

**BATS AND THE HMR WIND FARM DISCUSSION:  
POINTS OF AGREEMENT AND DISAGREEMENT**

On 6 April 2009 Mr Kessels, Dr Dekrout and Dr Lloyd met to consider Dr Lloyd's evidence in chief. They considered Paragraphs 12 to 85 of Dr Lloyd's evidence

Mr Kessels:

- disagreed with Paragraphs 17, 30, 31 of Dr Lloyd's evidence. Mr Kessels will deal with these paragraphs in his rebuttal.
- will defer to Mr Daysh and Mr Tonks in respect of Paragraph 59.
- agreed with Paragraphs 22, 36, 47, 52, and 60; subject to minor changes in wording, or additional clarifications by Dr Lloyd (to be provided in a supplementary statement to the Board).
- agreed with Paragraph 61, but will clarify this in his rebuttal
- agreed with all other paragraphs, either as they were, or subject to the discussions outlined below.

*It was agreed upon that parties may change their mind on position before April 15<sup>th</sup> 2009, provided they email each other to inform.*

**Subsequent Reconsideration Since the Meeting by Mr Kessels of his Position on Paragraph 62**

With reference to Paragraph 62, Mr Kessels has reconsidered Dr Lloyd's recommendation for the extent of carcass monitoring and now recommends that collision mortality monitoring for bats is confined to the month of January, as opposed to monitoring from January to March inclusive as suggested by Dr Lloyd here and also in Paragraph 69. The reason being is that this will be an efficient and practical use of carcass survey efforts being conducted for birds at the same time, still targets an appropriate period when bat activity is highest and should give a statistically robust assessment for determining the risk of actual collision.

**Discussions Leading to Agreement**

**Roost occupancy periods (Paragraphs 14, 48, 49 and 50)**

Dr Dekrout explained that in her study of long-tailed bats inhabiting central Hamilton roost, she recorded considerably longer roost residency periods (up to 15 days) than the published roost residency periods reported from studies of long-tailed bats elsewhere. It was agreed that this was likely to be a consequence of shortages of suitable roost cavities, or perhaps smaller foraging ranges. Dr Lloyd agreed that this was entirely possible and demonstrated the behavioural flexibility of the species.

**Foraging range (Paragraph 22 & 36)**

Dr Dekrout stated that there also large variation in the home range of her study bats with some bats inhabiting extremely small home ranges (200 ha) although other ranged widely (19 km).

**Foraging around artificial structures (Paragraph 36)**

In Dr Dekrout's study, foraging bats avoided areas with artificial illumination. This is in contrast with the area where Dr Lloyd is working in, where long-tailed bats converge on lights and forage above them in large numbers. This was also accepted as another demonstration of the bats behavioural flexibility.

**Roost tree characteristics (Paragraphs 43, 83, 84 and 85)**

Dr Dekrout reported that long-tailed bats in Hamilton roosted in a wide range of trees, including dead and decaying trees with cavities. Many of these roost trees were considerably less than 80 cm. It was agreed that rather than using the 80 cm diameter guideline drawn from existing literature, it would be necessary

for a bat expert to inspect trees before they were felled to decide whether a tree was suitable for bat roosting.

#### **Trained carcass recovery dogs (Paragraph 62 and 70)**

Although there are currently no dogs trained for carcass recovery in New Zealand, it would be a relatively short and simple procedure to train a suitable dog.

#### **Use of handheld bat-detectors to augment surveys with recording bat-detectors (Paragraphs 74, 75 and 76)**

It was agreed that the proposed surveys with recording detectors could usefully be augmented by localised surveys with hand-held bat-detectors. Hand-held bat-detectors are especially useful for locating activity hot spots once a population has been detected with the recording systems.

#### **Achievability of population monitoring proposals (Paragraphs 78 and 80)**

There was some discussion about the achievability of the proposed Stage 2 Pre-construction bat population monitoring programme.

- Capture (for radiotagging) can be difficult. Successful capture of long-tailed bats required skilled operators, suitable capture sites, persistence and some luck.
- Mark recapture techniques using forearm bands have not been proven to be reliable population estimation technique for bats. However use of datalogging systems with PIT tagged bats does make the method reliable.
- Although insertable PIT (passive insertable microchip tags) tags have been trialled on, and approved for use with, the slightly larger short-tailed bats, they have not been trialled on or approved for use with long-tailed bats. PITs have been used overseas to mark bats smaller than long-tailed bats.

It was agreed that there was no certainty that the programme could be achieved in its entirety and that the programme may have to be modified accordingly. However, the proposed work is based on standard procedures used to research bats elsewhere. In particular, two published projects undertaken on long-tailed bats populations in the South Island.

