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# Conservation status of New Zealand hornworts and liverworts, 2020

P.J. de Lange, D. Glenny, K. Frogley, M.A.M. Renner, M. von Konrat, J.J. Engel,  
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Department of  
Conservation  
*Te Papa Atawhai*

New Zealand Government

The Threatened - Nationally Endangered liverwort *Goebelobryum unguiculatum* growing amongst the Not Threatened *Kurzia hippuroides*.  
Photo: Jeremy Rolfe.

*New Zealand Threat Classification Series* is a scientific monograph series presenting publications related to the New Zealand Threat Classification System (NZTCS). Most will be lists providing NZTCS status of members of a plant or animal group (e.g. algae, birds, spiders). There are currently 23 groups, each assessed once every 5 years. From time to time the manual that defines the categories, criteria and process for the NZTCS will be reviewed. Publications in this series are considered part of the formal international scientific literature.

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## Abstract

The conservation status of 770 New Zealand hornwort and liverwort taxa was assessed using the New Zealand Threat Classification System (NZTCS). A full list is presented, along with a statistical summary and brief notes on the most important changes. This list replaces all previous NZTCS lists for hornworts and liverworts.

Keywords: New Zealand Threat Classification System, NZTCS, conservation status, hornwort, liverwort, Acrobolbaceae, Aneuraceae, Cephaloziellaceae, Frullaniaceae, Lejeuneaceae, Lepidoziaceae, Lophocoleaceae, Plagiochilaceae, Radulaceae, Schistochilaceae

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# 1. Summary

In 2014, de Lange et al. (2015) assessed the conservation status of 747 hornwort and liverwort taxa using the criteria specified in the New Zealand Threat Classification System (NZTCS) manual (Townsend et al. 2008). Here we report on a new assessment of 770 hornwort and liverwort taxa that includes 737 of the taxa that de Lange et al. (2015) assessed and 33 that have been assessed for the first time (Table 1). The assessment data for all taxa is available at [www.nzctcs.org.nz/#/reports/1078](http://www.nzctcs.org.nz/#/reports/1078).

Nine of the taxa that were assessed by de Lange et al. (2015) are not included in this report, as they are now considered to be conspecific with other taxa assessed here (Table 2).

The names of 61 taxa in this report have changed since the 2014 assessment (de Lange et al. 2015) (Table 3). These name changes reflect the ongoing publication of the New Zealand Liverwort and Hornwort Flora. At the time of writing the first three of the planned four-volume treatment have been published (Engel & Glenny 2008; Engel & Glenny 2019a, b). As a result of the publication of these first three instalments of the Flora, there has been a renewed interest in resolving the taxonomic uncertainty that surrounds some of New Zealand's hornworts and liverworts. This has resulted not only in taxonomic adjustments within some of the species-rich genera, notably *Acrobolbus* (as recircumscribed by Briscoe et al. 2015) and the Plagiochilaceae (Patzak et al. 2016; Renner et al. 2017a, b; Renner 2018; Renner et al. 2018) but also significant generic adjustments in the Lophocoleaceae (Söderström et al. 2013) and new discoveries awaiting formal description, which are included in this report.

The treatment of the Plagiochilaceae by Renner (Renner et al. 2017a, b; Renner 2018; Renner et al. 2018) differs for several taxa from that offered by Engel & Merrill in a series of papers initiated in 1999, completed in 2013 and summarised in volume 3 of the New Zealand Hornwort and Liverwort Flora (Engel & Glenny 2019b). Further research will be needed to reconcile these differences; but meanwhile we have adopted elements of both treatments so that the assessments cover as much of the putative diversity in *Plagiochila* as possible. For example, Engel & Glenny (2019b) accept infraspecific variation within *Plagiochila banksiana*, *P. circinalis*, *P. deltoidea*, *P. fuscilla* and *P. incurvicolla*, whereas Renner recognises them only at the rank of species. For this assessment we follow the Engel & Glenny (2019b) treatment of these taxa. Engel & Glenny (2019b) also recognise infraspecific variation within *P. arbuscula* and *P. colensoi*. However, we follow Renner's treatment of *P. arbuscula* as a synonym of *P. trispicata* and his rejection of *P. trispicata* var. *rekohuense* (*P. arbuscula* var. *rekohuense*) as a distinct taxon. We also follow Renner (2018) in treating *P. colensoi* var. *quinquespina* as a synonym of *P. incurvicolla*. With this exception and as noted above, we do follow the infrasepecific treatment of *P. incurvicolla* offered by Engle & Glenny (2019b).

The differing treatments by Engel & Merrill (summarised in Engel & Glenny 2019b) and Renner (2018) of the *Plagiochila aculeata* / *P. fasciculata* / *P. subfasciculata* complex are more difficult to resolve. Both treatments recognise only two of the three taxa but their synonymies differ. Engel and Glenny (2019b) reject *P. subfasciculata* as a synonym of *P. aculeata* whereas Renner treats *P. aculeata* as a synonym of *P. fasciculata*. We follow Renner's treatment, accepting *P. fasciculata* and *P. subfasciculata*, because this decision is based on morphological and molecular data.



Table 1. Hornwort and liverwort taxa assessed for the first time in this report.

NAME AND AUTHORITY	FAMILY	TAXONOMIC STATUS
<i>Acrobolbus cinerascens</i> var. <i>marginatus</i> J.J.Engel	Acrobolbaceae	Determinate
<i>Asterella drummondii</i> (Taylor) R.M.Schust. ex. D.G.Long	Aytoniaceae	Determinate
<i>Cephaloziella</i> sp. (d) (CHR 657977; Beach Road)	Cephaloziellaceae	Unresolved
<i>Cheilolejeunea</i> (k) (CHR 633171; Mangapapa Stream)	Lejeuneaceae	Unresolved
<i>Cheilolejeunea rodneyi</i> Bever. & Glenny	Lejeuneaceae	Determinate
<i>Chiloscyphus alpicola</i> J.J.Engel	Lophocoleaceae	Determinate
<i>Heteroscyphus ammophilus</i> var. <i>obtusifolius</i> J.J.Engel & G.L.Merr.	Lophocoleaceae	Determinate
<i>Heteroscyphus menziesii</i> (Mitt.) J.J.Engel	Lophocoleaceae	Determinate
<i>Lejeunea albiflora</i> Colenso	Lejeuneaceae	Unresolved
<i>Lembidium nutans</i> var. <i>flagelliferum</i> E.A.Hodgs.	Lepidoziaceae	Determinate
<i>Leptoscyphus</i> aff. <i>compactus</i> (a) (AK 285735; Lake Kanieri)	Lophocoleaceae	Unresolved
<i>Leptoscyphus excipulatus</i> (Steph.) J.J.Engel var. <i>excipulatus</i>	Lophocoleaceae	Determinate
<i>Leptoscyphus idiodontus</i> J.J.Engel	Lophocoleaceae	Determinate
<i>Leptoscyphus incomptus</i> J.J.Engel	Lophocoleaceae	Determinate
<i>Leptoscyphus microphyllidicus</i> J.J.Engel	Lophocoleaceae	Determinate
<i>Leptoscyphus nanophysanthodes</i> J.J.Engel	Lophocoleaceae	Determinate
<i>Marsupella sparsifolia</i> subsp. <i>childii</i> R.M.Schust.	Gymnomitriaceae	Determinate
<i>Paracromastigum</i> (a) (CHR 618493; Banks Peninsula)	Lepidoziaceae	Unresolved
<i>Paracromastigum</i> (b) (CHR 655691; Cypress Mine)	Lepidoziaceae	Unresolved
<i>Plagiochila alta</i> Steph.	Plagiochilaceae	Determinate
<i>Plagiochila reischekiana</i> Steph.	Plagiochilaceae	Determinate
<i>Plagiochila subfasciculata</i> Colenso	Plagiochilaceae	Determinate
<i>Protolophozia androgyna</i> R.M.Schust. ex Vána et L.Söderstr.	Scapaniaceae	Determinate
<i>Pycnolejeunea glauca</i> Steph.	Lejeuneaceae	Determinate
<i>Riccardia</i> aff. <i>crassa</i> (a) (CHR 639762; Bulmer)	Aneuraceae	Unresolved
<i>Lobatiriccardia</i> (a) (CHR618544; Banks Peninsula)	Aneuraceae	Unresolved
<i>Riccia cartilaginosa</i> Steph.	Ricciaceae	Determinate
<i>Riccia cavernosa</i> Hoffm.	Ricciaceae	Determinate
<i>Riccia rorida</i>	Ricciaceae	Determinate
<i>Siphonolejeunea raharahanehemiae</i> de Lange & M.A.M.Renner	Lejeuneaceae	Determinate
<i>Spruceanthus olivaceus</i> (Hook.f. & Taylor) X.Q.Shi, R.L.Zhu & Gradst.	Lejeuneaceae	Determinate
<i>Syzygiella</i> (a) (CHR 638184; "asperulate")	Adelanthaceae	Unresolved
<i>Syzygiella teres</i> (Carrington & Pearson) Vána	Adelanthaceae	Unresolved

Table 2. Taxa that were assessed by de Lange et al. (2015) but which, in this report, are treated as conspecific with other taxa that they assessed.

TAXON IN DE LANGE ET AL. 2015	CONSPECIFIC TAXON IN THIS REPORT	FAMILY
<i>Aneura</i> aff. <i>rodwayi</i> (CHR 572016; South Cape)	<i>Riccardia cochleata</i> (Hook.f. & Taylor) Kuntze	Aneuraceae
<i>Cephaloziella rufobrunnea</i> R.M.Schust.	<i>Marsupella sprucei</i> (Limpr.) Bernet	Cephaloziellaceae
<i>Chiloscyphus anisolobus</i> J.J.Engel & Glenny	<i>Chiloscyphus innovatus</i> (E.A.Hodgs.) J.J.Engel & R.M.Schust.	Lophocoleaceae
<i>Heteroscyphus biciliatus</i> (Hook.f. & Taylor) J.J.Engel	<i>Heteroscyphus allodontus</i> (Hook.f. & Taylor) J.J.Engel & R.M.Schust.	Lophocoleaceae
<i>Heteroscyphus normalis</i> (Steph.) R.M.Schust	<i>Heteroscyphus lingulatus</i> (Colenso) J.J.Engel & R.M.Schust.	Lophocoleaceae
<i>Heteroscyphus renistipulus</i> (Steph.) Schiffrn.	<i>Heteroscyphus fissistipus</i> (Hook.f. & Taylor) Schiffrn. var. <i>fissistipus</i>	Lophocoleaceae
<i>Plagiochila aculeata</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees	<i>Plagiochila fasciculata</i> Lindenb.	Plagiochilaceae
<i>Plagiochila colensoi</i> var. <i>quinquespina</i> (Steph.) J.J.Engel & G.L.Sm.	<i>Plagiochila incurvicolla</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees	Plagiochilaceae
<i>Plagiochila arbuscula</i> var. <i>rekohuensis</i> J.J.Engel & G.L.Merr.	<i>Plagiochila trispicata</i> Colenso	Plagiochilaceae

Table 3. Name changes affecting New Zealand hornwort and liverwort taxa between the publication of de Lange et al. (2015) and this document.

NAME AND AUTHORITY IN DE LANGE ET AL. 2015	NAME AND AUTHORITY IN THIS REPORT	FAMILY
<i>Acrobolbus cinerascens</i> (Lehm. & Lindenb.) Bastow	<i>Acrobolbus cinerascens</i> (Lehm. & Lindenb.) Bastow var. <i>cinerascens</i>	Acrobolbaceae
<i>Acrochila biserialis</i> (Lehm. & Lindenb.) Grolle	<i>Chiastocaulon biserialis</i> (Lehm. & Lindenb.) S.D.F. Patzak, M.A.M. Renner, Schäf.-Verw. & Heinrichs,	Plagiochilaceae
<i>Acrolejeunea pycnoclada</i> subsp. <i>pycnoclada</i> (Taylor) Schiffner	<i>Acrolejeunea pycnoclada</i> (Taylor) Schiffner var. <i>pycnoclada</i>	Lejeuneaceae
<i>Aneura</i> aff. <i>novaeguineensis</i> (AK 304683; Te Akau)	<i>Aneura novaguineensis</i> Hewson	Aneuraceae
<i>Archilejeunea planiuscula</i> (Mitt.) Steph.	<i>Spruceanthus planiuscula</i> (Mitt.) X.Q.Shi, R.L.Zhu & Gradst.	Lejeuneaceae
<i>Austrolejeunea carcharias</i> (M.A.M.Renner) M.A.M.Renner	<i>Siphonolejeunea carcharias</i> (M.A.M.Renner) M.A.M.Renner	Lejeuneaceae
<i>Austrolejeunea conchophylla</i> (Grolle) Pócs	<i>Siphonolejeunea conchophylla</i> (Grolle) M.A.M.Renner	Lejeuneaceae
<i>Austrolejeunea fragilis</i> (R.M.Schust.) R.M.Schust.	<i>Siphonolejeunea fragilis</i> (R.M.Schust.) M.A.M.Renner	Lejeuneaceae
<i>Austrolejeunea hamata</i> (Grolle) Pócs	<i>Siphonolejeunea hamata</i> (Grolle) M.A.M.Renner	Lejeuneaceae
<i>Austrolejeunea hispida</i> R.M.Schust.	<i>Siphonolejeunea hispida</i> (R.M.Schust.) M.A.M.Renner	Lejeuneaceae
<i>Austrolejeunea olgae</i> (R.M. Schust.) R.M.Schust.	<i>Siphonolejeunea olgae</i> R.M. Schust.	Lejeuneaceae
<i>Austrolejeunea papillosa</i> (Glenny) Pócs	<i>Siphonolejeunea papillosa</i> (Glenny) M.A.M.Renner	Lejeuneaceae
<i>Austrolejeunea secunda</i> M.A.M.Renner	<i>Siphonolejeunea secunda</i> (M.A.M.Renner) M.A.M.Renner	Lejeuneaceae
<i>Bazzania hochstetteri</i> (Reicht.) E.A.Hodgs.	<i>Bazzania hochstetteri</i> (Reichardt) E.A.Hodgs.	Lepidoziaceae
<i>Cephaloziella byssacea</i> (Roth) Warnst. subsp. <i>byssacea</i>	<i>Cephaloziella divaricata</i> (Sm.) Schiffn.	Cephaloziellaceae
<i>Cephaloziella</i> sp. (c) (WELT H013199; Tahora Tunnel)	<i>Cephaloziella tahora</i> Bever. & Glenny	Cephaloziellaceae
<i>Cephaloziella hispidissima</i> R.M.Schust.	<i>Cephaloziella verrucosa</i> Steph.	Cephaloziellaceae
<i>Cheilelejeunea ceylanica</i> (Gottsche) R.M.Schust. & Kachroo	<i>Cheilelejeunea ceylanica</i> (Gottsche) R.M.Schust. & Kachroo	Lejeuneaceae
<i>Chiloscyphus parvispinus</i> (Hook.f. & Taylor) J.J.Engel & R.M.Schust.	<i>Chiloscyphus parvispinus</i> J.J.Engel	Lophocoleaceae
<i>Chloranthes berggrenii</i> (Herzog) R.M.Schust.	<i>Lembidium berggrenii</i> Herzog	Lepidoziaceae
<i>Cololejeunea minutissima</i> (Sm.) Schiffn.	<i>Myriocoleopsis minutissima</i> (Sm.) R.L.Zhu, Y.Yu & Pócs	Lejeuneaceae
<i>Gottschea conchophylla</i> (E.A.Hodgs. & Allison) Grolle & Zijlstra var. <i>conchophylla</i>	<i>Gottschea conchophylla</i> (E.A.Hodgs. & Allison) Grolle & Zijlstra	Schistochilaceae
<i>Gottschea conchophylla</i> var. <i>multidentata</i> J.J.Engel	<i>Gottschea multidentata</i> (J.J.Engel) Glenny & J.J.Engel	Schistochilaceae
<i>Gymnomitrium cuspidatum</i> (Berggr.) R.M.Schust.	<i>Gymnomitrium incompletum</i> (Gottsche) R.M.Schust. ex Vána	Gymnomitriaceae
<i>Harpalejeunea filicuspis</i> (Steph.) Mizut.	<i>Microlejeunea filicuspis</i> (Steph.) Heinrichs, Schäf.-Verw., Pócs & S.Dong	Lejeuneaceae
<i>Harpalejeunea latitans</i> (Hook.f. & Taylor) Grolle	<i>Microlejeunea latitans</i> (Hook.f. & Taylor) Heinrichs, Schäf.-Verw., Pócs & S.Dong	Lejeuneaceae
<i>Heteroscyphus billardierei</i> (Schwaegr.) Schiffn.	<i>Heteroscyphus ciliatus</i> (Steph.) Schiffn.	Lophocoleaceae
<i>Heteroscyphus circumdentatus</i> (W.Martin & E.A.Hodgs.) J.J.Engel & R.M.Schust. var. <i>circumdentatus</i>	<i>Heteroscyphus billardierei</i> (Schwägr.) Schiffn. var. <i>billardierei</i>	Lophocoleaceae
<i>Heteroscyphus circumdentatus</i> var. <i>clasmatocoleoides</i> (W.Martin & E.A.Hodgs.) J.J.Engel & R.M.Schust.	<i>Heteroscyphus billardierei</i> var. <i>clasmatocoleoides</i> (J.J.Engel & Merr.) J.J.Engel	Lophocoleaceae
<i>Heteroscyphus coalitis</i> (Hook.) Schiffn.	<i>Heteroscyphus coalitus</i> (Hook.) Schiffn. var. <i>coalitus</i>	Lophocoleaceae
<i>Heteroscyphus colensoi</i> (Mitt.) Schiffn.	<i>Heteroscyphus oblongifolius</i> (Hook.f. & Taylor) Schiffn.	Lophocoleaceae
<i>Heteroscyphus compactus</i> (Colenso) R.M.Schust.	<i>Leptoscyphus compactus</i> (Colenso) J.J.Engel	Lophocoleaceae
<i>Lembidium nutans</i> (Hook.f. & Taylor) Mitt.	<i>Lembidium nutans</i> (Hook.f. & Taylor) Mitt. var. <i>nutans</i>	Lepidoziaceae
<i>Leptoscyphus erraticus</i> (Martin & E.A.Hodgs.) J.J.Engel	<i>Leptoscyphus heterophyllus</i> (Steph.) J.J.Engel	Lophocoleaceae
<i>Leptoscyphus innovatus</i> (E.A.Hodgs.) J.J.Engel	<i>Chiloscyphus innovatus</i> (E.A.Hodgs.) J.J.Engel & R.M.Schust.	Lophocoleaceae
<i>Marsupidium epiphytum</i> Colenso	<i>Acrobolbus epiphytus</i> (Colenso) Briscoe	Acrobolbaceae
<i>Marsupidium knightii</i> Mitt.	<i>Acrobolbus knightii</i> (Mitt.) Briscoe	Acrobolbaceae
<i>Marsupidium papillosum</i> J.J.Engel & Glenny	<i>Acrobolbus papillosus</i> (J.J.Engel & Glenny) Briscoe	Acrobolbaceae
<i>Marsupidium perpusillum</i> (Colenso) E.A.Hodgs. var. <i>perpusillum</i>	<i>Acrobolbus perpusillus</i> (Colenso) Briscoe var. <i>perpusillus</i>	Acrobolbaceae
<i>Marsupidium perpusillum</i> var. <i>denticulatum</i> J.J.Engel & Glenny	<i>Acrobolbus perpusillus</i> var. <i>denticulatus</i> (J.J.Engel & Glenny) Briscoe	Acrobolbaceae
<i>Marsupidium plagiochiloides</i> J.J.Engel & Glenny	<i>Acrobolbus plagiochiloides</i> (J.J.Engel & Glenny) Briscoe	Acrobolbaceae
<i>Marsupidium setulosum</i> (Mitt.) Mitt.	<i>Acrobolbus setulosus</i> (Mitt.) Briscoe	Acrobolbaceae
<i>Marsupidium surculosum</i> (Nees) Schiffn	<i>Acrobolbus surculosus</i> (Nees) Trevis.	Acrobolbaceae

