

## 10. FUTURE RESEARCH NEEDS

### CAMPHOR LAUREL SPECIES

1. Defining chemotypes and phenotypes present in Australia.
2. Determine camphor laurel taxa and define distinctive characteristics.
3. Determine the relative toxicity of camphor laurel to humans – eg safrole content?
4. Mapping of camphor laurel throughout the North Coast.
5. Mapping of the different camphor laurel chemotypes and phenotypes on the North Coast.
6. Chemical composition, variation in general appearance and hence resource potential of camphor laurel in different areas.
7. Other mapping projects could look at the spread of camphor laurel over the past, say 10 or 20 years.
8. Mapping of the potential maximum limit of distribution.
9. Altitudinal / latitudinal / climatic limit of camphor laurel seeding and any recent changes? (camphor laurel recently began setting seed near Dorrigo (alt approx 750m) but does not set seed in Melbourne).
10. Taxa adaptation to changes in soil and climatic conditions.
11. Why does camphor laurel appear to produce more viable seed when over 30 years old?

### CAMPHOR LAUREL CONTROL

12. More trials and specific documentation of non-chemical control techniques such as ringbarking with a hammer.
13. Work on improved and more cost-effective chemical control techniques.
14. Use of Amar or other hormone treatments to reduce or stop seeding of camphor laurels.
15. Comparative rates of control of camphor laurel in declared and non-declared areas.

### CAMPHOR LAUREL AFFECTS ON THE ENVIRONMENT

16. Effects of camphor laurel on soil microbiology.
17. Comparisons between the soil microbiology of camphor laurel-dominated forest, native vegetation and cleared paddocks.
18. Camphor laurel seed reduction through stress. Grafton City Council trim camphor laurel heavily to stop seeding for up to 2 years. Greater Taree City Council have used sub-lethal doses of Access<sup>®</sup> herbicide to also temporarily stop seeding.
19. Allelopathy of camphor laurel – allelopathy versus competition for light, moisture and nutrients.
20. Effects of camphor laurel on aquatic biota / frogs (Patrick Pahlow Masters thesis).
21. Effects of camphor laurel on other fauna (research to date has mostly focused on positive elements. Very hard to undertake comprehensive research due to need

for lengthy field observations and possible gut analysis?). i.e use / non-use by other species.

22. Measurements of soil loss due to sheet erosion, gully erosion, stream bed and stream bank degradation.
23. Deterrent effect of camphor laurel mulch on native and introduced wildlife – wallabies, bandicoots etc. and fruit fly (some people report that fruit trees are left alone when camphor mulch is used).
24. Possible release of toxins through the burning of camphor laurels.

### **CAMPHOR LAUREL AS A FOOD SOURCE**

25. Potential toxicity to flora and fauna.
26. Current and potential food supply status available to frugivores, other than camphor laurel.
27. Potential effects of the increasing camphor laurel fruit supply on bird migration and breeding cycles.
28. Potential impact on bird numbers with removal of camphor laurel (how many can be controlled without negative impact).

### **CAMPHOR LAUREL VALUE ADDING**

29. Potential of camphor laurel oil in a niche market.
30. Potential for use as ply wood.
31. Export markets for saw logs, slabs, etc.
32. Export potential for furniture and flat pack furniture.
33. Methods of timber treatment to protect timber – e.g Borax?
34. Various recommendations included in "From Pest to Profit".
35. Potential uses based on chemotypes and phenotypes.
36. Affects of mulch on establishing plant species.
37. Effect of herbicide (and different types) on woodworking qualities of the timber. Possible methods of identifying whether the timber is colourful or not before cutting.
38. Electricity co-generation.

### **REPLACEMENT**

39. Best method of establishment of replacement species in various environments (riparian done).
40. Best practice for establishment of replacement pioneer and secondary species (mostly done).
41. Best practice weed control during establishment of replacement species.
42. Clearly defining limits for maintaining genetic integrity (there has been much debate on how far away seed can be collected and still maintain genetic integrity).

### **FUNDING**

43. Potential funding sources for control, replacement etc.
44. Most economic methods of control in a range of situations / environments.