Chapter 1

Introduction

1.1 On 2 February 2016, the Senate referred the following matter to the Environment and Communications References Committee for inquiry and report by 22 June 2016:

> The risks and opportunities associated with the use of the bumblebee population in Tasmania for commercial pollination purposes, including:
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> (a) the existing distribution and population density of exotic bumblebees;
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> (b) productivity and economic benefits of the commercial use of bumblebees for agricultural producers;
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> (c) the potential environmental impacts associated with the commercial use of bumblebees, including whether their use is likely to:
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> i. impact the conservation status of a species or ecological community,
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> ii. impact biodiversity,
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> iii. cause unintended ecological impacts, and
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> iv. contribute to a wider distribution of bumblebees;
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> (d) the implications for Australia's biosecurity regime of any approval to use bumblebees in Tasmania for commercial purposes;
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> (e) the potential economic outcomes;
>
> (f) the effectiveness of alternative pollination options; and
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> (g) any other related matters.[1]

1.2 On 9 May 2016, the Senate and the House of Representatives were dissolved for a general election on 2 July 2016. As a result of the dissolution of the Senate for the election, the committee ceased to exist and the inquiry lapsed.

1.3 The 45th Parliament commenced on 30 August 2016 and members of this committee were appointed on 1 September 2016. On 13 September 2016, the Senate agreed to the committee's recommendation that this inquiry be re-adopted with a reporting date of the second last sitting day in February 2017.[2] The Senate also agreed to the recommendation that the committee have the power to consider and use the records of the Environment and Communications References Committee appointed in the previous parliament that related to this inquiry. The reporting date for the inquiry was subsequently extended to 13 June 2017.[3]

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1 *Journals of the Senate*, No. 135, 2 February 2016, p. 3663.

2 *Journals of the Senate*, No. 5, 13 September 2016, p. 177.

3 *Journals of the Senate*, No. 28, 14 February 2017, p. 945.

Conduct of the inquiry

1.4 As noted above, the inquiry spans two parliaments—the 44th and 45th—with the conduct of the inquiry interrupted by the dissolution of the Senate prior to the 2016 general election.

Progress during the 44th Parliament

1.5 In accordance with its usual practice, the committee appointed in the previous parliament advertised the inquiry on its website. The committee also wrote to relevant organisations and individuals inviting submissions. The committee received 22 submissions which are listed at Appendix 1. The committee also received nine form letters.

Progress during the 45th Parliament

1.6 Following the re-adoption of the inquiry on 13 September 2016, the committee resolved not to call for new submissions but to refer to the evidence received during the 44th Parliament.

1.7 The committee held public hearings in Hobart on 21 February 2017 and in Canberra on 29 March 2017. The witnesses who appeared at the hearings are available in Appendix 2.

Acknowledgement

1.8 The committee thanks all of the individuals, organisations and government departments which made submissions to the inquiry and gave evidence at the public hearings.

References

1.9 In this report, the name 'bumblebee' refers to *Bombus terrestris* which is commonly known as the Large Earth Bumblebee or Buff-Tailed Bumblebee. In addition, in July 2016, the Department of the Environment became the Department of the Environment and Energy. References in this report may be made to the department's former name.

Background

1.10 The following discussion provides an overview of the bumblebee population in Tasmania and the relevant provisions of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Bumblebee population in Tasmania

1.11 There are no native species of bumblebees in Australia.[4] *Bombus terrestris* is native to Europe and was accidentally or illegally introduced in Hobart in the early 1990s. The Department of the Environment and Energy referred to studies which show the Tasmanian population originated from the South Island of New Zealand and appears to have been established from as few as two queens.[5]

1.12 Bumblebees were first observed in Hobart in 1992 and by 1993 it was accepted that bumblebees had become established in Tasmania.[6] There were no attempts to eradicate the population. Associate Professor Geoff Allen, University of Tasmania, commented that by the time the population was identified, bumblebees had been in Hobart for some time and had gone through 'at least a couple of generations, so the opportunity was lost to eradicate it'. Professor Allen also noted that social insects are very hard to eradicate as access to queens is necessary.[7]

