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"A REVIEW OF BEEKEEPING ON RESERVES AND NATIONAL PARKS IN WESTERN AUSTRALIA"

(A submission to the Department of Conservation and Land Management)

DIVISION OF ANIMAL PRODUCTION
INTENSIVE INDUSTRIES BRANCH
APICULTURE SECTION

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"A REVIEW OF BEEKEEPING ON NATURE RESERVES AND NATIONAL PARKS IN WESTERN AUSTRALIA"

(A submission to the Department of Conservation and Land Management)

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1. Summary

The Western Australian Commercial Beekeeping Industry relies on substantial areas of natural vegetation as a good resource for the production of honey and pollen for the export market. Many such areas exist on land vested with the Department of Conservation and Land Management who have placed severe restrictions on access by beekeepers on the grounds that honeybees (apis mellifera) can cause detrimental effects to indigenous flora and fauna.

Little scientific evidence exists at present to support the management practices undertaken by C.A.L.M.

This publication reviews both the Draft Management Plan - "Beekeeping on the Nature Reserves of Western Australia" and a discussion paper by Dr S. Hopper on the "Impact of Honeybees on Western Australia's Nectarivorous Fauna".

Proposals are discussed and recommendations are presented to allow the continuation of a viable beekeeping industry in Western Australia.

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2. Introduction

Throughout Australia, commercial beekeepers are experiencing a severe decline in the availability of the honey and pollen producing resources. In Western Australia, the situation has reached such proportions that substantial numbers of apiary sites are at risk through land clearing, mining, woodchipping, wildfires, controlled burning practices, vegetation losses through dieback and restriction on the use of native flora on specific reserves (Burking and Kessell, 1986).

Land Management Authorities have expressed concern of the possible detrimental effects of honeybees on native fauna and flora and considerable areas of vegetation, essential to honey and pollen production could be denied to the Beekeeping Industry

Some 356 registered apiary sites are at present located on Reserves and National Parks under the vesting authority of the Department of Conservation and Land Management (C.A.L.M.) and existing conservation policies indicate that th could be lost. The estimated cost to industry could be as high as $1.5 m per annum.

Industry, through the Primary Industry Association (Beekeeper's Section) has expressed great concern regarding the potential loss and the issue was raised at the C.A.L.M. Beekeeper's Consultative Group on November 17, 1986.

Lengthy discussion followed regarding policy in relation to beekeeper usage of land vested with the Department of C.A.L.M. and delegates were advised that the present policy was based on the recommendations of the Nature Reserve Management Plan Supplement No. 1 Draft - "Beekeeping on the Nature Reserves of Western Australia" (Moore et al. 1983).

It was pointed out to C.A.L.M. that this document (known as the "Pink Book") was in fact only a Draft Management Plan created by the then Department of Fisheries and Wildlife and had not been subjected to public review. Since its formation the Department of C.A.L.M. has based its policies on the contents of this Draft Management Plan in relation to continued beekeeper usage of some specific reserves and proposed usage of other reserves.

Recent submissions to C.A.L.M. for beekeeper usage of the Jilbadgi Nature Reserve and the Lake Magenta Wildlife Sanctuary have been rejected due to the "Pink Book" recommendations.

It was resolved at the C.A.L.M. Beekeepers' Consultative Committee in November 1986, that due to the lack of scientific evidence on the "detrimental" effects of honeybees on natural areas, that reviews be undertaken of two documents:

(a) Reserve Management Plan Supplement No. 1 Draft - "Beekeeping on the Nature Reserves of Western Australia"

and

(b) The discussion paper presented by Dr Stephen Hopper (Western australian Wildlife Research Centre - Wanneroo), "Impact of Honeybees on Western Australia's Nectarivorous Fauna" (Hopper 1985). These are discussed.

3. The Review Section A

Western Australian Nature Reserves Management Plan Supplement No. 1. (Draft) "Beekeeping on the Nature Reserves of Western Australia" (Moore et al. 1983)

3.1 Preamble

The rationale and policies outlined in this publication are most certainly based on a number of factors, which are either not scientifically proven or that management practices once introduced could overcome suspected problems relating to the "assumed" detrimental effects of honeybees to native fauna and flora.

