Draft Import Health Standard for Importation of Passerine Birds

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1. Background

The author was contracted by Clare Miller, New Organisms Officer for the Biodiversity Recovery Unit, to review the Ministry of Agriculture and Forestry Regulatory Authority (MAFRA) Draft Import Health Standard (IHS) for the Importation of Passerine Birds into New Zealand from the United Kingdom (dated 24 August 2000). The reviewer was asked to focus on

1) the potential disease threats to native fauna associated with the importation of passerines from the United Kingdom and

2) identification of any gaps in the IHS that could relate to the protection of native fauna.

2. Methodology

The IHS and the risk analysis' on which it is based were reviewed in detail, focusing on the above questions and checking to ensure that appropriately rigorous safeguards had been established to minimise the risk of introducing diseases of concern into New Zealand.

The following related MAF standards were also reviewed to determine whether the appropriate level of quarantine security had been selected for this IHS:

- Standard for Medium SecurityAvian Quarantine Facilities (MAFRA Standard 154.02.05)

- Standard for High Security Avian Quarantine Facilities (MAFRA Standard 152.02.11) and

- Standard for the Supervision of Avian Quarantine (MAFRA Standard 154.02.05.01)

Finally a brief literature search was done to ascertain if any change had occurred in the documented diseases of passerines in New Zealand since the risk analysis was performed in 1998. The following sources were checked:

Huia, the native species mortality database based at Massey University
Kokako, the newsletter of the New Zealand Veterinary Association's (NZVA) Wildlife Society
The New Zealand Veterinary Journal
Vet Script, a monthly bulletin of the NZVA
Surveillance, MAF Biosecurity Authority newsletter
Biosecurity, MAFRA Animal Health and Welfare Group newsletter

3. Results

3.1 POTENTIAL DISEASE THREATS TO NATIVE FAUNA

Although all imported passerines are destined for permanent captivity they could present a disease risk to free-living native fauna, both directly (via escapes from aviaries) or indirectly via disease transfer mechanically by in-contact humans or via arthropod vectors such as mosquitoes. As all these circumstances may arise once the birds are released from quarantine it is essential that all currently known disease risks are identified and appropriate measures are taken to minimise their introduction into New Zealand.

This reviewer found that:

- The risk analysis on which this IHS is based is comprehensive, takes into account disease risks to all bird species (not just passerines) and incorporates the elements of the systematic risk analysis process adopted by MAFRA,2 i.e. hazard identification, risk assessment and risk management. The final stage of the process, risk communication, is in progress and includes the current consultation with stakeholders.

- Appropriate reasons are given for excluding some diseases from consideration, namely: (1)The diseases that are already endemic in domestic and/or wild populations of birds in New Zealand and for which there are no virulent strains known overseas and for which there is no pest management strategy in place in New Zealand and there are no areas in New Zealand known to be free of the disease. (2) The diseases are exotic but are unable to establish and survive in this country due to the absence of appropriate hosts, vectors, or environmental conditions. (3) Diseases not recorded in passerines.

- Following these exclusions, eight significant viral, two bacterial, one protozoan and one fungal disease have been reviewed in detail, while arthropod-borne viruses and metazoan (ie. multicellular internal and external) parasites have been treated as groups. The resultant IHS is based on excluding these diseases by a combination of controls involving:

    - sourcing of birds from a monitored area of low or zero incidence of the diseases of concern,

    - a 30-day closed flock policy for the source of the birds followed immediately by pre-shipment isolation and post-arrival quarantine - these periods have been designed to be longer than the maximum incubation periods (i.e. time from infection to onset of symptoms) for the diseases of concern,

    - containment within a Medium Security Avian Quarantine (incorporating air filtration to contain all matter down to 5 microns diameter),

- use of sentinel chickens in the same air space as the quarantined birds and examination of these for diseases of concern at defined intervals during the quarantine period,

- veterinary examination and supervision during the confinement periods,

- laboratory testing,

- pre-treatment of birds (for internal and external parasites).

- With birds sourced from the UK under that country's current health status, the level of security afforded by quarantines built and maintained to the Standard for Medium Security Avian Quarantine Facilities (as per the IHS) is appropriate to safeguarding native species from the diseases of concern. Similarly, application of the Standard for the Supervision of Avian Quarantine will ensure rigorous application of the specified quarantine standards.

