

## Creation of a Sandy Shore for the Endangered Tiger Beetle *Cicindela lewisi*

**Otsuka Hiroyuki<sup>1</sup>, Kohzuki Yasunori<sup>2</sup>, Watanabe Masako<sup>3</sup>, Ota Naotomo<sup>4</sup> and Kawai Takashi<sup>3</sup>**

<sup>1</sup>Transportation Planning Division, Tokushima Prefectural Government, Tokushima, Japan

<sup>2</sup>Department of Ecosystem Engineering, University of Tokushima, Tokushima, Japan

<sup>3</sup>Center for Collaborative Research, Anan National College of Technology, Tokushima, Japan

<sup>4</sup>Department of Civil Engineering, Anan National College of Technology, Tokushima, Japan

A very rare attempt to mitigate the loss of habitats for an insect in a coastal ecosystem has been made. We will introduce the progress of this attempt and discuss some attendant issues.

In 2002, a project to construct a new freeway along the Okinosu shore, located in Tokushima Prefecture in southwestern Japan started. However, the process of this construction involved land reclamation along the shore line where the endangered tiger beetle *Cicindela lewisi* inhabited. In compensation for the loss of their original habitats, the creation of a new artificial shore in the adjacent area was planned. Observational surveys in the original habitats demonstrated that adults of the tiger beetle usually utilize the vegetated area in the upper part of the shore and the larvae make nesting holes in the bare sand area of relatively lower zone. For closely mimicking these conditions of their original habitats, the direct transplantation of coastal vegetation and surface soil from the natural coast was conducted. After these fundamental arrangements for existence of the tiger beetle in the new shore were finished in 2007, a corridor was made between the newly created and the original habitats for facilitating natural movements of tiger beetle. In the summer of the same year (2007), adult tiger beetles had been already observed in the created shore. In the next spring, the larvae and their nesting holes were also observed. Moreover, the numbers of the both adults and larvae have still increased until now suggesting that this mitigation is a success at this stage.

The government of Tokushima Prefecture has been directly managed this created shore since 2007 for 5 years through monitoring surveys on the distribution of tiger beetles and the conditions of other environments. During the past 4 years, some improvements of environmental conditions have been made according to the advices by some experts. This framework for the management will be finished in the next spring of 2012. However, the necessity of the continuous environmental monitoring of longer duration is suggested for a reasonable assessment of the stability of the created ecosystem and an appropriate adaptive management.

On the other hand, the other main purpose of the shore creation is the provision of amenity space. The human use is often considered to be incompatible with the environmental conservation. We conducted the workshop for considering the rules of shore use and its management systems in 2009 including locals. We agreed on making the rules that restricts human activities to harmless level for tiger beetle activities. However, no consideration to the management systems was done. To make a breakthrough in these situations, we formed a group named “Oki-Raku-Kai” meaning “Enjoining the Okinosu shore” for making opportunities to consider and discuss the balance between conservation and satisfying use of the created shore through marine nature activities at April 2010.

Contact Information: Hiroyuki Otsuka, Transportation Planning Division, Engineering Works Part, Tokushima Prefectural Government, 1-1 Bandai-Cho, Tokushima City, 770-8570, Tokushima, Japan, Phone: +81-88-621-2660;; Fax: +81-88-621-2874, Email: ootsuka\_hiroyuki\_1@pref.tokushima.lg.jp