

Assessment of invasion of *Najas marina*, Linnaeus 1753 in Madu Ganga Estuary, Sri Lanka using ASTER data of Terra satellite.

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Najas marina (Family Najadaceae) is one of the nine invasive alien floral species that has been identified in the Ramsar site of Madu Ganga Estuary. Advanced Spaceborne Thermal Emission Radiometer (ASTER) is an imaging instrument onboard Terra, the flagship satellite of National Aeronautics and Space Administration's (NASA) Earth observing systems. The objective of the present study was to assess the invasion of *N. marina* (Spiny Water Nymph) in Madu Ganga Estuary using Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data obtained from the Terra satellite. Cloud free ASTER imageries with 15m resolution of the study site were atmospherically corrected using the Fast Line-of-sight Atmospheric Analysis of Spectral Hypercubes (FLAASH) in Environment for Visualizing Images (ENVI) software version 5. The Normalized Difference Vegetation Index (NDVI) was calculated for the study site for each image and the distribution maps of *N. marina* were developed for December 2007, December 2009, December 2013 and April 2014. The map developed for April 2014 was validated using ground data and the Kappa coefficient of accuracy was calculated (K=1.0). The percentage coverage of *N. marina* was calculated through a supervised classification using ArcGIS software version 10.3. According to the derived distribution maps, *N. marina* was distributed in about 31% of the estuary in April 2014. The highest densities were mostly found in bay areas and peripheral areas except for the northern region of the estuary where it was found in the middle areas also. Maps developed for December 2007 (36%), December 2009 (14%) and December 2013 (24%) indicated that there is a temporal variation in the distribution of *N. marina* over the years. The overall distribution in of *N. marina* has decreased from December 2007 to December 2009 (36% - 14%) and increased from December 2009 to April 2014 (14% - 31%) reaching a coverage more or less similar to that of December 2007. Low water levels and stagnation of water appears to be conducive for the variation of this species. Hence, the future management of the invasion of this species may take these factors into consideration.