

F2-Turnitin-Mangrove of Sembilang National Park South Sumatra

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**INTERNATIONAL SYMPOSIUM
ON THE BIODIVERSITY ASSOCIATED WITH
MANGROVE ECOSYSTEMS IN SOUTHEAST ASIA**

Ha Noi, Viet Nam, 17-19 May 2010

PROGRAMME & ABSTRACTS



Hanoi, May 2010

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SYMPOSIUM SCHEDULE

17 th May, 2010			
8:30-9:00	Registration		
9:00-9:10	Opening Address by Prof. Dr. Nguyen Ngoc Chau		
9:10-9:20	Welcome Address by Prof. Dr. Le Xuan Canh, Director of Institute of Ecology and Biological Resources, VAST.		
9:20-9:30	Keynote for the Symposium by Prof. Dr. Ann Vanreusel		
9:30-10:00	Group Photo & coffee break		
Session 1. General problems of Mangrove Ecosystems Chair-man Prof. Dr. Ulrich Saint-Paul and Dr. Vien Ngoc Nam			
No	Time	Contents	Authors
1	10:00-10:25	Biodiversity of mangrove flora in Can Gio Biosphere Reserve, Ho Chi Minh City, Vietnam	Vien Ngoc Nam
2	10:25-11:50	Biodiversity and Value of Can Gio Mangrove Forest	Huynh Duc Hoan
3	11:50-12:15	Mangroves of Singapore: Botanical updates and current status	Yong, J.W.H., Yang,S.F., Lim, L.F., Sheue, C.R.
12:15-13:30		Lunch	
4	13:30-13:55	Outcome and perspectives of Education in Nematology related to Natural ecosystems	Nicole Smol
5	13:55-14:20	Diversity of fish in Can Gio mangrove ecosystem, Ho Chi Minh City, Vietnam	Nguyen Xuan Dong, Ngo Van Tri
6	14:20-14:55	Macrobenthic biodiversity in Can Gio mangrove forest	Pham Dinh Trong, Nguyen Xuan Duc
7	14:55-15:20	Rapid assessment of terrestrial vertebrata fauna at Dat Mui National Park, Ca Mau province	Nguyen Xuan Dang <i>et. al.</i>
15:20-15:50		Coffee break	
8	15:50-16:15	The loss of species: mangrove extinction risk and geographic areas of global concern	Beth A. Polidoro <i>et. al.</i>

9	16:15-16:40	The relationship between species, structural and functional diversity in mangrove ecosystems	Barry Clough
10	16:40-17:05	Mangrove habitat dynamics and rapid sea-level rise	Toyohiko MIYAGI
18:30-20:30		Welcome Party Hosted by Assoc. Prof Dr. Le Xuan Canh, IEBR Director Venue: Conference Hall, 3rd Floor, Army Hotel	
18th May, 2010			
Session 2. Meiofauna and Nematodes in Mangrove Ecosystems Chair-man Prof. Dr. Ann Vanreusel , Prof. Dr. Zhinan Zhang and Prof. Dr. Nguyen Vu Thanh			
10	8:30-8:55	The use of meiofauna in monitoring the quality of mangrove ecosystems	Ann Vanreusel
11	8:55-9:20	Biodiversity of Meiofauna community and used Nematodes as bioindicator in the Can Gio mangrove forest, Ho Chi Minh city	Nguyen Dinh Tu, Nguyen Vu Thanh and Ann Vanreusels
12	9:20-9:45	Nematode communities in Durian storm impacted area, Can Gio mangrove forest, HCM city	Ngo Xuan Quang <i>et. al.</i>
13	9:45-10:10	A study on nematode species composition of the family Comesomatidae Filipjev, 1918 (Nematoda) reconized in some coastal areas of Vietnam	Nguyen Vu Thanh, Gagarin and Nguyen Dinh Tu
10:10-10:40		Coffee break	
14	10:40-11.05	Meiobenthic communities in coastal mangrove area of the inner gulf of Thailand	Chawaporn Jittanoon and Chittima Aryuthaka
15	11:05-11:20	Functional adaptations of nematode assemblages to the mangrove habitat: a comparative study	Hong Zhou and Zhinan Zhang
16	11:20-11:45	Nematodes of the 'lesser' mangroves of Tamil Nadu, Southeast coast of India	Olivia J.Fernando
17	11:45-12:15	Can traditional taxonomy in nematology retain its place as a science in an automated world of barcoding, digital images and scaled-up biodiversity informatics?	Wilfrida Decraemer
12:15-13:30		Lunch	

