

# Waikato Windfarm – Shorebird Expert Meeting

**Venue:** Waikato Conservancy Office

**Date:** Tuesday 7 April 2009

**Time:** 11.10 am

**Experts Present:** *Gerry Kessels, John Dowding, Phil Battley, Richard Seaton*

**Others Present:** *Angela Abbott (notes), Vaughan Keesing (Participant and facilitator)*

**Apologies:** *Steven Percival*

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Dr Steven Percival was unable to be contacted via teleconference. It was agreed by the group to continue the meeting without him. Following the establishment of this statement a copy was emailed to Dr Percival and he was invited to make comment and / or sign as an agreed expert.

## ***The record of statements***

1. The following is a record of an expert caucusing meeting of ecologists focused on shorebird issues and notes facts, opinions and statements relative to the project and evidence that are in agreement between the experts or which remain as items of disagreement (or items where it was considered no agreement was likely to be reached).
2. First, the group agreed to construct a table of shorebird species potentially at risk from the project, and then assess, for each species
  - a) Whether a quantitative risk assessment was required,
  - b) Whether sufficient data existed to make a robust assessment now, and
  - c) If there were currently insufficient data, whether it would be possible to collect adequate data within the proposed two-year monitoring period (i.e. 1 further north bound and 2 further south bound periods of radar based monitoring).
3. Compilation of Table 1 formed the heart of the discussions. From this, associated issues arose relating to monitoring techniques and resources, the ability to gather the data, etc. Where the experts felt a useful statement could be made it was noted as an area of agreement or disagreement.
4. Second, the group discussed techniques for assessing risk quantitatively, namely collision-risk modelling and population modelling.
5. Third, the group discussed the avoidance and mitigation concepts proposed so far and points of agreement in regard to these.

Table 1. Species, status, agreed facts and requirements.

Species	Threat status of species	Risk Assessment required?	Sufficient Information for Robust Risk Assessment currently?	Need more data than current Programme?	Can sufficient information in 2 years be gained to make a risk assessment or conclusion?
SIPO (South Island Pied Oystercatcher)	At Risk	Yes – <i>Agreed</i>	No – <i>Agreed</i>	More information needed – Yes – <i>Agreed</i>	Yes – Information can be gained in 2 years – <i>Agreed</i> Radar work and observer numbers need to be as is/or more
Wrybill	Threatened	Yes – <i>Agreed</i>	No – <i>Agreed</i>	More information needed – Yes – <i>Agreed</i>	Unlikely to be able to get the information – <i>Agreed</i> Use SIPO as a proxy – not the best choice but only option available thus a need to be more precautionary in risk assessment than SIPO – <i>Agreed</i>
NZ Dotterel	Threatened	Yes – <i>Agreed</i>	No – <i>Agreed (but with caveat)</i>	Information not required – <i>Agreed</i> – because <i>Low risk – high consequence status</i> unlikely to change with more information.	Instead of further information – Go straight to mitigation – <i>Agreed</i>
Variable Oystercatcher	At Risk	Yes – <i>Agreed</i>	No – <i>Agreed*(but with caveat)</i>	More information needed – Yes – <i>Agreed</i>	Yes – Could get sufficient information in 2 years – <i>Agreed***</i>
Caspian Tern	Threatened	Yes – <i>Agreed</i>	No – <i>Agreed*(but with caveat)</i>	More information needed – Yes – <i>Agreed</i>	Yes – Could get sufficient information in 2 years – <i>Agreed***</i>
White-fronted Tern	At Risk	Yes – <i>Agreed</i>	No – <i>Agreed*(but with caveat)</i>	More information needed – Yes – <i>Agreed</i>	Yes – Could get sufficient information in 2 years – <i>Agreed***</i>
Pied Stilt **	At Risk	Yes – <i>Agreed</i>	No – <i>Agreed*(but with caveat)</i>	<u>Migrants</u> More info needed – No – <i>Agreed</i>  <u>Non – Migrants</u> More info needed – Yes – <i>Agreed</i>	<u>Migrants</u> Could get sufficient supplementary information in 2 years – <i>Agreed</i> <u>BUT</u> – the modelling has difficulties, risk assessment remains difficult. Need to use SIPO as proxy for determining risk. <u>Non – Migrants</u> Could get sufficient

