Victorian Apiarists' Association Inc.

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Victoria's Peak Beekeeping Body – "For the Advancement of Apiculture"
Publishers of *THE AUSTRALIAN BEE JOURNAL* (Monthly) since 1918

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4th March, 2011

The Hon. Peter Walsh, M.P.,
Minister for Agriculture,
Parliament House,
Spring Street,
Melbourne, Vic 3002

My dear Minister,

Re: The Commonwealth Government decision not to continue with the Asian bee *(Apis cerana)* incursion eradication program, declaring the bee endemic to Australia, taking effect 31 March 2011.

The V.A.A. Inc. writes to ask you to raise the above matter at the forthcoming State Primary Industry Ministerial Council meeting, with the objective of obtaining support from the Council for a reversal of the decision.

The Asian Bee National Management Group (A.B.N.M.G.) met on 31 January 2011, to consider advice provided by the Consultative Committee on Emergency Plant Pests on the Asian bee incursion in North Queensland including whether it continued to be technically feasible or not to eradicate the bee.

The A.B.N.M.G. concluded that it is no longer technically feasible to achieve eradication, given the funding constraints of the current program. Consensus within the Group was not achieved. Apiculture Industry representation did not support this conclusion.

On 2nd February 2011, the Commonwealth Government decided to discontinue the eradication program, effective 31 March 2011, and declare the Asian bee endemic to Australia.

The following documentation

- Asian bee *(Apis cerana)* fact sheet, and
- The Asian bee invasion: why we should be worried,

is attached to brief you about the Asian bee, and if it becomes endemic, its likely impacts on the Australian apiculture (beekeeping) industry, the Australian environment, and the national public benefit vested in the nation's human and animal food production sectors.

The above papers were recently authored as part of a national campaign to help inform the Commonwealth and State Governments, and the Australian public, that while an endemic Asian bee population would eventually prove disastrous for future Australian apiculture industry prospects, its impact on the nation's public benefit that is vested in its human and animal food production and supply would be infinitely greater. The loss of viability for Australian beekeeping industry participants, having to cope with the impacts of an endemic Asian bee population, would inevitably lead to the significant loss of ability to deliver managed and incidental honey bee crop pollination (fertilization effecting) services to the farmers of the nation who engage in the growing of food crops and pastures which depend in full or in part on insect pollination to maximize crop yield.

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In these circumstances, the nation would have no alternative but to depend on the unknown, incidental (unmanaged) crop pollination capacity of the Asian bee, problematic as it does not adapt well to commercial husbandry.

On March 2nd and 3rd 2011, more than 200 beekeepers and their leadership from all states, accompanied by representatives of Australian food manufacturers and retailers, horticulture industries, honey packers, research personnel, and farm organizations N.F.F., V.F.F., and N.S.W. Farmers, at short notice traveled to Canberra to inform and demonstrate to all sitting members of the Australian Parliament that the decision not to continue with the attempt to eradicate the Asian bee incursion was premature, and the decision should be reversed on the basis that:

- While the future prosperity of the Australian beekeeping industry would inevitably be negatively impacted by the decision, the far greater public benefit issue needed to have been factored into consideration. It was not.
- The financial limitations of the small beekeeping industry being able to continue to contribute to the costs of the eradication program should not have been the turning point on which the decision was made.
- C.S.I.R.O., Australia's premiere research organization, is a world leader in the study of Asian bee biology, their capacity for migration, and their capacity in Australia to become the vector for debilitating parasitic mites endemic to Asian bees and territories, the negative effects of which have been so profound and continuing throughout the rest of the world wherever European honeybees are managed for apiary products and structured food crops pollination services. C.S.I.R.O. also expect that endemic Asian bees will pose a major threat to Australia's native flora and fauna biodiversity, and also pose a significant problem for public health and amenity.