Continued on next page



Table 3 continued

NAME AND AUTHORITY IN DE LANGE ET AL. 2015	NAME AND AUTHORITY IN THIS REPORT	FAMILY
<i>Metahygrobiella drucei</i> R.M.Schust.	<i>Cephalozia drucei</i> (R.M.Schust.) Vána	Cephaloziaceae
<i>Phaeoceros coriaceus</i> (Steph.) E.O.Campb.	<i>Phaeomegaceros coriaceus</i> (Steph.) R.J.Duff, J.C.Villareal, Cargill & Renzaglia	Anthoceraceae
<i>Phaeomegaceros hirticalyx</i> (Steph.) R.J.Duff, J.C.Villareal, Cargill & Renzaglia	<i>Phaeomegaceros</i> aff. <i>hirticalyx</i> (a) (CHR 689565; Whanganui River)	Anthoceraceae
<i>Plagiochila arbuscula</i> var. <i>arbuscula</i> (Brid. ex Lehm.) Lindenb.	<i>Plagiochila trispicata</i> Colenso	Plagiochilaceae
<i>Plagiochila arbuscula</i> var. <i>rekohuensis</i> J.J.Engel & G.L.Merr.	<i>Plagiochila trispicata</i> Colenso	Plagiochilaceae
<i>Plagiochila caducifolia</i> Inoue & R.M.Schust.	<i>Plagiochila spinulosa</i> (Dicks.) Dumort.	Plagiochilaceae
<i>Plagiochila radiculosa</i> Mitt.	<i>Cryptoplagiochila radiculosa</i> S.D.F.Patzak, M.A.M.Renner & Heinrichs	Plagiochilaceae
<i>Plagiochila viridonigra</i> (E.A.Hodgs.) Inoue	<i>Plagiochila hartziana</i> Pearson	Plagiochilaceae
<i>Plagiochilion conjugatum</i> (Hook.) R.M.Schust.	<i>Chiastocaulon conjugatum</i> (Hook.) S.D.F. Patzak, M.A.M.Renner, Schäf.-Verw. & Heinrichs	Plagiochilaceae
<i>Plagiochilion proliferum</i> (Mitt.) R.M.Schust.	<i>Chiastocaulon proliferum</i> (Mitt.) S.D.F. Patzak, M.A.M.Renner, Schäf.-Verw. & Heinrichs	Plagiochilaceae
<i>Rectolejeunea ocellata</i> Herzog	<i>Cumulejeunea ocellata</i> (Herzog) R.L.Zhu & L.Shu	Lejeuneaceae
<i>Telaranea fragillifolia</i> (R.M.Schust.) J.J.Engel & G.L.Merr.	<i>Kurzia fragillifolia</i> R.M.Schust.	Lepidoziaceae
<i>Telaranea pallescens</i> (Grolle) J.J.Engel & G.L.Merr.	<i>Kurzia pallescens</i> Grolle	Lepidoziaceae
<i>Telaranea quinquespina</i> (J.J.Engel & G.L.Merr.) J.J.Engel & G.L.Merr.	<i>Kurzia quinquespina</i> J.J.Engel & G.L.Merr.	Lepidoziaceae
<i>Telaranea trilobata</i> (R.M.Schust.) J.J.Engel & G.L.Merr.	<i>Kurzia trilobata</i> (R.M.Schust.) R.M.Schust.	Lepidoziaceae
<i>Tylimanthus saccatus</i> (Hook.) Mitt.	<i>Acrobolbus saccatus</i> (Hook.) Trevis.	Acrobolbaceae
<i>Tylimanthus tenellus</i> var. <i>tenellus</i> (Taylor) Mitt.	<i>Acrobolbus tenellus</i> (Taylor ex Lehm.) Trevis. var. <i>tenellus</i>	Acrobolbaceae
<i>Tylimanthus tenellus</i> var. <i>diversifolius</i> (E.A.Hodgs.) J.J.Engel	<i>Acrobolbus tenellus</i> var. <i>diversifolius</i> (E.A.Hodgs.) Briscoe	Acrobolbaceae

## 1.2 Trends

The conservation status of 26 taxa has changed in this assessment. However, only the changes to the status of *Radula marginata* and *Neogrollea notabilis* are based on observed decline of populations. Illegal collecting is causing local declines of *R. marginata* and loss of some populations, and it is now assessed as At Risk – Declining. Of greater concern is the continuing decline of *N. notabilis*, which is known in New Zealand from three West Coast and two Chatham Islands locations. A population on Chatham Island has been destroyed by road works and the population at Tiropahi River is believed to have gone as a result of vegetation succession altering the habitat.

Other changes reflect gains in knowledge about taxa rather than observed changes in the state of their populations. *Saccogynidium decurvum* is now assessed as At Risk – Declining, an improvement from Threatened – Nationally Vulnerable; *Lepidozia bragginsiana* is now Not Threatened rather than At Risk – Naturally Uncommon. However, improved knowledge has also resulted in the classification of *Lethocolea pansa* being down-graded from Not Threatened to At Risk – Declining.

Three taxa that were previously considered to be Not Threatened – *Leptolejeunea elliptica* subsp. *subacuta*, *Lejeunea helmsiana* and *Jackiella curvata* – are assessed as At Risk – Naturally Uncommon after the information used to inform their previous assessments (de Lange et al. 2015) was re-examined.

A significant area of concern is the number of Data Deficient hornwort and liverwort taxa. One hundred and seventy-three taxa are so poorly known that they could not be assessed. This is a slight increase on the 171 taxa recorded as Data Deficient in de Lange et al. (2015). Eighteen of the 32 taxa assessed for the first time in this report are Data Deficient. Four taxa that were assessed by de Lange et al. (2015) are now considered to be Data Deficient because of a lack of

recent information to enable their reassessment. One of those, *Seppeltia succuba*, was previously assessed as Threatened – Nationally Critical, but its known New Zealand habitat in the Eyre Mountains of Fiordland is seldom visited by liverwort specialists so the state of the population is now unknown. Surveys of similar habitat in the Remarkables Range have not revealed any specimens.

The addition of 18 taxa to the Data Deficient list is partly offset by assessments in this report of 14 taxa that had been listed as Data Deficient by de Lange et al. (2015) and the rejection of a further five taxa that are now considered to be conspecific with other taxa in this report. *Chiloscyphus trichocoleoides* is now assessed as Threatened – Nationally Critical after extensive survey beyond its only known location failed to reveal additional specimens. *Pedinophyllum monoicum* was formerly known in New Zealand from a single Wairarapa location. It is now known to be sparsely distributed across 11 small sites south of Arthur’s Pass in the South Island. However, a twelfth site, at Arthur’s Pass, has been destroyed by road realignment. *Pedinophyllum monoicum* is assessed as Threatened – Nationally Vulnerable based on the small, fragmented populations and observed decline of at least one of them. Improved knowledge has enabled six formerly Data Deficient taxa to be assessed as At Risk – Naturally Uncommon, and two as Not Threatened. A further four taxa have been assessed as At Risk – Naturally Uncommon after the available information about them was re-examined.

Table 4 compares the number of taxa in each conservation status in de Lange et al. (2015) with those assessed in this report. Table 5 summarises the nature of changes to assessments, reasons for the changes and the number of taxa in each conservation status. Table 6 shows where status changes have occurred between the two assessments.

Table 4. Statistical comparison of the status of New Zealand hornwort and liverwort taxa assessed in 2014 (de Lange et al. 2015) and 2020 (this document).

	2014	2020
Data Deficient	171	174
Threatened – Nationally Critical	8	10
Threatened – Nationally Endangered	5	5
Threatened – Nationally Vulnerable	3	3
At Risk – Declining	3	6
At Risk – Relict	2	2
At Risk – Naturally Uncommon	105	120
Not Threatened	440	440
Non-resident native – Coloniser	0	1
Introduced and naturalised	9	9
Total	746	770

Table 5. Summary of changes to the number of taxa in each conservation status between 2014 (de Lange et al. 2015) and 2020 (this report). A 'neutral' change is any movement into or out of Data Deficient.

TYPE OF CHANGE, REASON, CONSERVATION STATUS	TAXA
<i>NEUTRAL</i>	18
<b>Greater uncertainty (2)</b>	
Data Deficient (2)	
<b>More knowledge (10)</b>	
Threatened – Nationally Critical (1)	
Threatened – Nationally Vulnerable (1)	
At Risk – Naturally Uncommon (6)	
Not Threatened (2)	
<b>Reinterpretation of data (6)</b>	
Data Deficient (2)	
At Risk – Naturally Uncommon (4)	
<i>WORSE</i>	6
<b>Actual decline (2)</b>	
Threatened – Nationally Critical (1)	
At Risk – Declining (1)	
<b>More knowledge (1)</b>	
At Risk – Declining (1)	
<b>Reinterpretation of data (3)</b>	
At Risk – Naturally Uncommon (3)	
<i>BETTER</i>	2
<b>More knowledge (2)</b>	
At Risk – Declining (1)	
Not Threatened (1)	
<i>NO CHANGE</i>	711
Data Deficient (151)	
Threatened – Nationally Critical (7)	
Threatened – Nationally Endangered (4)	
Threatened – Nationally Vulnerable (2)	
At Risk – Declining (3)	
At Risk – Relict (2)	
At Risk – Naturally Uncommon (103)	
Not Threatened (430)	
Introduced and Naturalised (9)	
<i>NEW LISTING</i>	33
Data Deficient (19)	
Threatened – Nationally Critical (1)	
Threatened – Nationally Endangered (1)	
At Risk – Naturally Uncommon (4)	
Not Threatened (7)	
Non-resident Native – Coloniser (1)	
<b>Total</b>	<b>770</b>

Table 6. Summary of status changes of hornwort and liverwort taxa between 2014 (data in rows, de Lange et al. 2015 and 2020 (data in columns, this report). Numbers to the right of the diagonal (shaded mid grey) indicate improved status (e.g. one taxon has moved from Threatened – Nationally Vulnerable in 2014 to At Risk – Declining in 2020), numbers to the left of the diagonal (shaded light grey) indicate poorer status, and numbers on the diagonal (shaded dark grey) have not changed. Numbers without shading are either taxa that have moved into or out of Data Deficient, taxa added to this assessment, taxa that have not been assessed (NA) because they were misidentified in the previous assessment, or taxa that are no longer considered to be distinct (TI) from other taxa in this report.

		Total 779	Conservation status 2020											TI 8	
			DD 174	NC 10	NE 5	NV 3	Dec 6	Rel 2	NU 120	NT 440	Col 1	IN 9	NA 1		
Conservation status 2014	Data Deficient (DD)	171	151	1		1			10	3					5
	Threatened – Nationally Critical (NC)	8	1	7											
	Threatened – Nationally Endangered (NE)	5		1	4										
	Threatened – Nationally Vulnerable (NV)	3				2	1								
	At Risk – Declining (Dec)	3					3								
	At Risk – Relict (Rel)	2						2							
	At Risk – Naturally Uncommon (NU)	105					1		103	1					
	Not Threatened (NT)	440	3				1		3	429			1	3	
	Non-resident Native – Coloniser (Col)	0									0				
	Introduced and naturalised (IN)	9										9			
	Not listed	33	19	1	1				4	7	1				

## 2. Conservation status of New Zealand hornworts and liverworts, 2020

Taxa are assessed according to the criteria of Townsend et al. (2008) and the results are presented in Tables 7 and 8. Hornwort and liverwort taxa are grouped by conservation status, then by taxonomic status (determinate, unresolved), then alphabetically by scientific name. Data Deficient taxa are listed first, followed by other categories ordered by degree of loss, from Threatened through to Not Threatened then Non-resident Native followed by Introduced and Naturalised. Although the true status of Data Deficient taxa will span the entire range of available categories, taxa are in that list mainly because they are very seldom seen, so most are likely to end up being considered threatened and some may already be extinct. The Data Deficient list is likely to include many of the most threatened species in New Zealand.

The full assessment data for the hornwort and liverwort taxa listed in Tables 7 and 8 can be viewed and downloaded at <https://nztns.org.nz/reports/1078>.

The definitions of qualifiers and criteria for assessments are summarised in section 2.3. See Townsend et al. (2008) for details.

### 2.1 Hornworts

The conservation status of 13 New Zealand hornwort taxa is presented in Table 7.

Table 7. Conservation status of New Zealand hornworts, 2020.

