual WTP of 1,168 yen/year. The individual WTP for base case with corridor for regional mail survey was 3,127 yen/year. The individual WTP for strict protection case for regional mail survey was 7,216 yen/year whereas that for the minimum use case (buffer zone with corridor) was 1,349 yen/year (ibid).

5. What was the policy uptake and what were the conditions for this effort to influence public management?

The case has attracted policy makers from local governments as well as the Forest Agency of Japan. The study was also reported in the monthly public relations magazine of Tadami-machi (town), Fukushima¹. Recently, the author was selected to a committee created by the Forest Agency to look into a revision of a national forest conservation evaluation manual.

Reference

Yoshida, K. 2010, Economic Valuation of Oku-Aizu Forest Ecosystem Reserve, Faculty of Environmental Studies, Nagasaki University

¹ <http://www.tadami.gr.jp/koho/kouhou2/2010-4/479-2-3.pdf>

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Enkianthus campanulatus
Courtesy: Isamu Nikkuni



Satoyama and rural villages, view from the top of Mt. Gamo, Tadami (town),
Fukushima Courtesy: Isamu Nikkuni