3.2 GAPS IN THE IHS THAT COULD RELATE TO THE PROTECTION OF NATIVE FAUNA

The only significant omission identified was the screening of birds for blood parasites.

On page 9 of the risk assessment the author makes the statements that: "The collection of samples, for laboratory testing of small aviary birds, will inevitably result in the deaths of birds.." and "..during the pre-export isolation (PEI) and post-arrival quarantine (PAQ) periods..there will inevitably be some deaths...". Blood collection is implicitly ruled out as a diagnostic tool due to these birds' "low blood volume". These statements are provided as reasons for minimising invasive diagnostic procedures such as blood collection.

Passerines, as a group, are highly strung and prone to sudden death when mishandled. It is therefore appropriate that invasive sampling methods should only be used when other alternatives (e.g. use of sentinel chickens) are unable to meet the diagnostic requirements. However, if the birds are healthy (as they should be prior to export), receive a good standard of husbandry and are appropriately transported, deaths are not an inevitability in my experience. Similarly, a competent avian veterinarian should be able to complete a full physical examination and take diagnostic samples such as blood and cloacal swabs from healthy finches and other small birds without killing them. Consequently a physical examination and collection of enough blood to make a smear should not be considered infeasible in passerine birds.

This is relevant to the detection of blood parasites such as the protozoa, *Plasmodium* (cause of avian malaria) and *Babesia* and the rickettsia *Aegyptianella,* as this can only be done through direct examination of the blood or tissues of the host bird.

As mentioned, the draft IHS does not require screening for blood parasites. However, I believe this should be included on the following bases:

a) *Plasmodium* spp., although already present in New Zealand, vary in strain and pathogenicity and are not highly host-specific (i.e. they can be transmitted across different species of birds). It has been established that passerines such as sparrows, thrushes and blackbirds act as reservoir hosts in New Zealand and that there are suitable mosquito vectors here 3. *Plasmodium* has more recently been found to cause fatalities in captive New Zealand dotterels but, to date, has not been picked up in free-living dotterels 4,5. .It is assumed that the source of infection for the dotterels was free-living passerines. Plasmodia have a worldwide distribution, and finches and other passerines are common carrier hosts. There are many species with varying host specificity and pathogenicity 6. Consequently it would be undesirable to risk importation of other species and strains of this parasite that could be potentially pathogenic to native birds.

b) Another blood parasite has recently been detected in free-living NI brown kiwi 7. While originally thought to be *Plasmodium* this appears to have been a misidentification. It is now thought to be either *Babesia* or *Aegyptianella* (Peirce, M.A. pers. comm.). These are both tick-borne parasites and demonstrate that the appropriate vector is resident in New Zealand. *Babesia* species have been described in sparrows and other passerines overseas 8. The final identity, pathogenicity and distribution of this parasite is still under investigation (Jakob-Hoff, R.M. unpublished).

As blood parasites tend not to circulate constantly, a single blood smear can miss a positive carrier. It would be advisable, therefore, to screen birds twice: once during pre-departure isolation and a second time during post-arrival quarantine. A single drop of blood is required to make a blood smear. The smear should be stained with Giemsa or similar stain appropriate to the visualisation of blood parasites. A physical examination should be performed by an avian veterinarian at the time of blood sampling to avoid double handling. For large consignments of passerines a sampling regime similar to the one outlined in the IRS Appendix 3,Table 2 would seem appropriate.

No other significant gaps were identified.

3.3 MINOR ISSUES

Paragraph 2.4 on page 10 of the draft IRS refers to Appendix 2 when it should refer to Appendix 3.

Paragraph 11.1, page 4 and paragraph 15.1, page 5 require a 35-day pre-export isolation and post-arrival quarantine, respectively. As the maximum incubation period for all the diseases of concern is less than 30 days it is inconsistent with this and other IHS documents to require the extra 5 days at each end of the shipment. This may be a simple error.

4. Conclusions

1. With one exception the draft IHS and associated standards should provide effective safeguards for the protection of native species from diseases that might be imported with passerines from the UK.

2. The requirements for importation should be amended to include a physical examination by an experienced avian veterinarian and the examination of a blood smear for blood parasites during pre-export isolation. This should be repeated following arrival in New Zealand and prior to release from quarantine containment. Any birds found positive should be excluded from the shipment.

5. References

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