猛禽類の生息地保全の試みと今後

Trials and Future of Raptor Habitat Protection

井上剛彦　極東イヌワシ・クマタカ研究グループ代表　クマタカ生態研究グループ副代表
Takehiko INOUE　Representative of the Working Group for the Research of the Golden Eagle & Mountain Hawk Eagle in the far east
Vice-Representative of the Working Group for the Research and Conservation of the Japanese Mountain Hawk-Eagle

[Slide 1] I would like to talk about the need to protect habitats for large raptors and the challenges for the future. First, allow me explain what raptors are.

[Slide 2] Raptors have many external features derived from their remarkable flying power and hunting ability. They have long been a source of fascination for people all over the world and repeatedly adopted as a symbol of power and authority because of their valiant look and flying attitude. However in more recent years, as a result of false information that they attack farm animals or steal children, raptors have become victims of human hostility. They have suffered as human weaponry has developed and from our use of modern chemicals. Especially due to Man's extensive use of agricultural chemicals and pesticides for farming, there have been many harmful effects caused by concentrated chemicals making their way through the food chain. Raptors are at the top of the food chain and poisoning deaths have been confirmed. In addition their eggshells have sometimes suffered thinning which disables extrication. Likewise, falcons in America came to the edge of extinction due to DDE and there have been mass vulture deaths in India (and other countries) caused by the drug Diclofenac. Now, I would like to explain raptor characteristics a little more specifically.

[Slide 3] First of all, regarding their morphological features, raptors have an ideal form and specialized abilities for flying. They have also developed legs and sharp claws for catching prey. Their eyesight capability is astonishing - reportedly eight times better than human vision. You can easily understand this when you realize how big their eyes are compared to their body size.

Regarding the raptor habitat, this is usually located on a steep cliff or a very tall tree that is inaccessible to humans. Raptors have to be able to cover a vast area within which to catch living prey. This is part of their destiny at the top the food chain.

There is one especially peculiar feature within their biology. In other animals and birds, the male of the species is usually bigger than the female. But in raptors it is the other way around. This tendency is characterized by the prey they eat. The smaller hawks that catch fast and active birds tend to have a bigger size difference between the male and female.

Because they exist at the top of the food chain, Falconiformes are destined to suffer effects related to environmental change the most. From a researcher standpoint this impact on raptors can be considered as an indicator of environmental change.

[Slide 4] Do you know how many species of Falconiformes (so called raptors) exist in the world? There are approximately 9,000 species of bird in the world and about 540 of them are found in Japan. There are about 290 confirmed raptor species of which almost 20 are seen in Japan. But over 44 raptor species are in danger of disappearing. There are many different kinds of raptors living in the world.

[Slide 5] The photographs in the slide here show Golden Eagles and Mountain Hawk-Eagles that live in Suzuka Mountains. It takes an enormous amount of time and effort to conduct research on raptors.

[Slide 6] As shown in this slide, the content of the research ranges widely across various fields. We conduct research on populations, the current situation of local

environments, bird relationships with humans, and so on. Let me introduce how we conduct our research in more detail.

[Slide 7] As you can see from these pictures we climb up to the nests of Mountain Hawk-Eagles and investigate what types of prey they are eating. We do this by collecting the bones left inside the nests. We also investigate their behavior across vast mountain ranges and hidden woods by attaching transmitters to their tail feathers. Since they fly across very wide areas, when we cannot track them by car, we sometimes use helicopters to search for their habitats from the air.

We also carry out health check-ups on chicks. We measure their body and check their blood. It is difficult to distinguish one individual from another by appearance so we occasionally attach various kinds of markers for identification. Through all these investigations into raptor behavior, our information about what they are doing, where they do it and how long for, is gradually becoming clearer.

[Slide 8] This is reference data from a case in England looking at how human activities have affected the reproduction of small hawks (called sparrow hawks) over a long period of time. As the graph shows, during the World War II period, a time when people had no interest in sparrow hawks, their reproduction rate rose sharply. However, after the war, the rates dropped down again as farmers began to use agricultural chemicals and pesticides. Following this research, scientists started to measure environmental contamination on a world-wide basis and some small improvements have been observed in the recent years.

[Slide 9] However, there are still many species of Falconiformes in danger of extinction. The causes for this critical situation are summarized in this slide which uses data combined from documents around the world. The main cause is “loss of habitat”. With the expansion of human activities and land utilization, Hawk-Eagles are actually losing the only habitats they can live in. As explained earlier, hunting, poisoning (to protect farm animals) and biological concentration of agricultural chemicals are among the other causes.

