Appendix from P. Wilf et al., "Eocene Plant Diversity at Laguna del Hunco and Río Pichileufú, Patagonia, Argentina"

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Supplemental Text and Data

^{40}Ar/^{39}Ar Geochronology

Sanidine phenocrysts were separated from the RP1, T2, RP3, and 2211A ash beds by crushing, heavy liquids, handpicking under refractive-index oil (Smith et al. 2003), and ultrasonic cleaning in 10% HF. Crystals were irradiated at Oregon State University, where they received a fast neutron dose of ~5 × 10^{18} neutrons/cm^2. Fusions and incremental heatings of crystals with a CO_2 laser, mass spectrometry, mass discrimination corrections, nucleogenic reactor corrections, and error propagation followed Smith et al. (2003). Mean ages are weighted by the inverse variance of each measurement and are reported at the 2σ level. Uncertainty in the neutron fluence parameter J ranged from 0.1%–0.16%, on the basis of multiple measurements of 28.34 Ma Taylor Creek Rhyolite sanidine standard crystals (Renne et al. 1998), and was propagated into the final ages. Analyses falling outside the mean have been excluded from the final age calculation if their inclusion results in a mean squared weighted deviation (MSWD) value of >1. Younger outliers, particularly in the case of RP1, are interpreted to represent low-temperature alteration and are correlated with higher proportions of atmospheric to radiogenic Ar. Older outliers are interpreted to represent small amounts of detrital and/or xenocrystic contamination and occur only in samples RP1, RP3, and 2211A, each of which are vitric-crystal tuffs with small proportions (<5%) of lithic material. Sample T2 is a finer-grained vitric-crystal tuff lacking in lithic material. In all four cases, we take the combined weighted mean age to represent the eruptive and depositional age of the ash bed (see fig. A1; table A1).

Floral Affinities and Tropicality

We provide an update here on floral biogeography, based on literature that we consider reliable. We include some preliminary observations from our recent collections, noting that our group is engaged in an extensive taxonomic revision (González et al. 2002; Gandolfo et al. 2004).

Hill and Carpenter (1991) summarized the macrofossil taxa from Paleogene South America that are extant only in temperate and tropical areas of Australasia. At Laguna del Hunco (LH), these include *Akania* (Romero and Hickey 1976; Gandolfo et al. 1988) and *Gymnostoma* (Frenguelli 1943*a*; Christophel 1980; Gandolfo et al. 2004), both of which have extant distributions in the Australasian tropics. We have also recovered *Akania* from Río Pichileufú (RP). *Araucaria pichileufensis*, known from RP (Berry 1938) and abundant in our collections from LH, has been assigned to section *Eutacta*, which has extant relatives in Australia, New Guinea, and New Caledonia (Florin 1940; Hill 1994).

Other fossil groups from LH and RP remain extant in southern South America as well as Australasia. "*Laurelia*" *guiñazui* (Berry 1935*b*), originally from RP and present in our collections from LH, is considered a species of Atherospermataceae (a segregate of Lauraceae) most similar to extant *Laureliopsis philippiana*, an Antarctic shrub endemic to southern South America (Schodde 1969; Renner et al. 2000). Several species of *Lomatia* are found at LH and RP (Frenguelli 1943*b*; Romero et al. 1988; Wilf et al. 2003); *Lomatia* is extant in South America and Australia and ranges into Neotropical montane scrub forest. At LH, the abundant leaf species "*Tetracera*" *patagonica* (Berry 1925) and "helicopter" fruit species with central woody discs appear to be assignable to Cunoniaceae, a broadly distributed Southern Hemisphere family (Wilf et al. 2003, their fig. 1*H*). Also at LH, foliage of callitroid Cupressaceae, needing further diagnosis to genus (Wilf et al. 2003, their fig. 1*A*), is similar to *Austrocedrus*, *Libocedrus*, and *Papuacedrus*, genera that are extant in southern South America (*Austrocedrus*) and Australasia (*Libocedrus* and *Papuacedrus*). Berry (1938) described poorly preserved but apparently identical foliage from RP as "*Libocedrus*" *prechilensis*; this name referred to the extant *Austrocedrus chilensis*, then placed in *Libocedrus*.

