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## **NATIVE FOREST CHANGES AFFECTING APICULTURE AND CROP POLLINATION**

*Beehives on stands on the flood plains west of Goondiwindi, 1979*

**Keywords :** native forest, apiculture, crop pollination

### **Relevance**

Queensland Governments have cited an aim of doubling agricultural production. The most feasible route to achieving this outcome is by increasing production of high value horticultural crops, most of which depend on or benefit from insect pollination. Controlled pollination is dependent on the apiculture industry which in turn is dependent on native flora for its continuity and production of apiary products.

### **Analysis**

During my involvement with the apiary industry since 1950, and as a full time commercial migratory beekeeper from 1955 to 2008, changes in land use have caused a large change and some decline in the industry.

As well, the industry has been further challenged by the incursion of a major exotic pest – small hive beetle – in 2000, two major bee diseases since 1980, and the apparent effect of warming temperatures on vegetation. Both industry decline and pests and diseases reduce the availability of honey bees for crop pollination.

### **Accessing ever-decreasing resources**

Coastal tea-tree (*Melaleuca quinquinervia*) in wetlands were utilised by most commercial beekeepers in the 1950s and 1960s, including many from the Darling Downs. By 1970 exotic pine plantations had replaced much of this species. As well increasing urbanisation caused the loss of large areas of productive forest.

Because of the loss of forest resources we moved our beekeeping headquarters from south-west Brisbane to the southern Darling Downs in 1969. At that time the adjacent traprock and granite areas supported the most productive forests for the apiary industry. Yellow Box (*Eucalyptus melliodora*) which produced large crops of highest quality honey grew here as well as a number of other productive species.

Yellow Box had been given protection at a few trees per acre on Crown land in the 1950s. However from the 1960s most of the traprock lands were freeholded, transferring ownership of the trees to the landholder. Tordon, Velpar and large bulldozers became available in the 1970s and an estimated 90% of this resource was cleared during the years of the wool reserve price scheme. This caused an equivalent loss of apiarists and apiary production. We continued to produce by reducing stocking rates to utilise remaining trees, many of which were on stock routes and public reserves. However in 1988 we experienced the first failure to produce a crop from a reasonable flowering.

### **Apparent warming effect**

When we moved to the Inglewood district in 1969, long-time residents had expectations of the first frost about Anzac Day. We had occasions when all our water pipes were frozen. As time went by this occurred less and less often and never after 1990. First frosts came later and last frosts earlier.

Yellow Box used to finish flowering about 10<sup>th</sup> December and most production occurred from 1<sup>st</sup> November. The modest warming that was occurring caused the trees to commence flowering earlier, reducing honey production as much of the flowering occurred during the shorter cooler days of earlier months.

While the level of warming that occurred seemed small the Eucalyptus genus contains over 700 species, most of which have a limited geographic range in which they prosper. I suspect the modest change has had a major effect on species growing in specific locations.

It was instructive that on a trip in the traprock lands in early November 2016 the last few flowers were on the Yellow Box, a month earlier than in the 1970s. In my last 20 years of active beekeeping we produced just four Yellow Box crops in comparison to crops in two- or three-year intervals previously. In the traprock region many properties were sold and amalgamated in the downturn that followed the failure of the wool reserve price scheme. This region that had supported many apiarists had been cleared up hill and down dale destroying a valuable resource and reducing bio-diversity.

The woodlands of the Macintyre River flood plains west of Goondiwindi were a valued apicultural resource until cotton production commenced in the 1980s. While there were significant remaining native resources, cotton is highly attractive to bees and insecticide losses made these areas unviable. We migrated further west to the Narran River catchment until cotton again presented the same challenge.

From 1989 we had to travel much longer distances to access resources as modern commercial apiarists continue to do.


### **Crop pollination**

Controlled pollination is dependent on the apiculture industry which in turn is dependent on native flora for its continuity. “Where are the bees?” has been a common question. Pests and diseases and pesticides have devastated the feral (wild) honey bee population, previously helpful pollinators. Maintenance of a viable apiary industry is essential to ensure crop pollination for growth of the agricultural sector.

### **Conclusion**

Many parts of Queensland have been drought declared for much of the two decades of the 21<sup>st</sup> century. Biodiversity is in steep decline and species once common are threatened. Many rural producers are financially stressed and the Darling River catchment is struggling. Have we debilitated the land nurtured for 60,000 years by the first Australians by over-clearing and unrealistic water use expectations?

### **Status**

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