1.13 The University of Tasmania and Tasmanian Institute of Agriculture commented that it is estimated that bumblebees spread at least 20 kms per year in the dispersive phase and had spread throughout Tasmania within at most 14 years.[8] Populations are now found in all major vegetation habitats, including urban and agricultural areas, from sea level to altitudes of approximately 1 180 metres above sea level.[9] Bumblebees have been observed in at least ten Tasmanian national parks, the Tasmanian Wilderness World Heritage Area and on offshore islands including Cape Barren and Maatsuyker Island.[10]

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4 Department of the Environment, *Submission 22*, p. 2.

5 Department of the Environment, *Submission 22*, p. 2. See also University of Tasmania and Tasmanian Institute of Agriculture, *Submission 6*, p. 2.

6 Department of the Environment and Energy, *Submission 22*, p. 2.

7 Associate Professor Geoff Allen, University of Tasmania, *Committee Hansard*, 21 February 2017, p. 27.

8 University of Tasmania and Tasmanian Institute of Agriculture, *Submission* 6, p. 2.

9 Department of the Environment, *Submission 22*, p. 4. See also Dr Anne Dollin, *Submission 15*, p. 1; Geelong Beekeepers Club, *Submission 18*, p. 1.

10 Dr Andrew Hingston, *Submission 11*, p. 2.

1.14 Dr Andrew Hingston noted that the population density varies throughout the year but during spring and summer the population can reach high densities.[11] In their native environments bumblebees die off in winter and re-establish colonies in spring from a single queen. However, research suggests that in Tasmania winter die off may not be significant and bumblebees may produce two colonies per year rather than the normal one colony seen in the northern hemisphere.[12]

1.15 Dr Peter McQuillan, University of Tasmania, added that the spread of bumblebees appear to have plateaued from the end of the 1990s after having increased and spread rapidly. Dr McQuillan stated that over the last 15 years the populations have not risen very much which may be due to inbreeding.[13]

1.16 Bumblebees forage on a wide variety of plants. The University of Tasmania and Tasmanian Institute of Agriculture commenting that:

> Bumblebees have been observed foraging in Tasmania at native flowers in natural habitats as diverse as saltmarshes and alpine heathlands. Similarly, garden flowers of temperate European origin are very common in domestic gardens and are well visited by bumblebees (e.g. lavender).[14]

1.17 Submitters noted that as the population of bumblebees in Tasmania originated from one or two queens, it is genetically poor.[15] The University of Tasmania and Tasmanian Institute of Agriculture commented that the 'Tasmanian population's gene pool is less than half of the allelic richness and levels of heterozygosity that endemic populations of *Bombus terrestris audax* (the subspecies it came from via New Zealand) have in the United Kingdom'.[16]

1.18 The Tasmanian Government also commented on the lack of genetic diversity and stated that:

> Tasmania's population of bumblebees is also known to be highly inbred. It is understood that the limited gene pool may be acting as a biological constraint on the species, through reduced worker bee numbers and increased sterility amongst the drones.[17]

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11 Dr Andrew Hingston, *Submission 11*, p. 2.

12 Department of the Environment, *Submission 22,* p. 4.

13 Dr Peter McQuillan, University of Tasmania, *Committee Hansard*, 21 February 2017, p. 24.

14 University of Tasmania and Tasmanian Institute of Agriculture, *Submission 6,* p. 2

15 Dr Katja Hogendoorn and et al, *Submission 16*, p. 1.

16 University of Tasmania and Tasmanian Institute of Agriculture, *Submission* 6, p. 2.

17 Tasmanian Government, *Submission 20*, p. 2. See also Department of the Environment, *Submission 22*, p. 4.

Environment Protection and Biodiversity Conservation Act 1999

1.19 The EPBC Act establishes a List of Specimens Taken to be Suitable for Live Import (the live import list). If a specimen is included on the live import list it can be imported as either a whole organism or as reproductive material. It is an offence to import an unlisted specimen or to possess an unlisted specimen that was unlawfully imported or its progeny.[18]

1.20 As bumblebees are not included on the live import list, any person wishing to import bumblebees would be required to make an application under the EPBC Act. The application would be subject to the risk assessment process for amending the live import list.[19] In addition, any person wishing to undertake a trial for the commercial use of an unlisted specimen that has established a feral population would be unable to do so without amendment of the live import list.