Roupala, from LH, is the only well-diagnosed genus at LH or RP that is a Neotropical endemic today (Durango de Cabrera and Romero 1986). Although *Cochlospermum* from RP (Berry 1935*c*; possible LH specimen) is cited as an example of Neotropical affinity (e.g., Romero 1986), this genus, if correctly identified, is pantropical in distribution today (Heywood 1993). Several other taxa with generalized tropical distributions are present, awaiting further diagnosis. Dispersed legume leaflets (Fabaceae) have long been known at RP and questionably at LH (Berry 1925, 1938). Our recent LH collections contain abundant legumes, including pods, an imparipinnately compound leaf species that matches Berry's "*Cassia*" *argentinensis* leaflets, and a second compound-leaved species. Berry (1925, 1938) reported several types of Myrtaceae leaves from LH and RP, and we have collected at least three myrtaceous species of leaves and two of fruits at LH as well as two leaf species at RP. Similarly, diverse leaves and fruits were assigned to Sapindaceae from both LH and RP (Berry 1925, 1938); we have recovered at least eight leaf species assignable to Sapindaceae or Anacardiaceae at LH and at least three leaf species of Sapindaceae at RP. Two leaf types from LH are lobed with actinodromous primary venation of probable sterculiaceous affinity (see Wilf et al. 2003, their fig. 1*J*), and one at RP matches Berry's "*Sterculia*" *guiñazui*.

Other tropical groups in our recent collections have no literature precedent. We have recovered probable palm fruits and leaf fragments at LH, and a spectacular unpublished specimen of a pinnately compound "feather" palm from LH donated by W. Volkheimer is housed at the Museo Paleontológico Asociación Paleontológica Bariloche. At LH, we recovered a cycad leaf species with a toothed margin similar to extant *Dioon* (Wilf et al. 2003, their fig. 1*I*); "*Zamia*" *tertiaria*, figured by Berry from LH and RP and abundant in our recent collections (fig. 3), is almost certainly a conifer and not a cycad. One dicot leaf from LH bears "*Clusia*-type" venation (Gentry 1993; i.e., closely spaced, parallel, unforking secondary veins) similar to extant *Calophyllum*. Extant taxa with this venation pattern, including various genera within Clusiaceae, Linaceae, Ochnaceae, Sapotaceae, and Vochysiaceae, have exclusively tropical distributions (Gentry 1993; Heywood 1993). Other LH dicot groups with tropical affinities include Lauraceae, Menispermaceae, and possible Melastomataceae.

Although information is scarce, the paleoclimate and known taxonomic composition indicate multilayered vegetation with canopy trees such as *Araucaria* (also, large unidentified silicified logs are present, shown in Petersen 1946), vines (Menispermaceae, Sapindaceae), shrubs and small trees (*Akania*, *Gymnostoma*, "*Laurelia*," *Roupala*), ground cover and small-statured plants (mosses, cycads, monocots, and diverse ferns), and aquatic plants (water lilies, *Azolla*). Additional megaflora data are provided in tables A2, A3, and A4.

Literature Cited in the Appendix

Florin, R. 1940. The Tertiary conifers of south Chile and their phytogeographical significance. Kungliga Svenska Vetenskapakademiens Handlingar 19:1–107.

Gentry, A. H. 1993. A field guide to the families and genera of woody plants of northwest South America (Colombia, Ecuador, Peru), with supplementary notes on herbaceous taxa. Conservation International, Washington, DC.

Heywood, V. H. 1993. Flowering plants of the world. Oxford University Press, New York.

Renner, S. S., D. B. Foreman, and D. Murray. 2000. Timing transantarctic disjunctions in the Atherospermataceae (Laurales): evidence from coding and noncoding chloroplast sequences. Systematic Biology 49:579–591.

Schodde, R. 1969. A monograph of the family Atherospermataceae R. Br. PhD diss. University of Adelaide, Adelaide.