[Slide 10] Let's take a look at the current situation in Japan. Roughly speaking, we do have some endangered species such as Golden Eagles and Mountain Hawk-Eagles. We have also identified some rapidly decreasing species such as the Grey-faced Buzzard as well as some increasing species such as the Northern Goshawk. Some species are difficult to protect if only one country implements positive measures. For example, the Steller's Sea Eagle passes the wintertime in Japan but breeds in Russia.

[Slide 11] Now I would like to talk a little about Golden Eagles which I myself research.

[Slide 12] As shown on the left of the chart, it is believed that there were more than 700 pairs of these birds before the war. However, according to the latest national investigation conducted by Ministry of the Environment, only 250 pairs now appear to exist. The data also tells us that the distribution range is growing smaller in the Kyushu and Chugoku areas meaning that a changing vegetation environment and so on has made it more difficult for Golden Eagles to live in those areas.

[Slide 13] The next slide shows a comparison between the causes of breeding failure in Golden Eagles from about 20 years ago and in the past 10 years. According to the chart, the blue portion indicates a rapidly increased shortage of food while the red portion shows the current status of reproducing birds. The data shows an increase in cases of birds that are too young or too old and unable to produce eggs or grow their chicks properly.

On the other hand, nest-abandonment due to man-made causes has reduced. Such causes include ski resort and dam developments (and the harmful effects they can bring), and photographers wanting to take pictures close to nests.

[Slide 14] The next slide shows the annual change in breeding success rates (percentages) for Golden Eagles

across the country as investigated by the Society for Research of Golden Eagle Japan. In 1980s the rate was always around 40% but, in the 1990s, the rates started to decrease to nearly 20%.

[Slide 15] The number of confirmed Golden Eagles within the country is now about 650 and I have calculated how this number is likely to change in the future by applying models used by researchers overseas. The red line traces a gradual descent that reaches about 30% decline in 30 years. If you consider the decline in breeding success percentages that I mentioned earlier, a large part of the population is going to be made up of older birds as Golden Eagles have a rather long life-span. There will also be a decrease in the number of fledged birds which decreases the number of birds active in reproduction, a decline which itself creates a negative spiral.

[Slide 16] So there is not much good news for the future of Falconiformes and I wonder if there are ways by which they can live in harmony with us. There are 3 basic means for the conservation of Falconiformes recognized internationally. These are "securing their habitats", "securing their prey [food sources]", and "implementing education and edification" to raise awareness that people need to adhere to some necessary rules of coexistence.

Naturally it is important to secure the birds' habitats and prey, but the third measure, namely the "implementation of education and edification" is especially important for people living within the actual habitat areas. But it is also important that everybody else, in particular those involved in land use, know and understand the rules for coexistence so that a sustainable environment for Falconiformes is maintained.

In Japan, some concrete protection issues are recognized as listed in the slide. The main issue is an inadequate setting of long-term goals and systematic programs. Much attention is focused on returning Crested Ibis and Oriental storks to the wild, but it is far better to have a good plan and implement it well before the situation ever reaches such a dire state.

Case studies from overseas demonstrate that it is essential for the authorities to recruit specialized human resources so that they have internal expertise and can make pursue conservation efforts as national projects. We should not depend on NGOs entirely.

[Slide 17] Next, I would like to talk about the importance of habitats. Falconiformes live in a wide variety of environments. This slide lists the classification of environmentally-protected areas in Japan based on legal rationale. [Slide 18~20] You can tell how intricately they are classified by each authority, location and purpose.

[Slide 21] In this slide, you can see cases that protect the habitat areas of Golden Eagles and Mountain Hawk-Eagles which are categorized as large Falconiformes living and breeding in Japan. Each case is intended to protect mountains and woods from tourism and development. Changing the current environmental condition, including logging, construction, etc., is banned. In principle, these areas have to be protected from any kind of human intervention.

[Slide 22] As seen in the earlier cases, even if by good fortune we could turn a Falconiformes habitat into a protected area, the number of pairs that can live within such an area is very limited - usually only one pair, or a few pairs at most. Falconiformes live within vast territorial areas and such areas for protection are divided up by complex landowning systems and national ordinances. But in order to protect whole species we need to protect the land where the chicks are born and grow to independence, as well as the habitats of the other birds they will eventually pair with. This all requires conservation measures over an enormous land area.

Also for the purpose of securing the gene pool, more than a certain number of pairs need to be protected. Therefore, the reality is that we cannot expect to make much impact on steady species conservation by only setting up protected areas, although such measures do

have a great effect on protecting individuals.