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<b>DATA DEFICIENT (1)</b>				
<b><i>Taxonomically determinate (1)</i></b>				
<i>Phaeomegaceros coriaceus</i> (Steph.) R.J.Duff, J.C.Villareal, Cargill & Renzaglia			No change	Dendrocerotaceae

Continued on next page

Table 7 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<b>AT RISK (3)</b>				
NATURALLY UNCOMMON (3)				
<b>Taxonomically determinate (2)</b>				
<i>Nothoceros giganteus</i> (Lehm. & Lindenb.) Haseg. ex J.C.Villarreal, Hässel & Salazar		DP, Sp	No change	Dendrocerotaceae
<i>Phaeoceros delicatus</i> E.O.Campb. & Outred		DP, Sp	No change	Notothykladaceae
<b>Taxonomically unresolved (1)</b>				
<i>Phaeomegaceros</i> aff. <i>hirticalyx</i> (a) (CHR 689565; Whanganui River)		DP	More knowledge	Dendrocerotaceae
<b>NOT THREATENED (9)</b>				
<b>Taxonomically determinate (9)</b>				
<i>Anthoceros laminiferus</i> Steph.			No change	Anthocerotaceae
<i>Anthoceros muscoides</i> Colenso			No change	Anthocerotaceae
<i>Dendroceros granulatus</i> Mitt.			No change	Dendrocerotaceae
<i>Dendroceros validus</i> Steph.			No change	Dendrocerotaceae
<i>Megaceros denticulatus</i> (Lehm.) Steph.			No change	Dendrocerotaceae
<i>Megaceros flagellaris</i> (Mitt.) Steph.			No change	Dendrocerotaceae
<i>Megaceros leptohymenius</i> (Hook.f. & Taylor) Steph.			No change	Dendrocerotaceae
<i>Megaceros pellucidus</i> (Colenso) E.A.Hodgs.			No change	Dendrocerotaceae
<i>Phaeoceros carolinianus</i> (Michx.) Prosk.			No change	Notothykladaceae

## 2.2 Liverworts

The conservation status of 757 New Zealand liverwort taxa is presented in Table 8.

Table 8. Conservation status of New Zealand liverworts, 2020.

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<b>DATA DEFICIENT (173)</b>				
<b>Taxonomically determinate (148)</b>				
<i>Acrobolbus cinerascens</i> var. <i>marginatus</i> J.J.Engel		DP	New listing	Acrobolbaceae
<i>Acrolejeunea allisonii</i> Gradst.			No change	Lejeuneaceae
<i>Acrolejeunea pycnoclada</i> (Taylor) Schiffner var. <i>pycnoclada</i>		OL, SO	No change	Lejeuneaceae
<i>Acromastigum divaricatum</i> (Nees) A.Evans			No change	Lepidoziaceae
<i>Allisoniella nigra</i> subsp. <i>nigra</i> var. <i>acutiloba</i> J.J.Engel		OL	No change	Cephaloziellaceae
<i>Allisoniella nigra</i> subsp. <i>novaezealandiae</i> f. <i>subobtusa</i> R.M.Schust.			No change	Cephaloziellaceae
<i>Allisoniella nigra</i> subsp. <i>novaezealandiae</i> R.M.Schust. f. <i>novaezealandiae</i>		OL	No change	Cephaloziellaceae
<i>Andrewsianthus hodgsoniae</i> (R.M.Schust.) R.M.Schust ex J.J. Engel		OL	No change	Jungermanniaceae
<i>Aneura pinguis</i> (L.) Dumort.			Greater uncertainty	Aneuraceae
<i>Asterella drummondii</i> (Taylor) R.M.Schust. ex. D.G.Long			New listing	Aytoniaceae
<i>Bazzania accreta</i> (Lehm. & Lindenb.) Trevis		SO	No change	Lepidoziaceae
<i>Bragginsella anomala</i> R.M.Schust.			No change	Jungermanniaceae
<i>Cephalozia badia</i> (Gottsche) Steph.		SO	No change	Cephaloziaceae
<i>Cephalozia pachygyna</i> J.J.Engel			No change	Cephaloziaceae
<i>Cephalozia schusteriana</i> J.J.Engel			No change	Cephaloziaceae
<i>Cephaloziella aenigmatica</i> R.M.Schust.			No change	Cephaloziellaceae
<i>Cephaloziella crassigyna</i> (R.M.Schust.) R.M.Schust.			No change	Cephaloziellaceae
<i>Cephaloziella divaricata</i> (Sm.) Schiffn.			No change	Cephaloziellaceae
<i>Cephaloziella exigua</i> R.M.Schust.		OL	No change	Cephaloziellaceae

Continued on next page



Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Cephaloziella grandiretis</i> (R.M.Schust.) R.M.Schust.		OL	No change	Cephaloziellaceae
<i>Cephaloziella invisus</i> R.M.Schust.			No change	Cephaloziellaceae
<i>Cephaloziella muelleriana</i> R.M.Schust.		OL	No change	Cephaloziellaceae
<i>Cephaloziella nothogena</i> R.M.Schust.		OL	No change	Cephaloziellaceae
<i>Cephaloziella pellucida</i> R.M.Schust.		OL	No change	Cephaloziellaceae
<i>Cephaloziella pseudocrassigyna</i> J.J.Engel			No change	Cephaloziellaceae
<i>Cephaloziella pulcherrima</i> subsp. <i>sphagnicola</i> R.M.Schust.			No change	Cephaloziellaceae
<i>Cephaloziella tahora</i> Bever. & Glenny		OL	No change	Cephaloziellaceae
<i>Cephaloziella varians</i> subsp. <i>subantarctica</i> (R.M.Schust.) R.M.Schust. ex J.J.Engel			No change	Cephaloziellaceae
<i>Cephaloziella verrucosa</i> Steph.		S?O	No change	Cephaloziellaceae
<i>Ceramanus elegans</i> (Colenso) E.D.Cooper			No change	Lepidoziaceae
<i>Ceramanus tuberifera</i> (J.J.Engel & R.M.Schust.) E.D.Cooper			No change	Lepidoziaceae
<i>Ceratolejeunea belangeriana</i> (Gottsche) Steph.		OL, SO	No change	Lejeuneaceae
<i>Cheilolejeunea ceylanica</i> (Gottsche) R.M.Schust. & Kachroo		DP, OL, SO	No change	Lejeuneaceae
<i>Cheilolejeunea implexicaulis</i> (Hook.f. & Taylor) R.M.Schust.			No change	Lejeuneaceae
<i>Cheilolejeunea intertexta</i> (Lindenb.) Steph.			No change	Lejeuneaceae
<i>Cheilolejeunea novaezealandiae</i> R.M.Schust.			No change	Lejeuneaceae
<i>Cheilolejeunea rodneyi</i> Bever & Glenny			New listing	Lejeuneaceae
<i>Cheilolejeunea trifaria</i> (Reinw., Blume & Nees) Mizut.		SO	No change	Lejeuneaceae
<i>Chiloscyphus canaliculatus</i> var. <i>concaucus</i> J.J.Engel			No change	Lophocoleaceae
<i>Chiloscyphus hattorii</i> J.J.Engel			No change	Lophocoleaceae
<i>Chiloscyphus herzogii</i> J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Chiloscyphus innovatus</i> (E.A.Hodgs.) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Chiloscyphus mediifrons</i> J.J.Engel & Braggins			No change	Lophocoleaceae
<i>Chiloscyphus rupicola</i> (Steph.) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Chiloscyphus septatus</i> J.J.Engel			No change	Lophocoleaceae
<i>Clasmatocolea bisexualis</i> Glenny & J.J.Engel			No change	Lophocoleaceae
<i>Clasmatocolea verrucosa</i> J.J.Engel		S?O	No change	Lophocoleaceae
<i>Cololejeunea cardiocarpa</i> (Mont.) R.M.Schust.		OL, SO	No change	Lejeuneaceae
<i>Cololejeunea cucullifolia</i> (Herzog) E.A.Hodgs.		Sp	No change	Lejeuneaceae
<i>Cololejeunea ellipsoidea</i> R.M.Schust.		OL	No change	Lejeuneaceae
<i>Cololejeunea grossepapillosa</i> (Horik.) N.Kitag.		SO	No change	Lejeuneaceae
<i>Cololejeunea pulchella</i> var. <i>stylifera</i> R.M.Schust.		OL	No change	Lejeuneaceae
<i>Cryptolophocolea leucophylla</i> (Hook.f. & Taylor) L.Söderstr.			No change	Lophocoleaceae
<i>Drepanolejeunea pentadactyla</i> (Mont.) Steph.		OL, SO	No change	Lejeuneaceae
<i>Drepanolejeunea vesiculosa</i> subsp. <i>euvesiculosa</i> Herzog			No change	Lejeuneaceae
<i>Frullania apiculata</i> (Gottsche, Lindenb. & Nees) Gottsche, Lindenb. & Nees		OL	No change	Frullaniaceae
<i>Frullania colliculosa</i> von Konrat, Braggins, Hentschel & Heinrichs		OL	No change	Frullaniaceae
<i>Frullania knightbridgei</i> von Konrat & de Lange			No change	Frullaniaceae
<i>Frullania svihlana</i> S.Hatt.			No change	Frullaniaceae
<i>Frullania toropuku</i> von Konrat, de Lange & Larrain			No change	Frullaniaceae
<i>Frullania truncatistyla</i> von Konrat, Hentschel, Heinrichs & Braggins			No change	Frullaniaceae
<i>Gottschea multidentata</i> (J.J.Engel) Glenny & J.J.Engel			No change	Schistochilaceae
<i>Gymnomitrium strictum</i> var. <i>inaequalis</i> R.M.Schust.			No change	Gymnomitriaceae
<i>Haplomitrium minutum</i> (E.O.Campb.) J.J.Engel & R.M.Schust.		OL	No change	Haplomitriaceae
<i>Herzogobryum atropicillum</i> (Hook.f. & Taylor) Grolle		OL, SO	No change	Gymnomitriaceae
<i>Herzogobryum filiforme</i> R.M.Schust.		S?O	No change	Gymnomitriaceae
<i>Herzogobryum vermiculare</i> (Schiffn.) Grolle		SO	No change	Gymnomitriaceae
<i>Heteroscyphus assurgentifolius</i> J.J.Engel			No change	Lophocoleaceae

