

# Biocultural Diversity and Satoyama. Emotions and the fun-factor in nature conservation – A lesson from Japan

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## Biokulturelle Diversität und Satoyama. Emotionen und Spaßfaktor im Naturschutz – Beispiele aus Japan

### 1 Introduction

“*Biodiversity virtually has become a cult concept*” (COUNCIL OF EUROPE, 1996), and is a common topic of conversation among people concerned with environmental topics. Many conservation policies, programs and projects, laws and regulations have been designed for the conservation of biodiversity, but not much success can be reported; publications are still dominated by reports on the continual losses of biodiversity worldwide. And, if one considers that the diversity of the living world in space and time is a meta-concept

with practically indefinite attributes (NORTON, 1994), it is questionable whether science can be helpful here at all. The bio-scientific approach to conservation issues will have to be amended or supported by economic and social concerns, which consider attitudes, emotions and values as important factors in the system.

The conclusion of an international group of experts discussing the possibilities of achieving the goals of the Convention on Biological Diversity (Rio 92) was: “*Successful implementation of the CBD depends on a complex interplay of ecological processes, culture, economic and social concerns. Be-*

### Zusammenfassung

Die Erhaltung der Biodiversität ist abhängig von komplexen Wechselwirkungen zwischen ökologischen, ökonomischen und kulturellen Prozessen. In diesem Beitrag werden europäische und japanische Konzepte zur Erhaltung der Biodiversität hinterfragt und verglichen. Ein rein wissenschaftlicher Ansatz, wie er in Europa vorherrscht, ist dabei deswegen kontraproduktiv, weil er die Menschen aus der Natur ausschließt und daher verhindert, dass sie für „ihre“ Biodiversität Verantwortung übernehmen. Der Ansatz, der in Japan verfolgt wird, gründet in einem traditionellen Verständnis einer Natur, die sehr stark von der Kultur geprägt ist und zeichnet sich durch integrative und partizipative Strategien aus. Der japanische Begriff Satoyama, der die Kulturlandschaft umschreibt, die Einheit von Natur und Kultur, die daraus entstehende Biodiversität und ihre Bedeutung für unsere Lebensqualität, ist praktisch gleichbedeutend mit dem weltweit aktuellen Konzept der „biokulturellen Diversität“, das die Verbindung zwischen der Vielfalt von Natur und Kultur unterstreicht.

**Schlagerworte:** Satoyama, Biodiversität, Biokulturelle Vielfalt, Naturschutz, Kulturlandschaft, Japan.

### Summary

Biodiversity depends on a complex interplay of ecological processes and of economy and culture. Public consensus is necessary for sustainable preservation programs. To achieve such programs, conservation concepts that keep humans out of nature and take a merely scientific approach are counterproductive. They discourage citizens from taking responsibility for a nature, which they do not understand and where they are unwanted. The Japanese however, traditionally do not differentiate between untouched nature and nature shaped by culture. The Japanese term, satoyama, stands not only for the traditional rural landscape but also includes biodiversity, social traditions, and emotions.

**Keywords:** Satoyama, biodiversity, biocultural diversity, nature conservation, cultural landscape, Japan.

*cause of this complex dependency the conservation of biodiversity has to be mainstreamed.*” However, in Europe we seem to be far away from this goal. “Nature” is considered as something different and separate from human affairs, something that is always outside and somewhere else and consequently nature conservation means to keep the people away as much as possible.

In this paper we will firstly discuss some of the reasons for this development and the resulting problems for the preservation of biodiversity. Then we will focus on Japan. We will examine whether the different, rather intimate relations of the Japanese with nature could serve as a clue to explain why some of the nature conservation activities there are different and perhaps more successful than European ones generally are.

How far can examples from Japan be used here as a model for Europe?