No substantive evidence exists at present that would indicate that honeybees are causing problems to both faunal and floral species as indicated (Hopper, 1985).

3.2 The Reserves

The publication lists three sections relating to beekeeping:-

(a) Details are provided on 25 WAWA vested reserves over 500 ha in size from which beekeeping will be excluded in accordance with WAWA policy.

(b) Details are provided on 31 WAWA vested nature reserves available for beekeeping in accordance with WAWA policy.

(c) Details are provided on 5 WAWA vested nature reserves under 500 ha which are presently being used for beekeeping and from which, according to WAWA policy, beekeeping will be excluded in the future.

Reserves in both (a) and (c) categories are subject to reasons for exclusions and these are discussed in section 3.3.

3.3 Exclusion Factors

3.3.1 Reserve Size

The present C.A.L.M. policy excludes beekeeping usage from those reserves which are under 500 ha. No substantial reasons are provided in the Draft Management Plan, but it may be assumed that influx of large numbers of honeybees may cause problems to the existing fauna and flora.

The density and variety of the available flora should be the main consideration. It is highly unlikely for a commercial beekeeper to use an area that does not provide a dense flora situation with heavy nectar production.

Beekeeper usage on land areas is restrictd to site location based on a 3 kilometre radius to allow viable production of honey and to reduce the chances of spread of brood and other diseases of honeybees.

3.3.2 Public use

Following discussions with Land Manager's, beekeepers normally establish their apiary sites in such situations as to prevent risk to public use. In the past, this situation has worked extremely well within National Parks (B. Muir, Pers. Comm.) and no problems have existed with risk to the public.

The question arises, regarding public access and usage of Nature Reserves. In the past, entry permits have been required to visit specific reserves and honeybee risk to the public would be remote.

3.3.3 Rare Flora

The subject of rare flora is an important issue and every attempt should be made to maintain the existence of the species. However, it is extremely difficult to ascertain if the use of reserves by beekeepers will have a detrimental effect. Beekeepers are being excluded from specific reserves which contain rare and gazetted flora. In many cases beekepers have had access to these areas for many years. If beekeeper usage of reserves has created detrimental effects to flora, the question is asked, "Why do rare flora still exist and continue to be found"?

Simple management strategies could be introduced to relocate the existing apiary sites away from the rare species to remove possible damage by vehicles or hive situations. As yet, it has to be proven whether honeybees damage rare flora and if in fact honeybees use these species as a source of nectar or pollen.

3.3.4 Nectivorous Fauna

Many conservation lobbies are of the opinion that honeybees vigorously compete with nectivorous fauna for the nectar resource available. Until scientific research is undertaken and the analysis of data examined, no conclusive statements can be made to press for the removal of honeybees from areas which contain nectivorous fauna.

It should be pointed out that beekeepers will only use a food source for honeybees when an abundance of nectar is available, and in such cases it can be debated as to whether competition exists or not.

3.3.5 Dieback Prevention

To exclude beekeepers from reserves on the basis of the possibilities of the spread of dieback may easily be overcome by the introduction of management practices such as the correct washing down of vehicles prior to the entry to reserves. Areas where "dieback" exists are under strict quarantine restrictions by the Department of C.A.L.M. and if the existing system is working efficiently the problem should be relatively easy to overcome.

3.3.6 Outstanding Orchid Flora

To date there is no evidence to say that honeybees are detrimental to orchid species. Discussions with numerous beekeepers indicate that following many years of observations, apis mellifera do not use orchids as a nectar or pollen resource, owing to the availability of other more suitable species.

Once again, it is necessary to point out that no scientific evidence is available to indicate that honeybees create detrimental problems to flora species in general or the orchid family in particular.

3.3.7 Research Requirements

This reason for exclusion is listed within the Draft Management Plan, however no specific details are provided and therefore no comments can be made. In order for the subject to be discussed specific details are required from the Department of C.A.L.M.

3.4 Reserves available to beekeepers

As discussed in section 3.2, some 26 nature reserves were originally listed as available for beekeeping under policies outline by the W.A.W.A.

