THE DISTRIBUTION AND POTENTIAL PROBLEMS OF *MIMOSA PIGRA* L. IN PAPUA NEW GUINEA

L.S.KUNIATA, Ramu Sugar Ltd, P.O. Box 2183, Lae, Papua New Guinea.

ABSTRACT

Mimosa pigra, *a native of Tropical American has become a serious weed in a number of countries. In Papua New Guinea it has been recorded at Ambogo River near Popondetta. Potential areas of* M. pigra *infestation are discussed. Some problems in an eradication programme and other exotic weed species are highlighted.*

INTRODUCTION

Mimosa pigra L. is a prickly leguminous shrub (Fig 1), native to tropical America but now widespread throughout the tropics (Lonsdale 1989). In Papua New Guinea (PNG) it has been recorded from Ambogo River near Popondetta (Oro Province) (Verdcourt 1979). PNG shares very much similar climatic conditions to *M. pigra*'s native home. The larger part of the country experiences relatively high annual rainfall of 2500-3500 mm and daily mean maximum temperatures on the coast around 30-32°C, with minima around 23°C (Mc Alpine and Keig 1983). There are at least five major rivers, Sepik, Ramu, Fly, Markham and Purari each having extensive net work of tributaries. About 20-30% of the rural population depend on these for their daily livelihood, i.e. fishing, making sago (starch from palms of *Metroxylon sagu)*, transportation and some ceremonial activities.This paper examines the present distribution and potential infestation sites and problems of *M. pigra* in PNG.

DISTRIBUTION IN PNG

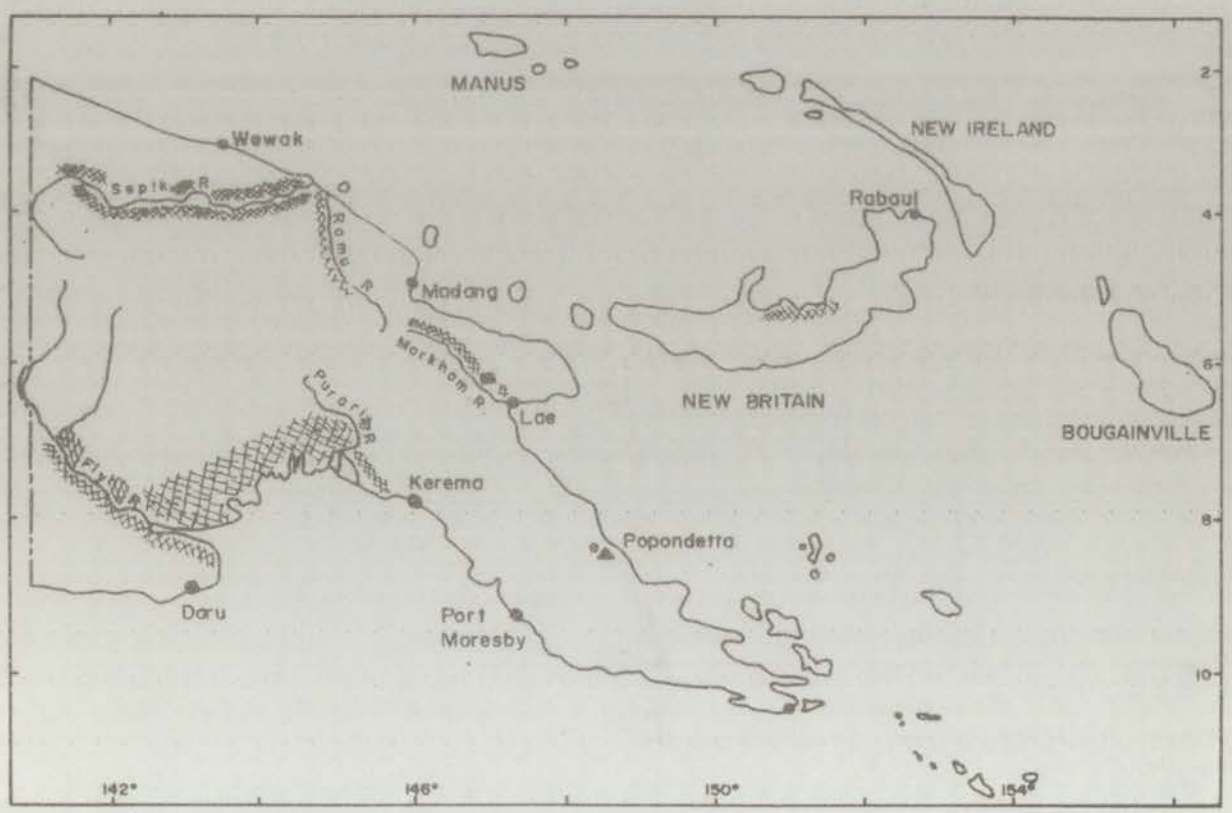
Successful control or eradication of exotic weeds relies on up-to-date information on their location and the area of infestation. Pitt and Miller (1988) discussed several survey techniques which could be used to assess the distribution and degree of infestation of *pigra*. Much of PNG is still inaccessible by road especially those with potential infestation. Figure 2 shows the present distribution and potential problem areas in PNG. Specimens collected from Ambogo River were probably reported for the first time. However, the weed may have been present in PNG much earlier than this record because Popondetta is not a major sea port. A further unconfirmed report was for sightings made by D.P.A. Sands (pers. comm.) (CSIRO, Brisbane) in Markham River in 1988 but this could not be confirmed. Lae is one of the major ports servicing the Highlands and Madang Provinces. And given its location it would be easy to distribute this weed in the provinces Lae is servicing.Regular barge trips are made up and down the Fly River to Ok Tedi Mine. Some of the barges may have been to Northern Territory (Australia) ports and chances of infesting this area are high. Similarly along the Sepik River where many tourists visit each year, its introduction is a possibility. At present very little is known about *M. pigra* in PNG and therefore distribution and infestation levels may have been under-estimated. The first main problem is the correct identity of the weed species. At Ambogo River where it was first collected by K.J. White and later by E. E. Henty (Verdcourt 1979), *M. pigra* was growing amongst *Mimosa invisa L., Saccharum spontaneum L.* and sedges. *M. invisa* and several *Mimosa* species are widespread in PNG and could easily be mistaken for *M. pigra* by untrained personnel. The high illiteracy rate among rural people makes it difficult to use cheaper means (e.g. through questionnaires) to identify problem areas. However, government officials particularly those working in rural areas could be trained in the identification of *M. pigra* and methods of assessing and reporting infestations.

