DISTRIBUTION AND LOCAL KNOWLEDGE OF FRESHWATER CHELONIAN IN TERENGGANU WITH SPECIAL EMPHASIS ON POPULATION SIZE DETERMINATION OF *DOGANIA SUBPLANA*

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MASTER OF SCIENCE
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**Thesis Submitted in Fulfillment of the Requirement for the
Degree of Master of Science in the
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DEDICATION

To my beloved parents,

Mohd Ibrahim Kadiasa
&
Maharifa Beve Shariff

Two most precious people in my life who love me truly, unconditionally and forgiving.

It was you who taught me that the greatest danger in life is not taking risk and then showed me the beauty and the strength of adversity in life.

This is for you :`)

Abstract of thesis presented to the Senate of Universiti Malaysia Terengganu
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School   **: School of Marine and Environmental Sciences**

The distribution and local status of most freshwater turtles and tortoises (FFTs) in Peninsular Malaysia is not well documented. Human conflict has become a major threat to wildlife, thus study involving local communities was carried out to assess the level of knowledge and awareness on FTTs. Since the populations of FTTs are facing a serious global decline due to human activities, population studies are important to assess their status and dynamics. Hence, this study intended to provide assembled information regarding the (i) distribution of FTTs in Terengganu, (ii) local knowledge and awareness level, and (iii) population size estimation of *Dogania subplana* for future conservation efforts. Distribution data of FTTs were collected from published materials and unpublished data since 1999 to 2016 together with the current surveys. Then, demographics of the locals were surveyed altogether with their knowledge and awareness on FTTs. Mark recapture technique was applied for two consecutive years to determine the population size and distribution with additional findings on growth rate and movement range of *D. subplana* population in Sekayu lowland forest. Terengganu supports 68 percent (13 species) of FTTs from Peninsular Malaysia. There were more species expected to be found in Terengganu since habitats availability are suitable for some species that were not found in this study. Based on social surveys; age groups, education levels, job categories and

range of income have shown significant differences among the respondents while no significant differences for gender. Young generation aged 15-20 years old and those with higher education and better jobs have shown higher awareness towards FTTs in ecosystem. Finally, estimated population mean of *D. subplana* was $29 \pm 8.2E^{-3}$ with 19 to 51 individuals (95% confidence interval). The population shows a growing pattern with an additional of size class to the population in comparison to previous year. Small and closed population of *D. subplana* was found in the study area. Continuous monitoring should be conducted for a better understanding on the demographic and biology of the species. The present findings provide baseline data of FTTs in Terengganu which can be utilized for effective conservation and management of these least concern fauna.

TABURAN DAN PENGETAHUAN TEMPATAN BERKENAAN CHELONIA AIR TAWAR DI TERENGGANU DENGAN PENGKHUSUSAN TERHADAP PENENTUAN SAIZ POPULASI *DOGANIA SUBPLANA*

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Taburan dan status populasi chelonia air tawar (CAT) di Semenanjung Malaysia tidak diketahui. Kegiatan manusia merupakan ancaman utama kepada hidupan liar. Justeru, kajian melibatkan komuniti tempatan dijalankan untuk menilai tahap pengetahuan dan kesedaran mengenai CAT. Oleh kerana populasi CAT mengalami penurun global yang serius akibat kegiatan manusia, maka kajian populasi penting untuk menilai status dan struktur spesies. Kajian ini bertujuan untuk menyediakan maklumat terkumpul mengenai (i) taburan CAT di Terengganu, (ii) tahap pengetahuan dan kesedaran tempatan dan (iii) status populasi *D. subplana* untuk tujuan pemuliharaan di masa hadapan. Data taburan CAT di Terengganu adalah berdasarkan bahan-bahan yang diterbitkan dan data tidak diterbitkan sejak 1999 hingga 2016, termasuk persampelan terkini. Seterusnya, demografi penduduk tempatan dikumpulkan berserta pengetahuan dan kesedaran mereka mengenai CAT. Teknik tanda dan lepas telah digunakan selama dua tahun untuk penentuan saiz populasi *D. subplana* di hutan tanah rendah Sekayu. Hasil menunjukan 68% (13 spesies) CAT dari semenanjung Malaysia dijumpai di Terengganu. Kumpulan umur, tahap pendidikan, kategori pekerjaan dan julat pendapatan menunjukkan perbezaan yang ketara dalam kalangan responden sementara, tiada perbezaan yang signifikan bagi jantina. Generasi muda berusia 15-20 tahun dan mereka yang mempunyai

kelayakan pendidikan yang tinggi serta pekerjaan yang setaraf lebih memahami kepentingan CAT dalam ekosistem. Purata anggaran populasi *D. Subplana* adalah 29 ± 8.2E^{-3} (SD) dengan 95% selang keyakinan di antara 19–25. Populasi dan corak pertumbuhan saiz kelas meningkat berbanding tahun sebelumnya. Namun, pemantauan berterusan masih diperlukan untuk lebih memahami struktur spesies bagi masa depan. Penemuan ini menyediakan data asas CAT di Terengganu yang boleh digunakan untuk pemuliharaan dan pengurusan yang berkesan terhadap fauna yang kurang mendapat perhatian seperti ini.