Session 3. . Ecological tools for Mangrove Management Chair-man Prof. Dr. Ulrich Saint-Paul and Prof. Dr. Yoshiaki Kitaya			
18	13:30-13:55	Photosynthesis in pneumatophores and hypocotyls of mangroves for supplying oxygen to their underground parts	Yoshiaki KITAYA
19	13:55-14:10	Bioaccumulation, depuration of heavy metals (As, Cd, Pb) and metabolism of these metals in body of mussels (<i>Meretrix lyrata</i>) during 20 days in artificial media of culture	Pham Kim Phuong <i>et. al.</i>
20	14:10-14:35	Contribution to understanding the physical environment of the mangrove in the Ca Mau cap and surrounding area	Le Xuan Thuyen
21	14:35-15:00	The impact of indirect effects of climate change on mangrove associated biodiversity	Elisha M'rabu <i>et. al.</i>
15:00-15:30		Coffee break	
22	15:30-15:55	Sustainable development of mangrove resources- combining the best practices	Tan Kim Hooi
23	15:55-16:20	Estimates of benthic secondary production In Yellow river estuary and it's adjacent waters in the Bohai sea China	Zhinan Zhang and Hong Zhou
24	16:20-16:45	Lessons learnt from Can Gio for mangrove rehabilitation in Gujarat, India	Ulrich Saint-Paul
25	16:45-17:10	Land covers change analysis of mangrove in Viet Nam using Remote Sensing and Geographic Information System technology (The case study of Can Gio district of Ho Chi Minh city, Viet Nam)	Nguyen Viet Luong
17:10-17:45		Round Table Discussion on the Global cooperation in sustainable development of Mangrove Ecosystems	
Closing Remarks by Prof. Dr. Ann Vanreusel			
Farewell Party Hosted by Prof. Dr. Ann Vanreusel , IMABE Director Venue: West Lake, Tay Long Cruise, Adjacent back Chu Van An High School			
18:00-20:30			

19th May 2010

Excursion to the Oldest capital of Vietnam

Supervision by Dr. Nguyen Dinh Tu and Drs. Nic Smol

6:30	Departure at the Army and Ma May Hotel bus trip to Ninh Binh
12:30	Lunch at Ninh Binh City
17:30	Departure from Ninh Binh for return trip to Hanoi, arrival to the Army and Ma May Hotel

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Biodiversity of mangrove flora in Can Gio Biosphere Reserve, Ho Chi Minh City, Vietnam

VIEN NGOC NAM

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Can Gio mangrove forest play important role and significant meaning for local communities, the city and adjacent areas. During the war, the Can Gio mangrove forest has been devastated. The efforts of the government and people of Ho Chi Minh City in the rehabilitation of mangrove forests have been successful in the country as well as in the world and are recognized as a UNESCO Biosphere Reserve area of the world and is the first Biosphere Reserve in Vietnam. To have a scientific basis for the management of natural resources and proposed measures to conserve biodiversity in the future, the study referred to this approach to quantitative research methods biodiversity of plant communities in the Can Gio Mangrove Biosphere Reserve as the basis for the selection of measures to conserve biodiversity.

The results of study on mangrove flora biodiversity of 10 Forestry Compartments in Can Gio Biosphere Reserve with three hundred plots of 100 m² (10 x 10 m) were set up. There are 40 species belongs to 13 family with 30,124 individual trees in which there are 9 associated species and 31 true mangrove species. The Importance Value Index of *Ceriops zippeliana* is 22.52 %, *Acanthus ilicifolius* (20.91 %), *Rhizophora apiculata* (11.96 %), *Avicennia alba* (8.58%), *Avicennia officinalis* (8.37 %), *Excoecaria agallocha* (7.77%) and the remaining species is 20%. The species and families have low abundance values are *Cordia cochinchinensis*, *Aegiceras floridum*, *Sonneratia caseolaris*, *Boraginaceae*, *Malvaceae*, *Salvadoraceae*. The average of biodiversity index in each compartment is Species Richness ($S = 21.30 \pm 1.97$), $N = 3012 \pm 472$, Piejou ($J' = 0.70 \pm 0.03$), Shannon ($H' = 1.24 \pm 0.09$), Simpson Dominance ($D = 0.39 \pm 0.04$). The quantity study of biodiversity together GIS were applied for temporal, spacial monitoring and planning in the Forestry Compartment. A set of digital pictures of mangrove species was established. The results provide the data base for conservation and management in future.

Keywords: Mangrove, Diversity of Mangrove Flora, Biodiversity Index, Can Gio.

Biodiversity and Value of Can Gio Mangrove Forest

HUYNH DUC HOAN

Can Gio Protection Forest Management Board, Ho Chi Minh City, Vietnam

The Can Gio Mangrove Forest was recognized as Biosphere Reserve by UNESCO in 2000. It is located in Can Gio district, Ho Chi Minh City with total area of 75,740 ha (core zone: 4,721 ha; buffer zone: 41,139 ha; transition zone: 29,880ha). Can Gio mangrove plays important roles in environmental protection, climate regulation, erosion control, and specially in responding to climate change and sea level rise, the problem world attention.

Can Gio mangrove forest is a forest known as the fastest recovery was devastated by the war. After 32 years of planting, maintenance and protection, mangrove ecosystem has fully recovered and developed the quality and quantity, the animals come back, with high biodiversity: About 36 true mangrove species, 90 associated mangrove species, 130 species of algae, 100 species of invertebrates, 137 species of fish, 9 species of amphibians; 31 species of reptiles; 130 species of birds, and 19 species of mammals.