## 2 Biodiversity: a field of science or a political program?

“Biological diversity” is a rather young field of research in which biologists try to acquire a grasp of the manifold variety of natural phenomena. When it was launched as a political slogan in 1986<sup>1</sup> to raise awareness and concern about the losses of plant and animal species among politicians and in the public, “biological diversity” was shortened to “biodiversity”: “*It was easy to do: all you do is to take the ‘logical’ out of ‘biological’.*” (ROSEN in TAKACS, 1996). “Biodiversity” is not only a shorter and catchier word. The omission of logics has a deeper meaning: “biodiversity” stands for a phenomenon, that cannot be measured by splitting it up into elements which can be counted, and for the immeasurable human values, feelings and emotions connected with the amazing variety of nature. It is an expression of the longings and desires of our civilization for a kind of paradise lost<sup>2</sup>. “*Biodiversity: We search for ways to preserve it, which means preserving intact rain forests as well as preserving our value systems, our awe and wonder we want all to pass on to future generations, and biodiversity as a term encompasses all of it.*” (TAKACS, 1996).

Besides that, within a conservation context “biodiversity” is a construct of society. “Diversity” (of any kind) cannot be treated as value-neutral, as it is inherently subjective (ESER, 2003). In this political context, “biodiversity” is not an objective concept of science, but a product of the values of certain people in a certain region at a certain time and its de-

crease is a problem only in so far as it is seen as a problem; it is a problem for people not for nature. Scientific concepts for defining, measuring and evaluating biodiversity for the purpose of biodiversity policy have been elaborated and discussed extensively (e.g. WEIMANN et al., 2003; HOFFMANN et al., 2005). However, this ambivalent concept, balanced between “*science and society, between facts and values*”, affords an opportunity to redefine the legitimate boundaries of science in ways that include evaluative statements and political practices (ESER, 2001).

## 3 A dominant science imposes problems on conservation projects

Biological diversity is a function of space and time and is acting on several different levels, as we see it, from macro-cosmos to the micro-cosmos and indeed at each level there are myriads of problems for science (HEYWOOD, 1994). This means that conservation projects based on science encounter at least some of those “myriads of problems”. And these science-made problems often turn out to be major obstacles to the success of a conservation program or project.

Thus, as far as what concerns biodiversity and its preservation, scientists are split into two blocks: many consider biodiversity as a well defined concept and the methods that would be necessary to preserve it as a scientific commonplace. On the other hand, however, there are some critical publications, which suggest that these ideas are naïve: Already in 1992 a team of biologists, after screening the rich amount of biological information available in Great Britain for its suitability to develop conservation strategies, summarized: “*Saving species we will have to rely on luck and intuition; we cannot wait until all data are in, because if we wait there will be nothing left worth conserving.*” (LAWTON et al., 1994).

In the societies of Europe the competence and responsibility for biodiversity preservation issues is in the hands of experts. They do not only suggest or decide what has to be done, they first of all determine which aspect or part of biodiversity is more important than others. The general public has to accept the priorities of the scientists, because they are based on “objective” scientific evidence. If such an approach were to be chosen in a third world development project, it would be heavily criticized as non-participatory and therefore unsustainable. It is necessary to convince the public that their (!) biodiversity is at stake and not the biodiversity of the experts. Preservation must be made into an issue of everybody.

#### 4 Satoyama – linking biological and cultural diversity

The concept of “biocultural diversity” emerged from the relatively recent insight, that the “*two great realms of living diversity are cultural and biological*” (HARMON, 2002) and both are strongly interdependent. There is a growing awareness of the linkage between biological and cultural diversity and the crucial role of both for a sustainable development of human societies and their well-being worldwide.