1.21 Mr Stephen Oxley, Department of the Environment and Energy, explained further:

> The live import list is what we call a white list. That is, it is a list of exotic species that are allowed into Australia. If the species is not on the list, it is illegal to import it and possess it…the notion of importation seems is little bit weird in this context, because we are dealing with a feral species that is established in Tasmania and we can only speculate, in the end, about how it got here. But as the first bumblebees were not lawfully imported, they and their progeny cannot be possessed lawfully and that is the legislative barrier to a trial being conducted now.[20]

Previous applications to include bumblebees on the live import list

1.22 As noted above, a species not included on the live import list cannot be used or trialled for a commercial purpose. However, there has been ongoing interest from some sectors of the horticulture industry in Tasmania to use bumblebees for commercial pollination purposes.[21]

1.23 The Department of the Environment and Energy indicated that it has previously received applications to allow the importation and use of bumblebees in the horticulture industry. An application by the Australian Hydroponic and Greenhouse Association in 2005 to include the bumblebee on the live import list was rejected in

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18 Department of the Environment, *Submission 22*, p. 3.

19 The process for amending the list is outlined at: http://www.environment.gov.au/biodiversity/wildlife-trade/live/import-list/how-to-amend

20 Mr Stephen Oxley, Department of the Environment and Energy, *Committee Hansard*, 29 March 2017, pp. 1–2.

21 Costa Group, *Submission 12*.

2008 'after a thorough environmental assessment'.[22] The grounds for the rejection of the application were that the bumblebee posed an unacceptable risk to the Australian environment. In rejecting the application, the then minister cited the escape of bumblebees from greenhouses overseas, the potential contribution to the spread of weeds and competition with native species for food.[23] The Department of the Environment and Energy also noted that, at that time, no state or territory supported the proposed inclusion of the bumblebee on the live import list.[24]

1.24 A further application was made in August 2013 by the Costa Group to amend the live import list and for a testing permit to trial the use of bumblebees in greenhouses. The application was rejected by the Department of the Environment and Energy 'as not fitting the requirements of the legislation'.[25] Mr Paul Murphy, Department of the Environment and Energy, commented on the scope of testing permits and stated:

> The testing permit that is under the EPBC Act is designed to allow the environmental impacts to be tested in the process of considering whether or not to put the species on the live import list, but the testing proposed in that application more went to commercial viability than assessing environmental impacts. It also was not going to be conducted in a quarantine facility, which would have made it very high risk to the Australian mainland where it was proposed to be conducted.[26]

1.25 Mr Oxley went on to comment that testing permits are more commonly used in relation to testing of biological control agents being brought into Australia to deal with a particular pest species or weed. The testing considers efficacy in the context of the Australian environment and the impact on other species 'to prove that the biological control agent is specific to the species' in Australia that is to be controlled.[27]

1.26 In early 2015, the Tasmanian Government proposed commercial scale trials. While not condoning the breach of biosecurity law associated with the introduction of bumblebees in Tasmania, the Tasmanian Government stated that is was seeking to:

> …carefully and cautiously explore whether the existing feral population of bumblebees could be put to a beneficial purpose, without posing any further threat to the environment or any other existing industry.[28]

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22 Mr Stephen Oxley, Department of the Environment and Energy, *Committee Hansard*, 29 March 2017, p. 2.