Continued on next page

Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Heteroscyphus billardierei</i> var. <i>clasmatocoleoides</i> (J.J.Engel & Merr.) J.J.Engel			No change	Lophocoleaceae
<i>Heteroscyphus deceptifrons</i> J.J.Engel			No change	Lophocoleaceae
<i>Heteroscyphus fissistipus</i> var. <i>repandus</i> J.J.Engel			No change	Lophocoleaceae
<i>Heteroscyphus furcistipulus</i> (E.A.Hodgs.) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Heteroscyphus hastatus</i> (E.A.Hodgs.) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Heteroscyphus mononuculus</i> var. <i>ammophilopsis</i> J.J.Engel			No change	Lophocoleaceae
<i>Heteroscyphus mononuculus</i> var. <i>bilobus</i> J.J.Engel			No change	Lophocoleaceae
<i>Heteroscyphus polycladus</i> (Hook.f. & Lév.) R.M.Schust.			No change	Lophocoleaceae
<i>Heteroscyphus splendidus</i> (E.A.Hodgs.) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Heteroscyphus triacanthus</i> var. <i>magnistipulatus</i> J.J.Engel			No change	Lophocoleaceae
<i>Isopaches bicrenatus</i> (Schmidel ex Hoffm.) H.Buch		OL, S?O	No change	Jungermanniaceae
<i>Kurzia fragillifolia</i> R.M.Schust.			No change	Lepidoziaceae
<i>Kurzia helophila</i> var. <i>flaccida</i> J.J.Engel		OL	No change	Lepidoziaceae
<i>Kurzia monilliformis</i> J.J.Engel			No change	Lepidoziaceae
<i>Lamellocolea integrostia</i> J.J.Engel & Glenny			No change	Lophocoleaceae
<i>Lejeunea cyanophora</i> R.M.Schust.			No change	Lejeuneaceae
<i>Lejeunea rhigophila</i> M.A.M.Renner			No change	Lejeuneaceae
<i>Lembidium nutans</i> var. <i>flagelliferum</i> E.A.Hodgs.			New listing	Lepidoziaceae
<i>Lepidozia novae-zelandiae</i> var. <i>heterostipa</i> R.M.Schust.			No change	Lepidoziaceae
<i>Lepidozia novae-zelandiae</i> var. <i>minima</i> R.M.Schust.		OL	No change	Lepidoziaceae
<i>Leptoscyphus compactus</i> (Colenso) J.J.Engel			No change	Lophocoleaceae
<i>Leptoscyphus idiodontus</i> J.J.Engel			New listing	Lophocoleaceae
<i>Leptoscyphus nanophysanthodes</i> J.J.Engel			New listing	Lophocoleaceae
<i>Lobatiriccardia subaquatica</i> (R.M.Schust.) Nebel			No change	Aneuraceae
<i>Lopholejeunea knightii</i> Steph.			No change	Lejeuneaceae
<i>Lophozioipsis excisa</i> (Dicks.) Konstant. & Vilnet			No change	Jungermanniaceae
<i>Marsupella sprucei</i> (Limpr.) Bernet			Reinterpretation of data	Gymnomitriaceae
<i>Metzgeria alpina</i> R.M.Schust. & J.J.Engel		DP, Sp	No change	Metzgeriaceae
<i>Neolepidozia patentissima</i> var. <i>ampliata</i> (J.J.Engel & G.L.Sm.) E.D.Cooper			No change	Lepidoziaceae
<i>Neolepidozia patentissima</i> var. <i>zebrina</i> (J.J.Engel & G.L.Sm.) E.D.Cooper			No change	Lepidoziaceae
<i>Neolepidozia pennata</i> (J.J.Engel & G.L.Sm.) E.D.Cooper			No change	Lepidoziaceae
<i>Notoscyphus lutescens</i> (Lehm. & Lindenb.) Mitt.		OL, SO	No change	Notoscyphaceae
<i>Pachyschistochila papillifera</i> (R.M.Schust.) R.M.Schust. & J.J.Engel		OL	No change	Schistochilaceae
<i>Paracromastigum fiordlandiae</i> R.M.Schust. & J.J.Engel			No change	Lepidoziaceae
<i>Petalophyllum hodgsoniae</i> Crandall-Stolter & C.H.Ford			No change	Codoniaceae
<i>Plagiochila banksiana</i> var. <i>echinophora</i> Inoue & R.M.Schust.			No change	Plagiochilaceae
<i>Plagiochila circinalis</i> var. <i>hemicardia</i> (Hook.f. & Taylor) J.J.Engel & G.L.Sm.			No change	Plagiochilaceae
<i>Plagiochila circumdentata</i> var. <i>carinata</i> J.J.Engel & G.L.Sm.			No change	Plagiochilaceae
<i>Plagiochila deltoidea</i> var. <i>densa</i> J.J.Engel & G.L.Sm.			No change	Plagiochilaceae
<i>Plagiochila fragmentissima</i> Inoue & R.M.Schust.		OL	No change	Plagiochilaceae
<i>Plagiochila incurvicolla</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees var. <i>incurvicolla</i>			No change	Plagiochilaceae
<i>Plagiochila incurvicolla</i> var. <i>lonchoscypha</i> (Herzog) J.J.Engel & G.L.Sm.			No change	Plagiochilaceae
<i>Plagiochila microdictyon</i> Mitt.			No change	Plagiochilaceae
<i>Plagiochila reischeckiana</i> Steph.			New listing	Plagiochilaceae
<i>Plagiochila subflabellata</i> Colenso			No change	Plagiochilaceae
<i>Protolophozia druceae</i> (Grolle & E.A.Hodgs.) Vána & L.Söderstr.			No change	Scapaniaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Protolophozia herzogiana</i> (E.A.Hodgs. & Grolle) Vána & L.Söderstr.			No change	Scapaniaceae
<i>Protolophozia monoica</i> (E.A.Hodgs.) Vána & L.Söderstr.			No change	Scapaniaceae
<i>Protolophozia multicuspidata</i> (Hook.f. & Taylor) Vána & L.Söderstr.			No change	Scapaniaceae
<i>Protolophozia nivicola</i> (R.M.Schust.) Vána & L.Söderstr.		OL	No change	Scapaniaceae
<i>Protolophozia subalpina</i> (R.M.Schust.) Vána & L.Söderstr.			No change	Scapaniaceae
<i>Ptychanthus stephensonianus</i> (Mitt.) Steph.			No change	Lejeuneaceae
<i>Pycnolejeunea glauca</i> Steph.			New listing	Lejeuneaceae
<i>Riccardia alaicornis</i> (Hook.f. & Taylor) Trevis.		S?O	No change	Aneuraceae
<i>Riccardia exilis</i> E.A.Brown			No change	Aneuraceae
<i>Riccardia intercellula</i> E.A.Brown		OL	No change	Aneuraceae
<i>Riccardia pseudodendroceros</i> R.M.Schust.		OL	No change	Aneuraceae
<i>Riccardia umida</i> E.A.Brown		IE, OL	No change	Aneuraceae
<i>Riccia bullosa</i> Link			No change	Ricciaceae
<i>Riccia cartilaginosa</i> Steph.		OL	New listing	Ricciaceae
<i>Riccia rorida</i> Na-Thalang			New listing	Ricciaceae
<i>Riccia sorocarpa</i> Bisch.			No change	Ricciaceae
<i>Scapania nemorosa</i> (L.) Dumort.		SO	No change	Scapaniaceae
<i>Scapania undulata</i> (L.) Dumort.		SO	No change	Scapaniaceae
<i>Schizophyllopsis papillosa</i> (J.J.Engel & Braggins) Vána & L.Söderstr.			No change	Anastrophyllaceae
<i>Seppeltia succuba</i> Grolle		OL, Sp, TO	Greater uncertainty	Pallaviciniaceae
<i>Siphonolejuenea carcharias</i> (M.A.M.Renner) M.A.M.Renner			No change	Lejeuneaceae
<i>Siphonolejuenea secunda</i> (M.A.M.Renner) M.A.M.Renner			No change	Lejeuneaceae
<i>Spruceanthus planiuscula</i> (Mitt.) X.Q.Shi, R.L.Zhu & Gradst.		OL, SO	No change	Lejeuneaceae
<i>Stolonivector fiordlandiae</i> var. <i>nodulosus</i> J.J.Engel			No change	Lophocoleaceae
<i>Stolonivector obtusilobus</i> J.J.Engel			No change	Lophocoleaceae
<i>Temnoma palmatum</i> var. <i>laxifolium</i> R.M.Schust.			No change	Pseudolepicoleaceae
<i>Temnoma quadripartitum</i> var. <i>pseudopungens</i> R.M.Schust.			No change	Pseudolepicoleaceae
<i>Temnoma quadripartitum</i> var. <i>randii</i> (S.W.Arnell) R.M.Schust.		SO	No change	Pseudolepicoleaceae
<i>Thysananthus spathulistipus</i> (Reinw., Blume & Nees) Lindenb.		SO	No change	Lejeuneaceae
<i>Triandrophyllum symmetricum</i> J.J.Engel			No change	Herbertaceae
<i>Tricholepidozia lindenbergii</i> var. <i>mellea</i> (J.J.Engel & G.L.Sm.) E.D.Cooper			No change	Lepidoziaceae
<i>Tricholepidozia lindenbergii</i> var. <i>papillata</i> (J.J.Engel & G.L.Sm.) E.D.Cooper			No change	Lepidoziaceae
<i>Tritomaria exsecta</i> subsp. <i>novaezealandiae</i> J.J.Engel		OL	No change	Jungermanniaceae
<i>Xenothallus vulcanicola</i> R.M.Schust.			No change	Pallaviciniaceae
<b>Taxonomically unresolved (25)</b>				
<i>Andrewsianthus</i> (a) (CHR 620064; Mt William)			No change	Jungermanniaceae
<i>Aneura orbiculata</i> Colenso			Reinterpretation of data	Aneuraceae
<i>Bazzania adnexa</i> var. <i>aucklandica</i> (Lindenb. & Gottsche) J.J.Engel & G.L.Merr.			No change	Lepidoziaceae
<i>Cephaloziella</i> sp. (subg. <i>Evansia</i> ) (CHR 593765; Chatham Islands)			No change	Cephaloziellaceae
<i>Cheilolejeunea</i> (b) (AK 303444; Rekohu)		OL	No change	Lejeuneaceae
<i>Cheilolejeunea</i> (c) (AK 297632; Lady Alice Island)		OL	No change	Lejeuneaceae
<i>Cheilolejeunea</i> (h) (AK 284270; Unuwahao)			No change	Lejeuneaceae
<i>Cheilolejeunea</i> (k) (CHR 633171; Mangapapa Stream)			New listing	Lejeuneaceae
<i>Cololejeunea</i> (a) (CHR 104332; Pelorus Bridge)			No change	Lejeuneaceae
<i>Drepanolejeunea</i> (a) (CHR 604609; Herekino)			No change	Lejeuneaceae
<i>Lejeunea</i> aff. <i>flava</i> (b) (WELT H06349; Auckland Islands)			No change	Lejeuneaceae
<i>Lejeunea albiflora</i> Colenso			New listing	Lejeuneaceae
<i>Leptoscyphus</i> aff. <i>compactus</i> (a) (AK 285735; Lake Kaniere)			New listing	Lophocoleaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Lobatiriccardia</i> (a) (CHR618544; Banks Peninsula)			New listing	Aneuraceae
<i>Microlejeunea</i> sp. (AK300169; Mt Rowe)			No change	Lejeuneaceae
<i>Paracromastigum</i> (a) (CHR 618493; Banks Peninsula)		OL	New listing	Lepidoziaceae
<i>Paracromastigum</i> (b) (CHR 655691; Cypress Mine)			New listing	Lepidoziaceae
<i>Porella</i> sp. (CHR 523835; Whakamahi)			No change	Porellaceae
<i>Radula</i> (a) (F; Campbell Island)			No change	Radulaceae
<i>Riccardia</i> aff. <i>crassa</i> (a) (CHR 639762; Bulmer)			New listing	Aneuraceae
<i>Riccardia</i> aff. <i>pallidevirens</i> (AKU 71079; Campbell Island)		SO	No change	Aneuraceae
<i>Riccardia</i> aff. <i>papulosa</i> (AK298538; Mt Rowe)		OL	No change	Aneuraceae
<i>Syzygiella</i> (a) (CHR 638184; "asperulate")			New listing	Adelanthaceae
<i>Telaranea</i> (a) (CHR 604513; Whakamaru)			No change	Lepidoziaceae
<i>Cephaloziella</i> sp. (d) (CHR 657977; "Beach Road")			New listing	Cephaloziellaceae
<b>THREATENED (18)</b>				
<b>NATIONALLY CRITICAL (10)</b>				
<b>Taxonomically determinate (9)</b>				
<i>Allisoniella scottii</i> (R.M.Schust.) R.M.Schust.		DP, RR, Sp	No change	Cephaloziellaceae
<i>Chiloscyphus trichocoleoides</i> Glenny, J.J.Engel & He-Nygrén	A(3)	OL	More knowledge	Lophocoleaceae
<i>Frullania wairua</i> von Konrat & Braggins		CD	No change	Frullaniaceae
<i>Isolembidium anomalum</i> (Rodway) Grolle var. <i>anomalum</i>		DP, S?O	No change	Lepidoziaceae
<i>Isopaches pumicicola</i> (Berggr.) Bakalin		DP	No change	Jungermanniaceae
<i>Neogrollea notabilis</i> E.A.Hodgs.	B(2)	DP, RR, Sp, T?O	Actual decline	Lepidoziaceae
<i>Petalophyllum preissii</i> Lehm.		OL, TO	No change	Codoniaceae
<i>Protolophozia androgyna</i> R.M.Schust. ex Vána & L.Söderstr.	A(3)	DP, RR	New listing	Scapaniaceae
<i>Pseudolophocolea denticulata</i> R.M.Schust. & J.J.Engel		DP, RR, Sp	No change	Lophocoleaceae
<b>Taxonomically unresolved (1)</b>				
<i>Isolembidium anomalum</i> var. <i>cucullatum</i> (E.A.Hodgs.) J.J.Engel & R.M.Schust.		Sp	No change	Lepidoziaceae
<b>NATIONALLY ENDANGERED (5)</b>				
<b>Taxonomically determinate (5)</b>				
<i>Calypogeia sphagnicola</i> (Arnell & J.Perss.) Warnst. & Loeske		DP, RR, SO	No change	Calypogeiaceae
<i>Castanoclobos julaceus</i> (J.J.Engel) J.J.Engel & Glenny		DP, SO, Sp	No change	Trichocoleaceae
<i>Chaetophyllopsis whiteleggei</i> (Carrington & Pearson) R.M.Schust.		DP, RR, S?O, Sp	No change	Chaetophyllopsaceae
<i>Goebelobryum unguiculatum</i> (Hook.f. & Taylor) Grolle		RR, SO	No change	Acrobolbaceae
<i>Nephelolejeunea raharahanehemiae</i> de Lange & M.A.M. Renner				
<b>NATIONALLY VULNERABLE (3)</b>				
<b>Taxonomically determinate (3)</b>				
<i>Acromastigum verticale</i> (Steph.) E.A.Hodgs.		DP, PD, RR	No change	Lepidoziaceae
<i>Pedinophyllum monoicum</i> (Steph.) Grolle	C(3)	DP, Sp	More knowledge	Plagiochilaceae
<i>Telaranea inaequalis</i> R.M.Schust. ex J.J.Engel & G.L.Merr.		DP, S?O	No change	Lepidoziaceae
<b>AT RISK (125)</b>				
<b>DECLINING (6)</b>				
<b>Taxonomically determinate (6)</b>				
<i>Acromastigum interstiale</i> E.A.Br. & M.A.M.Renner		DP, RR, SO	No change	Lepidoziaceae
<i>Lethocolea pansa</i> (Taylor) G.A.M.Scott & K.Beckmann	B(2)	DP	More knowledge	Acrobolbaceae
<i>Radula marginata</i> Taylor ex Gottsche, Lindenb. & Nees	B(2)	DP, RR, Sp	Actual decline	Radulaceae
<i>Ricciocarpos natans</i> (L.) Corda		DP, SO	No change	Ricciaceae
<i>Saccogynidium decurvum</i> (Mitt.) Grolle	A(2)	DP, S?O	More knowledge	Lophocoleaceae
<i>Targionia hypophylla</i> L.		DP	No change	Targioniaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<b>RELICT (2)</b>				
<b>Taxonomically determinate (2)</b>				
<i>Goebelobryum vermiculare</i> J.J.Engel & Glenny		S?O	No change	Acrobolbaceae
<i>Radula acutiloba</i> Steph.		DP, S?O	No change	Radulaceae
<b>NATURALLY UNCOMMON (117)</b>				
<b>Taxonomically determinate (108)</b>				
<i>Acrobolbus spinifolius</i> R.M.Schust.		DP, Sp	No change	Acrobolbaceae
<i>Acrolejeunea mollis</i> (Hook.f. & Taylor) Schiffn.		DP, Sp	No change	Lejeuneaceae
<i>Acrolejeunea securifolia</i> (Nees) Steph. subsp. <i>securifolia</i>		DP, RR, SO, Sp	No change	Lejeuneaceae
<i>Acromastigum mooreanum</i> (Steph.) E.A.Hodgs.		DP, SO, Sp	No change	Lepidoziaceae
<i>Acroscyphella phoenicorhiza</i> (Grolle) Kitag. & Grolle		S?O, Sp	No change	Balantiopsaceae
<i>Allisoniella recurva</i> R.M.Schust.		DP, Sp	No change	Cephaloziellaceae
<i>Anastrophyllum auritum</i> (Lehm.) Steph.		DP, SO, Sp	No change	Jungermanniaceae
<i>Andrewsianthus perigonalis</i> (Hook.f. & Taylor) R.M.Schust.		Sp	No change	Jungermanniaceae
<i>Archeophylla schusteri</i> (E.A.Hodgs. & Allison) R.M.Schust.		DP, Sp	No change	Pseudolepicoleaceae
<i>Balantiopsis verrucosa</i> J.J.Engel & G.L.Merr.		DP	No change	Balantiopsaceae
<i>Bazzania exempta</i> J.J.Engel		DP	No change	Lepidoziaceae
<i>Bazzania okaritana</i> Meagher & Glenny		DP	No change	Lepidoziaceae
<i>Brevianthus flavus</i> subsp. <i>crenulatus</i> J.J.Engel		Sp	No change	Brevianthaceae
<i>Cephaloziella densifolia</i> R.M.Schust. var. <i>densifolia</i>		DP	More knowledge	Cephaloziellaceae
<i>Cephaloziella subspinosa</i> R.M.Schust.		DP, Sp	No change	Cephaloziellaceae
<i>Chiloscyphus erosus</i> J.J.Engel		DP, Sp	No change	Lophocoleaceae
<i>Cololejeunea appressa</i> (A.Evans) Benedix			No change	Lejeuneaceae
<i>Cololejeunea falcidentata</i> R.M.Schust.			No change	Lejeuneaceae
<i>Cololejeunea floccosa</i> (Lehm. & Lindenb.) Steph.		RR, SO, Sp	No change	Lejeuneaceae
<i>Cololejeunea inflexifolia</i> R.M.Schust.		DP	No change	Lejeuneaceae
<i>Cryptolophocolea tuberculata</i> (J.J.Engel). L.Söderstr.		RR, Sp	No change	Lophocoleaceae
<i>Cumulolejeunea ocellata</i> (Herzog) R.L.Zhu & L.Shu		DP, SO, Sp	No change	Lejeuneaceae
<i>Drepanolejeunea ternatensis</i> (Gottsche) Steph.		DP, S?O, Sp	No change	Lejeuneaceae
<i>Dumortiera hirsuta</i> (Sw.) Nees		SO, Sp	No change	Wiesnerellaceae
<i>Eoisotachis stephanii</i> (E.S.Salmon) R.M.Schust.		RR, Sp	No change	Balantiopsaceae
<i>Frullania chevalieri</i> (R.M.Schust.) R.M.Schust.		DP, SO, Sp	No change	Frullaniaceae
<i>Haplomitrium ovalifolium</i> R.M.Schust.		Sp	No change	Haplomitriaceae
<i>Herzogianthus sanguineus</i> R.M.Schust.		Sp	No change	Chaetophyllopsaceae
<i>Herzogianthus vaginatus</i> (Herzog) R.M.Schust.			No change	Chaetophyllopsaceae
<i>Heteroscyphus ammophilus</i> var. <i>obtusifolius</i> J.J.Engel & G.L.Merr.		DP, RR, Sp	New listing	Lophocoleaceae
<i>Heteroscyphus argutus</i> (Reinw., Blume & Nees) Schiffn.		RR, SO	No change	Lophocoleaceae
<i>Heteroscyphus billardierei</i> (Schwägr.) Schiffn. var. <i>billardierei</i>		SO, SO, SO?	More knowledge	Lophocoleaceae
<i>Heteroscyphus conjugatus</i> (Mitt.) J.J.Engel & R.M.Schust.		DP, SO	More knowledge	Lophocoleaceae
<i>Heteroscyphus gunnianus</i> (Mitt.) J.J.Engel & R.M.Schust.		DP, S?O	More knowledge	Lophocoleaceae
<i>Heteroscyphus parallelifolius</i> J.J.Engel		DP	More knowledge	Lophocoleaceae
<i>Heteroscyphus stoloniferus</i> J.J.Engel		DP, RR, SO	No change	Lophocoleaceae
<i>Hygrolembidium triquetrum</i> J.J.Engel & R.M.Schust.		Sp	No change	Lepidoziaceae
<i>Isophyllaria attenuata</i> (Rodway) E.A.Hodgs.		SO, Sp	No change	Pseudolepicoleaceae
<i>Isotachis olivacea</i> R.M.Schust.		DP, Sp	No change	Balantiopsaceae
<i>Isotachis plicata</i> J.J.Engel		DP, Sp	No change	Balantiopsaceae
<i>Isotachis westlandica</i> (E.A.Hodgs.) R.M.Schust.		RR	No change	Balantiopsaceae
<i>Jackiella curvata</i> Allison & E.A.Hodgs.			Reinterpretation of data	Jackiellaceae
<i>Kurzia dendroides</i> (Carrington & Pearson) Grolle		DP	Reinterpretation of data	Lepidoziaceae
<i>Kurzia nivicola</i> (R.M.Schust.) E.D.Cooper		DP, Sp	No change	Lepidoziaceae
<i>Kurzia tenax</i> (Grev.) Grolle		DP, RR, S?O	No change	Lepidoziaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Lejeunea anisophylla</i> Mont.			No change	Lejeuneaceae
<i>Lejeunea exilis</i> (Reinw., Blume & Nees) Grolle		SO	No change	Lejeuneaceae
<i>Lejeunea hawaikiana</i> M.A.M.Renner & de Lange		DP, RR, Sp	No change	Lejeuneaceae
<i>Lejeunea helmsiana</i> Steph.		DP	Reinterpretation of data	Lejeuneaceae
<i>Lejeunea schusteri</i> Grolle		DP, SO, Sp	No change	Lejeuneaceae
<i>Lembidium berggrenii</i> Herzog		DP, Sp	No change	Lepidoziaceae
<i>Lembidium longifolium</i> R.M.Schust.		RR	No change	Lepidoziaceae
<i>Lepidolaena novae-zelandiae</i> (E.A.Hodgs. & S.W.Arnell) von Konrat, L.Söderstr. & A.Hagborg		Sp	No change	Lepidolaenaceae
<i>Lepidozia acantha</i> J.J.Engel		DP, Sp	No change	Lepidoziaceae
<i>Lepidozia fugax</i> J.J.Engel		DP, Sp	No change	Lepidoziaceae
<i>Lepidozia glaucophylla</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees		SO, Sp	No change	Lepidoziaceae
<i>Lepidozia serrulata</i> J.J.Engel		DP, T?O	No change	Lepidoziaceae
<i>Leptolejeunea elliptica</i> subsp. <i>subacuta</i> (A.Evans) R.M.Schust.		SO, Sp	Reinterpretation of data	Lejeuneaceae
<i>Leptoscyphus incomptus</i> J.J.Engel		DP	New listing	Lophocoleaceae
<i>Leptoscyphus microphyllidicus</i> J.J.Engel		DP, RR, S?O, Sp	New listing	Lophocoleaceae
<i>Lopholejeunea plicatiscypha</i> (Hook.f. & Taylor) Steph.		RR, Sp	No change	Lejeuneaceae
<i>Metzgeria crassipilis</i> (Lindb.) A.Evans		DP, SO, Sp	No change	Metzgeriaceae
<i>Metzgeria scobina</i> Mitt.		S?O, Sp	No change	Metzgeriaceae
<i>Metzgeria submarginata</i> M.L.So			No change	Metzgeriaceae
<i>Microlejeunea filicuspis</i> (Steph.) Heinrichs, Schäf.-Verw., Pócs & S.Dong		DP, S?O, Sp	No change	Lejeuneaceae
<i>Mnioloma novaezelandiae</i> J.J.Engel		DP, Sp	No change	Calypogeiaceae
<i>Neohodgsonia mirabilis</i> (Perss.) Perss.		DP, Sp	No change	Marchantiaceae
<i>Neolepidozia tridactylis</i> (Lehm. & Lindenb.) E.D.Cooper (Lehm & Lindenb.)		SO, Sp	No change	Lepidoziaceae
<i>Pachyschistochila trispiralis</i> (R.M.Schust.) R.M.Schust. & J.J.Engel		DP, Sp	No change	Schistochilaceae
<i>Pachyschistochila virescens</i> (R.M.Schust.) R.M.Schust. & J.J.Engel		DP, Sp	No change	Schistochilaceae
<i>Pallavicinia rubristipa</i> Schiffn.		DP, S?O	No change	Pallaviciniaceae
<i>Plagiochasma rupestre</i> (J.R.Forst. & G.Forst.) Steph.		DP, SO, Sp	No change	Aytoniaceae
<i>Plagiochila alta</i> Steph.		DP, OL, SO	New listing	Plagiochilaceae
<i>Plagiochila baylisii</i> Inoue & R.M.Schust.		Sp	No change	Plagiochilaceae
<i>Plagiochila bazzanioides</i> J.J.Engel & G.L.Merr.		DP, Sp	No change	Plagiochilaceae
<i>Plagiochila gigantea</i> var. <i>inermis</i> J.J.Engel & G.L.Merr.		DP, IE	Reinterpretation of data	Plagiochilaceae
<i>Plagiochila pacifica</i> Mitt.		OL	No change	Plagiochilaceae
<i>Plagiochila spinulosa</i> (Dicks.) Dumort.		SO, Sp	No change	Plagiochilaceae
<i>Plagiochila viridonigra</i> (E.A.Hodgs.) Inoue			No change	Plagiochilaceae
<i>Porella pulcherrima</i> Herzog & S.Hatt.		DP	No change	Porellaceae
<i>Protolophozia autoica</i> (R.M.Schust.) Vána & L.Söderstr.		DP, Sp	No change	Scapaniaceae
<i>Radula javanica</i> Gottsche, Lindenb. & Nees		SO	No change	Radulaceae
<i>Radula novae-hollandiae</i> Hampe		DP, OL, SO, Sp	No change	Radulaceae
<i>Radula ratkowskiana</i> K.Yamada		DP, Sp	No change	Radulaceae
<i>Radula splendida</i> M.A.M.Renner & N.Devos		DP, Sp	No change	Radulaceae
<i>Radula weymouthiana</i> Steph.		Sp	No change	Radulaceae
<i>Riccardia furtiva</i> E.A.Brown & Braggins		RR, S?O	No change	Aneuraceae
<i>Riccardia multicolorpora</i> E.A.Brown		RR	No change	Aneuraceae
<i>Riccia crozalsii</i> Levier		DP, EF, RR, SO, Sp	No change	Ricciaceae
<i>Schistochila nitidissima</i> R.M.Schust.		RR	No change	Schistochilaceae
<i>Schistochila pellucida</i> R.M.Schust. & J.J.Engel		RR, Sp	No change	Schistochilaceae
<i>Schistochila pluriciliata</i> R.M.Schust. & J.J.Engel		DP	No change	Schistochilaceae