					information in 2 years*** – <i>Agreed</i>
Bar-tailed Godwit	Migrant known to be declining	Yes – <i>Agreed</i>	No – <i>Agreed</i>	More info needed – Yes – <i>Agreed</i>	Can that information be gathered in the 2 years – Unknown – <i>Agreed</i> Certainly not without extending radar and other monitoring work through September and October, even then detection issues remain. Agreed that they are lower risk than SIPO. Potential to use SIPO as proxy for determining risk. – <i>Agreed</i>
Lesser (Red) Knot	Migrant known to be declining	Yes – <i>Agreed</i>	No – <i>Agreed</i>	More Info needed – Yes – <i>Agreed</i>	Could get sufficient Information in 2 years – Very unlikely – <i>Agreed</i> Can SIPO be used as a proxy – uncertain of validity but may be only option – <i>Agreed</i>
Banded Dotterel	Threatened	Yes – <i>Agreed</i>	No – <i>Agreed</i>	More info needed – Yes – <i>Agreed</i>	Could get sufficient information in 2 years – <i>Unsure</i> – go to SIPO as proxy, but similar issues to Wrybill – <i>Agreed</i>
Black Shag	At Risk	Yes – <i>Agreed</i>	No – <i>Agreed</i> *	More info needed – Yes – <i>Agreed</i> (specifically to locate and count roosts).	Yes – Could get sufficient information in 2 years – <i>Agreed</i> ***
Black Stilt	Threatened	Yes – <i>Agreed</i>	No – <i>Agreed</i>	Yes – but collision risk very low probability, but very high impact – <i>Agreed</i>	Too difficult to collect data, move straight to mitigation – <i>Agreed</i>

\* Existing data (all collected to date) have not been fully analysed – however, regardless of that fact the existing data are still not sufficient with regard to temporal and spatial variation.

\*\* John Dowding sees as “special case” due to being both migrant & resident/nomad.

\*\*\*Requires modifications to existing programme.

***The following statements were agreed by the group:***

6. In the absence of southwards migration monitoring a robust assessment of risk cannot currently be made for any of the shorebird species in Table 1.
7. Table 1 lists all of the shorebird species that need to be considered.
8. The existing and proposed programmes need to be modified if the required data are to be collected (as described in Table 1).
9. The experts agree that the proposed continuation of the migrant monitoring programme (for one further northward migration and two southward migrations) could encounter weather or other uncontrollable issues affecting monitoring that lead to a reduced quantity of usable data. If everything goes well, the 2-year monitoring should allow a more robust risk assessment than is currently possible; if not, the data may not allow the robust assessment that is desired and a more precautionary approach will be justified.
10. Notwithstanding the above, there is also likely to be annual variation in environmental conditions that may affect migration patterns and timing. These could result in the risk to birds in some years being very different to that estimated from a 2-year monitoring programme.
11. All the experts agree that the use of SIPO as a proxy in collision risk modelling (i.e. for Wrybill, Banded Dotterel etc) is not ideal because of likely behavioural differences between species. However, the experts agree that it is the only solution currently available to assess the risk to smaller birds that are difficult to detect (by radar or observers).
12. In regard to successfully monitoring the wind farm post-construction for collision, all agree that the proposed size of the wind farm (180 turbines) would present a very big logistic issue.
13. All agree that prior to such monitoring that several important parameters of the monitoring require experimental testing:
  - Carcass persistence of different species
  - Ability to locate different species
  - Frequency & intensity of searches result in differential levels of discovery
  - How much better are dogs at carcass location?
  - What is the length of time that the carcass monitoring must continue for:  
*JD – 10 years*  
*RS – 4 years with review*  
*SP – 6 years spread over 15*
14. The experts came to the conclusion and were all agreed that more people (observers) are required for bird monitoring to get the relevant data on a site the size of the proposed HMR site.

## ***Modelling of Risk***

### ***Band model & Monte Carlo simulations used***

15. The use of the model is accepted, but Mr Kessels still wishes for an independent expert peer review on the limitations of the model.
16. Dr Seaton raised the assumptions used by Dr Percival in the Band modelling presented in Dr Percival's evidence:
  - Bad case (but not worst case) scenario used;
  - Assumed North & South radars measure the same bird activity – but the same level of activity does not present itself in the existing data across the site.
  - Valley/ridges – assumes all birds that flew over the valleys also went over ridges – Dr Seaton stated that radar shows valley birds did not always go over ridges in site. Dr Dowding said very few flocks have been tracked for their complete traverse across the entire site to date, so there remains uncertainty that all birds detected in valleys will not cross ridges at some point.
  - Avoidance behaviour – questioned.
17. There remains contention over the assumptions used in Dr Percival's initial modelling. The approach taken by Dr Percival was thought to be precautionary, and it was agreed that this was appropriate, given the current paucity of data. The experts *agreed* that when further data have been collected, predicted collision rates could be at higher, lower, or similar levels to those calculated by Dr Percival.

