Mesquite

Karratha Weed Symposium and the Weed Society of Western Australia

12 August 2025

Annabelle Little

Who am I

- My roots are in Horticulture – nursery, design, production, construction, projects, maintenance and management.
- In March 2025, I took a side shift left from horticulture into declared weeds at PMMC

PMMC Who are we?

- Not for Profit Group, with a single employee – me, managed by a committee.
- How we started – Group started in 2001 in response to a need to provide support pastoralists to research and apply appropriate control methods for Mesquite in the Pilbara.
- Since then PMMC has evolved to undertake control work for all declared weeds across the Pilbara, supporting pastoralists, mining companies, traditional owner groups and government bodies.
- This has enabled us to collate data across the region to see the landscape scale impact of what we have been able to achieve.
- This year, my role has expanded into the Northern Hub node manager for the Pilbara. My role is to support pastoralists build drought resilience through opportunities and innovations. By combining my understanding of weed management and listening to pastoralists, the PMMC is leaning into drought resilience opportunities.
- A month in and my first site visit took me to Mardie Station and introduced me to Mesquite.

Mesquite Origins

- Where does it come from?
  - Americas
- Native area uses include
  - Fencing and Food
- How and when did it come here?
  - Arrived in the 1920 ‘s and1930’s
- Current Status?
  - Classified as a WONS with the target of Eradication

Identifying Mesquite

- Mesquite is a Legume in the Fabaceae family under the Genus Neltuma sp. (Syn Prosopis sp.).
- There are 3 main species in Western Australia which readily hybridise present in WA are P. glandulosa, P. glandulosa × velutina, and P. pallida.
- They are all classified as declared weeds so are commonly just referred to as Mesquite.
- Form – small shrub to large tree, often multistemmed.
- Leaves - light green and bipinnate, with 7-21 pairs of opposite leaflets.
- Branches - have a smooth zig zag appearance with spines in the leaf axils.
- Inflorescence – long spikes from 5-12cm long, small green, cream and yellow flowers.
- Seeds are 5-20cm long green ripening to dark purple and brown.

Issues
What’s the Problem?

- Mesquite is an aggressive invader of rangeland.
- Highly resilient including in saline soils, arid areas
- Germinates readily
- Multiple vectors transporting seeds
- Impacts the water table
- Economic modelling indicates that mesquite would cost Western Australia $12.0 million each year if it is not managed and $3.0 million if it is managed.

Pastoral Impact

- Reducing pastoral land productivity, accessibility and therefore value of the land
- Mustering
- The long sharp thorns cause injury to people, livestock and other animals, and puncture tires.
- The dense, thorned thickets block livestock from water points, enclose property tracks and reduce accessibility.

Why control

- Economics
    - The question is not ‘What is the cost?’
    - The question is ‘What is the cost if we don’t?’
- Asset Protection
- Biodiversity
- Environmental Stewardship
- Legislative Requirement

Framework for control

- Identify the need
  - Increased Education about impacts of not controlling
  - Economic Impacts
  - Biodiversity Impacts
  - Legislative requirement
- Coordinated management
  - Create a strategic plan across landscape not tenure
  - Maximising availability of resources
- Reduce the Impact
  - Define the target areas
  - Review and refine the plan
  - Containment
- Eradicate
  - Adopt Best Practice
  - https://library.dpird.wa.gov.au/factsheets
  - Utilise Integrated Weed Management
- Prevent Spread
  - Continued education
  - Restrict/ Control vector movement – vehicles, livestock, animals
  - Early detection and control
- Monitor and Evaluate
  - Continued education
  - Restrict/ Control vector movement – vehicles, livestock, animals
  - Early detection and control

Integrated Weed Management - Biologicals

- Evippe Leaf Tier Moth
- Sap-sucking psyllid - Prosopidosylla flava
- Seed-feeding beetle - Algarobius prosopis and A. Bottimeri

Integrated Management – Mechanical Fire

- Mechanical double chain
- Ensuring to remove the trunk 300mm below the surface to remove the bud zone.
- Following up monitoring
- Coppicing
- Fire to remove established trees and weed seed.

Integrated Weed Management

- Chemical application
    - Follow best practice
    - Rotate Chemical modes of action
    - Ensure contractors are licenced, experienced.
    - Basal bark treatment preferred method of chemical control
    - Remember the impacts of chemicals usage.





Innovations

- Timber
- Honey
- Smoking
- Legume – food source and nitrogen fixing
- Camels enzymes
- Biochar

Biochar

- Biomass Projects aim to convert the infestation of Mesquite on Mardie Station into Biochar and permanently sequester into the soil to generate CO2
- Biochar production involves heating organic plant matter (biomass) in the absence of oxygen through pyrolsis, which converts it into a stable form of carbon rick charcoal
- Through monitoring, and continuous control the intent is to eradicate the weed and rehabilitate the site to grasslands that pre-existed the infestation.

Mardie Station - Regional Overview

Beyond Compliance

- Big visions
- Pilbara regional data
- Improved Biodiversity across the region
- Early identification and control of potential weed threats.
- Combined industry and government support.
- Long term outcomes.
- Working with Saltbush geo to configure 25 years of data to show the patterns and changes across the Pilbara Landscape.
- Develop landscape scale projects across the pilbara, while remembering our roots to support the pastoralists in their requirements, wrap around services to improve biodiversity on their properties.