  The V.A.A. Inc. is advised the decision by the Commonwealth to terminate the Asian bee incursion eradication program did not include consultation with C.S.I.R.O., an oversight which the V.A.A. Inc. submits needs to be urgently addressed in a review of the decision.
- The public and national benefit would be the most important beneficiaries of a successful Asian bee incursion eradication program. There is no cast iron certainty that a determined, well planned and well resourced effort would be successful. The V.A.A. Inc. submits, however, use of the public purse to the extent of an estimated $10 million over two years would be justified by incalculable orders of magnitude should eradication be achieved. Reversal of the Commonwealth decision is one which would be applauded by an informed and appreciative public.

Yours faithfully,

K. Williams, secretary

c.c. Victorian Farmers' Federation

FOOD SECURITY NEEDS
BEE SECURITY

The Asian Bee Invasion: why we should be worried

By Dr Max Whitten

The European honeybee, *Apis mellifera*, was undoubtedly the most valuable insect ever introduced to Australia by humans. The European honeybee provides Australia's honey worth around $80m pa. But this premier pollinator services crops with a combined value of over $4b pa. The nation's food security owes much to this one insect.

The Asian bee, *Apis cerana*, although related to A mellifera, would rank as the most unwanted insect ever to reach our shores, arriving uninvited near Cairns in 2007. We must ensure that it is eradicated.

The Asian bee was found in a mast on a boat in dry dock at the port of Cairns in May 2007. It's not the first time this pest species came ashore. A previous incursion near Darwin was successfully eliminated.

The Cairns incident is different. The dry dock nest was not the primary invader. It was an off-shoot of a nest on shore. An undetected beachhead had already been established by the Asian Bee.

After some initial and unedifying chaos amongst State and Federal biosecurity agencies, a further 8 nests were found and destroyed in the following 12 months. Thereafter, a more serious effort was mounted, eventually leading to a task force of around 40 field workers in May 2010, designed to find and eliminate all nests of the Asian bee in a 50km zone around Cairns. By 18 February this year 352 nests of Asian bee have been found and destroyed.

In November 2010, financial restrictions caused a premature reduction of the field team back to six; and on 31 January 2011, the Commonwealth Government decided to abandon further attempts to eradicate the Asian bee and declare it endemic. Why should we worry?

Previous honeybee-related breaches of quarantine allowed chalkbrood disease to enter the country (1990); and in 2000 the Small Hive Beetle (SHB) came ashore, probably through Richmond Air Force Base. Beekeepers can cope with chalkbrood, but they are only beginning to appreciate SHB's devastating impact on both managed hives and feral colonies of the European honeybee, with enormous flow-on harm to paid and incidental pollination.

Unlike chalkbrood and SHB, the spread of Asian bee IS different. It is possible that AB will eventually lead to the elimination of all feral colonies of the European honeybee in Australia; and damage both commercial and amateur beekeeping. But there's worse.

The Asian bee is a species complex native to South and Southeast Asia. The ecological habitats it occupies are broader than European honeybee. It can survive dryer and colder climates than its European counterpart. The particular biotype of Asian bee surviving around Cairns comes from

Java. While it clearly thrives under tropical conditions, it would be a serious mistake to presume that this Javanese strain is only capable of surviving under tropical conditions.

The spread of Asian bee beyond Java and neighbouring islands further east into Papua (the western portion of New Guinea, previously called Irian Jaya) took place during the 1970s with the huge Indonesian transmigration program. The Asian bee entered PNG through the coastal town of Vanimo around 1987. By 1996, it had reached the eastern port of Milne Bay and populated much of the intervening parts of PNG. Its ability to colonise the colder higher altitudes of Papua and PNG demonstrates that the Asian bee was not restricted to Java by its own physiological limitations. More likely, physical barriers, such as stretches of water, had prevented its spread eastwards.

Around 2000, the Asian bee jumped from PNG to the far eastern regions of the Solomon Island, probably on a shipping vessel, and became well established there by 2003. Within five years, it had destroyed the fledgling European industry funded by Australian and New Zealand aid agencies.

The ability of Asian bee to quickly colonise new habitats was amply demonstrated by the PNG invasion. There is little doubt, as predicted by Asian bee expert, Dr Denis Anderson of CSIRO Entomology, it will quickly spread over much of Australia if left to its own devices. It will likely displace feral colonies of European honeybee. Unassisted it can travel over 100km per year. With assisted passage, its spread would be more rapid.

