Unfortunate forestry introductions to Hawaiʻi

Valuable trees which have become ecological and economic pests

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Falcataaria moluccana, aka Paraserianthes falcataria,
Albizia falcataria

albizia
• Huge trees
• One of the fastest-growing the in the world
• Used for lumber, pulp, agroforestry
• Nitrogen-fixer (organic farmers, permaculturists)
But… also one of the worst pests currently invading and destroying wet native ‘ōhi‘a forest in Puna, O‘ahu, and Kaua‘i. Causing financial problems for Puna homeowners.
Grevillea robusta, silk oak, silver oak

- Prime timber
- Fast growing
- Drought tolerant
But… pest of rangelands and invader of endangered dryland forests
Casuarina equisetifolia, short leaf ironwood

- Windbreak
- Salt tolerant
- N-fixer
But... significant cost to rehabilitate lands dominated by Casuarina

- $365/acre cost of mechanical and chemical control
- Plantation establishment costs increased by 28%
- Loss of productive land in windrows
DEFINITIONS:

NATIVE / INDIGENOUS: Arrived by natural means (without assistance from man)

ENDEMIC: Found only in a certain location

WEEDY NATIVE SPECIES: If you say it’s a weed, it’s a weed to you.

NON-NATIVE / EXOTIC / ALIEN: Arrived as an intentional or unintentional introduction by man

POLYNESIAN INTRODUCTION: Introduced before European contact

INVASIVE: Causing harm to economy, environment, or human health
Why plant exotic species?

Native forest restoration
- naio
- kōlea
- ‘ōhi‘a
- ‘ōlapa
- alahe‘e

Timber trees
- teak
- toona
- kamani
- mahogany
- pheasantwood
- eucalyptus

KOA
- sandalwood
Actions to take... demonstrations

*Dalbergia sissoo* (Indian rosewood) scored high on invasiveness (WRA=16, High risk, HPWRA)

At the forestry demonstration plots, we cut it and replaced it with *Calophyllum inophyllum* (kamani)
Actions to take…
Recommend alternatives

*Acacia mangium*
- N-fixer
- Adaptable, fast growing
- Merchantable wood
- No HWRA rating but…

<table>
<thead>
<tr>
<th>Tree Name</th>
<th>Common Name</th>
<th>Rating</th>
<th>Zone</th>
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</thead>
<tbody>
<tr>
<td><em>Acacia auriculiformis</em></td>
<td>Darwin Black Wattle</td>
<td>13</td>
<td>H</td>
</tr>
<tr>
<td><em>Acacia confusa</em></td>
<td>Formosan koa</td>
<td>10</td>
<td>H(i)</td>
</tr>
<tr>
<td><em>Acacia crassicarpa</em></td>
<td>northern wattle</td>
<td>7</td>
<td>H</td>
</tr>
<tr>
<td><em>Acacia farnesiana</em></td>
<td>sweet acacia</td>
<td>14</td>
<td>H</td>
</tr>
<tr>
<td><em>Acacia longifolia</em></td>
<td>Sidney goldern wattle</td>
<td>10</td>
<td>H</td>
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<tr>
<td><em>Acacia mearnsii</em></td>
<td>Australian acacia</td>
<td>15</td>
<td>H(i)</td>
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<tr>
<td><em>Acacia melanoxylon</em></td>
<td>Australian blackwood</td>
<td>12</td>
<td>H</td>
</tr>
<tr>
<td><em>Acacia nilotica</em></td>
<td>gum arabic tree</td>
<td>14</td>
<td>H</td>
</tr>
<tr>
<td><em>Acacia parramattensis</em></td>
<td>Parrmatta green wattle</td>
<td>9</td>
<td>H</td>
</tr>
</tbody>
</table>
Functional alternatives

- N-fixing
- Fast-growing
- Agroforestry uses
- Valuable timber

*Samanea saman*, monkeypod
HWRA = 4, low

*Pterocarpus indicus*, narra
HWRA = 4, low
Actions to take... biocontrol

- *Psidium cattlianum*, strawberry guava
- Edible fruit, ornamental
- Still sold in garden shops
- Biocontrol: *Tectococcus* gall wasp
Proposed CTAHR guideline

Don’t plant an invasive species when another plant will do.