

Research Trends and Results

Study to achieve more prioritized and efficient environmental conservation measures for plants and animals in road projects

INOUE Ryoji, Senior Researcher, KADOYU Katsunori, Head, KANDA Mayumi, Researcher
Road Environment Division, Road Department

UENO Yusuke, Researcher, KURIHARA, Masao, Head
Landscape and Ecology Division, Road Department

(Key words) *Environmental conservation measure, road project, raptors, environmental impact assessment*

1. Introduction

During road projects, a variety of environmental conservation measures are taken to avoid, mitigate, or compensate for the project's impacts on rare plants and animals. These include the following measures of unconfirmed effectiveness which are taken by road projects while hearing the opinions of local experts.

- Showing concern for raptors during works
- Transplanting vegetation
- Relocating amphibian species

The Environmental Impact Assessment Law obligates surveys (post-project surveys) when implementing environmental conservation measures of uncertain effectiveness (below called, "uncertain measures"). And the preparation and release of the report will, under the revision of the Environmental Impact Assessment Law, be obligated beginning with project submitting an environmental impact statement in April 2013.

This paper discusses present conditions focused particularly on showing concern for raptors during works, and introduces the state of studies conducted to achieve prioritized and efficient environmental conservation measures.

2. Present state of consideration for raptors during work

Protection of raptors is presented in Methods of Protecting Raptors (Enacted in August 1996, revised December 2012) from the Ministry of the Environment. And the Supplement (TECHNICAL NOTE of NILIM No. 721) to the Environment Impact Assessment Technique for Road Project(ditto No. 714), explains the method of assessing the environmental impact on raptors and countermeasure examples. As part of every road project, based on these documents, nesting locations and the state of propagation are surveyed at the same time as a variety of countermeasures are studied and executed.

Around nesting locations, work is often done so as to avoid the nesting period (generally spring to early

summer) but, when for example, the nesting location is visually monitored and anything abnormal is observed while the work is executed, actions are taken in response, including studying the temporary suspension of the work.

Almost all of the above initiatives are taken to avoid impacting the propagation of raptors during the execution of the project (Table). But these surveys and countermeasures incur annual costs per project in the order of several tens of millions of yen (total calculated as several billions of yen per year for government executed road projects nationwide).

Table. Results of Verification of Impacts of Road Projects on Raptors (under close examination)

There is impact	Slight impact	Propagation failure by non-project causes	Unclear
0	463	17	5

Note) Number of cases are total number of nests/year (nationwide: 2009 to 2012)

3. Study to achieve prioritization and efficiency

The state of nesting and propagation of raptors are surveyed and countermeasures taken during works throughout Japan to prevent impacts on their propagation, but the effectiveness of these countermeasure is still considered to be uncertain, and it is difficult to achieve greater prioritization and efficiency. This is assumed to be a result of the fact that for the following reasons, the results of surveys of each project are limited to knowledge within each site (or work office).

- Propagation of raptors is linked to various factors such as natural conditions, type of works, differences between species of raptors or individual raptors, so decisions must be made independently for each site. (diversity is high.)
- It is impossible to publicize information including locations of nests in particular to prevent poaching.

For this reason, the NILIM, by collecting and analyzing survey reports on uncertain measures on government executed road projects throughout Japan, intends to clarify the causal relationships between the actions of raptors, the success or failure of their propagation and the operation of construction machinery during works in order to prioritize truly necessary countermeasures etc.

And for the same reasons, it is also difficult to prioritize the transplantation of vegetation or the relocation of amphibians.

The NILIM aims to achieve so-called formalization of knowledge and further prioritize or increase the efficiency of effective countermeasures by each project so that it will be possible to share knowledge obtained at each site concerning these uncertain measures.

4. Use of the successful results

Based on future successful results, the Environment Impact Assessment Technique for Road Project will be revised. And by submitting manuscripts, the NILIM will provide information concerning the conservation of wild animals such as Methods of Protecting Raptors.