Provided at the hearing

J. Derks' Key Speaking Points & Comments on Issues Arising At WCRC Hearing for Plan Change 1 – Miscellaneous Change N – Sphagnum Moss Harvesting

- If hydrology of a wetland site is not markedly altered, it can be expected its vegetation characteristics will remain relatively unchanged. Ecologically this is a key criterion, and provided activities do not result in significant and long term changes to a site's hydrology, they should not adversely affect its ecological characteristics (neither flora nor fauna).

- Sphagnum moss harvesting is not a new activity being proposed for Scheduled wetlands – some currently scheduled wetlands have a prolonged and continuing moss harvesting history. This has not been to their detriment, actually the reverse. It is my opinion that anthropogenic effects, in this case those from Sphagnum moss harvesting, appropriately managed, are compatible with retaining and sustaining what are being recognised as their natural values now.

- In absence of Sphagnum moss harvesting in many wetlands there can be relatively rapid change in site characteristics. They undergo a succession, from exhibiting wetland attributes to shrubland, and ultimately, to regenerating indigenous forest. Whether that is desirable is not a concern – the point is that sites identified now as having certain values (wetland), cease, in quite short periods, to exhibit those values. So, if the aim is sustain wetlands and in particular those with a moss harvesting history, but also those without, moss harvesting activity, appropriately managed, is compatible with that aim.

- From the submissions received in regard to the Plan Change there appears to be a misconception regarding the effects of harvesting using current practices. Historical harvesting and extraction practices were not necessarily conducive to retaining wetland's natural values. Helicopter extraction and contract (paid by bag picked) harvest combined to:

  i. Encourage flexible picking of moss within an area, avoiding drier areas with inferior moss presence and high concentrations of other vegetation e.g. *Polytrichum commune*, *Nertera* species, fern species, *Gahnia* species, manuka, *Coprosma* species, gorse. These areas progressively expanded, with concomitant reduction in the wetter, more open zones supporting moss cover.

  ii. Produce no mechanical effect to remedy this change – any remediation would have to have involved hand labour or an additional mechanical treatment (crushing) post-extraction, at extra cost. This seldom occurred, and the wetland area attributes

changed with each subsequent pick of moss to the point where many areas of formerly moss-producing wetland have become drier (altered hydrology) and overgrown by shrub/regenerating forest cover.

That has changed, and in contrast, current practice of use of low ground pressure machinery and crushing of vegetation to at or just above water table level as a part of harvesting, plus leaving an adequate moss cover as a spore or vegetative reproduction base, ensures the wetland attributes are retained via no alteration to hydrology.

- Ecologically, there is no reason in my opinion, why a Resource Consent process is required to assess the effects of Sphagnum moss harvesting in a wetland provided appropriate standards are in place to manage any such activity. The benefits of harvesting in maintaining and enhancing wetland values have been and are being demonstrated. In my opinion Sphagnum moss harvesting (if conducted as per proposed Rule 7a) is an appropriate activity in a wetland that will not result in loss of ecological values or functioning of the wetland.

Comment on Issues Arising at Hearing

I have been asked to comment on certain matters arising through the course of the hearing.

Issue A:

The Buxton Report (page 10-14) highlights that the effects of sphagnum harvesting may be more than minor and are most appropriately considered on a case-by-case basis rather than provided for as a permitted activity rule.

Comment on Issue A:

Ecologically, provided the hydrology of a wetland is not markedly altered, its natural values are expected to be maintained. This is a key point made by Buxton (2017, p. 11, with ref. to Clarkson *et al.*, 2004)[1] when he states:

"Key wetland functions such as hydrological status are largely unchanged by sphagnum harvesting. This is particularly important if wetlands are to recover. Hydrology is probably the single most important determinant of the establishment and maintenance of specific types of wetlands and wetland processes.

(Buxton, 2017, p. v)[2] furthermore states:

[1] Ref: Buxton, R. (2017). Identifying the Environmental Effects of Sphagnum Moss Harvesting on Wetlands. *Landcare Research*, Lincoln, New Zealand.
[2] Ref: Buxton, R. (2017). Identifying the Environmental Effects of Sphagnum Moss Harvesting on Wetlands. *Landcare Research*, Lincoln, New Zealand.

