

Briefing Points – Senate Committee

Appearing:

- Fruit Growers Tasmania (industry body),
- University of Tasmania (Researchers),
- Mr Trevor Monson (pollination expert) and
- Costa Group.

In the audience is Mr Jonathan Eccles, Executive Officer of Raspberries and Blackberries Australia – a national industry body who have also undertaken research into the Tasmanian bumble bees. Researchers, Dr Steve Quarrell and Dr Geoff Allen will present later to the Committee.

History

- Tasmania has the potential for bumble bees to not only improve the productivity of Tasmanian horticulture, but also potentially trigger new and significant investment in the local horticultural sector.
- Bumble bees (*Bombus terrestris audax*) have existed in Tasmania for the better part of 25 years.
- Tasmania has solitary native bees as well as the managed and unmanaged European honey bee populations.
- There is no evidence as to how they became endemic. Discussions range from illegal entry through human intervention to transferring from ships and aircraft cargo bought into Tasmania direct over 1992 – 1994.

New Zealand Experience

- Bumble bees were introduced to New Zealand in 1885 and have coexisted with the likewise introduced European honey bee for more than 120 years.
- There is no evidence of the bumble bee having had a detrimental effect on the New Zealand environment or the European honeybee.
- For the short time the bumble bee has been known to exist in Tasmania, there is little evidence of them having had a negative impact either on the environment, native bee populations nor on the introduced European honey bee.
- The fact that local Tasmanian beekeepers are exporting their disease free European honey bee queens to the world is testament to this.
- In previously rejecting an application for the importation and use of bumble bees on the Australian mainland, the then Environment Minister in 2008 had no scientific proof that they caused environmental harm. The decision relied entirely on the precautionary principle in rejecting the application.
- Bumble bees are commercially produced and freighted to dozens of countries around the world, such as from Belgium to Korea or Portugal to the UK as examples.
- They are used in New Zealand to pollinate commercial horticultural crops and in particular glasshouse crops.

Pollination Effectiveness

- They are highly effective pollinators as their buzz or sonic pollination technique is ideal for pollinating crops such as tomatoes, strawberries, blackberries and capsicums.
- With new production technologies under European commercial bumble bee producers, they could be produced for availability in early apple and cherry pollination when endemic colonies are insufficient.
- Given the extent of the endemic populations, producers have estimated production gains of up to 40% when local populations are of sufficient size during flowering

Research Required

- Research is needed to investigate the genetic viability of the Tasmanian population to potentially support commercial production which is available through involvement of the University of Tasmania (Tasmanian Institute of Agriculture).
- Tasmanian bumble bee populations could also be an effective pollinator of spring flowering horticultural crops. However, the only way to test their efficacy is to artificially rear colonies to ensure their availability during flowering, which is currently illegal due to their invasive status
- An initial trial would aim to demonstrate that bumble bees can be contained in an enclosed area, ie. a glasshouse and that if escape did occur that no environmental harm would arise
- Concerns in other submissions about bumble bees being able to make it to the mainland if used for commercial purposes are baseless. Over the past 25 yrs there has been only one reported case of a single forager being found within a punnet of raspberries in Western Australia, which can't establish a new population due to it being infertile.
- It was predicted in 1997 by Roger Buttermore of the Tasmanian Museum and Art Gallery that local populations would spread to the mainland. This has not occurred despite all dire predictions and given the heat-waves experienced often on the mainland, it is unlikely to survive in many regions.
- Climatic modelling conducted in 2015 by European researchers has also confirmed that *Bombus terrestris audax* is unable to establish on the Australian mainland

Disease Threat

- Varroa remains the greatest threat to pollination within Australian horticulture and honey production. The mite is a well-adapted parasite of the Asian honey bee – both which are present in north Queensland.
- Today the mite *Varroa destructor* is responsible for the collapse and death of European honey bee colonies wherever it is present (if untreated) around the world.
- *Varroa jacobsoni* is currently being eradicated from Australia under an emergency response. However, the more destructive *Varroa destructor* is not yet present in Australia (one of the last countries free of this pest) but is in New Zealand where it devastated the honey bee sector and pollination services.
- Bumble bees are not hosts of Varroa and can provide Tasmania with an insurance in pollination for our crops once Varroa does arrive in Australia as Tasmania has no other commercially available pollinators.

- Unlike the Australian mainland, Tasmania has no other commercially available insect pollinators

Benefit to Tasmania

- Commercial production of bumble bees would use the endemic population as the nucleus if the genetics provided to be able support this project.
- There is overseas interest in becoming involved and investing in commercial production should the genetic base and the pollination trial be successful. This could become a new industry for Tasmania around research, production, pollination services.
- Tasmania would continue to have a competitive advantage over every other Australian state (as it does with the absence of Queensland Fruit Fly) and the potential economic benefits would be significant, especially in the increase in production.
- Commercially produced bees would operate out of the boxed hives which are freighted to the farms when the desired population size has been reached. After 8 – 10 weeks of pollination the colony dies or could be destroyed.
- There is European based technology which produces sterile workers – however this element should not be required in Tasmania due to the lack of environmental impact of *Bombus terrestris*. Should the EPBC Act be changed, there would be better considerations in the hive management protocols as below.
- Due to issues with inbreeding between *Bombus terrestris* sub-species, the United Kingdom has developed hive management protocols, which include mandatory hive destruction. Similar protocols could be used to limit population expansion if desired when utilising commercially available *Bombus terrestris* hives in Tasmania
- We believe that the Federal Environment Minister should amend the EPBC Act so the State Government could be permitted to conduct a trial and genetic research with Tasmanian bumble bees.
- Such an amendment was previously put before the parliament as part of an EPBC omnibus bill, however this bill lapsed with the proroguing of the 44th Commonwealth parliament.
- We recommend that short of any other legislative or non-legislative instrument, this amendment be introduced as standalone bill and the EPBC Act be amended accordingly.

ADDITIONAL INFORMATION:

<http://www.abc.net.au/news/2016-11-25/honeybee-industry-concerned-about-varroa-mite/8054336>

<http://www.stuff.co.nz/business/farming/discovery/70259582/all-eyes-on-bumblebees-as-bee-peril-deepens>