The Asian bee will pose a major threat to biodiversity through negative impacts on native flora and fauna. For environmentalists, this is the primary threat. It will also pose a significant problem for human health and public amenity. The jury is out in terms of the role Asian bee will have on incidental crop pollination. Indeed, in the short term, it may do as well, or even better, than European honeybees in crop and pasture pollination.

However, the insidious threat of Asian bee comes from another source. Its presence can act as a conduit for the introduction and spread of parasitic mites. The Asian bee has evolved with Varroa spp. Asian bees and the mites have learned to co-exist. But not so with the European honeybee; without intervention the mite will destroy a hive.

Host-switches of Varroa mites between the two species are not common. Throughout thousands of years of co-evolution the Asian bee has tweaked its own internal chemistry to cope with mites. However, when the majority of Varroa mites jump onto European honeybees that have been artificially introduced to Asia in recent human history, they fail to recognise chemistry cues essential for reproduction and survival. Consequently, these infestations are relatively harmless. However, a very few individual mites have overcome this barrier with devastating effect.

What is thought to be single female mite from a Korean population of *Varroa destructor* conquered this barrier. Its offspring soon multiplied on European honeybees in the Korean Peninsula and then, with human intervention, they showed up in Europe and, a little later, in the USA. Today they are the scourge of European honeybees in all countries, except Australia. Another female mite in Japan made the same jump but its progeny are less harmful on European bees.

In 2008, another mite species, *Varroa jacobsoni*, switched host from the Asian Bee to European honeybees. The switch occurred in PNG when previously harmless mites suddenly overcame the host barriers and began killing local European honeybees. This switch is very relevant to the Cairns incursion of Asian bee. The Cairns population is a descendent of the Asian bee in PNG.

As fate would have it, the original parent swarm of Asian bee that arrived at Cairns was free of varroa mites. However, if this incursion is allowed to spread, it would provide a population suitable for *V jacobsoni* to exploit should another swarm arrive in Australia carrying this mite. Initially, if the Asian bee is already established here, it would be almost impossible to recognise new incursions of the mite. The only way these could be detected is when mites showed up in Asian bee populations already established here. But by then, it would be too late to attempt to eradicate the mite.

Ironically, it is probable that the Varroa would not initially be able to reproduce on the European honeybee at the time of introduction; but it would quickly evolve this capacity just as it did in Korea, Japan and PNG. The combined effect of Asian bee AND a new virulent *V jacobsoni* (or possibly *Varroa destructor*, who's arrival here is considered inevitable), could spell the end of the European honeybee which has served this country so well since 1820.

We would lose the capacity to produce honey; we would lose the ability to provide paid pollination services to crops like almonds, apples, pears, canola etc. We would have to rely on the unknown incidental pollination capacity of the Asian bee to protect domestic food supply through incidental pollination services.

With Australia the only non-Asian country harbouring the Java strain of Asian bee, importing countries, like the USA and NZ, would need watertight guarantees that all sorts of exports, like cars and machinery, not remotely related to agricultural exports, are free of Asian bee. The USA has already slapped a ban on package bees and queens from southern Australia because of the localised outbreak of Asian bee in northern Queensland. Not only will this ban be maintained if Asian bee becomes endemic, similar bans could be expected on a wide range of export commodities.

In summary, if Australia allows the Asian bee to become endemic, our agriculture faces a double whammy. The Java strain of the Asian bee, incapable of domestication, and ineffectual as a honey producer but a determined robber, will have eliminated feral populations of European honeybee. Meanwhile, it will have posed a serious nuisance to managed hives of European honeybee. More importantly, the Asian bee will be acting as an incubator for virulent strains of Varroa. The European honeybee is unlikely to survive in the longer term this dual onslaught, either in managed hives or as feral colonies.

In that scenario, Australian agriculture faces a future without the European honeybee. Our food future will largely depend on the Asian bee, through incidental pollination. That's a risk we should avoid at all costs.