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NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Siphonolejeunea hispida</i> (R.M.Schust.) M.A.M.Renner		Sp	No change	Lejeuneaceae
<i>Stolonivector clasmatoceleoides</i> J.J.Engel		DP, RR, Sp	No change	Lophocoleaceae
<i>Stolonivector waipouensis</i> J.J.Engel		DP, RR, Sp	No change	Lophocoleaceae
<i>Syzygiella acinacifolia</i> (Hook.f. & Taylor) K.Feldberg, Vána, Hentschel & Heinrichs		DP, Sp	No change	Adelanthaceae
<i>Temnoma angustifolium</i> R.M.Schust.		DP, RR	Reinterpretation of data	Pseudolepicoleaceae
<i>Trichotemnoma corrugatum</i> (Steph.) R.M.Schust.		DP	No change	Trichotemnaceae
<i>Verdoornia succulenta</i> R.M.Schust.		Sp	No change	Verdoorniaceae
<i>Wettsteinia schusteriana</i> Grolle		DP, Sp	No change	Adelanthaceae
<i>Zoopsis argentea</i> var. <i>flagelliformis</i> (Colenso) R.M.Schust.		DP, Sp	No change	Lepidoziaceae
<i>Zoopsis bicruris</i> Glenny & E.A.Br.			No change	Lepidoziaceae
<i>Zoopsis ceratophylla</i> (Spruce) Hamlin		DP, Sp	No change	Lepidoziaceae
<i>Zoopsis matawaia</i> M.A.M.Renner		DP, RR, Sp	No change	Lepidoziaceae
<i>Zoopsis nitida</i> Glenny, Braggins & R.M.Schust.		DP, RR, Sp	No change	Lepidoziaceae
<i>Acrobolbus plagiochiloides</i> (J.J.Engel & Glenny) Briscoe		DP, Sp	No change	Acrobolbaceae
<i>Lepidozia laevifolia</i> var. <i>alpina</i> R.M.Schust. & J.J.Engel		DP, RR, Sp	No change	Lepidoziaceae
<i>Stolonivector fiordlandiae</i> (E.A.Hodgs.) J.J.Engel var. <i>fiordlandiae</i>		DP, Sp	Reinterpretation of data	Lophocoleaceae
<b>Taxonomically unresolved (9)</b>				
<i>Cephaloziella</i> aff. <i>pulcherrima</i> (AK 282469; Rangitoto Island)		DP, OL	No change	Cephaloziellaceae
<i>Cheilolejeunea</i> (d) (AK 327851; Surville Cliffs)		RR, Sp	No change	Lejeuneaceae
<i>Cheilolejeunea</i> (e) (AK 287598; Kermadec)		RR, Sp	No change	Lejeuneaceae
<i>Lejeunea</i> (a) (WELT H10386; Waitomo)		DP, RR	No change	Lejeuneaceae
<i>Lejeunea</i> (s) (AK 306857; Surville Cliffs)		OL, Sp	No change	Lejeuneaceae
<i>Porella</i> aff. <i>viridissima</i> (CHR 528937; Banks Peninsula)		RR, S?O	No change	Porellaceae
<i>Riccardia</i> aff. <i>wattsiana</i> (AK 305772; New Zealand)		DP, RR, Sp	No change	Aneuraceae
<i>Siphonolejeunea</i> (a) (CHR 603079; Banks Peninsula)		DP, Sp	No change	Lejeuneaceae
<i>Siphonolejeunea</i> (b) AK 302659: Waipoua		RR	No change	Lejeuneaceae
<b>NOT THREATENED (432)</b>				
<b>Taxonomically determinate (427)</b>				
<i>Acromastigum anisostomum</i> (Lehm. & Lindenb.) A.Evans			No change	Lepidoziaceae
<i>Acromastigum cavifolium</i> R.M.Schust.			No change	Lepidoziaceae
<i>Acromastigum colensoanum</i> (Mitt.) A.Evans			No change	Lepidoziaceae
<i>Acromastigum cunninghamii</i> (Steph.) A.Evans		S?O	No change	Lepidoziaceae
<i>Acrobolbus cinerascens</i> (Lehm. & Lindenb.) Bastow var. <i>cinerascens</i>			No change	Acrobolbaceae
<i>Acrobolbus concinnus</i> (Mitt.) Grolle			No change	Acrobolbaceae
<i>Acrobolbus epiphytus</i> (Colenso) Briscoe			No change	Acrobolbaceae
<i>Acrobolbus knightii</i> (Mitt.) Briscoe			No change	Acrobolbaceae
<i>Acrobolbus lophocoleoides</i> (Mitt.) Mitt.			No change	Acrobolbaceae
<i>Acrobolbus ochrophyllus</i> (Hook.f. & Taylor) R.M.Schust.			No change	Acrobolbaceae
<i>Acrobolbus papillosus</i> (J.J.Engel & Glenny) Briscoe			No change	Acrobolbaceae
<i>Acrobolbus perpusillus</i> (Colenso) Briscoe var. <i>perpusillus</i>			No change	Acrobolbaceae
<i>Acrobolbus perpusillus</i> var. <i>denticulatus</i> (J.J.Engel & Glenny) Briscoe			No change	Acrobolbaceae
<i>Acrobolbus saccatus</i> (Hook.) Trevis.			No change	Acrobolbaceae
<i>Acrobolbus setulosus</i> (Mitt.) Briscoe			No change	Acrobolbaceae
<i>Acrobolbus surculosus</i> (Nees) Trevis			No change	Acrobolbaceae
<i>Acrobolbus tenellus</i> (Taylor ex Lehm.) Trevis var. <i>tenellus</i>			No change	Acrobolbaceae
<i>Acrobolbus tenellus</i> var. <i>diversifolius</i> (E.A.Hodgs.) Briscoe			No change	Acrobolbaceae
<i>Acrolophozia pectinata</i> R.M.Schust.			No change	Gymnomitriaceae
<i>Acromastigum marginatum</i> E.A.Hodgs.			No change	Lepidoziaceae
<i>Adelanthus falcatus</i> (Hook.) Mitt.			No change	Adelanthaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Adelanthus gemmiparus</i> (R.M.Schust.) E.A.Hodgs.			No change	Adelanthaceae
<i>Adelanthus occlusus</i> (Hook.f. & Taylor) Carrington			No change	Adelanthaceae
<i>Allisonia cockaynei</i> (Steph.) R.M.Schust.			No change	Allisoniaceae
<i>Anastrophylopsis subcomplicata</i> (Lehm. & Lindenb.) Vána & L.Söderstr.		S?O	No change	Cephaloziellaceae
<i>Andrewsianthus marionensis</i> (S.W.Arnell) Grolle			No change	Jungermanniaceae
<i>Aneura novaguineensis</i> Hewson			No change	Aneuraceae
<i>Anthelia juratzkana</i> (Limpr.) Trevis.			No change	Antheliaceae
<i>Asterella australis</i> (Hook.f. & Taylor) Verd.			No change	Aytoniaceae
<i>Asterella tenera</i> (Mitt.) R.M.Schust.			No change	Aytoniaceae
<i>Austrolophozia paradoxa</i> R.M.Schust.			No change	Acrobolbaceae
<i>Balantiopsis convexiuscula</i> Berggr.			No change	Balantiopsaceae
<i>Balantiopsis diplophylla</i> (Hook.f. & Taylor) Mitt. var. <i>diplophylla</i>			No change	Balantiopsaceae
<i>Balantiopsis diplophylla</i> var. <i>hockenii</i> (Berggr.) J.J.Engel & G.L.Merr.			No change	Balantiopsaceae
<i>Balantiopsis lingulata</i> R.M.Schust.			No change	Balantiopsaceae
<i>Balantiopsis montana</i> (Colenso) J.J.Engel & G.L.Merr.			No change	Balantiopsaceae
<i>Balantiopsis rosea</i> Berggr.			No change	Balantiopsaceae
<i>Balantiopsis tumida</i> Berggr.			No change	Balantiopsaceae
<i>Bazzania adnexa</i> (Lehm. & Lindenb.) Trevis. var. <i>adnexa</i>			No change	Lepidoziaceae
<i>Bazzania engelii</i> Glenny			No change	Lepidoziaceae
<i>Bazzania hochstetteri</i> (Reichardt) E.A.Hodgs.			No change	Lepidoziaceae
<i>Bazzania involuta</i> (Mont.) Trevis. var. <i>involuta</i>			No change	Lepidoziaceae
<i>Bazzania involuta</i> var. <i>submutica</i> (Lindenb. & Gottsche) J.J.Engel & G.L.Merr.			No change	Lepidoziaceae
<i>Bazzania mittenii</i> (Steph.) Steph.			No change	Lepidoziaceae
<i>Bazzania monilinervis</i> (Lehm. & Lindenb.) Trevis.			No change	Lepidoziaceae
<i>Bazzania nitida</i> (F.Weber) Grolle			No change	Lepidoziaceae
<i>Bazzania nova</i> J.J.Engel & G.L.S.Merrill			No change	Lepidoziaceae
<i>Bazzania novae-zelandiae</i> (Mitt.) Besch. & C.Massal.			No change	Lepidoziaceae
<i>Bazzania tayloriana</i> (Mitt.) Kuntze			No change	Lepidoziaceae
<i>Blepharidophyllum vertebrale</i> (Taylor ex Gottsche, Lindenb. & Nees) Ångstr.			No change	Scapaniaceae
<i>Cephalomitron aterimum</i> (Steph.) R.M.Schust.			No change	Cephaloziellaceae
<i>Cephalozia austrigena</i> R.M.Schust. ex J.J.Engel			No change	Cephaloziaceae
<i>Cephalozia drucei</i> (R.M.Schust.) Vána			No change	Cephaloziaceae
<i>Cephaloziella densifolia</i> var. <i>dubia</i> R.M.Schust.		DP	More knowledge	Cephaloziellaceae
<i>Cephaloziella exiliflora</i> (Gottsche, Lindenb. & Nees) Douin			No change	Cephaloziellaceae
<i>Cephaloziella pulcherrima</i> R.M.Schust. subsp. <i>pulcherrima</i>			No change	Cephaloziellaceae
<i>Ceramanus perfragilis</i> (J.J.Engel & G.L.Merr.) E.D.Cooper			No change	Lepidoziaceae
<i>Chandonanthus squarrosus</i> (Hook.) Schiffr.			No change	Jungermanniaceae
<i>Cheilolejeunea albivirens</i> (Hook.f. & Taylor) E.A.Hodgs.			No change	Lejeuneaceae
<i>Cheilolejeunea campbelliensis</i> (Steph.) R.M.Schust.			No change	Lejeuneaceae
<i>Cheilolejeunea hamlinii</i> Grolle			No change	Lejeuneaceae
<i>Cheilolejeunea comitans</i> (Hook.f. & Taylor) R.M.Schust.		SO	No change	Lejeuneaceae
<i>Cheilolejeunea mimosa</i> (Hook.f. & Taylor) R.M.Schust.		SO	No change	Lejeuneaceae
<i>Chiastocaulon biserialis</i> (Lehm. & Lindenb.) S.D.F. Patzak, M.A.M. Renner, Schäf.-Verw. & Heinrichs,			No change	Plagiochilaceae
<i>Chiastocaulon conjugatum</i> (Hook.) S.D.F. Patzak, M.A.M. Renner, Schäf.-Verw. & Heinrichs			No change	Plagiochilaceae
<i>Chiastocaulon proliferum</i> (Mitt.) S.D.F. Patzak, M.A.M. Renner, Schäf.-Verw. & Heinrichs			No change	Plagiochilaceae
<i>Chiloscyphus alpicola</i> J.J.Engel			New listing	Lophocoleaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Chiloscyphus aperticaulis</i> J.J.Engel			No change	Lophocoleaceae
<i>Chiloscyphus austrigenus</i> subsp. <i>okaritanus</i> (Steph.) J.J.Engel			No change	Lophocoleaceae
<i>Chiloscyphus bispinosus</i> (Hook.f. & Taylor) J.J.Engel & R.M.Schust			No change	Lophocoleaceae
<i>Chiloscyphus calcareus</i> (Steph.) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Chiloscyphus canaliculatus</i> var. <i>canaliculatus</i> Gottsche, Lindenb. & Nees			No change	Lophocoleaceae
<i>Chiloscyphus cuspidatus</i> (Nees) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Chiloscyphus lentus</i> (Hook.f. & Taylor) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Chiloscyphus muricatus</i> (Lehm.) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Chiloscyphus novaezeelandiae</i> (Lehm. & Lindenb.) J.J.Engel & R.M.Schust. var. <i>novaezeelandiae</i>			No change	Lophocoleaceae
<i>Chiloscyphus novaezeelandiae</i> var. <i>grandistipulus</i> (Schiffn.) J.J.Engel			No change	Lophocoleaceae
<i>Chiloscyphus novaezeelandiae</i> var. <i>meridionalis</i> (Steph.) J.J.Engel			No change	Lophocoleaceae
<i>Chiloscyphus parvispineus</i> J.J.Engel			No change	Lophocoleaceae
<i>Chiloscyphus perpusillus</i> (Hook.f. & Taylor) J.J.Engel			No change	Lophocoleaceae
<i>Chiloscyphus semiteres</i> (Lehm.) Lehm. & Lindenb. var. <i>semiteres</i>			No change	Lophocoleaceae
<i>Chiloscyphus subporosus</i> var. <i>subporosus</i> (Mitt.) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Chiloscyphus subporosus</i> var. <i>inflexifolius</i> (Steph.) J.J.Engel			No change	Lophocoleaceae
<i>Chiloscyphus villosus</i> (Mitt. ex Steph.) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Clandarium xiphophyllum</i> (Grolle) R.M.Schust.			No change	Scapaniaceae
<i>Clasmatocolea crassiretis</i> (Herzog) Grolle			No change	Lophocoleaceae
<i>Clasmatocolea humilis</i> (Hook.f. & Taylor) Grolle var. <i>humilis</i>			No change	Lophocoleaceae
<i>Clasmatocolea inflexispina</i> (Hook.f. & Taylor) J.J.Engel			No change	Lophocoleaceae
<i>Clasmatocolea notophylla</i> (Hook.f. & Taylor) Grolle			No change	Lophocoleaceae
<i>Clasmatocolea strongylophylla</i> (Hook.f. & Taylor) Grolle			No change	Lophocoleaceae
<i>Clasmatocolea vermicularis</i> (Lehm.) Grolle			No change	Lophocoleaceae
<i>Cololejeunea hodgsoniae</i> (Herzog) E.A.Hodgs.			No change	Lejeuneaceae
<i>Cololejeunea laevigata</i> (Mitt.) R.M.Schust.			No change	Lejeuneaceae
<i>Cololejeunea pulchella</i> (Mitt.) R.M.Schust. var. <i>pulchella</i>			No change	Lejeuneaceae
<i>Colura pulcherrima</i> var. <i>bartlettii</i> Ast			No change	Lejeuneaceae
<i>Colura saccophylla</i> E.A.Hodgs. & Herzog			No change	Lejeuneaceae
<i>Cryptolophocolea aculeata</i> (Mitt.) L.Söderstr.			No change	Lophocoleaceae
<i>Cryptolophocolea helmsiana</i> (Steph.) L.Söderstr.			No change	Lophocoleaceae
<i>Cryptolophocolea mitteniana</i> var. <i>mitteniana</i> (Colenso) L.Söderstr.			No change	Lophocoleaceae
<i>Cryptolophocolea mitteniana</i> var. <i>obtusa</i> (J.J.Engel) L.Söderstr.			No change	Lophocoleaceae
<i>Cryptolophocolea mitteniana</i> var. <i>symmetrica</i> (J.J.Engel) L.Söderstr.			No change	Lophocoleaceae
<i>Cryptolophocolea pallida</i> (Mitt.) L.Söderstr.			No change	Lophocoleaceae
<i>Cryptolophocolea spinifera</i> (Hook.f. & Taylor) L.Söderstr.			No change	Lophocoleaceae
<i>Cryptolophocolea trialata</i> (Gottsche) L.Söderstr.			No change	Lophocoleaceae
<i>Cryptoplagiochila radiculosa</i> S.D.F.Patzak, M.A.M.Renner & Heinrichs			No change	Plagiochilaceae
<i>Cuspidatula kirkii</i> (Steph.) K.Feldberg, Vána, Hentschel & Heinrichs			No change	Adelanthaceae
<i>Cuspidatula monodon</i> (Hook.f. & Taylor) Steph.			No change	Adelanthaceae
<i>Dendromastigophora flagellifera</i> (Hook.) R.M.Schust.			No change	Mastigophoraceae
<i>Dinckleria fruticella</i> (Hook.f. & Taylor) J.J.Engel & Heinrichs			No change	Plagiochilaceae
<i>Dinckleria pleurata</i> (Hook.f. & Taylor) Trevis.			No change	Plagiochilaceae
<i>Diplasiolejeunea plicatiloba</i> (Hook.f. & Taylor) Grolle			No change	Lejeuneaceae
<i>Diplasiolejeunea pusilla</i> Grolle			No change	Lejeuneaceae
<i>Diplophyllum dioicum</i> R.M.Schust.			No change	Scapaniaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Diplophyllum gemmiparum</i> J.J.Engel & G.L.Sm.			No change	Scapaniaceae
<i>Diplophyllum novum</i> J.J.Engel & G.L.Sm.			No change	Scapaniaceae
<i>Diplophyllum obtusifolium</i> subsp. <i>domesticum</i> (Gottsche) Váná			No change	Scapaniaceae
<i>Diplophyllum verrucosum</i> R.M.Schust.			No change	Scapaniaceae
<i>Drepanolejeunea aucklandica</i> Steph.			No change	Lejeuneaceae
<i>Drucella integristipula</i> (Steph.) E.A.Hodgs.		SO	No change	Lepidoziaceae
<i>Echinolejeunea papillata</i> (Mitt.) R.M.Schust. ex Hamlin			No change	Lejeuneaceae
<i>Eotrichocolea polyacantha</i> (Hook.f. & Taylor) R.M.Schust.			No change	Trichocoleaceae
<i>Fossombronina australis</i> Mitt.			No change	Codoniaceae
<i>Fossombronina pusilla</i> (L.) Dumort.			No change	Codoniaceae
<i>Fossombronina reticulata</i> Steph.			No change	Codoniaceae
<i>Fossombronina wondraczekii</i> (Corda) Dumort.			No change	Codoniaceae
<i>Frullania allanii</i> E.A.Hodgs.			No change	Frullaniaceae
<i>Frullania anomala</i> E.A.Hodgs.			No change	Frullaniaceae
<i>Frullania aterrima</i> (Hook.f. & Taylor) Hook.f. & Taylor ex Gottsche, Lindenb. & Nees			No change	Frullaniaceae
<i>Frullania congesta</i> Gottsche, Lindenb. & Nees			No change	Frullaniaceae
<i>Frullania deplanata</i> Mitt.			No change	Frullaniaceae
<i>Frullania falciloba</i> Lehm.			No change	Frullaniaceae
<i>Frullania fugax</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees			No change	Frullaniaceae
<i>Frullania hodgsoniae</i> von Konrat, Braggins, Hentschel & Heinrichs			No change	Frullaniaceae
<i>Frullania incumbens</i> Mitt.			No change	Frullaniaceae
<i>Frullania media</i> (E.A.Hodgs.) S.Hatt.			No change	Frullaniaceae
<i>Frullania monocera</i> (Hook.f. & Taylor) Taylor			No change	Frullaniaceae
<i>Frullania nicholsonii</i> E.A.Hodgs.			No change	Frullaniaceae
<i>Frullania patula</i> Mitt.			No change	Frullaniaceae
<i>Frullania ptychantha</i> Mont.			No change	Frullaniaceae
<i>Frullania pycnantha</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees			No change	Frullaniaceae
<i>Frullania reptans</i> Mitt.			No change	Frullaniaceae
<i>Frullania rostellata</i> Mitt.			No change	Frullaniaceae
<i>Frullania rostrata</i> (Hook.f. & Taylor) Hook.f. & Taylor			No change	Frullaniaceae
<i>Frullania scandens</i> Mont.			No change	Frullaniaceae
<i>Frullania setchellii</i> Pearson			No change	Frullaniaceae
<i>Frullania solanderiana</i> Colenso			No change	Frullaniaceae
<i>Frullania spinifera</i> Taylor			No change	Frullaniaceae
<i>Frullania squarrosula</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees			No change	Frullaniaceae
<i>Frullania subhampeana</i> E.A.Hodgs.			No change	Frullaniaceae
<i>Gackstroemia alpina</i> R.M.Schust.			No change	Lepidolaenaceae
<i>Gackstroemia novae-zelandiae</i> R.M.Schust & J.J.Engel			No change	Lepidolaenaceae
<i>Gackstroemia weindorferi</i> (Herzog) Grolle			No change	Lepidolaenaceae
<i>Geocalyx caledonicus</i> Steph.			No change	Geocalyceae
<i>Goebeliella cornigera</i> (Mitt.) Steph.			No change	Goebeliellaceae
<i>Gottschea conchophylla</i> (E.A.Hodgs. & Allison) Grolle & Zijlstra			No change	Schistochilaceae
<i>Gottschea pinnatifolia</i> (Hook.) Nees			No change	Schistochilaceae
<i>Gottschea tuloides</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees			No change	Schistochilaceae
<i>Gymnomitrium incompletum</i> (Gottsche) R.M.Schust. ex Vána			No change	Gymnomitriaceae
<i>Gymnomitrium strictum</i> (Berggr.) R.M.Schust. var. <i>strictum</i>			No change	Gymnomitriaceae
