

Impact of flood on *Rhizophora* plantation in Batticaloa, Sri Lanka

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Abstract

Planting mangroves for restoration became popular after the 2004-tsunami in Batticaloa. About 9500 individuals *Rhizophora* were planted at ten sites around the Batticaloa lagoon, and only 794 (8 %) remained at the end of 2010, only at Urani. Heavy rain flooded Batticaloa in January and again in February 2011. This study assesses the impact of flood on the planted mangroves.

The study site was Puthupalam-Urani stretch of 2.5 km, located in the Manmunai North Divisional Secretariat division. Field survey was carried out one week after the first and second inundations.

Inundation height was recorded. For each plant height and status (green, percentage of browning of shoot and dead) were recorded. 25 water samples were collected at 100 m intervals in this area.

Mean height of the first inundation was 1.84 ± 0.06 m and this remained for 5-7 days. Mean height of the plant was 1.53 ± 0.43 m. During this inundation, 79 % of the plants had been fully submerged and 21 % partially submerged. 52 % of plants had more than 90 % of browning of shoot. 81.3% of plants were dead.

Mean height of the second inundation was 1.68 ± 0.08 m and this remained for 4-6 days. Mean height of the remaining plant was 1.63 ± 0.62 m. During this inundation 24 % of the plants had been fully submerged and 76 % partially submerged. 32 % of the remained plants had more than 90 % of browning of shoot. 31 % of remained plants were dead due to the second inundation.

Majority of the isolated individuals were lost whereas majority of the survived plants were from the centre of big patches. Salinity was almost zero during the periods.

Inundation seems to be the main reason for death of plants, but physical forces cannot be overlooked as the survivors are from centre of patches.

Keywords

plant-group, browning, inundation, survival