

UNIVERSITY OF THE PHILIPPINES VISAYAS
DIVISION OF BIOLOGICAL SCIENCES
Miag-ao, Iloilo

COMMUNITY STRUCTURE, BIOMASS PRODUCTIVITY AND CARBON STOCK
ASSESSMENT OF MANGROVES IN BARANGAY TABON, BATAN BAY, AKLAN

A Special Problem
Presented to
The Faculty of Division of Biological Sciences
University of the Philippines Visayas
Miag-ao, Iloilo

In Partial Fulfillment
Of the Requirements for the Degree BS Biology

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APRIL 2013

ABSTRACT

The study aimed to assess the community structure, biomass productivity, and carbon stock assessment of mangroves in Barangay Tabon, Batan Bay, Aklan using the plot method. Specifically, it aimed to: 1. determine selected physical and chemical factors such as water salinity, water pH, soil temperature and characterization of soil substrates, 2. identify true mangrove species present in the area, 3. describe the community structure in terms of Stand Basal Area, Stems per Hectare, Relative Density, Relative Frequency, Relative Dominance, Importance Value, Shannon-Index of Diversity, Zonation Pattern, Seedling and Sapling Density, 4. assess the biomass productivity (both wood biomass, and litter fall), 5. estimate the amount of carbon stored in the mangrove forest (using allometric equation). A total of twenty-one true mangrove species belonging to 12 families were identified. Family *Rhizophoraceae* was the most represented with five species namely *Bruguiera cylindrica*, *Ceriops decandra*, *Rhizophora apiculata*, *R. mucronata*, and *R. stylosa*. The rest were also well represented namely Family *Avicenniaceae*- *Avicennia alba*, *A. officinalis*, *A. marina*, and *A. rumphiana*; Family *Combretaceae*- *Lumnitzera littorea* and *Limnuzera racemosa*; Family *Sonneratiaceae*- *Sonneratia alba*, and *Sonneratia caseolaris*; Family *Acanthaceae*- *Acanthus ebracteatus*; Family *Bombacaceae*- *Camptostemon philippinensis*; Family *Euphorbiaceae*- *Excoecaria agallocha*; Family *Meliaceae*- *Xylocarpus moluccensis*; Family *Myrsinaceae*- *Aegiceras corniculatum*; Family *Myrtaceae*- *Osbornia octodonta*; Family *Arecaceae*- *Nypa fruticans*; Family *Rubiaceae*- *Scyphiphora hydrophyllacea*. Basal area ranged from 0.11m²/ha for *Ceriops decandra* to 68.78m²/ha for *Sonneratia alba*. *Avicennia marina* had the highest stems per hectare with 22,600 stems/ha, while *Bruguiera cylindrica* had the lowest with 100 stems/ha. *Avicennia marina* occurred in all plots with 137 trees/ha and had the highest relative density of 38.38% and relative frequency of 38.42%. *Sonneratia alba* had the highest relative dominance of 48.49% while the lowest was *Ceriops decandra* with 0.08%. *Avicennia alba*, *Bruguiera cylindrica*, and *Ceriops decandra* had the lowest relative densities and frequencies at 0.3%. The most important species was *Avicennia marina* (107.6) and the least important species was *Ceriops decandra* (0.68). The area was considered to be diverse at 0.7206. On per transect basis, the highest index of diversity recorded was in Transect 2, while the lowest was in Transect 1. *Avicennia* and *Sonneratia* species occurred both in the low intertidal zone (seaward) and mid-intertidal zone (transitional zone). *Rhizophora*, *Nypa*, *Camptostemon*, *Osbornia*, *Lumnitzera*, *Bruguiera*, *Ceriops*, *Excoecaria*, and *Aegiceras* were found in the mid-intertidal zone (transitional zone). *Xylocarpus*, *Scyphiphora*, and *Acanthus* occurred in high intertidal zone (landward). *Avicennia rumphiana* had the highest seedlings density of 1001 seedlings/ha, whereas *Rhizophora mucronata* had the highest saplings density of 96 saplings/ha. The lowest seedling and sapling density was *Rhizophora apiculata* (1seedling/ha) and *Camptostemon philippinensis* (1sapling/ha) respectively. The species with the highest computed biomass of 1,287.78 tons/ha and carbon stock of 579.5 tons/ha was *Sonneratia alba*. The lowest was *Ceriops decandra* with biomass of 0.06 tons/ha and carbon stock of 0.03 tons/ha. A total of 2,080 tons/ha biomass and 936.34 tons/ha carbon stock was determined. Based on the litter fall, Transect 2 has the highest leaf fall weighing 580.4g. Litter weight was highest in January 2013 and lowest in December 2012 in all sampling sites.