<i>Haplomitrium gibbsiae</i> (Steph.) R.M.Schust.		Sp	No change	Haplomitriaceae
<i>Hepatostolonophora paucistipula</i> (Rodway) J.J.Engel			No change	Lophocoleaceae
<i>Hepatostolonophora rotata</i> (Hook.f. & Taylor) J.J.Engel var. <i>rotata</i>			No change	Lophocoleaceae
<i>Hepatostolonophora rotata</i> var. <i>perssonii</i> (R.M.Schust.) J.J.Engel			No change	Lophocoleaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Herbertus oldfieldianus</i> (Steph.) Rodway			No change	Herbertaceae
<i>Heteroscyphus allodontus</i> (Hook.f. & Taylor) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Heteroscyphus ammophilus</i> (Colenso) R.M.Schust.			No change	Lophocoleaceae
<i>Heteroscyphus ciliatus</i> (Steph.) Schiffn.			No change	Lophocoleaceae
<i>Heteroscyphus coalitus</i> (Hook.) Schiffn. var. <i>coalitus</i>			No change	Lophocoleaceae
<i>Heteroscyphus cuneistipulus</i> (Steph.) Schiffn.			No change	Lophocoleaceae
<i>Heteroscyphus dentammophilus</i> J.J.Engel & G.L.Sm.			No change	Lophocoleaceae
<i>Heteroscyphus echinellus</i> (Lindenb. & Gottsche) J.J.Engel & He-Nygrén var. <i>echinellus</i>			No change	Lophocoleaceae
<i>Heteroscyphus echinellus</i> var. <i>hyalinus</i> J.J.Engel			No change	Lophocoleaceae
<i>Heteroscyphus fissistipus</i> (Hook.f. & Taylor) Schiffn. var. <i>fissistipus</i>			No change	Lophocoleaceae
<i>Heteroscyphus fissistipus</i> var. <i>multispinus</i> (E.A.Hodgs. & Allison) J.J.Engel			No change	Lophocoleaceae
<i>Heteroscyphus knightii</i> (Steph.) Grolle			No change	Lophocoleaceae
<i>Heteroscyphus lingulatus</i> (Colenso) J.J.Engel & R.M.Schust.			No change	Lophocoleaceae
<i>Heteroscyphus lyallii</i> (Mitt.) R.M.Schust.			No change	Lophocoleaceae
<i>Heteroscyphus menziesii</i> (Mitt.) J.J.Engel			New listing	Lophocoleaceae
<i>Heteroscyphus mononuculus</i> J.J.Engel var. <i>mononuculus</i>			No change	Lophocoleaceae
<i>Heteroscyphus oblongifolius</i> (Hook.f. & Taylor) Schiffn.			No change	Lophocoleaceae
<i>Heteroscyphus planiusculus</i> (Hook.f. & Taylor) J.J.Engel			No change	Lophocoleaceae
<i>Heteroscyphus sinuosus</i> (Hook.) Schiffn.			No change	Lophocoleaceae
<i>Heteroscyphus supinus</i> (Hook.f. & Taylor) R.M.Schust.			No change	Lophocoleaceae
<i>Heteroscyphus triacanthus</i> (Hook.f. & Taylor) Schiffn. var. <i>triacanthus</i>			No change	Lophocoleaceae
<i>Hygrolembidium acrocladum</i> (Berggr.) R.M.Schust.			No change	Lepidoziaceae
<i>Hygrolembidium australe</i> (Steph.) Grolle			No change	Lepidoziaceae
<i>Hygrolembidium rigidum</i> R.M.Schust. & J.J.Engel			No change	Lepidoziaceae
<i>Hymenophyton flabellatum</i> (Labill.) Trevis.			No change	Hymenophytaceae
<i>Hymenophyton leptopodium</i> (Hook.f. & Taylor) Steph.			No change	Hymenophytaceae
<i>Isotachis intortifolia</i> (Hook.f. & Taylor) Gottsche			No change	Balantiopsaceae
<i>Isotachis lyallii</i> Mitt.			No change	Balantiopsaceae
<i>Isotachis minima</i> Pearson			No change	Balantiopsaceae
<i>Isotachis montana</i> Colenso			No change	Balantiopsaceae
<i>Jensenia connivens</i> (Colenso) Grolle			No change	Pallaviciniaceae
<i>Kurzia calcarata</i> (Steph.) Grolle			No change	Lepidoziaceae
<i>Kurzia compacta</i> (Steph.) Grolle			No change	Lepidoziaceae
<i>Kurzia helophila</i> R.M.Schust. var. <i>helophila</i>			No change	Lepidoziaceae
<i>Kurzia hippuroides</i> (Hook.f. & Taylor) Grolle var. <i>hippuroides</i>			No change	Lepidoziaceae
<i>Kurzia hippuroides</i> var. <i>ornata</i> J.J.Engel & G.L.Sm.			No change	Lepidoziaceae
<i>Kurzia pallescens</i> Grolle			No change	Lepidoziaceae
<i>Kurzia quinquespina</i> J.J.Engel & G.L.Merr.			No change	Lepidoziaceae
<i>Kurzia trilobata</i> (R.M.Schust.) R.M.Schust.			No change	Lepidoziaceae
<i>Kymatolejeunea bartlettii</i> Grolle			No change	Lejeuneaceae
<i>Lamellocolea granditexta</i> (Steph.) J.J.Engel			No change	Lophocoleaceae
<i>Leiomitra lanata</i> (Hook.) R.M.Schust.			No change	Trichocoleaceae
<i>Lejeunea colensoana</i> (Steph.) M.A.M.Renner			No change	Lejeuneaceae
<i>Lejeunea flava</i> (Sw.) Nees			No change	Lejeuneaceae
<i>Lejeunea gracilipes</i> (Taylor) Spruce			No change	Lejeuneaceae
<i>Lejeunea hodgsoniana</i> Grolle ex R.J.Lewington, P.Beveridge & M.A.M.Renner			No change	Lejeuneaceae
<i>Lejeunea oracula</i> M.A.M.Renner			No change	Lejeuneaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Lejeunea primordialis</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees			No change	Lejeuneaceae
<i>Lejeunea subelobata</i> Carrington & Pearson			No change	Lejeuneaceae
<i>Lejeunea tumida</i> Mitt.			No change	Lejeuneaceae
<i>Lembidium nutans</i> (Hook.f. & Taylor) Mitt. var. <i>nutans</i>			No change	Lepidoziaceae
<i>Lepicolea attenuata</i> (Mitt.) Steph.			No change	Lepicoleaceae
<i>Lepicolea scolopendra</i> (Hook.) Trevis.			No change	Lepicoleaceae
<i>Lepidogyna hodgsoniae</i> (Grolle) R.M.Schust.			No change	Lepidolaenaceae
<i>Lepidolaena berggrenii</i> E.A.Hodgs.			No change	Lepidolaenaceae
<i>Lepidolaena clavigera</i> (Hook.) Trevis.			No change	Lepidolaenaceae
<i>Lepidolaena palpebrifolia</i> (Hook.) Trevis.			No change	Lepidolaenaceae
<i>Lepidolaena reticulata</i> (Hook.f. & Taylor) Trevis.			No change	Lepidolaenaceae
<i>Lepidolaena taylorii</i> (Gottsche) Trevis.			No change	Lepidolaenaceae
<i>Lepidozia bidens</i> J.J.Engel			No change	Lepidoziaceae
<i>Lepidozia bisbifida</i> Steph.			No change	Lepidoziaceae
<i>Lepidozia bragginsiana</i> E.D.Cooper & M.A.M.Renner			More knowledge	Lepidoziaceae
<i>Lepidozia concinna</i> Colenso			No change	Lepidoziaceae
<i>Lepidozia digitata</i> Herzog			No change	Lepidoziaceae
<i>Lepidozia elobata</i> R.M.Schust.			No change	Lepidoziaceae
<i>Lepidozia glaucescens</i> J.J.Engel			No change	Lepidoziaceae
<i>Lepidozia hirta</i> Steph.			No change	Lepidoziaceae
<i>Lepidozia kirkii</i> Steph.			No change	Lepidoziaceae
<i>Lepidozia laevifolia</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees var. <i>laevifolia</i>			No change	Lepidoziaceae
<i>Lepidozia laevifolia</i> var. <i>acutiloba</i> J.J.Engel			No change	Lepidoziaceae
<i>Lepidozia microphylla</i> (Hook.) Lindenb.			No change	Lepidoziaceae
<i>Lepidozia novae-zelandiae</i> Steph. var. <i>novae-zelandiae</i>			No change	Lepidoziaceae
<i>Lepidozia obtusiloba</i> Steph. var. <i>obtusiloba</i>			No change	Lepidoziaceae
<i>Lepidozia obtusiloba</i> var. <i>parvula</i> J.J.Engel			No change	Lepidoziaceae
<i>Lepidozia ornata</i> J.J.Engel			No change	Lepidoziaceae
<i>Lepidozia pendulina</i> (Hook.) Lindenb.			No change	Lepidoziaceae
<i>Lepidozia procera</i> Mitt.			No change	Lepidoziaceae
<i>Lepidozia pumila</i> J.J.Engel			No change	Lepidoziaceae
<i>Lepidozia setigera</i> Steph.			No change	Lepidoziaceae
<i>Lepidozia spinosissima</i> (Hook.f. & Taylor) Mitt.			No change	Lepidoziaceae
<i>Lepidozia ulothrix</i> (Schwägr.) Lindenb.			No change	Lepidoziaceae
<i>Leptophyllopsis laxa</i> (Mitt.) Hamlin			No change	Lophocoleaceae
<i>Leptoscyphus australis</i> (Gottsche, Lindenb. & Nees) R.M.Schust.			No change	Lophocoleaceae
<i>Leptoscyphus beckettianus</i> (Steph.) R.M.Schust. ex J.J.Engel			More knowledge	Lophocoleaceae
<i>Leptoscyphus excipulatus</i> (Steph.) J.J.Engel var. <i>excipulatus</i>			New listing	Lophocoleaceae
<i>Leptoscyphus heterophyllus</i> (Steph.) J.J.Engel			No change	Lophocoleaceae
<i>Leptoscyphus physanthus</i> (Hook.f. & Taylor) J.J.Engel			No change	Lophocoleaceae
<i>Lobatiriccardia alterniloba</i> (Hook.f. & Taylor) Furuhi			No change	Aneuraceae
<i>Lobatiriccardia coronopus</i> subsp. <i>australis</i> (R.M.Schust.) Nebel, Preussing, Schäf.Verw. & D.Quandt			No change	Aneuraceae
<i>Lopholejeunea colensoi</i> Steph.			No change	Lejeuneaceae
<i>Marchantia berteriana</i> Lehm. & Lindenb.			No change	Marchantiaceae
<i>Marchantia foliacea</i> Mitt.			No change	Marchantiaceae
<i>Marchantia macropora</i> Mitt.			No change	Marchantiaceae
<i>Marchantia pileata</i> Mitt.			No change	Marchantiaceae
<i>Marsupella sparsifolia</i> subsp. <i>childii</i> R.M.Schust.			New listing	Gymnomitriaceae
<i>Megalembidium insulanum</i> (W.Martin & E.A.Hodgs.) R.M.Schust.			No change	Lepidoziaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Metalejeunea cucullata</i> (Reinw., Blume & Nees) Grolle			No change	Lejeuneaceae
<i>Metzgeria bartlettii</i> Kuwah.			No change	Metzgeriaceae
<i>Metzgeria flavovirens</i> Colenso			No change	Metzgeriaceae
<i>Metzgeria furcata</i> (L.) Corda			No change	Metzgeriaceae
<i>Metzgeria leptoneura</i> Spruce			No change	Metzgeriaceae
<i>Metzgeria rigida</i> Lindb.			No change	Metzgeriaceae
<i>Metzgeria saccata</i> Mitt.			No change	Metzgeriaceae
<i>Microlejeunea latitans</i> (Hook.f. & Taylor) Heinrichs, Schäf.-Verw., Pócs & S.Dong			No change	Lejeuneaceae
<i>Monoclea forsteri</i> Hook.			No change	Monocleaceae
<i>Myriocoleopsis minutissima</i> (Sm.) R.L.Zhu, Y.Yu & Pócs			No change	Lejeuneaceae
<i>Neolepidozia gibbsiana</i> (Steph.) E.D.Cooper			No change	Lepidoziaceae
<i>Neolepidozia hodgsoniae</i> (J.J.Engel & G.L.Sm.) E.D.Cooper			No change	Lepidoziaceae
<i>Neolepidozia meridiana</i> (E.A.Hodgs.) E.D.Cooper			No change	Lepidoziaceae
<i>Neolepidozia paludicola</i> (E.A.Hodgs.) E.D.Cooper			No change	Lepidoziaceae
<i>Neolepidozia patentissima</i> (Hook.f. & Taylor) E.D.Cooper var. <i>patentissima</i>			No change	Lepidoziaceae
<i>Neolepidozia praenitens</i> (Lehm. & Lindenb.) E.D.Cooper var. <i>praenitens</i>			No change	Lepidoziaceae
<i>Neolepidozia praenitens</i> var. <i>dentifolia</i> (J.J.Engel & G.L.Sm.) E.D.Cooper			No change	Lepidoziaceae
<i>Neolepidozia tetrapila</i> (Hook.f & Taylor) E.D.Cooper var. <i>tetrapila</i>			No change	Lepidoziaceae
<i>Neolepidozia tetrapila</i> var. <i>cancellata</i> (Colenso) E.D.Cooper			No change	Lepidoziaceae
<i>Neolepidozia tetrapila</i> var. <i>roseana</i> (Steph.) E.D.Cooper			No change	Lepidoziaceae
<i>Nothogymnomitron erosum</i> (Carrington & Pearson) R.M.Schust.			No change	Gymnomitriaceae
<i>Pachyglossa tenacifolia</i> (Hook.f. & Taylor) Herzog & Grolle			No change	Lophocoleaceae
<i>Pachyschistochila altissima</i> (E.A.Hodgs.) R.M.Schust. subsp. <i>altissima</i>			No change	Schistochilaceae
<i>Pachyschistochila berggrenii</i> J.J.Engel & R.M.Schust.			No change	Schistochilaceae
<i>Pachyschistochila childii</i> R.M.Schust. & J.J.Engel			No change	Schistochilaceae
<i>Pachyschistochila colensoana</i> (Steph.) R.M.Schust. & J.J.Engel			No change	Schistochilaceae
<i>Pachyschistochila latiloba</i> R.M.Schust. & J.J.Engel			No change	Schistochilaceae
<i>Pachyschistochila nivicola</i> R.M.Schust. & J.J.Engel			No change	Schistochilaceae
<i>Pachyschistochila parvistipula</i> (Rodway) R.M.Schust. & J.J.Engel			No change	Schistochilaceae
<i>Pachyschistochila subhyalina</i> (R.M.Schust.) R.M.Schust. & J.J.Engel var. <i>subhyalina</i>			No change	Schistochilaceae
<i>Pachyschistochila subhyalina</i> var. <i>grandidentata</i> J.J.Engel & R.M.Schust.			No change	Schistochilaceae
<i>Pachyschistochila succulenta</i> J.J.Engel & R.M.Schust.			No change	Schistochilaceae
<i>Pallavicinia innovans</i> Steph.			No change	Pallaviciniaceae
<i>Pallavicinia lyellii</i> (Hook.) Gray			No change	Pallaviciniaceae
<i>Pallavicinia tenuinervis</i> (Hook.f. & Taylor) Trevis.			No change	Pallaviciniaceae
<i>Pallavicinia xiphoides</i> (Hook.f. & Taylor) Trevis.			No change	Pallaviciniaceae
<i>Paracromastigum drucei</i> (R.M.Schust.) R.M.Schust.			No change	Lepidoziaceae
<i>Paracromastigum furcifolium</i> (Steph.) R.M.Schust.			No change	Lepidoziaceae
<i>Paracromastigum macrostipum</i> (Steph.) R.M.Schust.			No change	Lepidoziaceae
<i>Paracromastigum microphyllum</i> (R.M.Schust. ex J.J.Engel) E.D.Cooper			No change	Lepidoziaceae
<i>Phyllothallia nivicola</i> E.A.Hodgs.			No change	Phyllothalliaceae
<i>Plagiochila annotina</i> Lindenb.			No change	Plagiochilaceae
<i>Plagiochila banksiana</i> Gottsche var. <i>banksiana</i>			No change	Plagiochilaceae
<i>Plagiochila circinalis</i> (Lehm. & Lindenb.) Lindenb. var. <i>circinalis</i>			No change	Plagiochilaceae
<i>Plagiochila circumdentata</i> Steph. var. <i>circumdentata</i>			No change	Plagiochilaceae
<i>Plagiochila colensoi</i> Hook.f. & Taylor var. <i>colensoi</i>			No change	Plagiochilaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Plagiochila deltoidea</i> Lindenb. var. <i>deltoidea</i>			No change	Plagiochilaceae
<i>Plagiochila fasciculata</i> Lindenb.			No change	Plagiochilaceae
<i>Plagiochila fuscella</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees var. <i>fuscella</i>			No change	Plagiochilaceae
<i>Plagiochila fuscella</i> var. <i>novae-zelandiae</i> (E.A.Hodgs.) J.J.Engel & G.L.Sm.			No change	Plagiochilaceae
<i>Plagiochila gigantea</i> Lindenb. var. <i>gigantea</i>			No change	Plagiochilaceae
<i>Plagiochila gregaria</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees			No change	Plagiochilaceae
<i>Plagiochila intertexta</i> Hook.f. & Taylor			No change	Plagiochilaceae
<i>Plagiochila ramosissima</i> (Hook.) Lindenb.			No change	Plagiochilaceae
<i>Plagiochila rutlandii</i> Steph.			No change	Plagiochilaceae
<i>Plagiochila stephensoniana</i> Mitt.			No change	Plagiochilaceae
<i>Plagiochila strombifolia</i> Taylor ex Lehm.			No change	Plagiochilaceae
<i>Plagiochila subfasciculata</i> Colenso			New listing	Plagiochilaceae
<i>Plagiochila trispicata</i> Colenso			No change	Plagiochilaceae
<i>Podomitrium phyllanthus</i> (Hook.) Mitt.			No change	Pallaviciniaceae
<i>Porella elegantula</i> (Mont.) E.A.Hodgs.			No change	Porellaceae
<i>Pseudocephalozia lepidozoides</i> R.M.Schust.			No change	Lepidoziaceae
<i>Pseudocephalozia paludicola</i> R.M.Schust.			No change	Lepidoziaceae
<i>Pseudomarsupidium piliferum</i> (Steph.) Herzog ex Grolle			No change	Adelanthaceae
<i>Psiloclada clandestina</i> Mitt.			No change	Lepidoziaceae
<i>Ptilidium ciliare</i> (L.) Hampe			No change	Ptilidiaceae
<i>Radula allisonii</i> Castle			No change	Radulaceae
<i>Radula aneurismalis</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees			No change	Radulaceae
<i>Radula australiana</i> K.Yamada			No change	Radulaceae
<i>Radula cuspidata</i> Steph.			No change	Radulaceae
<i>Radula demissa</i> M.A.M.Renner			No change	Radulaceae
<i>Radula grandis</i> Steph.			No change	Radulaceae
<i>Radula multiamentula</i> E.A.Hodgs.			No change	Radulaceae
<i>Radula physoloba</i> Mont.			No change	Radulaceae
<i>Radula plicata</i> Mitt.			No change	Radulaceae
<i>Radula pseudoscripta</i> M.A.M.Renner			No change	Radulaceae
<i>Radula sainsburiana</i> E.A.Hodgs. & Allison			No change	Radulaceae
<i>Radula strangulata</i> Hook.f. & Taylor			No change	Radulaceae
<i>Radula tasmanica</i> Steph.			No change	Radulaceae
<i>Radula uvifera</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees			No change	Radulaceae
<i>Reboulia hemisphaerica</i> subsp. <i>australis</i> R.M.Schust.			No change	Aytoniaceae
<i>Riccardia aequicellularis</i> (Steph.) Hewson			No change	Aneuraceae
<i>Riccardia aequitexta</i> (Steph.) E.A.Brown			No change	Aneuraceae
<i>Riccardia alba</i> (Colenso) E.A.Brown			No change	Aneuraceae
<i>Riccardia asperulata</i> R.M.Schust.			No change	Aneuraceae
<i>Riccardia bipinnatifida</i> (Colenso) Hewson			No change	Aneuraceae
<i>Riccardia breviala</i> E.A.Brown			No change	Aneuraceae
<i>Riccardia cochleata</i> (Hook.f. & Taylor) Kuntze			No change	Aneuraceae
<i>Riccardia colensoi</i> (Steph.) W.Martin			No change	Aneuraceae
<i>Riccardia crassa</i> (Schwägr.) C.Massal.			No change	Aneuraceae
<i>Riccardia eriocaula</i> (Hook.) C.Massal.			No change	Aneuraceae
<i>Riccardia filicina</i> (Colenso) E.A.Hodgs.			No change	Aneuraceae
<i>Riccardia lobulata</i> (Colenso) E.A.Hodgs.			No change	Aneuraceae
<i>Riccardia marginata</i> (Colenso) Pearson			No change	Aneuraceae
<i>Riccardia nitida</i> (Colenso) E.A.Hodgs.			No change	Aneuraceae
<i>Riccardia papulosa</i> (Steph.) E.A.Brown			No change	Aneuraceae

