

Roadkill survey and mitigation in Gaomei Wetland

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Gaomei Wetlands Wildlife Refuge is a coastal wetland in central Taiwan. Famous for its scenery, it also suffers from an increasing number of tourists. In 2016 and 2017, we conducted the land crab survey on three sections of the seawall around Gaomei Wetland. Our results clearly indicated the serious problem of human interference on local land crab population. In 2017, 54.8% of the 1,625 crabs were found dead on the road, including 29.8% from roadkill, which significantly correlated to the number of passing vehicles. The number of non-roadkill crabs accounted for the rest of the 25.0% mortality, and was significantly correlated to the type or shape of seawall. Vertical seawall causes more death of the land crabs. We have included two types of mitigating structures on the vertical seawall which were rubble-mound and coffee bean sack cloth treatments. Results showed that the coffee bean sack cloth treatment has a higher climbing rate. The two types of non-vertical seawall were smooth and grassy slopes. Although the climbing rate was higher in the grassy slope seawall, the smooth seawall had a higher success rate. This result might due to severe interference by ants nesting in the grassy seawall. In summary, for the design on the seawall, we must take into account the behavior of the animals that live in the surrounding areas of the seawall. It will be helpful in preventing extra animal sacrifice caused by the artificial structure.

Keywords: Gaomei Wetland; land crab; roadkill; *Chiromantes haematocheir*; vertical seawall, ecologically friendly engineering

Biography

Jyuan-Ru Tsai is a postdoctoral researcher of Life Science at Tunghai University in central Taiwan from 2013 until present. Her primary interests are wetland ecology, evolutionary physiology, histology and stress biology in decapod crustaceans. Her group discovered a serious roadkill situation of a local land crab *Chiromantes haematocheir* in Gaomei wetland, where was a famous scenic area on the west coast of Taichung city. Her group cooperated with Third River Management Office of Water Resource Agency and set up a series of mitigations on the surroundings of Gaomei wetland to reduce the human impacts on crabs.