Can Gio mangrove forest is located east of Ho Chi Minh City and adjacent to the four provinces of Dong Nai, Ba Ria - Vung Tau, Long An and Tien Giang, have contributed greatly in providing a rich source of seafood, provide economic resources for the people, create jobs, especially residents of adjacent neighborhoods. With the functions of mangrove forests has brought tremendous value in providing oxygen and absorbing carbon to reduce the temperature rise of the region, climate control, reduction of environmental pollution...

Mangrove forests have increased ability to sedimentation, sea and land expansion is critical to avoid the effects of sea level rise and climate change. Can Gio mangrove forest is a forest 25 km in width direction from the coast in to Ho Chi Minh City; this is a very solid wall of green to reduce strong winds and waves. Besides, Can Gio is ecotourism place, live laboratory for students, scientists as well as tourist.

Mangroves of Singapore: Botanical updates and current status

YONG, J. W. H.¹, YANG, S. F.², LIM, L. F.², SHEUE, C. R.³

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The struggle to maintain or even to restore mangrove forest coverage is a challenging task facing all countries with mangrove forests, in view of the conflicting needs for urban and coastal developments to support economic growth. As a result of industrial and urban development, Singapore's total mangrove area has shrunk from 6400 ha in 1953 to about 500 to 600 ha at present. Despite this uphill battle for mangrove conservation, we are working strategically towards reversing this decline in mangrove forest coverage through careful land use planning. Even in a small and highly urbanized country like Singapore, we are still able to find new plant records in our mangrove forest that have never been documented before. A rare mangrove species, *Bruguiera hainesii* C. G. Rogers, was added to the mangrove flora of Singapore in 2003. In 1999, an uncertain taxon of *Ceriops* was discovered at Pasir Ris Park, which was morphologically different from *C. tagal* (Perr.) C. B. Rob. in Singapore. At first, this taxon was identified as the so-called *C. decandra* (Griff.) Ding Hou according to Flora Malesiana. However, it was later noted that the local *Ceriops* sp. collected from Singapore was morphologically and anatomically different from the *C. decandra* collected from India in 2000. Thus, it was therefore considered as an uncertain species awaiting further taxonomic research. Recently, we ascertained that the uncertain *Ceriops* species should be *C. zippeliana* Blume, and this species also occurs in areas of south-eastern Asia as well. Through several successful international collaborative research efforts, the elucidation of the true taxonomic identity of *Kandelia obovata* Sheue, Liu & Yong, an important East Asian species (China, Japan, Taiwan, Vietnam) in 2003, was greatly assisted by our own local research and conservation efforts towards understanding and preserving our own *Kandelia candel* (L.) Druce in Singapore. Moving forward, the solution to restore our mangroves and coastal vegetation in Singapore to its pristine condition is straightforward: conserve existing habitats, scientific studies to better understand mangrove plant growth, re-introduction of extinct species, and an active programme to propagate endangered species.

Outcome and perspectives of Education in Nematology related to Natural ecosystems

NICOLE SMOL

Since the start in 1992 of the Postgraduate International Nematology Course (PINC) master course at Ghent University, Belgium more than 200 nematologists have been trained at Ghent University. Most students originated from developing countries and their interest was mainly focused to agricultural problems and the plant parasitic nematodes. Nevertheless some showed interest in the free-living forms and specialized in either free-living marine or freshwater or soil nematodes. An overview is given of the importance of studying free-living nematodes and the geographical location of new centres for free-living nematode research. The scientific output and future perspectives are listed and reasons for success or failure are discussed. A PhD-level together with good managing capacity and international contacts are key factors for success. Geographic isolation, lack of infrastructure and access to literature are some factors hampering positive results.

Magrove of Sembilang National Park South Sumatra, Indonesia

TENGGU ZIA ULQODRY¹, FAUZIYAH¹, FITRI AGUSTRIANI¹

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Sembilang National Park is the largest extent of mangrove area in South Sumatra and included in the ten areas with the largest extent of Indonesia's mangrove. Mangrove is known to be a highly productive ecosystem and estimated that a large proportion of fish use mangrove systems as its habitat. However, human pressure on this area and increasing demand for land represent increasing threats to mangrove. The aims of this research were to investigate the changing of mangrove coverage in 2003 – 2009 periods while this area was opened becoming National Park and also studied the fish community. The Landsat-7 ETM+ and SPOT 2 images was used and analyzed by using NDVI (Normalized Difference Vegetation Index) to find information about mangrove coverage. Sample of fish were collected using encircling gillnet. The results showed that the composition of true mangrove were consisted of 4 families and 12 species that dominated by *Avicennia*, *Rhizophora*, *Sonneratia*, *Bruguiera* and *Cerops*. The mangrove coverage decreased from 89,874.00 ha in 2003 become 75,715.56 ha in 2009. A total of 657 individuals of fish belonging to 42 species and 27 families were collected from the mangrove waters area. Fish abundance ranged from 13.56 ind. ha⁻¹ (Station I) to 103.60 ind. ha⁻¹ (Station III). It was the positive correlation between mangrove density with fish abundance ($Y=0.1031X-26.921$; $r=0.95$; $n=8$).

Keywords : Mangrove, Fish, Image Analysis, encircling gillnet, Sembilang National Park

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