[Slide 23] In order to protect Falconiformes, a species with relatively flexible environment adaptability, it is important to keep the environment of the entire ranging areas at an adaptive level for them to live in. On this point, we could use a conservation management system adopted in England for reference.

[Slide 24] Now I would like to talk about what is needed for habitat protection. First of all, we need to clarify exactly what really needs to be conserved. We have to make clear what we do and do not know about Falconiformes. In Japan, we are still far from having enough basic research. We have also not verified the effectiveness of the conservation measures conducted so far, nor do we have much relevant past experience. Backed by awareness among the general public, our two main lines of work from now on should be to set up conservation goals and draw up conservation road maps.

[Slide 25] I would like to introduce the cases we at the Asian Raptor Research and Conservation Network are working on to assess the current situation and for conducting basic research. Since the year 2000 we have formed a network of researchers from Asian countries that gathers voluntarily to exchange ideas and share basic research results. In the basic research we investigate the flight routes of hawks migrating between countries in Asia. We are also working on biological research projects to investigate Indian Black Eagles in Taiwan and Bat Hawks in Malaysia and conducting a distributional survey about Mountain Hawk-Eagles that are widely spread across Asia. To prevent Javan Hawk-Eagles from becoming isolated we are also working on forestation projects that restore habitats separated as environmental conservation areas. Then, as part of our activities to raise awareness about the illegality of poaching and utilization of nature for tourism for the residents of habitat areas, we are also organizing eco-tours. We have started biological research on raptors on Borneo Island and a project to foster young researchers. These projects are still small-scale and private-sector level but they are steadily growing into a larger movement with increasing awareness among local peoples.

[Slide 26] Lastly, I would like to mention about the necessity of, not just creating a good image, but of building a systematic strategy. We hold bird tours and observation tours with explanations to nurture a deeper understanding among the public so that we can pursue the protection of raptor habitats within the country. This also requires creating a fixed schedule and implementing the programs. Everybody involved should keep in mind that none of this will be put into practice without basic research.
[Slide 27]

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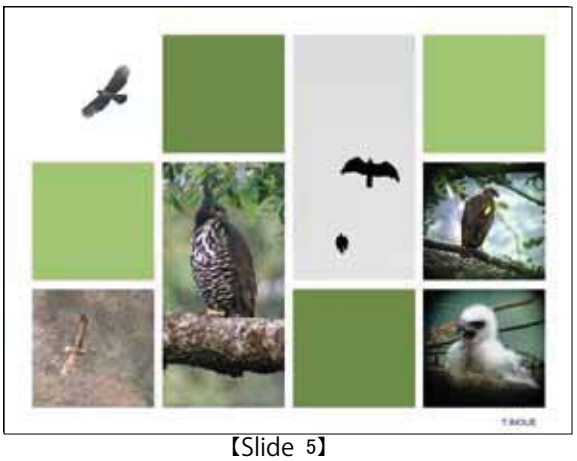
【Slide 4】



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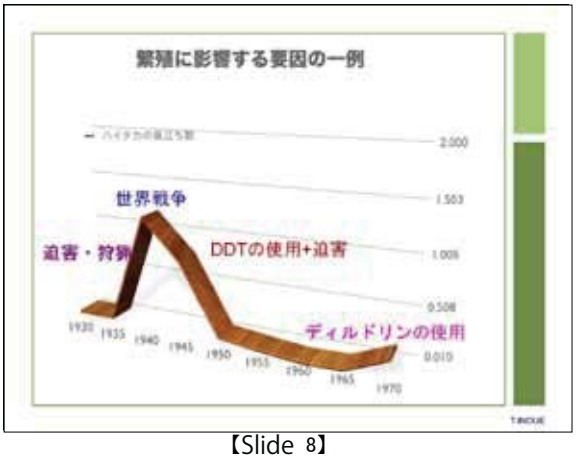

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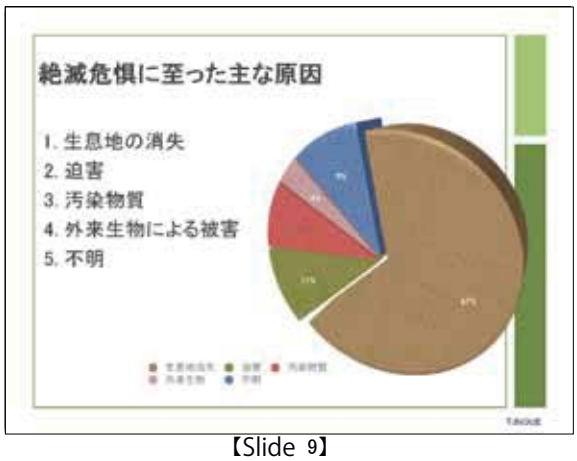

