

Abstract of thesis entitled

**IMPACTS OF ILLEGAL TRAPPING AND PLANTATION
FORESTRY ON HERPETOFAUNAL POPULATIONS**

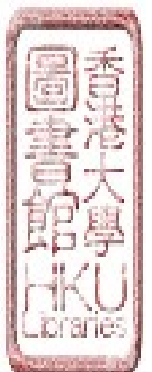
Submitted by

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Globally, as many as 30% of amphibians and 23% of reptile species are threatened and require urgent conservation action. The major threats are primarily caused by anthropogenic activities. This research aimed to investigate the impacts of two anthropogenic threats, over-exploitation and habitat changes on herpetofaunal populations in Hong Kong.

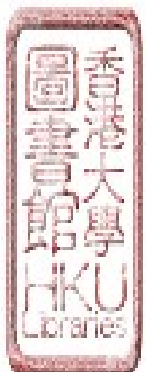
Platysternon megacephalum has been heavily depleted because of severe hunting pressure for the food and pet trades. Low densities of individuals and few remaining intact populations have limited our ability to study their ecology. I conducted mark-recapture and radio-telemetry studies on *P. megacephalum* populations in five streams in Hong Kong, one of which was free from trapping, over 34 months (2009–2011) to investigate the impacts of illegal trapping on populations of *P. megacephalum* and their spatial ecology and growth. Illegal trapping was associated with the absence of large adults, smaller body sizes of adults and skewed ratios of juveniles to adults. Home ranges were relatively small with a mean 100% minimum



convex polygon 996 m². Males moved longer distances than females and both sexes moved longer distances in wet seasons. *P. megacephalum* was highly aquatic, preferring to stay in pools, and their microhabitat preferences were affected by stream width and depth, and substrate types. Juvenile *P. megacephalum* grew rapidly, with growth declining after attainment of sexual maturity. The average ages of sexual maturation were eight years for females. Illegal trapping remains the major threat to *P. megacephalum* populations and I recommend that regulatory personnel identify key streams and patrol regularly against illegal trapping to safeguard remaining populations.

In Hong Kong, large areas of primary forest have been replaced by secondary forests and plantations, and changes in tree species composition have often led to alteration of associated plant and animal communities. I examined the herpetofaunal assemblages in secondary forests and exotic *Lophostemon confertus* plantations. Amphibian abundances were higher in secondary forests while reptile abundance, species richness of amphibian and reptiles were similar. Secondary forests provided better habitats for amphibians and I recommend the planting of a mixture of native tree species and the thinning of exotic trees in future plantation management efforts in South China.

Our knowledge about the effectiveness of different herpetofaunal survey methods in Southeast Asia is limited. To fill the information gap, I examined the effectiveness of three survey methods, including transect surveys, pitfall traps and coverboards, for sampling terrestrial herpetofauna. Transect surveys were most effective at sampling species richness and pitfall traps were most efficient in capturing high numbers of reptiles. The results of this study will aid researchers in assessing the feasibility of



and choosing herpetofaunal survey methods in Southeast Asia.

Despite the severe threats that herpetofauna are facing, our understanding of their ecology and conservation needs remains limited. More research and the initiation of monitoring programs for herpetofauna, strengthened enforcement of existing regulations, and proper habitat management are crucial for the conservation of herpetofauna in South China.