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NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Riccardia pennata</i> E.A.Brown			No change	Aneuraceae
<i>Riccardia perspicua</i> E.A.Brown			No change	Aneuraceae
<i>Riccardia pusilla</i> (Steph.) E.A.Br.			No change	Aneuraceae
<i>Riccia fluitans</i> L.		DP, SO	No change	Ricciaceae
<i>Saccogynidium australe</i> (Mitt.) Grolle			No change	Lophocoleaceae
<i>Schistochila appendiculata</i> (Hook.) Trevis.			No change	Schistochilaceae
<i>Schistochila balfouriana</i> (Hook.f. & Taylor) Steph.			No change	Schistochilaceae
<i>Schistochila chlorophylla</i> (Colenso) J.J.Engel & R.M.Schust.			No change	Schistochilaceae
<i>Schistochila ciliata</i> (Mitt.) Steph.			No change	Schistochilaceae
<i>Schistochila glaucescens</i> (Hook.) A.Evans			No change	Schistochilaceae
<i>Schistochila kirkiana</i> Steph.			No change	Schistochilaceae
<i>Schistochila lehmanniana</i> (Lehm. & Lindenb.) Carrington & Pearson			No change	Schistochilaceae
<i>Schistochila monticola</i> R.M.Schust.			No change	Schistochilaceae
<i>Schistochila muricata</i> E.A.Hodgs. & Allison			No change	Schistochilaceae
<i>Schistochila nobilis</i> (Hook.) Trevis.			No change	Schistochilaceae
<i>Schistochila pseudociliata</i> R.M.Schust.			No change	Schistochilaceae
<i>Schistochila repleta</i> (Hook.f. & Taylor) Steph.			No change	Schistochilaceae
<i>Siphonolejeunea conchophylla</i> (Grolle) M.A.M.Renner			No change	Lejeuneaceae
<i>Siphonolejeunea fragilis</i> (R.M.Schust.) M.A.M.Renner			No change	Lejeuneaceae
<i>Siphonolejeunea hamata</i> (Grolle) M.A.M.Renner			No change	Lejeuneaceae
<i>Siphonolejeunea nudipes</i> (Hook.f. & Taylor) Herzog var. <i>nudipes</i>			No change	Lejeuneaceae
<i>Siphonolejeunea nudipes</i> var. <i>magnicarinata</i> E.A.Hodgs.			No change	Lejeuneaceae
<i>Siphonolejeunea olgae</i> R.M.Schust.			No change	Lejeuneaceae
<i>Siphonolejeunea papillosa</i> (Glenny) M.A.M.Renner			No change	Lejeuneaceae
<i>Solenostoma cryptogynum</i> J.J.Engel			No change	Jungermanniaceae
<i>Solenostoma hodgsoniae</i> (Grolle) J.J.Engel			No change	Jungermanniaceae
<i>Solenostoma inundatum</i> (Hook.f. & Taylor) Steph.			No change	Jungermanniaceae
<i>Solenostoma novazelandiae</i> R.M.Schust.			No change	Jungermanniaceae
<i>Solenostoma orbiculatum</i> (Colenso) R.M.Schust.			No change	Jungermanniaceae
<i>Solenostoma rufflorum</i> (Colenso) J.J.Engel			No change	Jungermanniaceae
<i>Solenostoma totipapillosum</i> (E.A.Hodgs.) R.M.Schust.			No change	Jungermanniaceae
<i>Spruceanthus olivaceus</i> (Hook.f. & Taylor) X.Q.Shi, R.L.Zhu & Gradst.			New listing	Lejeuneaceae
<i>Symphyogyna hymenophyllum</i> (Hook.) Mont. & Nees			No change	Pallaviciniaceae
<i>Symphyogyna subsimplex</i> Mitt.			No change	Pallaviciniaceae
<i>Symphyogyna undulata</i> Colenso			No change	Pallaviciniaceae
<i>Syzygiella colorata</i> (Lehm.) K.Feldberg, Vána, Hentschel & Heinrichs			No change	Adelanthaceae
<i>Syzygiella nigrescens</i> (Steph.) K.Feldberg, Vána, Hentschel & Heinrichs			No change	Adelanthaceae
<i>Syzygiella pseudocclusa</i> (E.A.Hodgs.) K.Feldberg, Vána, Hentschel & Heinrichs			No change	Adelanthaceae
<i>Syzygiella sonderi</i> (Gottsche) K.Feldberg, Vána, Hentschel & Heinrichs			No change	Adelanthaceae
<i>Syzygiella tasmanica</i> (Hook.f. & Taylor) K.Feldberg, Vána, Hentschel & Heinrichs			No change	Adelanthaceae
<i>Syzygiella teres</i> (Carrington & Pearson) Vána			New listing	Adelanthaceae
<i>Telaranea granulata</i> J.J.Engel & G.L.Sm.		DP	No change	Lepidoziaceae
<i>Telaranea herzogii</i> (E.A.Hodgs.) E.A.Hodgs.			No change	Lepidoziaceae
<i>Telaranea quadriseta</i> (Steph.) J.J.Engel & G.L.Sm.			No change	Lepidoziaceae
<i>Temnoma palmatum</i> (Pearson) R.M.Schust. var. <i>palmatum</i>			No change	Pseudolepicoleaceae
<i>Temnoma palmatum</i> var. <i>cuneatum</i> R.M.Schust.			No change	Pseudolepicoleaceae