In this context it is interesting to look at Japanese approaches to the task of biodiversity preservation. A keyword within this context is “*satoyama*”, a word which can be understood as representing the unity of nature and culture in rural landscapes. As we have already pointed out, the term “biodiversity” has a strong scientific flavour and the same is the case for “biocultural diversity”, even if this happens to be the result of a wrong or incomplete understanding. The term “*satoyama*” has the following advantages:

- It is neutral – the prefix “bio” has been too extensively used in politics and advertising for products from bananas to cosmetics and detergents;
- It is simple, meaning just village and mountain (MIYAURA, this volume);
- It also encompasses feelings and emotions, similar to those conveyed by the Western expressions “homeland”, “native country”, “land of one’s ancestors”, “the old country” – for many people a kind of paradise lost or one that should or could be regained.

#### 5 Satoyama – maintaining cultural heritage and biodiversity in Japan

The term “*satoyama*” is very popular in Japan and understood by everyone. *Satoyama* stands for the traditional agricultural landscape of Japan, composed of human settlements at the base of hills, kitchen gardens in front of the houses and bamboo groves at their backside, crop- and paddy fields, coppiced forests and grassland on the slopes, as well as streams, ponds, water reservoirs, temples, shrines and graveyards (MIYAURA, this volume; OHSAWA and KITAZAWA, this volume).

Rice cultivation in Japan is closely intertwined with the traditional rural landscape. In addition, through its thousands of years of tradition, rice cultivation is an immutable part

in Japanese life, religion and culture. The Japanese emperor, for example, still celebrates several Shinto ceremonies every year, in order to bless and protect the rice crop. Paddies are also important for the hydrologic balance of the landscape and for erosion control. Furthermore, they act as very important sites for recreation. People from large towns in particular come to the countryside in order to relax from the stressful life in the huge and crowded cities.

Today it is recognized that paddy landscapes play an important role in the preservation of the biodiversity of Japan. They represent, together with streams, ponds, reservoirs, rivers and irrigation ditches the largest area of wetlands, comprising half of all freshwater wetlands (KOBORI and PRIMACK, 2003). Plenty of aquatic species can be found in this environment, as for example most of the frog species of Japan, which use paddy fields as their habitat for pairing, egg deposition, maturing of the eggs, larval growth and adult feeding. But also many other animals depend on paddy fields and other habitats are connected with them. For instance fireflies are a very prominent example. They crawl out of the paddy mud in May. In June, by using their unique luminescence in order to find a partner, they decorate the surroundings of the paddy fields. In July, after depositing eggs on the borders of the rice fields, the firefly’s lifetime is running out. The new firefly generation, after hatching from the eggs, overwinters in the mud on the ground of the paddies until May, when a new cycle starts again.

In addition, many birds rely on the existence of the paddy fields and their surroundings, for example, cranes (*Grus* spp.), swans (*Cygnus* spp.), geese (*Anser* spp.), dabbling ducks (*Anas* spp.), the gray-faced-buzzard-eagle (*Bu-tastur indicus*) and others (FUJIOKA and YOSHIDA, 2001). The white-fronted goose (*Anser albifrons frontalis*) also needs large watersides and rice fields for resting and feeding (KURECHI and IWABUCHI, 2005). It is a winter migratory bird, which breeds in Russia’s summer tundra areas. It has been protected by law in Japan since 1971. Recently, to support this and other winter migratory birds, the traditional agricultural method of winter-flooding the rice fields, which was already applied in the Edo (1603–1868) period (KURECHI and IWABUCHI, 2005), has spread out nationwide (KURITA et al., 2006). In this method, water is kept in the paddies during the winter season as well, thus providing a habitat all the year around.

The slopes between paddy fields and forest are another important habitat type, where many rare plants can be found (OHSAWA and KITAZAWA, 2008). These elements of the rural landscape are called “mowing place”, *kariage-ba*,

because they have been cut regularly in former times. Recently, their management has been nearly given up. Their ecological function however, as that of the whole paddy ecosystem, depends on regular cultivation.