23 Geelong Beekeepers Club, *Submission 18*, p. 1.

24 Department of the Environment, *Submission 22*, p. 3.

25 Department of the Environment, *Submission 22*, p. 3.

26 Mr Paul Murphy, Department of the Environment and Energy, *Committee Hansard*, 29 March 2017, p. 3.

27 Mr Stephen Oxley, Department of the Environment and Energy, *Committee Hansard*, 29 March 2017, p. 2.

28 Tasmanian Government, *Submission 20*, p. 2.

1.27 The proposed trial would enable the costs and benefits of using the existing Tasmanian bumblebee population for pollination to be fully understood and quantified.[29] The proposed trial would comprise two parts: first to determine whether a population of wild caught bumblebees can pollinate glasshouse tomatoes effectively and efficiently and to test associated containment procedures; and secondly, to focus on breeding. The second part would proceed only if the first stage were successful.[30]

1.28 Should the trials prove successful, the Tasmanian Government outlined the basis of its support for the commercial use of bumblebees as follows:

> To ensure that Australia can continue to operate a robust and credible biosecurity regime, it is the position of the Tasmanian Government that the only permissible use of bumblebees in Australia should be of the existing Tasmanian feral population in fully enclosed facilities in Tasmania.[31]

1.29 The Tasmanian Government was clear that it would not support the introduction of new genetic material as this was seen as a threatening risk.[32]

1.30 Ms Carole Rodger, Tasmanian Department of Primary Industries, Parks, Water and Environment, stated that the approach supported by the Tasmanian Government was the 'sensible centre on this matter'. Ms Rodger added that the existing feral bumblebee population cannot be eradicated and, as such, its impacts are already being experienced and the Government's view was that 'if Tasmanian horticultural producers can benefit from the limited and controlled use of this existing population, then this possibility should be explored'.[33]

1.31 The Department of the Environment and Energy indicated that it has been working with the Tasmanian Government to finalise terms of reference for a proposed trial into the use of bumblebees for crop pollination. A draft proposal had been provided with the Department of the Environment and Energy commenting on assessment and the environmental factors and risks that it would like to see addressed in the scope of the trial.[34]

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29 Tasmanian Government, *Submission 20*, p. 2. See also Ms Carole Rodger, Tasmanian Department of Primary Industries, Parks, Water and Environment, *Committee Hansard*, 21 February 2017, p. 28.

30 Ms Carole Rodger, Tasmanian Department of Primary Industries, Parks, Water and Environment, *Committee Hansard*, 21 February 2017, p. 28.

31 Tasmanian Government, *Submission 20*, p. 9.

32 Dr Lloyd Klumpp, Tasmanian Department of Primary Industries, Parks, Water and Environment, *Committee Hansard*, 21 February 2017, p. 29.

33 Ms Carole Rodger, Tasmanian Department of Primary Industries, Parks, Water and Environment, *Committee Hansard*, 21 February 2017, p. 28.

34 Mr Paul Murphy, Department of the Environment and Energy, *Committee Hansard*, 29 March 2017, p. 2.

1.32 However, the Department of the Environment and Energy emphasised that before the trial could commence, amendments to the EPBC Act would need to be passed.[35] Mr Oxley added:

> …trial of the terms proposed—that is, using the existing feral bumblebee population in Tasmania—cannot be done under the EPBC Act as it stands today. That is why there was a proposal before the parliament to amend the act.[36]

Proposed amendment of the EPBC Act

1.33 During the 44th Parliament, the Government introduced the Environment Protection and Biodiversity Conservation Amendment (Bilateral Agreement Implementation) Bill 2014 (the bill). The Senate, on the recommendation of the Selection of Bills Committee, referred the provisions of the bill to the Senate Environment and Communications Legislation Committee for inquiry and report by 23 June 2014.[37]

1.34 After the Legislation Committee's report was tabled, proposed amendments to the bill were introduced in the Senate to insert provisions to amend the live import list. The live import list currently consists of two parts: Part 1 contains specimens that can be brought into Australian without a permit; and Part 2 contains specimens that require a permit to be imported. The proposed amendments sought to establish a new Part 3 to the live import list. The amendments would create an exemption to the offence provision so as to allow companies or individuals to possess live specimens that are part of an existing feral population in a state or territory and that are listed under the new Part 3. Specimens would be listed for specific states, and could be listed with or without conditions for use.

