University of the Philippines Visayas
College of Arts and Sciences
Division of Biological Sciences
Miag-ao, Iloilo

COMMUNITY STRUCTURE, BIOMASS PRODUCTION AND CARBON STOCK ASSESMENT OF MANGROVES IN BARANGAY AMBOLONG, BATAN, AKLAN

An Undergraduate Special Problem
Presented to the
Division of Biological Sciences
University of the Philippines Visayas
Miagao, Iloilo

In Partial Fulfillment
Of the Requirements for the Degree of
Bachelor of Science in Biology

LEIZEL B. AGREGADO

APRIL 2013

Agregado LB. 2013. Community Structure, Biomass Production and Carbon Stock Assessment of Mangroves in Barangay Ambolong, Batan, Aklan. Unpublished Undergraduate Special Problem for the Degree of Bachelor of Science in Biology.Division of Biological Sciences, CAS, UP Visayas, Miagao, Iloilo, Philippines.

ABSTRACT

Mangroves are evergreen shrubs and trees of several unrelated families that thrive within intertidal zones of sheltered flats, coves, bays, and estuarine regions extending inland along streams and river where water is primarily brackish. Continued threats to their existence call for their protection and conservation. This study was conducted to assess the community structure of mangroves in Brgy. Ambolong, Batan, Aklan by 1). measuring physico-chemical parameters (salinity, temperature, pH) 2). describing the community structure in terms of and in terms of a) basal area, b) stems per hectare, c) relative density, d) relative frequency, e) relative dominance, f) importance value, g) Index of Diversity, h) seedling and sapling density, and i) zonation pattern; 3). to assess the biomass production and carbon stock. This study was done to provide preliminary information regarding the current status of mangroves in the area. Three (3) transect lines, each containing three (3) plots, were established in the area. Twenty (20) mangrove species belonging to eleven (11) families were identified: Acanthaceae – *Acanthus ebreatus, Acanthus volubilis;* Arecaceae – *Nypa fruticans;* Avicenniaceae – *Avicennia alba, Avicennia marina, Avicennia officinalis, Avicennia rumphiana;* Bombaceae – *Camptostemon philippinensis;* Euphorbiaceae – *Excoecaria agallocha;* Meliaceae – *Xylocarpus granatum, Xylocarpus moluccensis;* Myrsinaceae – *Aegiceras corniculatum;* Myrtaceae – *Osbornia octodonta;* Rhizophoraceae – *Bruguiera cylindrica, Ceriops decandra, Rhizophora apiculata, Rhizophora mucronata, Rhizophora stylosa;* Rubiaceae – *Scyphiphora hydrophyllacea;* Sonneratiaceae – *Sonneratia alba.* Water salinity in the study area ranged from 27-30 ppt; soil temperature ranged from 28°C to 30°C. *Avicennia marina* had the highest values for basal area (4.22 m^2/ha), stems per hectare (15,700 stems per hectare), relative density (63.56), relative frequency (63.56%), relative dominance (48.10%), and was the most important species with the importance value of 175. *Rhizophora stylosa* had the lowest values for basal area (0.002 m2/ha), stems per hectare (100 stems/ha), relative density (0.40 trees/ha), relative frequency (0.4%), relative dominance (0.23%), and was the least important species, having the importance value of 0.832. *Rhizophora apiculata* and *Avicennia officinalis,* together with *Rhizophora stylosa,* had the lowest value for stems per hectare (100 stems/ha), relative density (0.40 trees/ha), and relative frequency (0.4%). Seedling density was highest for *Avicennia alba*(187 seedlings/ha) and lowest for *Bruguiera cylindrica* (1 seedling/ha). Sapling density was highest for *Avicennia marina* (54 saplings/ha) and lowest for *Excoecaria agallocha* (1 sapling/ha). The Index of Diversity was $\hat{H}$=0.598. The highest recorded litter was 336.6 g in December 19, 2012-January 2, 2013 while the lowest was recorded at 18.2 grams in December 5-December 29, 2012. Highest biomass production was that of *Avicennia marina* (962.94 tons/ha), while the lowest was *Avicennia officinalis* (0.009 tons/ha).*Avicennia marina* had the highest carbon stock value of 433.32 tons/ha; the lowest was that of *Avicennia officinalis* (0.004 tons/ha).

Keywords: *community structure, biomass, carbon stock*