We really need to give our best endeavours to keeping the Asian bee out of Australia. The decision to abandon efforts to eradicate this pest from around Cairns was premature and not well informed. It should be reversed.

FOOD SECURITY NEEDS
BEE SECURITY

Fact Sheet – Asian Bee (*Apis cerana*) Java Strain

(17/2/2011)

1. **Detection and Eradication Campaign**

- Asian Honeybee, better described as Asian Bee since it is not an effective honey producer, was first detected by beekeeper in ship mast in Cairns dry dock, May 2007.
- Sixteen more nests and two swarms were found and destroyed in the Cairns area over the next 18 months
- AB incursion represents a breach of Australia's border security and a failure on the part of the quarantine inspection service.
- Biosecurity Queensland teams comprising 6 volunteer beekeepers commenced in August 2008 to look for nests and to set up sugar stations to trap bees.
- Nests have been found in a cable roll, in the walls of buildings, between stacked concrete blocks, in a disused chest freezer in an old fishing boat, in letter boxes, as well as in cavities in trees up to 8 m from the ground.
- By April 2010 control efforts around Cairns involved 28 field workers. This was increased to 36 in May 2010 after joint funding was approved. It dropped to six in mid-November 2010 when funding ran out, and remains at that level until 31 March 2011.
- A detector dog was trained to seek out AB nests.
- DAFF Workshop in Canberra (28 Oct 2010) was advised by QLD Government consulting epidemiologist that more data was required to assess if eradication efforts are working. Current workforce level should be maintained until evidence that eradication program was working, or not.
- The Asian Bee National Management Group (AB NMG) met on 31 January 2011 to consider advice provided by the Consultative Committee on Emergency Plant Pests on the Asian honeybee (*Apis cerana*) incursion in North Queensland on whether it continued to be technically feasible or not to eradicate the Asian Bee.
- The AB NMG concluded that it is no longer technically feasible to achieve eradication within the funding constraints of the current program but consensus was not reached. The industry did not support this conclusion.
- Government decided on 2 February 2011 to stop the eradication program, effective 31 March 2011, and declare AB endemic
- Beekeepers believe the decision to stop the eradication program was premature.
- Beekeepers played a key role in detection and early eradication efforts of AB despite its wider impacts affecting pollination dependent crops, the environment, human health and amenity. Subsequently, beekeepers have supported Biosecurity Queensland who has carriage of responsibility for the eradication program.
- Beekeepers did not cause the problem; they have punched well above their weight in trying to control the incursion; benefits in eradicating AB go well beyond the

beekeeping industry; a decision to terminate the eradication program should not be driven by the financial plight of beekeepers. (Annual losses to QLD beekeepers is around $2m due to recent spread of Small Hive Beetle - another quarantine breach. SMH has emerged as a major problem for beekeepers along the eastern seaboard of Australia since its introduction around Richmond NSW in 2000.

- **if AB becomes established and is declared endemic, it will compromise Australia's capacity to detect new incursions of AB. This greatly increases the risk of an incursion of Varroa becoming established before detection.**

2. Impact of Asian Bee on Honey Production

- AB Java strain is typified by small colonies, prolific swarming, prone to absconding, ineffective honey producers
- Harms honey production in A mellifera hives; competes for floral resources; readily robs A mellifera managed hives
- AB recent introduction (2003) into Solomon Islands eliminated feral colonies of European Honeybee (Apis mellifera) and decimated managed hives (2000 hives in 2000 reduced to five in 2008!)
- Disrupts queen rearing of A mellifera which is essential for honey production and for hive build up required for pollination services
- AB will disrupt honey production by commercial and amateur beekeepers especially in QLD but eventually down eastern seaboard of Australia with likely rapid spread

3. Impact of Asian Bee on Incidental Pollination

- AB Java Strain proliferates by rapid swarming and exploiting niches not occupied by A mellifera. It will out-compete, and largely replace, feral populations of A mellifera if the Solomon Islands experience is repeated in Australia.
- It is not known if AB Java Strain will play the same key role of A mellifera in incidental pollination. This will only be known once AB has replaced A mellifera, as the AB is first and foremost a tropical bee that has historically only pollinated tropical plants.
- Although AB hails from the tropics, modelling indicates that it could spread as far as Victoria. AB's ability to provide incidental pollination in more temperate regions where it would replace A mellifera is unknown.