In 1984, the Primary Industry Association (Beekeepers' Section) requested that the Apiculture Section (Department of Agriculture) undertake an evaluation survey of these reserves for beekeeping suitability (Burking 1984). Details are as follows:-

Of the 26 reserves surveyed, 12 were found to have some potential for beekeeping, but did not provide similar vegetation and flowering periods to those reserves nominated for closure (see 3.2 item c).

The remaining 14 reserves proved to be unsuitable due to vegetation species, access to conventional vehicles or a combination of both.

Since this survey was undertaken, one of the nominated reserves for beekeeping, Mooradung 32448 at Boddington has been withdrawn following the discovery of the declared rare flora Grevillea cirsiifolia.

Mr McCutcheon (Ecologist C.A.L.M.) advised in his report that "the small size of the flowers of this species indicate that pollinators are likely to be insects. Honeybees, especially in large numbers, would be fierce competitors with indigenous pollinating insects without necessarily being effective themselves, and as the population of the rare species is approximately centrally placed it would be within flight range of bees from an apiary on any part of the reserve".

In view of the lack of scientific evidence available, the reasons provided for the exclusion of beekeepers are inconclusive and subject to discussion. The flowering stage of the rare species may not coincide with the use of the reserve by honeybees. Further investigations are necessary in this regard. C.A.L.M. have agreed to undertake further investigations into the Mooradung Reserve situation.

3.5 Discussion

A large number of nature reserves at present provide a valuable production resource for the beekeeping industry in Western Australia. The honey produced by beekeepers in this State is unique and provides a valuable export product.

The policies outlined in the Draft Management Plan are subject to investigation due to the lack of scientific information. The question may be asked, "If the Department of C.A.L.M. is so concerned as to the effects of beekeeping on specific reserves, why are other reserves offered for beekeeper usage?"

The basis for the present "cautious" approach appears to be based on a series of discussion papers which offer no conclusive data. One such paper by Dr Stephen Hopper is reviewed in Section B.

4. The Review - Section B

"Impact of honeybees on Western Australia's Nectivorous Fauna"
by Dr Stephen Hopper Western Australia Wildlife Research Centre Department at C.A.L.M. Wanneroo)

4.1 Preamble

Dr Hopper has presented in this discussion paper, many issues which are thought to be detrimental to a variety of flora and fauna species within Western Australia. It is appreciated that conservationists and land management authorities are concerned regarding the possibilities of the effects of honeybees on specific genera.

However, the disturbing factors within the discussion paper presented by Dr Hopper, are of concern to the Beekeeping Industry due to the lack of scientific evidence and many of the conclusions which are made.

These are discussed.

4.1.1 Reference food plant preferences and pollination by native animals, pages 3-5

Comment:-

The observations made may not be regarded as conclusive evidence of the total food resource used by the fauna. It does not indicate a high degree of specificity in view of the large number of plant species in these genera.

In the case of the orchid species, no evidence is provided that honeybees use orchids as a food source.

4.1.2 Food plant preferences and pollination by honeybees in Western Australia pages 5-6

Dr Hopper advises that the availability of scientific literature on the subject is "meagre" and few pollination studies have been undertaken to date. As this is the case, what effect honeybees may have on native flora must also be meagre.

It is appreciated that present data shows that a diverse array of wildflowers are visited by honeybees including most genera and species of plants known to be important as food for native nectarivores. Dr Hopper advises that "an important competetive advantage honeybees have over native bees and wasps is their ability to forage at lower temperatures, they are often seen at flowers earlier in the morning and thus are able to harvest overnight nectar".

The question may be asked, "Does this coincide with periods of greatest nectar flow on a diurnal basis?

The statement made "On the other hand, honeybees are more likely to be nectar and pollen thieves on larger bird-pollinated flowers where nectaries and stigmas are well separated - from which honeybees take nectar through holes chewed through the base of the petals". - This statement is supposition and cannot be conclusive without scientific research. It may also be said that the bird pollinations in fact make the holes in the plant.

Further, the studies undertaken by R. Peakall indicate that honeybees remove the pollen, but fail to pollinate flowers or nectar-producing Leek orchids. It is stated that in this case the honeybees are the wrong size and shape to fit the intricate flower structure in a way that ensures that pollinia are placed on the stigma.

