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To: PPL - D. Clendon

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From: Technical Advisor Ecology - J. Marshall

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Subject: **Waitaha Hydro - Lizards**

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### Summary

- The applicant has employed a respected herpetologist to assess the potential effects of the proposed hydro scheme on the lizard fauna.
- The resultant report contained information on lizard distribution, abundance and threat status (at that time), and provides an assessment of the proposal in terms potential negative effects to native lizard populations and conservation status.
- No lizards were found during the brief field search at appropriate sites in the proposed footprint but it is highly likely that two At Risk lizard species and likely that a Nationally Vulnerable gecko occur within the footprint.
- If the species likely to be on site are present, the site would be significant for lizards and as such the impact of the project on lizard fauna is at least significant at a local level
- The forest habitats of the At Risk gecko are well represented in the Ecological District, however the seral vegetation habitats of the Threatened gecko and At Risk skinks are not well represented in public conservation lands.
- The applicant has proposed that any incidental find of lizards during construction be reported to and handed over to local DOC staff for distribution and taxonomy information, and release into appropriate local sites. No other avoidance, mitigation, or remedial work was proposed but other actions to avoid, remedy and compensate are possible.  
Given the now known diversity amongst the speckled skink (*Oligossoma infrapactatum*) clade a thorough search of the area by a qualified herpetologist at the appropriate time should be conducted and recovered individuals identified before development begins.
- Without some compensatory action there will be an overall loss to biodiversity through loss of habitat and potentially individuals of herpetofauna species threatened with and at risk of extinction.

### Introduction

The Westpower hydro proposal in the Waitaha catchment has a footprint of approximately 100ha (Whitaker, 2013), described as relatively intact native vegetation. Three areas within the proposed footprint were searched over 10 person days in summer, no animals were found but suitable habitat was identified for both skinks and geckos, by a competent and respected herpetologist. The report provided a clear and

comprehensive assessment of the local lizard fauna with reference to current knowledge and national threat status.

## **Assessment of Effects**

### **Conclusions**

- Three (or possibly four) indigenous species of lizard may be present in the 100ha footprint; *Mokopirriakau granulatus*, *Nautlinus tuberculatus* *Oligosoma polychroma* and possibly *O. infrapactatum*
- It is likely that these species occur in the project disturbance area of 8ha and as *N. tuberculatus* is Threatened with extinction (Hitchmough et al 2012) the site is significant for lizards.
- There is ideal habitat in the foot print for gecko species
- The footprint is said to be of no more than local value to lizards because of their widespread, low density distributions within a vast habitat. This is not the case if the Westland green gecko or a unique clade of the speckled skink is present.
- Forest cover in the Ecological District is well represented in the public conservation lands but the amount of available shrubland habitat in the E.D. is low.

### **Lizards on site**

Of the eight lizard species that are known to occur in Westland, three or four species could occur in the project area; *Mokopirriakau granulatus* s.s., (forest gecko) *Nautlinus tuberculatus* (West Coast green gecko), *Oligosoma polychroma* s.s. (common skink) and *O. infrapactatum* s.s.<sup>1</sup> (speckled skink complex) (Whitaker 2013). The applicant's survey found no lizards.

*Mokopirriakau* species are At Risk of extinction – in decline (Hitchmough et al 2012). They are widespread on the West Coast but facing a potentially high rate of decline. Although none were found in the survey they are undoubtedly present in the forest and shrublands. The *Nautlinus* green gecko is expected to occur semi continuously on the West Coast, although the populations appear to be at low density. This species is Threatened with extinction and is classified as Nationally Vulnerable as their numbers are low, the species also potentially faces a moderate rate of decline (Hitchmough et al 2012). The habitat at Kiwi Flat is considered ideal and it is said to be highly likely that this species is present on the project area (Whitaker 2013).

The most recent taxonomic evidence shows that all species of *Oligosoma* skink identified by Whitaker (2013) as potentially occurring on site are At Risk of extinction – in decline *O. polychroma* complex skinks were known to have patchy and localised populations on the West Coast. Whitaker (2013) thought it was most likely that *O. polychroma* s.s., was present on site and that within the speckled skink complex (represented in Westland by three species), if any were present, it was most likely to be *O. infrapactatum* s.s, however given its current known distribution it is unlikely to occur (Whitaker 2013).

### **Significance of lizards on site**

Whitaker (2013) argues that because the available habitat is so great on the West Coast, and the animals are widespread at any site, the conservation significance of the gecko

populations within the footprint is low, only increasing slightly if the presence of *M. sp.* “Okarito” is recorded. Whitaker is more concerned with the presence of the at risk skink species, and moderately concerned with the likelihood, though low, of other *O. infrapactatum* complex animals being present. He notes that the presence of any other species of lizards on site would be of high conservation significance.