#### **Summary of Positions for Individual Paragraphs**

##### **Adequacy of bat survey in work**

###### **Paragraph:**

- 12 – Agree
- 13 – Agree
- 14 – Agree with first sentence. Disagree with short occupancy rate behaviour not found to be the case
- 15 – Agree
- 16 – Agree
- 17 – Disagree, to be clarified in rebuttal
- 18 – Agree
- 19 – Agree
- 20 – Agree
- 21 – Agree
- 22 – Disagree, clarity of wording.

##### **Significance of a resident bat population in the HMR Project Area**

###### **Paragraph:**

- 23 – Agree
- 24 – Agree
- 25 – Agree

##### **Collision risk to bats posed by transmission lines and wind turbines**

###### **Paragraph:**

- 26 – Agree
- 27 – Agree

- 28 – Agree
- 29 – Agree
- 30 – Disagree, to be clarified in rebuttal.
- 31 – Disagree, to be clarified in rebuttal.
- 32 – Agree
- 33 – Agree
- 34 – Disagree with first point. Agree with second point. Refer to rebuttal.
- 35 – Agree
- 36 – GK agrees with opening paragraph, except the word “high”. Disagree with point C, site specific. Agree with point I, but suggests rewording with anecdote.

**Modelling collision risks for bats**

- 37 – Agree
- 38 – Agree, with proviso that the DOC data doesn’t differentiate between migratory and non migratory.

**Risk to bats from habitat clearance**

- 39 – Agree
- 40 – Agree
- 41 – Agree
- 42 – Agree
- 43 – Both agree that the size of diameter of the likely roost trees is not adequate for distinguishing roost trees. Came to a mutual agreement
- 44 – Agree

**Applicants proposals for additional bat surveys**

- 45 – Agree
- 46 – Generally agree, subject to qualifications regarding size of roost trees
- 47 – Agree, clarify context

**Applicants proposals for avoidance, remediation, direct mitigation and offset mitigation**

- 48 – Agree, clarify position on residency periods.
- 49 – Agree, clarify position on residency periods.
- 50 – Agree, clarify position on residency periods.
- 51 – Agree
- 52 – Agree, subject to Dr. Lloyd’s interpretation/rewording
- 53 – Agree
- 54 – Agree
- 55 – Agree
- 56 – Agree
- 57 – Agree
- 58 – Agree
- 59 – Defer to Mr Daysh and Mr Tonks to clarify position
- 60 – needs slight modification due to typo missing text “any”. Disagree with statement as currently written. To be clarified in rebuttal.
- 61 – Agree, understanding to be clarified in rebuttal.

**Applicants proposal for post-construction collision monitoring**

- 62 – Agree, but GK notes that there are no dogs currently available in NZ to do this. Although it is acknowledged that training would be quick and straightforward.
- 63 – Agree

**Mitigation by curtailing wind generation during periods with high fatality levels**

- 64 – Agree

**Modifications to the applicants suggested District Council conditions**

- 65 – Agree
- 66 – Agree
- 67 – Agree

- 68 – Agree
- 69 – Agree
- 70 – Agree, on proviso that it can be proven to be done.
- 71 – Agree
- 72 – Agree, but reserve the right to discuss further with Mr Daysh

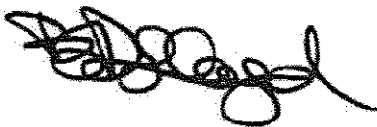
**Additional suggestions for district council conditions**

- 73 – Not applicable
- 74 – Agree in general; mutually agree that handhelds should be used in addition
- 75 – Agree in general; mutually agree that handhelds should be used in addition
- 76 – Agree in general; mutually agree that handhelds should be used in addition
- 77 – Agree
- 78 – Agree in principle that population monitoring would be desirable however reservations on achievability of methods at this site
- 79 – Agree
- 80 – Agree, GK notes concerns relating to achieve monitoring concerns as detailed in 78
- 81 and 82 – Agree, suggestions are appropriate, more information needed before such plans are put in place. Nonetheless, the suggestions are helpful and should be referred to if fatalities occur.
- 83 – Agree generally, except 80cm cut off for tree diameter.
- 84 – Agree generally, except 80cm cut off for tree diameter.
- 85 – Agree

**Conclusions**

- 86 – Not specifically addressed, points made are a summary of points made earlier.

Signed by:

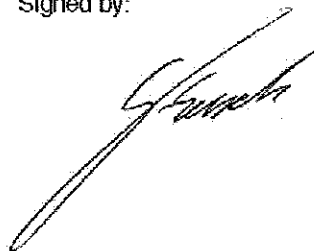


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Dr Brian Lloyd

Date: 15 April 2009

Signed by:



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Gerry Kessels

Date: 15 April 2009