Ecological restoration of Wairio Wetland, New Zealand: Effect of flooding on woody vegetation, carbon sequestration and recommendations for future plantings

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Errata for MSc Thesis – Aurore Fanal

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Subject: ecological restoration of Wairio Wetland, New Zealand: effect of flooding on woody vegetation, carbon sequestration and recommendations for future plantings.

Page 45: Table of the species-specific linear models for the height in 2017. The odds ratios were provided for each coefficient of the models. However, these values can only be displayed for binary regressions, and are therefore only accurate for the survival models. Odds ratios should be removed from the table, as shown below (Table 1).

Table 1: Results of the species-specific linear mixed effects models analysing the growth (height in 2017) of the trees six years after planting (2011-2017) related to elevation and treatment methods. t values = β coef / Std Error. These t values can be compared to values in a Student t table to define the degree of significance (if p value < 0.05, ** if p < 0.01, *** if p < 0.001). Spacing is not a variable for focal species as all the focal trees have been planted with a 1.5 m spacing.*

	***C. australis* n = 68**		***O. virgata* n = 48**		***D. dacrydioides* n = 55**		***P. totara* n = 55**	
	β coef.	t value	β coef.	t value	β coef.	t value	β coef.	t value
Topsoil scraped	**-64,67**	**-3,04****	1021,29	1,09	**-41,19**	**-4,65*****	-5,27	-0,595
Nurses present	31,46	1,45	32,67	1,77	-821,67	-1,95	**22,45**	**2,352***
Elevation	1229,32	1,03	-1027,60	-0,59	-902,16	-0,91	1018,27	1,314
Elevation²	-33,67	-0,99	29,08	0,60	24,55	0,87	-28,40	-1,297
Topsoil S * elevation			-61,82	-1,17				
Nurse * elevation					46,98	1,96		
Intercept	-10933,99		9264,73		8424,42		-8991,71	

	***L. scoparium* n = 195**		***P. tenuifolium* n = 165**		***C. propinqua* n = 107**		***C. robusta* n = 40**	
	β coef.	t value	β coef.	t value	β coef.	t value	β coef.	t value
Topsoil scraped	224,61	0,62	**-62,1**	**-3,31****	**-39,6**	**-4,60*****	**-38,85**	**-2,17***
Spacing 1.5 m	17,34	1,25	21,55	0,93	10,01	0,81	-5,51	-0,22
Elevation	-809,57	-1,25	1268,41	1,41	657,92	1,53	928,86	0,31
Elevation²	23,89	1,32	-34,91	-1,38	-18,14	-1,48	-26,69	-0,32
Topsoil S * spacing 1.5	36,79	1,51						
Topsoil S * elevation	-16,58	-0,82						
Intercept	7068,23		-11268,64		-5811,45		-7906,96	

Page 58, last paragraph: It is said at the end of the "Discussion – effect of elevation" chapter that it is important to finish restoring the water regime before starting the revegetation part of a wetland restoration project. However, I would like to mention that the situation experienced on Stage 3 after the flooding was not due to a lack of rigor from the Committee of restoration. The aim was precisely to study the effect of flooding on native species and the suitable elevation ranges for the local topographic context. High mortality rates were therefore to expect but allow us to create survival models and study the tolerance of native species to waterlogging.

Page 61, line 32: The density of 330 kg/m^3 suggested for *P. totara* and *D. dacrydioides* originates from a database of native species' wood density from Landcare Research. However, Beets et al. (2008) and the National Association of Woodworkers N.Z. Inc. provide wood densities of 420 – 480 kg/m^3 for *P. totara*, and 460 kg/m^3 for *D. dacrydioides*.

Page 62, line 28: Carbon sequestration by Totara can reach 900 tonnes/ha after 80 years, and not 900 tonnes/ha/year.

Sources:

National Association of Woodworkers N.Z. Inc. - Native trees. Available at http://naw.org.nz/resourcesnew/native-tree.

Bergin, D. O., Kimberley, M. O., & Low, C. B. (2008). Provenance variation in *Podocarpus totara* (D. Don): Growth, tree form and wood density on a coastal site in the north of the natural range, New Zealand. *Forest Ecology and Management*, 255, 1367-1378.

Landcare Research NZ – Species wood density data. Available at https://datastore.landcareresearch.co.nz.