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**INVASION OF *Mimosa pigra* IN TASIK TEMENGOR LAKE AND RIVERSIDE AREA,
PERAK, MALAYSIA**

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ABSTRACT

A weed survey was done in Tasik Temengor Lake and the connecting five rivers namely Sungai Kedah, Sungai Rokan, Sungai Gadong, Sungai Enam and Sungai Telang of the lake Perak, Malaysia covering 33 kilometer area in June 2010 to record the presence of *Mimosa pigra* on the bank of the lake and rivers. It was expected to have idea about the spread of this notorious weed in the study area which might indicate their impacts on the biodiversity in the riverside areas. Motor operated boat was used to move through the lake and rivers. The boat was stopped at every 0.5 kilometer distance from individual sampling spots and the presence of the weed was searched for. A GPS was used to determine the distance from one sampling spot to another. The presence of the weed was recorded and informative photographs were taken. The percentage of sampling spots where the weed was noted was calculated. It was observed that more than 68% spots were found infested with the weed. The old plants were 2 to 3 meter height bearing many matured seed pods. Under the big plants many tiny seedlings of the weed were noted. Some pods of the weed were also recorded on the surface of water, especially near the weed infested area. All the information emphasized adoption of sustainable weed management strategy to control the weed in the important hotspot of biodiversity in Malaysia.

Keywords: *Mimosa pigra*, Weed Survey, Weed Invasion, Tasik Temengor Lake

INTRODUCTION

Mimosa pigra is a noxious and invasive weed in Malaysia, probably introduced from Thailand. It is a leguminous shrub, armed with broad-based prickles, bipinnate leaves and central prickly rachis. It germinates throughout the year under tropical climate and grows very fast. *M. pigra* likes to grow in flood plain or riverbank, in clay to sandy clay soil. The weed has potential impacts on biodiversity, sustainability of agriculture and tourism [1, 2]. In Northern Australia, it has replaced about 80000 hectares of native vegetation of wetland. Due to its rapid spread magpie goose endangered, since it needs dense stand of native sedges for nesting and food [3]. The life of *Orang asli* is affected because of creating problems in food collection in forest. Tourism is also affected through reduced area and access for tourism activities.

In Malaysia the weed is introduced perhaps 5 to 6 years ago and now it is everywhere, in roadsides, on the levee of rice fields, in bank of rivers, play ground and fallow land. The seeds of the weed are light, which can float on the water and can be carried from one place to another. After floating through water, when it touches the land starts germinating. Usually the matured seeds are fall under the shrubs

and during flooding all the seeds are carried away and reach even to rice fields.

Temengor Lake is the second largest lake in Peninsular Malaysia [4]. This watershed area harbor invaluable tropical rainforest, which is an important hotspot of biodiversity. The water catchment is an important spot for fish production. However, the lake is connected with a number of rivers, which carry a lot of weed seeds including *M. pigra*. The weed likes riverside area and grows very fast on the bank of rivers. The objective of this study was to survey *M. pigra* on the bank of Temengor Lake, especially areas covering five rivers connecting to the lake.

MATERIALS AND METHODS

In the survey purposive samplings were done. The presence of *M. pigra* on the bank of the lake and rivers was recorded. The survey areas cover five rivers namely, Sungai Kedah, Sungai Rokan, Sungai Gadong, Sungai Enam and Sungai Telang and the nearby area of Temengor Lake (**Figure 1**). It was started from Tasik Bandong and preceded toward those rivers. Motor-operated boat was used to move through the lake and rivers. The boat was stopped at every 0.5 kilometer distance from individual sampling spots and the presence of the weed was searched for.

A GPS (Global Positioning System) (GPS 35 LVC, LAVA Computer Mfg Ltd., Canada) was used to determine the distance from one sampling spot to another. In total 33 kilometer area was covered in different rivers and lake area. The presence of the weed was recorded and photographs were taken. The percentage of sampling spots where weeds were recorded was calculated.

RESULTS AND DISCUSSION

Altogether 33 kilometer riverside area was surveyed and more than 68% spots were noted with the weed (**Table 1**). Old plants were 2 to 3 meter in height and had many matured pods (**Figure 2-4**). Under the *M. pigra* plants many tiny seedlings of the weed were noted (**Figure 5**). Inside the lake there are many islands where the *M. pigra* was also found to grow. Some pods of the weed were also recorded on the surface of the water, especially near the *M. pigra* infested area.

CONCLUSION

A vast area of Tasik Temengor Lake and the connecting rivers of the lake are badly infested with the weed. Care should be taken for its eradication. Integrated weed management approach including biological agents might be the best option to control the weed. In order to sustain the bio-diversity of Temengor rainforest, it is important to control the weed from the lake area. Some protective

measures in the openings of the rivers should also be taken so that introduction of *M. pigra* seeds can be controlled to great extent.

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Figure 1: Study Sites: Five Rivers (Sungai) and Temenggor Lake, Perak, Malaysia



Figure 2: Weed Seedlings in Riverside Area



Figure 3: Old *M. pigra* Plants Bearing Matured Pods



Figure 4: Thickly Grown old *M. pigra* Plants



Figure 5: Fast Growing Seedlings of the Weed

Table 1: Number of Sampling Spots and the Percentage of Spots Where Weeds Were Recorded

| Name of river/Lake | Total area surveyed | No. of sampling spots surveyed | No. of spots where weed found | Percentage of spots where weed found |
|--------------------|---------------------|--------------------------------|-------------------------------|--------------------------------------|
| Sungai Bandong | 06 km | 12 | 8 | 66.7 |
| Sungai Kedah | 05 km | 10 | 8 | 80.0 |
| Sungai Rokan | 03 km | 06 | 4 | 66.7 |
| Sungai Telang | 04 km | 08 | 4 | 50.0 |
| Sungai Enam | 05 km | 10 | 8 | 80.0 |
| Temengor lake | 10 km | 20 | 14 | 70.0 |
| Total | 33 km | 66 | 46 | 68.9* |

*Mean of Six Sampling Areas (5 Rivers and Lake Area)