

Research title: Land-use changes and mangrove recovery of cyclone-affected areas in the Ayeyarwady delta, Myanmar

Year: November 2012 to January 2013

Place of fieldwork: Bogalay Township, Ayeyarwady delta, Myanmar

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Key Words: Mangrove, recovery, land-use, cyclone, Ayeyarwady delta

- **Research background**

Over the years, mangroves of Myanmar have been disturbed by anthropogenic activities and natural disasters. Deforestation has mainly taken place in the Ayeyarwady delta, where mangrove forests have been cleared for agricultural lands, charcoal production and shrimp production. Cyclone Nargis struck in early May 2008 and it caused extensive damage to mangrove forests in the Ayeyarwady delta. A few researchers studied on early mangrove recovery following the natural disturbances and assessment on land-use changes in mangrove forests in the Ayeyarwady delta.

- **Research purpose and aim**

This study aims to assess mangrove vegetation recovery following cyclone disturbances and to classify the land use changes before and after cyclone Nargis in the Ayeyarwady delta.

- **Results and achievements by fieldwork**

I carried out fieldwork in Kardonkani Reserved Forest, Bogalay Township in the Ayeyarwady delta, Myanmar from November 2012 to January 2013. I surveyed on mangrove vegetation at three sites and made a questionnaire survey on a village for land-use types and socio-economic conditions. Systematic line plot sampling was applied for stand inventory. According to the nature of mangrove species zonation the transect line was laid out perpendicularly to waterways in order to get better data capture. Sample plots with dimension of 20m x 20m with a sub-plot of 5m x 5m were made along the transect line. The distance between the sampling units is 10m. Diameter and height of trees were measured and also recorded the locations of plots by GPS. Ground level was measured to know the species zonation. By conducting this survey, I can investigate not only mangrove vegetation structure and species zonation of the Ayeyarwady delta but also the relationship of vegetation recovery and its environmental factor. A questionnaire survey on land-use types and socio-economic conditions was made in a village. By combining ground truth data and satellite image data, mangrove vegetation map and village map including land-use types can be produced.

- **Implications and impacts on future research**

This study will be assessed the resistance of mangrove species following the natural disasters and the cover and abundance of mangrove forests in the Ayeyarwady delta. This study implies to the preservation of mangrove ecosystems including biodiversity of marine and terrestrial ecosystems and mitigation of risks by natural disasters on the future.



Picture 1. Crabs collection from the fishermen
Source: Fieldwork



Picture 2. Mangroves conserving by the village
Source: Fieldwork



Picture 3. *Nypa fruticans* remaining along the river bank

Source: Fieldwork



Picture 3. Team of mangrove survey

Source: Fieldwork