

been reached after more than a century of amphibian research in this unique island continent. Beyond its simple, yet eye-catching, cover design is an inspiring tapestry of one woman's passion and determination in her quest to seek out this elusive and often overlooked aspect of a frog's 'childhood days'. I believe that her profession as a music teacher (yes, you heard correctly), rather than an academically competitive institutional scientist, has enabled her to compose this book into a silent symphony that is palatable to both the uninitiated man (and woman) in the street, as well as the stringent herpetologist.

LITERATURE CITED

Altig, R. A., 1970. A key to the tadpoles of the continental United States and Canada. *Herpetologica*, **26**: 180-207.

Gosner, K. L., 1960. A simplified table for staging anuran embryos and larvae with notes on identification. *Herpetologica*, **16**: 183-190.

Martin, A. A., 1965. Tadpoles of the Melbourne area. *Victorian Naturalist*, **82**: 139-149.

Tyler, M. J., 1962. On the preservation of anuran tadpoles. *Australian Journal of Science*, **25**: 222.

Tzi Ming Leong

Systematics & Ecology Laboratory
Department of Biological Sciences
National University of Singapore
Kent Ridge
Singapore 119260

Biodiversity Research Methods. IBOY in Western Pacific and Asia. Nakashizuka, T. & N. Stork (eds.), 2002. Kyoto University Press and Trans Pacific Press. xvi + 216 pp. USD 28.00. ISBN 4-87698-435-2 (Kyoto University Press). ISBN 1-87684-377-2 (Trans Pacific Press).

This book was published in line with DIVERSITAS

International Biodiversity Observation Year in the Western Pacific and Asia (IBOY-DIWPA), which focuses on the assessment of biodiversity at selected/representative study sites throughout the said region. As its title indicates, the book is essentially a manual of recommended standardised research methods aimed at providing bases for proper comparisons and monitoring in biodiversity assessments. It has drawn input from a large number of experts, as can be seen in the long list of contributors for some sections.

The book is divided into five chapters. The first chapter is a general introduction to the mission, rationale and approach of IBOY-DIWPA. Chapters 2 to 4 focus on forest ecosystems, freshwater ecosystems, and coastal macrophyte communities, respectively, and include, to differing degrees, topics like rationale, site selection, and general and specific methods of sampling and studying selected key groups of organisms. Chapters 2 and 3 can be stand-alone manuals of biodiversity assessment methods. Chapter 5, dealing with island ecosystems, serves more as an introduction to the Pacific-Asia Biodiversity Transect network (PABITRA), the tropical island branch of DIWPA (DIVERSITAS in the Western Pacific and Asia).

Chapter 2, "Forest Ecosystems", covers the terrestrial taxonomic groups that are prominent in forests, namely plants, with emphasis on tall trees; and the following animal groups: arthropods, emphasising on Drosophilidae, Lepidoptera, spiders, ants and termites; amphibians; reptiles; birds; and mammals. It is comprehensive in its treatment of the selected groups, and accompanied by numerous simple but clear illustrations of various sampling methods, and some sample data sheets.

In Chapter 3, "Freshwater Ecosystems", the coverage of organism groups includes one animal group, the fishes; and the following assemblages: macrobenthos and macrophytes; meiobenthos; epi-microphytes; and plankton, including treatments of bacteria, zooplankton and phytoplankton. The title of the chapter, however, is somewhat misleading, as it actually deals primarily with lacustrine habitats (which it does well), but falls short on coverage of the numerous other freshwater habitats found throughout the region. The chosen emphasis here on lakes is apparently because of their relatively stable nature, allowing for easier standardisation of methods and data comparison. No doubt some of the lake-sampling methods featured can be modified for other freshwater habitats, but the problem is the chapter states that "...due to large fluctuations in their [rivers and streams] environmental conditions, e.g., resulting from seasonal and sporadic rainfalls, the observation of biodiversity in running waters is often complicated by the difficulty of choosing stable or ordinary conditions and selecting typical habitats comparable to elsewhere." I feel that this should not prevent at least attempts to come up with some form of standard protocol for sampling other freshwater habitats such as rivers, peat and freshwater swamps, montane forest streams, etc., as these: i) represent much of the watersheds of the region; ii) harbour a large proportion of the freshwater aquatic biodiversity, much of it stenotopic in nature; and iii) are the study sites for many researchers.