4. Impact of Asian Bee on Pollination Services

- Spread of AB Java Strain will have a major adverse effect on paid pollination services
- AB will disrupt hive build up in preparation for pollination services. EG Queensland hives used for southern crop pollination such as almonds will suffer severely
- If and when the Varroa mite reaches Australia, the widespread occurrence of AB could exacerbate the situation. AB is less likely to be impacted by Varroa; AB could enjoy a further selective advantage.
- Varroa jacobsoni recently switched hosts from AB to A mellifera in PNG where the two bee species now occur together. A repeat of this unique event in Australia would be disastrous for honey production and pollination services in Australia.
- Thus, managed A mellifera hives, already stressed by competition from AB, will be further devastated by Varroa. Paid pollination services will collapse.
- Furthermore, Varroa, if established, will have eliminated any feral colonies of A mellifera so incidental pollination services by A mellifera will have collapsed

- Ironically, if AB copes better with Varroa, it could play a positive role in incidental pollination in the presence of Varroa, but its ability to pollination temperate crops is unknown.

5. Impact of Asian Bee on Environment

- European Honeybee, A mellifera, as feral colonies has been well established in the Australian bush since 1900. Its ecological impact has stabilised for over 100 years without significant impacts.
- AB Java Strain poses new and likely negative impacts. It will colonize smaller nesting cavities that A. mellifera resulting in more (but smaller) colonies per unit area. This will increase AB capacity for rapid build-up once nectar and pollen resources come on tap leading to vigorous competition for nectar and pollen resources.
- AB is likely to reduce populations of native birds, insects and small animals (such as possums) through its competition for nesting sites and floral resources.
- Spread of AB will be like cane toads and rabbits – both deliberate introductions.

6. Impact of Asian Bee on Health and Public Amenity

- AB Java Strain colonises a wider range of nesting sites in the built environment, in and around houses, letter boxes, containers etc
- Humans and domestic animals are more likely to endure stings from AB.
- According to Terry Ryan (RIRDC Publication No 10/026) "*The annual costs of public health impacts are conservatively estimated to range from $84,114–$88,637 per 100,000 people {or annually $16-18 million nationally}. The annual cost estimates for the public nuisance aspects are estimated to range from $4,580–$33,660 per 100,000 people. {or annually from about $1-7 million nationally}* " https://rirdc.infoservices.com.au/items/10-026

7. Funding of Eradication Program

- Given the quarantine breach was not caused by beekeepers, and given the larger impact of spread of AB on disparate pollination-dependent industries AND food security, a strong case exists for the program to be continued for at least a further two years, mainly with public funding.
- Under the cost sharing arrangements for such eradication programs, it could be fairly argued by Government that honey producers, as beneficiaries of a successful eradication program, should share costs.
- The Honey Industry does have a contingency fund of $600,000; and we understand the fund's Directors had proposed to allocate $100,000 towards the eradication program. No doubt they were mindful of the need to keep reserves to address an incursion of Varroa!
- In anticipation of a Government response that sufficient support from the relevant industries was not forthcoming, a case could be mounted that the Honey Industry Contingency Fund raise its contribution for future AB eradication efforts.
- Some sources estimate that it will cost $5m pa for two years to achieve eradication. Progress could be reviewed after one year to determine if the second $5m was justified.
- At the very least, containment should be attempted until eradication can be assessed.
- A Declaration that AB is endemic will destroy Australia's live bee export market, currently $5-7 million pa and growing. With the decline of bee populations around the world, Australia is well placed to supply live bees to other countries.

The Pollination Program
MEDIA RELEASE

Australian Government
Rural Industries Research and Development Corporation

HAL
Know-how for Horticulture™

Monday, 16 August 2010

Australian crops at risk from reliance on wild honeybees

An over-reliance on wild honeybees by pollination-responsive crop producers in Australia may compromise the future resilience of our $30 billion horticulture and agriculture sector.