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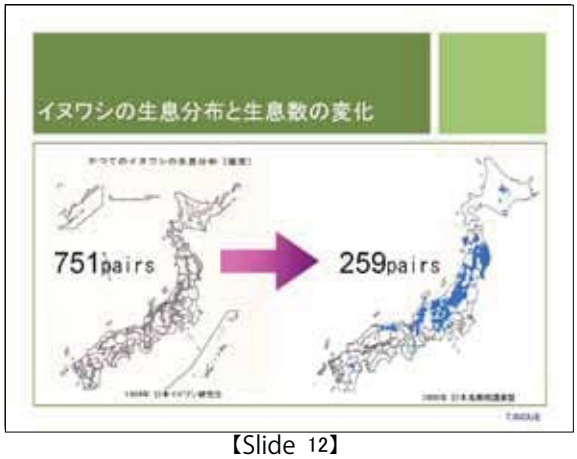

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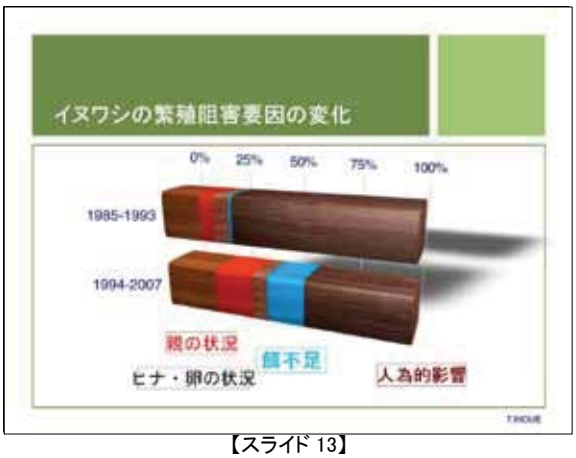

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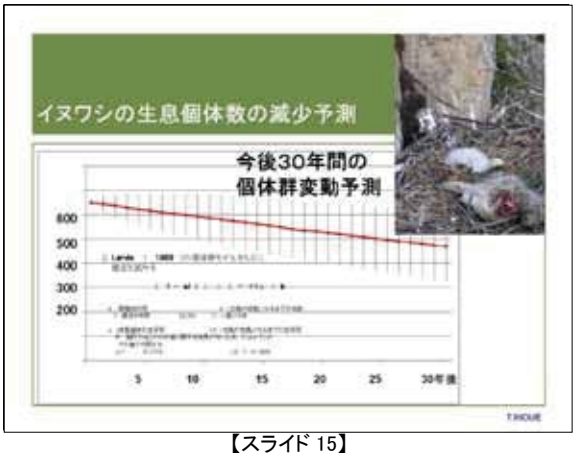

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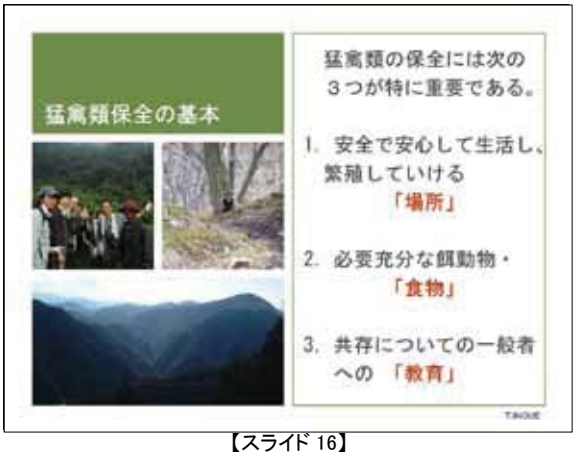

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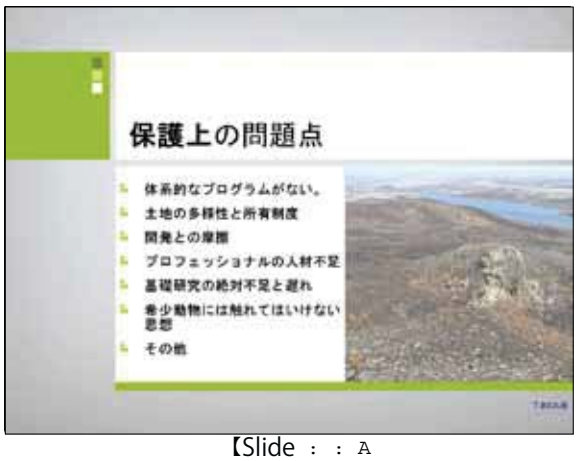