1.35 The criteria for adding a specimen to Part 3 of the list for a state or territory would include:

- the specimen is part of a feral population in that state or territory; and
- possession of the specimen in the state or territory would not be:
    - likely to threaten the conservation status of a species or ecological community in Australia; or
    - likely to threaten biodiversity; or
    - likely to contribute to a wider distribution of the species.[38]

35 Department of the Environment, *Submission 22*, p. 4.

36 Mr Stephen Oxley, Department of the Environment and Energy, *Committee Hansard*, 29 March 2017, p. 1.

37 *Journals of the Senate*, No. 29, 15 May 2014, p. 818.

38 Department of the Environment, *Submission 22*, p. 3.

1.36 The amendments also proposed to create a mechanism for the Minister for the Environment and Energy to issue a permit to trial the use of bumblebees for up to two years.[39]

1.37 It was proposed that any amendments to the proposed Part 3 of the live import list would use the existing process in the EPBC Act for amending the live import list. That is, amendments to the list could be initiated by the Minister or by application from the public. Before amending the list, environmental impact assessment including consultation with the public and state Ministers, would be undertaken. The decision to add a species to the live import list would only be able to be made by the Minister for the Environment and Energy.[40] Amendments would be made by disallowable instrument. Mr Paul Murphy commented further:

> If the act were amended as proposed then the department would look at running a very similar process to what we use now to amend the live import list. That involves public consultation, including with the states based on the application and the risk assessment supplied with the application. We give the comments back to the applicant so that they can finalise their proposal and their risk assessment, and then we draft a decision and go back to each state and territory with the proposal and get any final comments from them before providing advice to the minister for a decision.[41]

1.38 The Department of the Environment and Energy went on to note that the states and territories would be provided with an 'opt in' mechanism. It is proposed that after a specimen is listed on Part 3, each listed state would advise the Minister in writing whether it wanted to 'opt in' to the exemption. The offence of possessing specimens would continue to apply until the state 'opts in'.[42]

1.39 In closing the second reading debate on the bill, Senator the Hon Simon Birmingham, then Assistant Minister for Education and Training, commented that the amendments proposed a:

> …practical, common-sense approach whereby we seek to facilitate potential for economic development and the potential to create more jobs, to grow more opportunities in Australia and, in doing so, to maintain strong

39 Senator the Hon Simon Birmingham, Assistant Minister for Education and Training, *Senate Hansard*, 14 September 2015, p. 6731.

40 Department of the Environment, *Submission 22*, p. 3.

41 Mr Paul Murphy, Department of the Environment, *Environment and Communications Legislation Committee, Supplementary Budget Estimates Hansard*, 13 November 2015, p. 3.

42 Department of the Environment, *Submission 22*, p. 3. See also Mr Paul Murphy, Department of the Environment, *Environment and Communications Legislation Committee, Supplementary Budget Estimates Hansard*, 13 November 2015, p. 4.

> protections for the environment and strong protections for our threatened species and biosecurity.[43]

1.40 The department has also noted that the proposed amendments were not aimed at the importation of species into Australia. Rather, they were about the utilisation of existing populations of feral species.[44]

1.41 The bill did not proceed beyond the second reading debate in the Senate and lapsed on 17 April 2016 when the Parliament was prorogued. The bill was not restored to the Senate notice paper before the Senate and House of Representatives were dissolved for the July 2016 federal election. To date, the amendments have not been re-introduced in the 45th Parliament.

43 Senator the Hon Simon Birmingham, Assistant Minister for Education and Training, *Senate Hansard*, 14 September 2015, p. 6732. See also Mr Malcolm Thompson, Deputy Secretary, Department of the Environment, *Estimates Hansard*, 13 November 2015, p. 6.

44 Mr Stephen Oxley, Department of the Environment, *Environment and Communications Legislation Committee, Supplementary Budget Estimates Hansard*, 13 November 2015, p. 6.