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Table 8 continued

NAME AND AUTHORITY	CRITERIA	QUALIFIERS	CHANGE REASON	FAMILY
<i>Temnoma palmatum</i> var. <i>pseudospiniferum</i> R.M.Schust.			No change	Pseudolepicoleaceae
<i>Temnoma paucisetigerum</i> R.M.Schust.			No change	Pseudolepicoleaceae
<i>Temnoma pulchellum</i> (Hook.) Bastow			No change	Pseudolepicoleaceae
<i>Temnoma quadrifidum</i> (Mitt.) Mitt.			No change	Pseudolepicoleaceae
<i>Temnoma quadripartitum</i> (Hook) Mitt. var. <i>quadripartitum</i>			No change	Pseudolepicoleaceae
<i>Tetracymbaliella cymbalifera</i> (Hook.f. & Taylor) Grolle			No change	Lophocoleaceae
<i>Tetracymbaliella decipiens</i> (Gottsche) Grolle			No change	Lophocoleaceae
<i>Thysananthus anguiformis</i> (Hook.f. & Taylor) Taylor ex Gottsche, Lindenb. & Nees			No change	Lejeuneaceae
<i>Treubia lacunosa</i> (Colenso) Prosk.			No change	Treubiaceae
<i>Treubia pygmaea</i> R.M.Schust.			No change	Treubiaceae
<i>Triandrophyllum subtrifidum</i> (Hook.f. & Taylor) Fulford & Hatcher var. <i>subtrifidum</i>			No change	Herbertaceae
<i>Trichocolea hatcheri</i> E.A.Hodgs.			No change	Trichocoleaceae
<i>Trichocolea mollissima</i> (Hook.f. & Taylor) Gottsche			No change	Trichocoleaceae
<i>Trichocolea rigida</i> R.M.Schust.			No change	Trichocoleaceae
<i>Tricholepidozia lindenberghii</i> (Gottsche) E.D.Cooper var. <i>lindenberghii</i>			No change	Lepidoziaceae
<i>Tricholepidozia lindenberghii</i> var. <i>complanata</i> (J.J.Engel & G.L.Sm.) E.D.Cooper			No change	Lepidoziaceae
<i>Tricholepidozia martinii</i> (E.A.Hodgs.) E.D.Cooper			No change	Lepidoziaceae
<i>Tricholepidozia pulcherrima</i> (Steph.) E.D.Cooper var. <i>pulcherrima</i>			No change	Lepidoziaceae
<i>Tricholepidozia remotifolia</i> (E.A.Hodgs.) E.D.Cooper			No change	Lepidoziaceae
<i>Tricholepidozia tetradactyla</i> (Hook.f. & Taylor) E.D.Cooper			No change	Lepidoziaceae
<i>Zoopsidella caledonica</i> (Steph.) R.M.Schust.			No change	Lepidoziaceae
<i>Zoopsis argentea</i> (Hook.f. & Taylor) Gottsche, Lindenb. & Nees var. <i>argentea</i>			No change	Lepidoziaceae
<i>Zoopsis leitgebiana</i> (Carrington & Pearson) Bastow			No change	Lepidoziaceae
<i>Zoopsis macrophylla</i> R.M.Schust.			No change	Lepidoziaceae
<i>Zoopsis setulosa</i> Leitg.			No change	Lepidoziaceae
<b>Taxonomically unresolved (5)</b>				
<i>Drepanolejeunea</i> aff. <i>aucklandica</i> (AK 287338; Spraggs Bush)			No change	Lejeuneaceae
<i>Frullania</i> aff. <i>rostrata</i> (P.J. de Lange 11245, F; "coastal northern North Island")			No change	Frullaniaceae
<i>Lejeunea</i> aff. <i>flava</i> (a) (AK 291280; Waitakere)			No change	Lejeuneaceae
<i>Lopholejeunea</i> (a) (AK 327822; New Zealand ( <i>Lopholejeunea plicatiscypha</i> of Hamlin 1972))			No change	Lejeuneaceae
<i>Symphyogyna tenuinervis</i> (Hook.f. & Taylor) Grolle			No change	Pallaviciniaceae
<b>NON-RESIDENT NATIVE (1)</b>				
<b>COLONISER (1)</b>				
<b>Taxonomically determinate (1)</b>				
<i>Riccia cavernosa</i> Hoffm.	A(3)	OL, SO	New listing	Ricciaceae
<b>INTRODUCED AND NATURALISED (9)</b>				
<b>Taxonomically determinate (9)</b>				
<i>Lunularia cruciata</i> (L.) Dumort ex Lindb.			No change	Lunulariaceae
<i>Marchantia polymorpha</i> L. subsp. <i>polymorpha</i>			No change	Marchantiaceae
<i>Marchantia polymorpha</i> subsp. <i>ruderalis</i> Bischl. & Boissel.-Dub.			No change	Marchantiaceae
<i>Riccia bifurca</i> Hoffm.			No change	Ricciaceae
<i>Riccia ciliata</i> Hoffm.			No change	Ricciaceae
<i>Riccia crystallina</i> L.			No change	Ricciaceae
<i>Riccia glauca</i> L.			No change	Ricciaceae
<i>Riccia nigrella</i> DC			No change	Ricciaceae
<i>Riccia spongiosula</i> Na-Thalang			No change	Ricciaceae



## 2.3 NZTCS categories, criteria and qualifiers

### Categories and criteria

#### Extinct

Taxa for which there is no reasonable doubt – following repeated surveys in known or expected habitats at appropriate times (diurnal, seasonal and annual) and throughout the taxon's historic range – that the last individual has died.

#### Data Deficient

Taxa that cannot be assessed due to a lack of information about their distribution and abundance. It is hoped that listing such taxa will stimulate research to find out the true category (for a fuller definition see Townsend et al. 2008).

#### Threatened

Taxa that meet the criteria specified by Townsend et al. (2008) for the categories Nationally Critical, Nationally Endangered and Nationally Vulnerable.

#### *Threatened – Nationally Critical*

Criteria for Nationally Critical:

##### **A – very small population (natural or unnatural)**

A(1) <250 mature individuals

A(2) ≤2 subpopulations, ≤200 mature individuals in the larger subpopulation

A(3) Total area of occupancy ≤1 ha (0.01 km<sup>2</sup>)

##### **B – small population (natural or unnatural) with a high ongoing or predicted decline**

B(1/1) 250–1000 mature individuals, predicted decline 50–70%

B(2/1) ≤5 subpopulations, ≤300 mature individuals in the largest subpopulation, predicted decline 50–70%

B(3/1) Total area of occupancy ≤10 ha (0.1 km<sup>2</sup>), predicted decline 50–70%

##### **C – population (irrespective of size or number of subpopulations) with a very high ongoing or predicted decline (>70%)**

C Predicted decline >70%

#### *Threatened – Nationally Endangered*

Criteria for Nationally Endangered:

##### **A – small population (natural or unnatural) that has a low to high ongoing or predicted decline**

A(1/1) 250–1000 mature individuals, predicted decline 10–50%

A(2/1) ≤5 subpopulations, ≤300 mature individuals in the largest subpopulation, predicted decline 10–50%

A(3/1) Total area of occupancy ≤10 ha (0.1 km<sup>2</sup>), predicted decline 10–50%

##### **B – small stable population (unnatural)**

B(1/1) 250–1000 mature individuals, stable population

B(2/1) ≤5 subpopulations, ≤300 mature individuals in the largest subpopulation, stable population

B(3/1) Total area of occupancy ≤10 ha (0.1 km<sup>2</sup>), stable population

##### **C – moderate population and high ongoing or predicted decline**

- C(1/1) 1000–5000 mature individuals, predicted decline 50–70%
- C(2/1) ≤15 subpopulations, ≤500 mature individuals in the largest subpopulation, predicted decline 50–70%
- C(3/1) Total area of occupancy ≤100 ha (1 km<sup>2</sup>), predicted decline 50–70%

### ***Threatened – Nationally Vulnerable***

Criteria for Nationally Vulnerable:

#### **A – small, increasing population (unnatural)**

- A(1/1) 250–1000 mature individuals, predicted increase >10%
- A(2/1) ≤5 subpopulations, ≤300 mature individuals in the largest subpopulation, predicted increase >10%
- A(3/1) Total area of occupancy ≤10 ha (0.1 km<sup>2</sup>), predicted increase >10%

#### **B – moderate, stable population (unnatural)**

- B(1/1) 1000–5000 mature individuals, stable population
- B(2/1) ≤15 subpopulations, ≤500 mature individuals in the largest subpopulation, stable population
- B(3/1) Total area of occupancy ≤100 ha (1 km<sup>2</sup>), stable population

#### **C – moderate population, with population trend that is declining**

- C(1/1) 1000–5000 mature individuals, predicted decline 10–50%
- C(2/1) ≤15 subpopulations, ≤500 mature individuals in the largest subpopulation, predicted decline 10–50%
- C(3/1) Total area of occupancy ≤100 ha (1 km<sup>2</sup>), predicted decline 10–50%

#### **D – moderate to large population and moderate to high ongoing or predicted decline**

- D(1/1) 5000–20000 mature individuals, predicted decline 30–70%
- D(2/1) ≤15 subpopulations, ≤1000 mature individuals in the largest subpopulation, predicted decline 30–70%
- D(3/1) Total area of occupancy ≤1000 ha (10 km<sup>2</sup>), predicted decline 30–70%

#### **E – large population and high ongoing or predicted decline**

- E(1/1) 20000–100000 mature individuals, predicted decline 50–70%
- E(2/1) Total area of occupancy ≤10000 ha (100 km<sup>2</sup>), predicted decline 50–70%

### **At Risk**

Taxa that meet the criteria specified by Townsend et al. (2008) for Declining, Recovering, Relict and Naturally Uncommon.

#### ***At Risk – Declining***

Criteria for Declining:

##### **A – moderate to large population and low ongoing or predicted decline**

- A(1/1) 5000–20000 mature individuals, predicted decline 10–30%
- A(2/1) Total area of occupancy ≤1000 ha (10 km<sup>2</sup>), predicted decline 10–30%

##### **B – large population and low to moderate ongoing or predicted decline**

- B(1/1) 20000–100000 mature individuals, predicted decline 10–50%
- B(2/1) Total area of occupancy ≤10000 ha (100 km<sup>2</sup>), predicted decline 10–50%

##### **C – very large population and low to high ongoing or predicted decline**

- C(1/1) >100000 mature individuals, predicted decline 10–70%
- C(2/1) Total area of occupancy >10000 ha (100 km<sup>2</sup>), predicted decline 10–70%

### ***At Risk – Recovering***

Taxa that have undergone a documented decline within the last 1000 years and now have an ongoing or predicted increase of >10% in the total population or area of occupancy, taken over the next 10 years or three generations, whichever is longer. Note that such taxa that are increasing but have a population size of <1000 mature individuals (or total area of occupancy of <10 ha) are listed in one of the Threatened categories, depending on their population size (for more details see Townsend et al. (2008)).

Criteria for Recovering:

- A 1000–5000 mature individuals or total area of occupancy  $\leq 100$  ha (1 km<sup>2</sup>), and predicted increase >10%
- B 5000–20000 mature individuals or total area of occupancy  $\leq 1000$  ha (10 km<sup>2</sup>), and predicted increase >10%

### ***At Risk – Relict***

Taxa that have undergone a documented decline within the last 1000 years, and now occupy <10% of their former range and meet one of the following criteria:

- A 5000–20000 mature individuals; population stable ( $\pm 10\%$ )
- B >20000 mature individuals; population stable or increasing at >10%

The range of a relictual taxon takes into account the area currently occupied as a ratio of its former extent. Relict can also include taxa that exist as reintroduced and self-sustaining populations within or outside their former known range (for more details see Townsend et al. (2008)).

### ***At Risk – Naturally Uncommon***

Taxa whose distribution is confined to a specific geographical area or which occur within naturally small and widely scattered populations, where this distribution is not the result of human disturbance.

### **Non-resident Native**

Taxa whose natural presence in New Zealand is either discontinuous (Migrant) or sporadic or temporary (Vagrant) or which have succeeded in recently (since 1950) establishing a resident breeding population (Coloniser).

#### ***Non-resident Native – Migrant***

Taxa that predictably and cyclically visit New Zealand as part of their normal life cycle (a minimum of 15 individuals known or presumed to visit per annum) but do not breed here.

#### ***Non-resident Native – Vagrant***

Taxa whose occurrences, though natural, are sporadic and typically transitory, or migrants with fewer than 15 individuals visiting New Zealand per annum.

#### ***Non-resident Native – Coloniser***

Taxa that otherwise trigger Threatened categories because of small population size, but have arrived in New Zealand without direct or indirect help from humans and have been successfully reproducing in the wild only since 1950.

### **Not Threatened**

Resident native taxa that have large, stable populations.

## Introduced and Naturalised

Taxa that have become naturalised in the wild after being deliberately or accidentally introduced into New Zealand by human agency.

## Qualifiers

See Townsend et al. (2008) for details of criteria and qualifiers, which are abbreviated as follows:

CD	Conservation Dependent
De	Designated
DP	Data Poor
EF	Extreme Fluctuations
EW	Extinct in the Wild
IE	Island Endemic
Inc	Increasing
OL	One Location
PD	Partial Decline
RF	Recruitment Failure
RR	Range Restricted
SO	Secure Overseas
S?O	Uncertain whether the taxon is secure overseas
Sp	Sparse
St	Stable
TO	Threatened Overseas
T?O	Uncertain whether the taxon is threatened overseas

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