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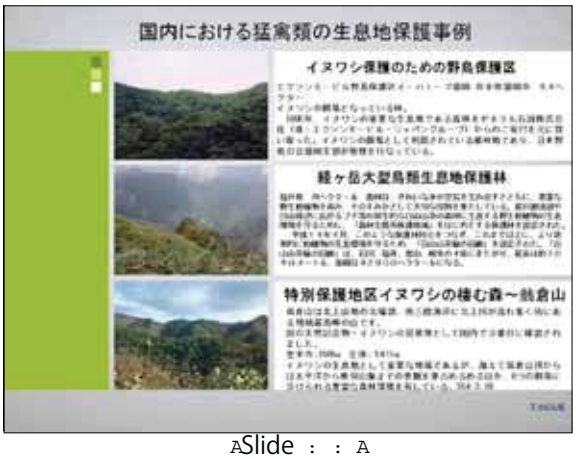

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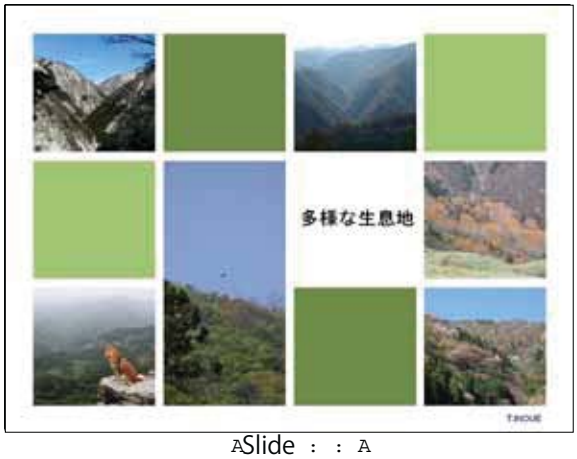

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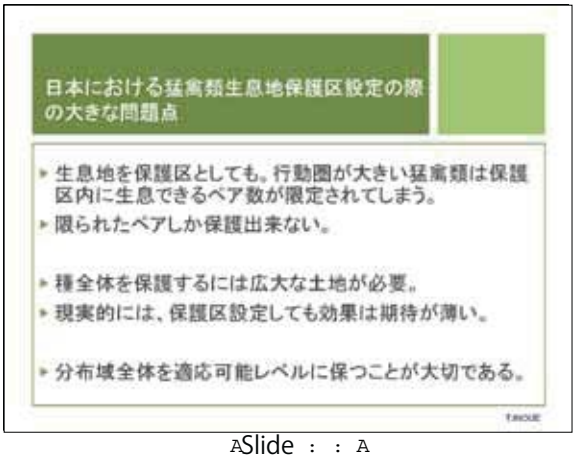

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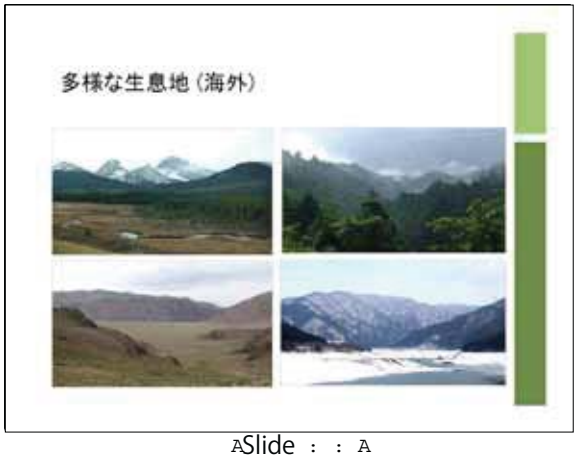

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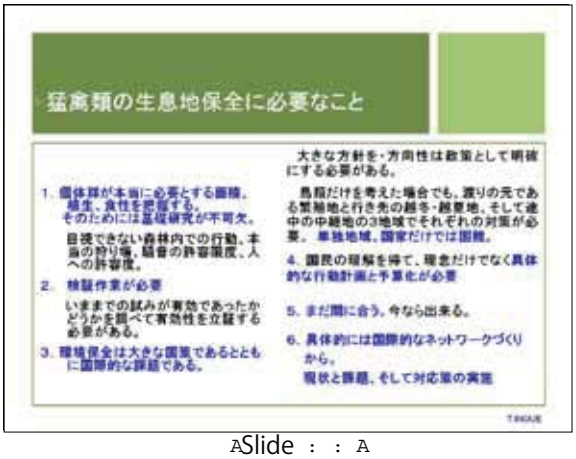

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