The question must be asked, "Does this function of the honeybee impair the seed set of Leek orchids"? Further investigations are necessary.

4.1.4 Is nectar a limiting food supply?, pages 6-7

In relation to the paragraph on honey eaters population size may be closely correlated with nectar supply. The conclusions that are drawn are - with less flowers we have less honey eaters in the study area.

The experimental "introduction of hive bees used by Paton in Victoria to document their impact on nectar supply and honey eater behaviour" - does not show a reduction in honey eaters and indicates that territorial size does not mean change in bird population size, i.e. less preferred feed sources and areas could be utilised.

In the experimental caging of callistemon flowers as to exclude birds but allow access to nectar for honeybees, it is subjective thinking to say that honeybees have a detrimental effect on plant reproduction.

The statement made by Dr Hopper should indicate that "it means that both honeybees and birds are needed for maximum seed set. The question is raised, "Is this an importmant issue as a large excess of seeds are produced?"

4.1.5 Is extinction possible?, pages 8-9

The general statements made in this section of the paper are all speculative with no evidence to date of extinction possibility. The same question could be raised to say that sheep or cattle pose an extinction threat to kangaroos.

4.1.6 Beekeeping and the spread of dieback, page 9

It is appreciated that the spread of dieback (Phytopthora cinnamomi) is of great concern to conservationalists and Land Management Authorities. However, with management practices, the risk can be eliminated by the washing down of vehicles and the strategic placing of apiary sites adjacent to major tracks.

Visitors to National Parks may also be responsible for dieback spread. To place the whole blame on beekepers is unfounded. Such people as wildflower and seed pickers must be looked at seriously. Beekeepers are located in one site only and have no need to travel extensively in the parks or reserves.

4.1.7 Conclusions, pages 9-10

The evidence is sufficient to propose an hypothesis only. It is agreed that little scientific research has been undertaken but from this, firm statements are being made.

4.2 Discussion

Dr Hopper, in this discussion paper has attempted to illustrate the concern of conservation lobbies and Land Management Authorities. It is unfortunate that the papers he reviewed to make the illustrations are not conclusive due to the lack of scientific data. It is generally supported that further research is required.

5. Conclusions and Recommendations

5.1 Conclusions

In the interests of the Beekeeping Industry in Western Australia, continued access to areas of natural vegetation is essential to allow continuation of products to the export market.

Management practices relating to beekeeper usage of specific reserves are at present based on proposals made by the then Department of Fisheries and Wildlife in the Draft Management Plan. Until recently, members of the public were unable to discuss the "policies" with the various authorities which has led to considerable frustration by beekeepers and other Government Departments.

To regulate access to reserves by beekeepers must be challenged in the light of the reasons given. Emotional concern for flora and fauna cannot be the yardstick for Land Management decisions.

5.2 Recommendations

The following recommendations are presented for consideration by the Department of Conservation and Land Management.

(a) Before any reserves or national parks are placed off limits to beekeepers, an in-depth study must be made of the area concerned to firmly establish conclusive evidence that honeybees are detrimental to the environment.

(b) That the emotional thought and concern by the conservation lobby, not be considered in respect to beekeeper access to areas.

(c) A detailed scientific research programme be introduced to study the areas of concern and a research committee be instigated made up of membership from the following:-

(i) Department of C.A.L.M.
(ii) Department of Agriculture (Apiculture Section)
(iii) Beekeepers' Section, Primary Industry Association
(iv) Botany Department - University of Western Australia.

(d) That the Department of Conservation and Land Management lift the present restrictions on beekeepers and allow access to production resource areas previously denied, until scientific research investigations have been undertaken.

(e) That the present Draft Management Plan "Beekeeping on the Nature Reserves of Western Australia" not be implemented by the Department of C.A.L.M. until sound scientific evidence proves that honeybees are detrimental to the environment.

Further, the question must be asked of the Department of C.A.L.M., "Is it C.A.L.M.'s intention to effectively reduce the production potential by up to 20% of the Western Australian Beekeeping Industry and lose valuable export markets?"

5. Acknowledgments

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Mr A.C. Kessell - Senior Apiculturist
Mr N. Godfrey - Senior Research Officer

6. References

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