Chapter 4, entitled "Latitudinal Biodiversity in Coastal Macrophyte Communities", seems to lack the detail seen in

other chapters. It concisely presents a sampling methodology described as the “minimum requirement to be done at each site for IBOY activity”, but limits further detail to recommended protocols and strategies rather than methods per se. The chapter includes a short list of key taxonomic groups (macroalgae, seagrasses, molluscs, decapod crustaceans, echinoderms, fishes and corals) that are recommended for species inventory studies, with no other specifics given. Considering the importance of the coastal habitats and the overall purpose of this book, it was a little disappointing to not see more information on sampling and study of these recommended groups.

Chapter 5, “Research Methods to Initiate PABITRA: The Island Ecosystem Branch of DIWPA” covers the relationship between PABITRA and DIWPA; the fundamental theories behind the former; as well as transect design. It mentions that a 15-chapter manual of biodiversity assessment methods for tropical island habitats is currently being prepared.

The editors of this volume were faced with the difficult task of trying to squeeze biodiversity research methods from a wide variety of ecosystems and taxonomic groups into a small handy manual (216 pp., A5 size, c. 12 by 15 cm). They acknowledge these problems in the Preface and welcome constructive comments that would help in producing improved editions. Despite some shortcomings, however, this first edition is still a very useful reference. Being “...designed for use by those with little formal biological training”, as mentioned inside, it would surely benefit workers at all levels. I would therefore recommend this book, especially for its “Forest Ecosystems” chapter as a manual for conducting forest surveys.

Darren C. J. Yeo

Raffles Museum of Biodiversity Research
Department of Biological Sciences
The National University of Singapore
Blk S6, Science Drive 2
Singapore 117600, Republic of Singapore



Chek Jawa.
D i s c o v e r i n g
S i n g a p o r e ' s
Biodiversity. Chua, E.
K., 2002. Simply Green.
116 pp. USD 20. ISBN
981 04 6814 8. Tien
Wah Press (Pte) Ltd.

Pulau Ubin is a small island of about 10km by 2km off the northeast coast of Singapore’s main island. It is a special place for Singaporeans and visitors alike, having escaped the bustling growth of the city-state, and provides an impression of a way of life, long lost on mainland Singapore. However, in 2001, the island awaited an impending fate of reclamation of its eastern and southern coastlines. Villagers living in the area had been gradually shifted out and few remains of the buildings they occupied could even be seen. The now ghostly coastline however, provided complete access to curious nature enthusiasts who had previously stayed away from the private property of the villagers.

They stumbled onto a goldmine. This small coastal area boasted of several ecosystems in one site –coastal forest, mangrove, rocky shore, sandy shore, seagrass lagoon, mud flats and coral rubble. To a population more familiar with sterile beaches, it was an explosion of marine life – tunicates, sponges, sea cucumbers, sea stars, a variety of molluscs, seagrass, the list seemingly just went on. The visual splendour of the site, its uniqueness and impending extinction inspired an explosion of activity on its behalf by nature lovers, educators,

researchers, the media, public and the government. In a landmark decision, the reclamation of scheduled for Pulau Ubin was deferred, and Chek Jawa was saved for the interim at least.

Dr Chua Ee Kiam was amongst those inspired by the variety, space, stories and secrets of the area. Like many naturalists in Singapore, he was familiar with the pockets of terrestrial biodiversity on the mainland. He had in fact popularised such areas by authoring two photo-history titles, entitled “Nature in Singapore – Ours to Protect” (1993) and “Pulau Ubin – Ours to Treasure” (2001) (see <http://www.simplygreen.com.sg>). A dentist by profession, he is a passionate nature photographer and nature conservationist, and communicates this through his images in books and by guiding and giving talks. This passion is obvious through the photographs and emotive writing of the book.

The contents are arranged somewhat into chapters. “*Discovering Chek Jawa*” is a brief account of the events leading to the eventual deferment of reclamation. Little of the complex series of events has been shared with the public and this is a good introduction to an important event in Singapore’s history. “*Heaven on Earth*” provides an overview of the habitats and brief contributions about most of the ecosystems, and marine life is explored through the main plant and animal groups in “*Fascinating gems of Chek Jawa*”. The author’s suggestions about education and tourism are raised in “*What next?*” and “*Voices from within*” is a sheet of quotations by various people. The various affiliations and more so the lack of affiliation of the various people who are quoted reflect the diverse interest that Chek Jawa summoned to her eventual relief. “*The plight and fragility*” and “*The last horizon*” are reflective pieces on issues facing