### ***Population modelling used***

18. The Experts are all comfortable and agreed with Dr Dowding's population modelling. They agree the models used are appropriate and the results are accurate given the input data used. However, issues remain for Mr Kessels and Dr Seaton with the predicted collision data calculated by Dr Percival that Dr Dowding has incorporated into the population modelling

### ***Proposed avoidance and mitigation measures***

19. **Avoidance**
  - Measure 1** Reduction in number of turbines.
  - Measure 2** Re-site turbines – avoid bird flight corridors, identify and remove high risk turbines or clusters.
  - Measure 3** Shut down for periods.

20. **AGREED (Avoidance)**
21. **Measure 1** Would reduce risk.
22. **Measure 2** Could reduce risk once flight paths were understood, and providing such flight paths exist and are frequently used; and that data do allow their accurate determination.
23. **Measure 3** Would reduce risk.
24. All agreed that each of the three avoidance measures, possibly in combination, would reduce collision risk to some degree, but that reducing risk to a level acceptable to all parties may require a combination of avoidance and compensation/mitigation measures.
25. **Mitigation/Compensation**
- Measure 1** Replacement of birds by management – funding off-site programmes to increase breeding success.
- Measure 2** NZ Dotterel management on site (also benefitting Variable Oystercatcher).
- Measure 3** Arctic migrant species options.
26. **AGREED (Mitigation/Compensation)**
27. **Measure 1** Issue: determining (by modelling) the final number possibly affected (killed) and thus the number to be replaced (mitigated for) remains problematic. However, all accept, to a degree, the current precautionary estimates of the Band modelling. In regard to SIPO, all agree that should large numbers be predicted to be affected (once 2 years of monitoring is completed), because of the ecology of the species, management of breeding to an adequate level would be impracticable. In illustration of this point, Dr Dowding estimated a minimum of 55 birds (lower 95% confidence limits) would need to be mitigated for and that given the species' mortality to adulthood there would need to be the management of around 400 pairs on the breeding grounds to replace 55 adult birds. The difficulty with managing that number is that SIPO do not nest in colonies but are widely dispersed as isolated pairs. – *Agreed*
28. The solution may be to use the one or more of the avoidance options first and then manage the residual kill provided that the residual is low enough to be replaced by off-site management – *Agreed*
29. However, mitigation option 1 may work for Wrybill, Banded Dotterel, and possibly Pied Stilt. The Experts also note that this option may also benefit other non-affected threatened species such as Black Fronted Tern – *Agreed*

30. **Measure 2** Will work – *Agreed*
31. **Measure 3** Arctic species – Not considered feasible to improve breeding success, given the extreme low density and remoteness of breeding grounds (overseas, in Russia and Alaska).
32. There was a general opinion that mitigation for SIPO and Wrybill should take precedence over Arctic species (if a choice on resources for management had to be made) – *Agreed*
33. However, in regard to Arctic species the experts agree that protection and management of roost sites in New Zealand is possible – this benefits non-breeding birds and those heading into migration. The experts also agree that it could occur through vegetation management (e.g. removing mangroves and shell-bank vegetation in the Firth of Thames); and that this management is a useful form of mitigation for those species. However, the quantity of such management required may not be measurable. – *Agreed*

### ***Disagreements***

34. There was little raised that could not be resolved to an agreed position. The data used in the Band modelling and the limitations of that model remain with some question.

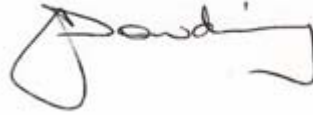
### ***Verification of record***

35. The above statements, discussion points, tables and notes are a true and accurate record of the expert panels' caucusing and the experts position (agreed or not) are truly represented in this document. The document was completed and signed on 16.04.2009.

Mr Gerry Kessels

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Dr JE Dowding

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Dr Phil Battley

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Dr Richard Seaton

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Dr Vaughan Keesing

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Dr Steven Percival

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