

**Session IV – “The First Rule of Intelligent Tinkering Is To Save All the Parts”
2:30 PM**

Biological characteristics of *Mimosa pigra* L. in wetland ecosystems in Thailand

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Abstract

Mimosa pigra L. is a fast growing invasive weed that requires less nutrients to grow and can out-compete local vegetations. The species was first introduced in the northern part of Thailand in 1947. In the late 1990s, *M. pigra* L. has appeared in oxbow lakes, river banks and wetlands within Maha Sarakham province and other parts of Thailand. Since then, the wide-spread invasion of *Mimosa* in this locality has become a main problem for agriculture and livestock keeping. The objective of this study was to describe some biological aspects of *M. pigra* L. in different wetland ecosystems within Thailand to provide basic information for future control efforts of this species. We carried out the first survey during the period between October 2005 and February 2006 at Ban Kerng oxbow lake, some 5km to the north of Maha Sarakham city. We collected selected biological parameters at 3 purposely selected sampling sites: river bank, area being used for livestock grazing and *M. pigra* L. dominant inundated forest. Prior to selecting sampling sites, we made observations on site identification within the study area. We then selected twenty five plots (plot size 1 m²) per site, where invasion of *M. pigra* L. was present, and measured the following parameters: stem height, fresh and dry above-ground biomass, numbers of bunches (inflorescence) and pods. We also collected all fruits found in each sample plot. Results from the first study showed that there is a density of 17 stems m⁻², average stem height of 2.88 m., a fresh above-ground biomass of 9.57 kg m⁻² and dry biomass of 5.85 kg m⁻². There is an average number of 5.9 pods/inflorescence, 18.94 seeds/pod and 99 pods m⁻². The numbers of seeds observed were 575. The estimated number of seeds produced by *M. pigra* L. at the time of survey was 3,409 seeds m⁻². We carried out the second study during the period between April 2008 and February 2009 at 11 locations across four regions of Thailand, in which we compared morphology and plant anatomic variation following its invasion into all regions of Thailand. The results showed that the numbers of bunches (inflorescence) were significantly different across four taxonomic groups; (a) Trang, Loei and Chiang Mai (b)

Phrae (c) Maha Sarakham and Nakhon Phanom (d) Surat Thani, Chumphon, Phetchaburi, Saraburi and Si Sa ket. The stem height and sub-leaf size were not different across four groups. The plant anatomy in 11 locations was similar except in Trang, in which the phloem cell size was bigger than other locations, and had a higher numbers of phloem cells. Our findings suggest a great concern that this species can produce an estimated seeds of 10,227 per year (3 crops) in one square meter which will result in >10,000 seedlings in the next generation, and can invade into diverse habitats.