The Japanese government is aware of this. The Japanese Ministry of Agriculture, Forestry and Fisheries (MAFF) implemented the “Direct Payment System” for farmers of hilly and mountainous areas in 2000. The purpose of this system is to overcome the human depopulation and land abandonment trends and to preserve the multi-functionality of *satoyama* (WATANABE, 2003; MINISTRY OF AGRICULTURE, FORESTRY AND FISHERIES, JAPAN, 2005). Hilly mountainous areas of Japan are regions where small-sized terraced rice field farming is predominant. The direct payment system is the first policy in Japan in which subsidies are decoupled from production. Subventions are linked to the steepness of the cultivation area. Terraced paddy fields (*tanada*) with an inclination of 1:20 are subsidized with around 210,000 yen/ha/year (around 1350 €) and terraced paddy fields with an inclination of 1:100 with circa 80,000 yen/ha (around 515 €) (ICHINOSE, 2007).

## 6 The Japanese concept of “nature”

The Japanese understanding of “nature” is different to that of Europeans. Consequently programs and measures aiming to protect nature show a special Japanese touch (KIENINGER and HOLZNER, in press). Besides that, Japanese people have a particular fondness for “details”, such as particular plants, animals or other individual natural objects, as well as for events taking place in nature, like moon-watching, sunrise meditation (a “serious” Mt. Fuji climber will try to reach the top by sunrise!), autumn foliage contemplation or the admiration of the cherry blossoms. This love and veneration managed to survive from ancient times until today. Particularly insects, such as the fireflies (*hotaru*) mentioned previously, especially the *Genji*-firefly – *Luciola cruciata* (TAKEDA et al., 2006), dragonflies (in particular the red dragonfly called *akatonbo*), cicadas, crickets, praying mantis (KONISHI, 2004), as well as *Oryzias latipes*, the Japanese killifish (KOBORI and PRIMACK, 2003), enjoy great popularity among Japanese people. All of them are typical animals of *satoyama*, and thus emphasize the fact that the phenomena of nature which are most esteemed by people, thrive in a rural landscape with very few relics of the original wilderness.

In such a context, the focus of nature conservation on species of high public interest is not a limitation to nature protection. Such species must rather be considered and esteemed as an important stimulus for nature conservation: “Raising public interest in nature through conserving species of high social interest is crucial in achieving effective conservation of biodiversity.” (TAKEDA et al., 2006).

Conservation awareness in Japan is promoted largely through the esteem for the scenic beauty of certain landscapes. The Japanese sense of landscape beauty is moulded by images of the rural landscape, not by untouched wilderness. Since ancient times, such beautiful places have been renowned as sightseeing spots. One of the most famous sites is the rice terraces (*tanada*) landscape on the steep slopes of Mt. Obasute in Nagano Prefecture. Since the Edo (1603–1868) period this area has been widely known as a moon-watching-point. Many famous woodblock artists, painters and poets came there to create their works. Therefore, this site of the landscape is also very popular under the name *tagoto-no-tsuki*: “(reflected) moon in (the water surface of) every paddy field” (AGENCY FOR CULTURAL AFFAIRS, 2003).

In 1999, the Ministry of Agriculture, Forestry and Fisheries designated the most beautiful rural cultural landscapes of Japan. Obasute *tagoto-no-tsuki* is of course among them. With such a designation, the civic awareness of the unit “scenic beauty place and its surrounding environments” should and could be increased and the disposition for cultural landscape conservation projects enhanced (AGENCY FOR CULTURAL AFFAIRS, 2003). Places of natural beauty, similarly to special species, operate as an incentive for citizens, to get involved in cultural landscape conservation activities. A very vivid example of this is the “*tanada* ownership system”, where people from the city rent a piece of rice terrace and cultivate it under the guidance of the landowner and/or local people (KIENINGER, PENKER & YAMAJI, in preparation).