A report released today, *Pollination Aware,* highlights the significant risks associated with relying on incidental pollination and quantifies the likely demand for paid pollination services should anything happen to these escaped European honeybee populations.

Among the most severe threat to agricultural production is that posed by exotic pests and diseases of honeybees, such as the highly destructive Varroa mite.

Australia is one of the last countries to resist a Varroa mite outbreak, which would decimate wild honeybee colonies, in turn devastating producers who rely on them to pollinate their crops.

Pollination Aware consolidates available information and for the first time puts a value on pollination services for 35 different commodity groups, across fruits, vegetables and pastures, by analysing the effect of honeybees on production in these industries.

It's estimated that a staggering 65 per cent of agricultural production in Australia relies on honeybees. Some industries, such as almonds, apples, pears and cherries, rely almost totally on honeybees for fruit and nut production.

The report is a key piece of research from the Pollination Program, a research and development strategy jointly funded by the Rural Industries Research and Development Corporation (RIRDC), Horticulture Australia Limited (HAL) and the Australian Government.

The Pollination Program aims to secure the pollination of Australia's horticultural and agricultural crops into the future on a sustainable and profitable basis. Research and development in this program is primarily aimed at raising awareness to protect pollination in Australia.

Due to the large number of wild European honeybees in Australia, the vital role of pollination is not widely recognised or valued and only a small proportion of agricultural producers manage the process through paid pollination.

Gerald Martin, Chairman of the Pollination R&D Advisory Committee, says gathering current knowledge on pollination and gaining an overview of supply and demand is seen as critical by the scientific community.

"Around one in three mouthfuls of food that we eat comes directly or indirectly from pollination," Mr Martin said.

"It is vital that we manage potential risks and determine our future priorities for investment and funding to both maintain - and improve - crop yields and harvest quality," Mr Martin said.

"Australia is fortunate to have a massive population of wild honeybees that pollinate our crops, but if these were decimated by Varroa mite, producers would have limited options in sourcing managed beehives, which would also suffer heavy losses.

"The report also points out that a heavy reliance on this incidental pollination means the yield and quality of produce is often not reaching its potential because plants are not being pollinated at optimal levels – compromising profits.

"*Pollination Aware* provides for the first time an analysis of pollination-responsive crops in this country and outlines how we can protect our valuable agricultural output by developing a larger apiary industry."

According to the report, Varroa mite could 'diminish to insignificance' the contribution from incidential pollination within 5-10 years.

The study suggests that if pollination by wild European honeybees was eliminated by Varroa mite, almost 480,000 colonies of honeybees would be needed to provide pollination services every September. Peak demand could lift this to 750,000 – far exceeding current apiary capability.

Apiarists would also incur significant costs from the presence of a serious pest or disease to monitor, manage and maintain colony strength. The economic impact when it became established in North America in the 1980s is estimated to be up to US$14.6 billion.

While the apiary industry's highest priority is to resist exotic pests and diseases, the report is seen as a first step in addressing both the potential challenges and future opportunities of the pollination industry.

To download or receive a printed copy of the *Pollination Aware* report or one of the 35 crop-specific case studies visit the Pollination page of the RIRDC website (www.rirdc.gov.au)

Ends

Media contact: Peta MacDougall 02 8204 3730; 0421 958 053

The Pollination Program is a jointly funded partnership with the Rural Industries Research and Development Corporation (RIRDC), Horticulture Australia Limited (HAL) and the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF). The Pollination Program is managed by RIRDC and aims to secure the pollination of Australia's horticultural and agricultural crops into the future on a sustainable and profitable basis. Research and development in this program is primarily to raise awareness to protect pollination in Australia.

RIRDC funds for the program are provided by the Honeybee Program, with industry levies matched by funds provided by the Australian Government. Funding from HAL for the program is from the apple and pear, almond, avocado, cherry, vegetable and summerfruit levies and voluntary contributions from the dried prune and melon industries, with matched funds from the Australian Government.