OTHER EXOTIC WEEDS

Several exotic weed species are creating severe problems in range lands, plantations and waterways in PNG. Stands of *M. invisa* and *Rottboellia cochinchinensis* can be seen growing profusely along road side. *M. invisa* is becoming a major problem in range lands. *Imperata cylindrica* Cyr. which used to provide low grade pasture especially to small scale farmers is now disappearing fast under carpets of *M. invisa*. As result of high stocking rates *Sida* spp. are also becoming a major problem on cattle ranches. On ranches owned by Ramu Sugar Ltd (RSL) about K100 - 150,000 is spent on *M. invisa* control annually and this could be much higher for the whole country. RSL now has a biological control programme going on using an imported psyllid, *Hetropsylla spinulosa*,. especially for *M. invisa* control on its properties. It is also intended that should the project be successful then subsequent releases of this psyllid will be made to other problem areas in PNG. *Rottboellia cochinchinensis* also poses

Figure 1. **A branch of *Mimosa pigra* showing the thorny stems, leaves, flowers and seed pods.**

Figure 2. **Map showing the present distribution and potential problem areas in PNG.**



LEGEND

- ▲ REPORTED
- ■ UN-CONFIRMED REPORTS
- ▨ POTENTIAL SITES

severe problems on plantations and range lands and is spreading fast. It is very difficult to correctly say how much is spent annually in PNG, however RSL spends up to K900,000 annually for *R. cochinchinensis* control on its 8000 ha sugarcane plantation. Several aquatic weeds are also present. *Salvinia molesta* used to be a major problem along the Sepik River but has now been successfully controlled using a weevil *(Cyrtobagous salviniae)* (Room *et al.* 1981). The water hyacinth, *Eichornia crassipes* (Mart.) is now threatening many rivers and lakes. Despite a government ban it is being moved around the country because of its attractive flowers.

CONCLUSION

It has been over 13 years since *M. pigra* was first recorded at Ambogo River near Popondetta. No attempts have yet been made to determine its distribution and level of infestation and should it become established in PNG there is at the moment no management strategy available. Therefore the following actions are suggested for immediate action:

1) declare *M. pigra* as noxious weed in PNG.

2) train personnel in the identification and methods of assessing and reporting infestations.

3) determine its current distribution and infestation level;

4) and develop a management strategy.

ACKNOWLEDGEMENT

I wish to thank ACIAR who generously provided funds to attend the workshop organized by CSIRO Division of Entomology and Northern Territory Department of Primary Industry and Fisheries from May 10-15, 1992 at Darwin where this paper was presented.

REFERENCES

LONSDALE, W.M., MILLER, I.L. and FORNO, I.W. (1989). The Biology of Australia Weeds 20. *Mimosa pigra* L. *Plant Protection Quarterly* 4 (2): 119 - 131.

MC ALPINE, J.R. and KEIG, G. (1983). Climate of Papua New Guinea, ANU, Canberra.

PITT, J.L. and MILLER, I.L. (1988). A review of survey techniques for the detection of weeds with particular references to *Mimosa pigra* L. in Australia and Thailand. *Plant Protection Quarterly* 3 (4): 149-155.

ROOM, P.M., HARLEY, K.L.S., FORNO, I.W., and SANDS, D.P.A (1981). Successful biological control of the floating weed *Salvinia*. *Nature* 294: 78-90.

VERDCOURT, B. (1979). A manual of New Guinea Legume Botany Bulletin No. 11. Division of Botany, Lae, Papua New Guinea, pp. 151-153.