Ecosystem Services and Natural Environment Policy Lab (Prof. Takahiro OTA)

This lab aims to conserve the natural environment by mainstreaming ecosystem services (ES; the benefits obtained from the ecosystem). The lab conducts policy-oriented research, meaning that all research contributes, either directly or indirectly, to the development of new policies.

Main research themes:

1. **Biodiversity offset policies, including natural environment or ecological restoration projects**

- Social network analysis for investigating the long-term management of ecosystems and offsetting impacts on social networks
- Practical assessment of "out-of-kind" offsets and suggestions regarding policies for an international biodiversity offset system
- Practical research regarding offsetting impacts on cultural ES: Restoration of archaeological or cultural property e.g., mountain-top tower or YAMAJIRO

2. **Payments for Ecosystem Services (PES), including forest environmental tax or subsidies**

- Quantifying the amount of ES and identifying beneficiary areas using spatial modeling of social-ecological systems to realize benefit-based PES
- Utilization of social marketing for public finance sectors
- Devising cultural service assessment tools such as forestry techniques, skills, and procedures and making them an object of forest PES

3. **Monetary valuation and sustainability assessment of ES**

- Revealing long-term changes in ES value and related factors, accurately estimating future ES value
- Elaborating on the hedonic method using land value, identifying suitable assessment subjects (coastal ES) for the hedonic method
- Valuation of environmental education (economic value estimation) using the natural environment from the perspective of educational effects

4. **Integrated valuation of cultural services (quantitative and qualitative)**

- Development of a place attachment scale for *Sato-Umi* (high productivity and biodiversity in the coastal sea area with human interaction), and identification of the spatial distribution of psychological attachment to *Sato-Umi*
- Exercising structured decision making among wetland management groups and considering the possibility of using scenic beauty as an indicator
- Quantitative assessment of soundscape and sacredness of the natural environment of temples and shrines and revealing positive effects on mental depression
- Assessment of the potential value of inspiration from current literature on *Satoyama* (Japan's traditional agricultural landscape characterized by a variety of different uses by humans that have been maintained in an integrated manner)

5. **Natural environment and environmental policy education, and assessment of the effects**

- Development of an automated tree species identification system using photos of leaves, and utilizing this system in both formal and informal educational settings
- Developing games on environmental policy-making for students and assessing the effects in the classroom
- Educating humanities majors about hunting policies and assessing the effects, supporting young hobby hunters

6. Application of eco-philosophy (ecosophy) to environmental policies

- Understanding trends in animal personality research in the field of behavioral ecology and applying ecosophy to related policies
- Suggesting a framework for understanding the philosophical standpoints of authors of natural scientific papers