"Traditional management has resulted in increased woody vegetation and decreased sphagnum yields in previously harvested conservation areas, whereas current practices on private land have increased sphagnum yields, with temporary minor impacts on vegetation and wildlife. The negative impacts of harvesting are generally short term and minor."

Issue B:

The Buxton Report discusses paludiculture and the effects of Harvesting, including that the effects of harvesting cannot be appropriately controlled as a permitted activity.

Comment on Issue B:

Nothing in the proposed Rule 7a suggests or allows for paludiculture as involving hydrology alterations as a permitted activity. From an ecological perspective, my opinion is that proposed Rule 7a conditions are consistent with protecting and sustaining an existing wetland's natural values, while allowing Sphagnum moss harvesting, as distinct from the moss farming practices referred to by Buxton[3] in his discussion of paludiculture.

Observations by Buxton that are also pertinent here are:

Buxton (2017, p. v): "Traditional management has resulted in increased woody vegetation and decreased sphagnum yields in previously harvested conservation areas, whereas current practices on private land have increased sphagnum yields, with temporary minor impacts on vegetation and wildlife. The negative impacts of harvesting are generally short term and minor."

And,

Buxton (2017, p. vi): "Allow sphagnum harvesting on Scheduled wetlands as a permitted activity rule with conditions. The conditions would need to be able to control the effects of the activity."

Key points here, from the ecological perspective, are that Sphagnum moss harvesting effects are short term and minor on both flora and fauna, and it is appropriate for it to be a permitted activity, provided it is appropriately controlled as in my opinion, proposed Rule 7a conditions provide for.

[3] Ref: Buxton, R. (2017). Identifying the Environmental Effects of Sphagnum Moss Harvesting on Wetlands. *Landcare Research*, Lincoln, New Zealand.

Issue C:

Is the use of photographs appropriate for monitoring purposes?

Comment on Issue C:

From an ecological perspective, a principal parameter for monitoring is site change over time. Photographs taken from established photopoints are a recognised and effective, efficient, and of particular importance, repeatable, method[4] of obtaining a benchmark status of a site's condition (vegetation cover type and density at commencement of monitoring) and a subsequent record of and tracking of any change. If marked changes in vegetation composition occur over time at a site it is likely that other site characteristics are changing as well, and vice versa. Therefore, photographic records from set photopoints are an extremely useful indicator of change that can be used to monitor rates of recovery and structural succession in ecosystems.[5] It is a method that can be used to detect both qualitative and quantitative change. Lucey & Barraclough (2001, p.1) state: "The technique [photopoint monitoring] can also be used to assess the success or failure of management decisions based on the use of clearly defined indicators and standards...in conjunction with other quantitative approaches or as an independent monitoring procedure."

The condition contained in proposed Rule 7a for a photographic record to be provided and maintained is therefore deemed a pragmatic and satisfactory monitoring method.

Issue D:

Can proposed Rule 7a provide safeguards to protect the indigenous biodiversity values of the wetlands, including the role of sphagnum moss to the wetland functioning?

Comment on Issue D:

In my experience it has been demonstrated that appropriately managed Sphagnum moss harvesting sustains wetland's natural values, provided hydrology of the site is not markedly altered. The conditions in proposed Rule 7a provide adequate controls such that, from an ecological perspective, permitted activity status with these conditions is sufficient safeguard in ensuring Sphagnum moss contribution to wetland function, recognising that appropriately managed harvesting does not eliminate the Sphagnum moss, its objective is to sustain the Sphagnum moss within the wetland.

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[4] Ref: Handford, P. (2000). Native Forest Monitoring – A Guide for Forest Owners and Managers. *Forme Consulting Group*, Tawa, Wellington, New Zealand.

[5] Ref: Lucey, W. P. and Barraclough, C. L. (2001). A User Guide to Photopoint Monitoring Techniques for Riparian Areas – Field Test Edition. *Aqua-Tex Scientific Consulting Ltd. (1993)*. Kimberley, British Columbia, Canada.