## 7 The fun-factor and civic involvement in nature conservation activities

The Japanese government explicitly wishes for increased civic engagement in biodiversity conservation activities including nature restoration and conservation of the *satoch*<sup>3</sup>-*satoyama* areas (GLOBAL BIODIVERSITY STRATEGY OFFICE, 2007). The slogan “It’s summer vacation, let’s catch insects!” in the pamphlet “Living with Nature – The National Biodiversity Strategy of Japan” of the NATURE CON-

SERVATION BUREAU (2002) of the Japanese Ministry of Environment demonstrates how civic involvement is stimulated<sup>4</sup>. In the Japanese way of nature conservation the fun-factor plays a very important role. Humans are regarded as a part of nature and therefore nature conservation is not an abstract concept, but a concrete and participative active process. Nature conservation comes from the heart, and nature is not protected just for its own sake, but for humans too. They protect what they love.

Japanese people, for instance, love dragon-flies. The esteem for these animals has an old tradition in Japan. The Japanese love them as motives in paintings and in poetry, they love to replicate them in children's toys, they love to watch and identify them and they also love to hunt them. Catching dragonflies is an old children game still played today and different catching techniques have been developed. The Japanese public is very interested in protecting dragonflies precisely because they are so well loved. In summary usage and protection belong together.

The "Dragonfly pond concept" is an interesting example: Japan has 180 species of dragonflies; due to their habitat destruction, 41 species are already considered rare or endangered (PRIMACK et al., 2000). Their loss would not only be a biological one, but, as already mentioned, also a cultural one. The dragonfly pond restoration project started 1986 in Yokohama and spread out all around the country. According to PRIMACK et al. (2000), presently more than 500 dragonfly pond projects exist in Japan, with the goal, to restore natural or artificial ponds and to construct new ones. The dragonfly pond projects are organized by local governments and citizens together and enjoy great popularity, especially in urban areas. Dragonfly pond projects are often used in schools as enlarged outdoor classrooms and different subjects such as art, chemistry, botany, plant morphology, ecology, zoology etc. are taught with them: "*Although the popular focus is mainly on dragonflies, the results of grassroots action by an interested public are being felt by entire aquatic ecosystems*" (PRIMACK et al., 2000).

## 8 Conclusions

The understanding of nature and the appreciation of its objects and phenomena is part of a society's conception of the world. In Europe (and the parts of the world settled by Europeans) nature is viewed as separate from humans, something outside of man. This leads to conservation concepts

and programs aiming to separate man and nature; landscapes are segregated into natural and unnatural ones. The human population is segregated into preservers of nature (which are mostly not those who own the land), destroyers of nature (often those who own or utilize the land) and the naïve and incapable majority. Quite contrarily in Japan, although modern conservation politics have been imported together with the corresponding western ideology, the resulting activities are more relaxed. The Japanese people's conception of nature does not exclude what has been shaped by human activities but holds "man-made nature" in particular high esteem. The relations of Japanese to their (!) nature are strongly emotional and rather flexible. In Japan quite contrarily to Europe, integrative and participatory approaches to nature conservation are the rule. On the other hand, conservation stakeholders are in a difficult position in Japan, because human interference with nature, even in areas that have been particularly preserved for nature, is not seen as such a serious offence as it is in Europe.

## Notes

- <sup>1</sup> "*That was an explicit political event, ...*" JANZEN about the Forum on Biodiversity in Washington DC in 1986, in TAKACS (1996).
- <sup>2</sup> "*Although at first blush an apparently more 'scientific' term than wilderness, biological diversity in fact invokes many of the same sacred values ...*" (CRONON, 1995).
- <sup>3</sup> The word satochi (sato = village and chi = soil/ground/living place) is less as popular as satoyama. It stands for rural landscape, including satoyama, farmland, settlement and reservoirs, while satoyama, in the context of satochi-satoyama, just indicates coppice woodlands, pine forests and grasslands (TAKEUCHI, 2001).
- <sup>4</sup> Such an appeal by a nature conservation agency to catch insects is unimaginable in Europe.

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