Whitakers argument maybe a reasonable assessment for the national significance of the At Risk gecko, but any loss of individuals of the Threatened species is nationally significant (Pers. Comm: C O’Donnell) and locally, both the loss of individuals and habitat will be a significant. Whitakers argument that the patchy nature of skink populations makes the site more significant for skinks than geckos is reasonable, however since the time this report was written the common skink complex has been resolved with two of the three species are classed as At Risk of extinction. This poses a greater risk of significant loss than originally considered by Whitaker even though no skinks were found and he suspects the most likely taxa to be present will be the “not threatened” species. The speckled skink complex taxonomy has also changed since 2013 and the presence of any of these species in the small amount of potential habitat on site would be of at least moderate conservation significance and potentially high significance if the Chesterfield skink is present, according to Whitaker (2013).

Whitaker claims that the forest and shrubland habitats occur widely in the Waitaha catchment and throughout central Westland. The forest cover within the Hari Hari Ecological District is well represented in the public conservation estate, however this is not the case for seral shrublands in the E.D. Across all Land Environments (Leathwick et al 2003) only 20% of the seral shrublands in the E.D. are within public conservation lands, and that proportion of seral vegetation is lower for the Land Environments present within the project footprint (O2.1, O1.4,) is very small; it is estimated that there i.e. less than 5% of the total land area of each land environment in native seral shrubs in public conservation land.

Despite Whitakers assessment that the development will have negligible effects on the gecko fauna this is by no means guaranteed and remains a risk for lizard conservation values whilst so little information is known about the actual species on site: should the Westland green gecko be present the effect will be greater than just a local loss. The effects on the skink fauna could also be nationally significant if a rare *O. infrapactatum* taxa is present and at least locally significant otherwise.

### **Proposed Mitigation**

Whitaker (2013) states that basic information on lizard autecology in Westland is largely lacking and it is for this reason that recovery of any incidental lizard finds is reported to DOC staff locally to inform taxonomy and distribution patterns. In the event of this occurring, as is recommended, all Wildlife Act permits, conditions, and arrangement for the handling procedures of the animals will have to be arranged prior to habitat destruction.

No other proposal is offered as avoidance, remedy, or compensation for the loss of habitat and probable loss of individuals. There will be localised negative effects

through loss of individuals and permanent loss of potential habitat, and there could be significant national effects; either way biodiversity values on public conservation lands will be reduced and to reach a no loss of values or even a gain in values other actions should be considered.

The difficulty of capturing and identifying diurnal skinks and the brevity of the consultants survey period means a more thorough search for individuals should be addressed before the development phases occur using Artificial Cover Objects for individual recovery. Adams (2014) states that the cryptic nature of lizards makes any search difficult, and from experience of lizard surveys on the West Coast, I believe searches are even more difficult there. Survey must be done by highly skilled herpetologist, ideally assisted with specially trained detection dogs. Even under ideal conditions experience tells us that we are highly likely to miss detecting some/many species and detecting even abundant species will require significant effort over time.

**Recommendation:** Require applicant to undertake detailed and targeted herpetological surveys of the development area, done during suitable weather and seasons, and by a suitably experienced herpetologist who has experience with Westland lizards.

**Recommendation:** After an adequate survey has been undertaken, require applicant to assess the significance of the lizards, and determine appropriate ways to mitigate impacts. This should be summarised in a Lizard Management Plan (or similar)

Other remedial activities could involve replanting/restoration of temporarily destroyed habitat with appropriate shrub species and potentially creation of other shrub habitat in appropriate sites within the catchment and compensation actions could be discussed with the lizard advice group and the biodiversity offset team within DOC.

## **Conclusions**

The report provides information on the threat status, conservation value and distribution of the indigenous lizard fauna, it also comments on how little is known about the autecology of the indigenous skinks and geckos.

The report argues that the project has a low impact of local effect, identifying only loss and displacement of individuals and destruction of 10's of hectares of common habitats as an impact. The report recognises the subjective nature of describing an amount of loss and refers to both "negligible" or "of very little adverse effect on the lizard fauna of the project area". However the likely presence of a Threatened gecko species and total removal of less well represented "At Risk" skink habitat is at least a significant local negative effect and potentially a nationally significant negative effect and will cause a loss of biodiversity values. A survey to identify which species of *O. infrapactatum* is present (if any) should be conducted by a qualified herpetologist at an appropriate time. Attempts to avoid the loss of individual lizards should be made, restoration or recreation of less well represented shrub habitat could be offered as a remedial action and compensation should be discussed.

## **Reference**

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