

Session I – Climate Change and Challenges to Ecological and Economic Sustainability
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The Functioning of Mangrove Density and Diversity in Environmental Protection in Vinh Chau, Soc Trang Province

Truong Thi Nga¹, and Vo Thi Truc Ha²

¹College of Environment and Natural Resources, Can Tho University, Can Tho City, Vietnam, Email: truongnga@ctu.edu.vn

²Vinh Long Community College, Vinh Long, Vietnam

Abstract

Mangroves in coastal areas play an important role in environmental protection. Their development is necessary for disaster mitigation and prevention due to global climate change. The functioning of mangrove density and diversity in environmental protection in Vinh Chau, Soc Trang was carried out in order to assess the role of mangrove in terms of diversity and density aspect. The experiment included 4 plots (10m x 10m) for each site: (1) high diversity and high density, (2) high diversity and low density, (3) low diversity and high density, (4) low diversity and low density, and (5) no mangrove species. The high density had the least air temperature (20-29.5°C). The highest air temperature (31.7°C) was in forest with no mangrove species. The high wind velocity was in low diversity and low density. Maximum was 10.2 m/s in the site with no mangroves and minimum 1.2 m/s in site with high diversity and high density. The water flow velocity at 6 m, 3 m, and 0 m from mangroves were 0.49 m/s, 0.26 m/s, and 0 m/s respectively. The salinity, EC, and soil temperature were high in the low density and low diversity: 3.81‰, 6.96mS/cm, 28.04°C in site (1); 6.85‰, 10.2 mS/cm, 40.3°C in site (5) respectively. Soil evaporation was 0.80mm in site (1) and 2.31 mm in site (5). The soil pH, moisture, O.M, total N, total P were low in site (1): 6.26, 98.6%, 3.88%; total N: 0.24%; total P: 0.10% in site (1); compared with 5.86, 60.8%, O.M. 0.87%; N_total: 0.07%; P_total: 0.01%, in site (5). The results showed that forest diversity conservation and replantation with proper density were the keys for disaster mitigation in the near future against the pressure of global climate change.