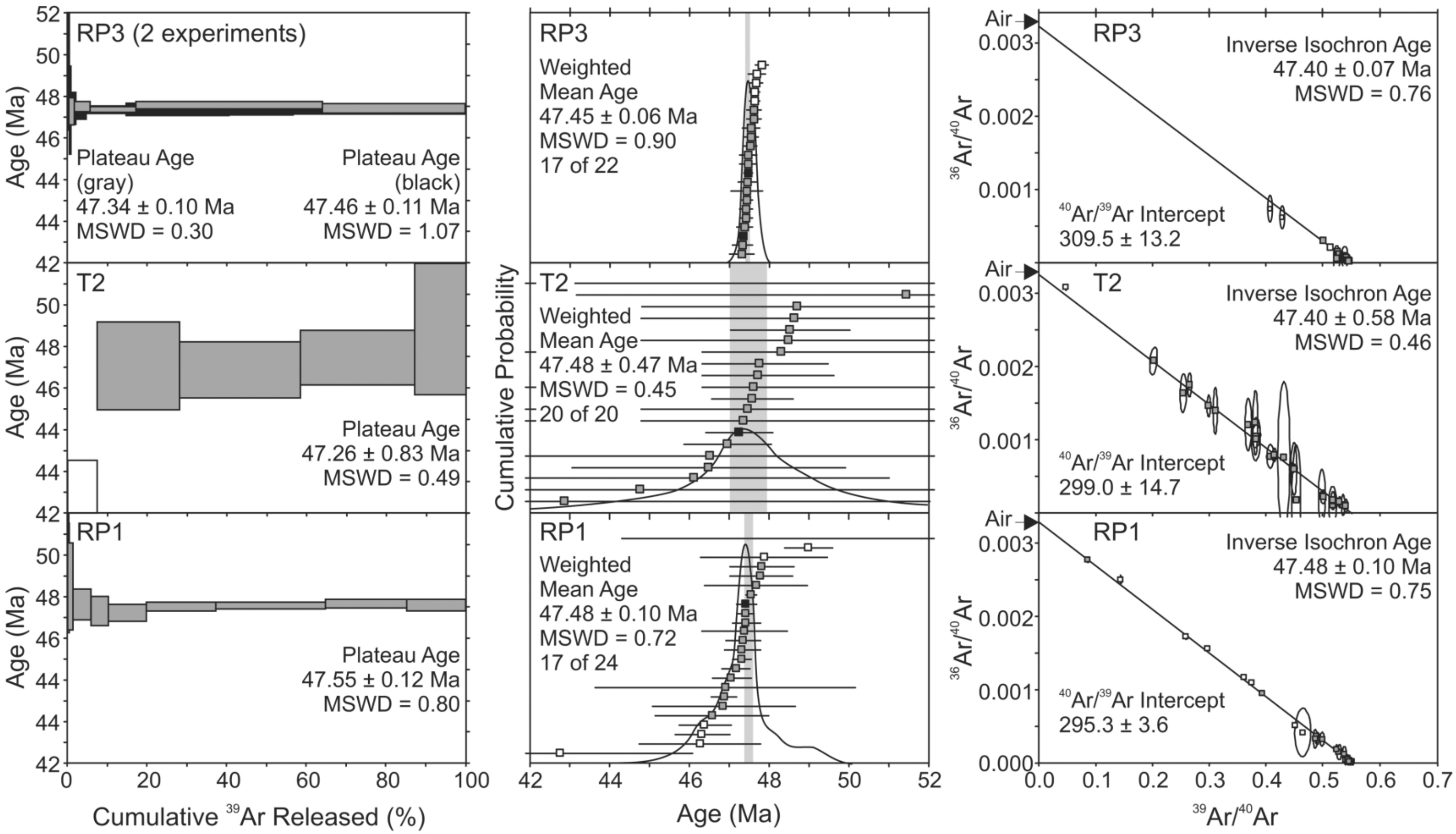

Figure A1: Age spectra, cumulative probability, and inverse isochron plots of laser fusion and laser incremental heating $^{40}Ar/^{39}Ar$ ages on sanidine from the Río Pichileufú (*RP*) ash beds. Ages are relative to 28.34 Ma for Taylor Creek Rhyolite sanidine (Renne et al. 1998). Individual age determinations, weighted mean, and isochron ages are shown with 2σ analytical uncertainties. Gray and black squares in cumulative probability plots indicate apparent total fusion and incremental heating plateau ages, respectively. White squares indicate analyses excluded from age calculation.

Table A1

Complete ^{40}Ar/^{39}Ar results for ash beds at Río Pichileufú and Laguna del Hunco

Sample and experiment	Power (W)	^{40}Ar/^{39}Ar	^{37}Ar/^{39}Ar	^{36}Ar/^{39}Ar	^{40}Ar* (10^{-13} mol)	^{40}Ar* (%)	K/Ca	Apparent age ± 2σ Ma
RP1 sanidine, J = .014632 ± .16%, μ = 1.0035 ± .1%:								
Single crystal laser fusions:								
UW32B4a[a]	1.50	2.687 ± .005	.06773 ± .00072	.003054 ± .000044	7.32	66.43	6.3	46.51 ± .69
UW32B4b	1.50	2.018 ± .008	.07497 ± .00079	.000690 ± .000097	2.38	89.96	5.7	47.30 ± 1.53
UW32B4c	1.50	1.862 ± .002	.01899 ± .00017	.000140 ± .000011	19.33	97.61	22.6	47.36 ± .20
UW32B4d	1.50	1.904 ± .008	.01433 ± .00037	.000288 ± .000098	2.26	95.35	30.0	47.31 ± 1.54
UW32B4e	1.50	1.851 ± .003	.01534 ± .00026	.000133 ± .000027	9.16	97.70	28.0	47.12 ± .43
UW32B4f	1.50	2.053 ± .008	.01564 ± .00034	.000710 ± .000084	2.24	89.61	27.5	47.93 ± 1.34
UW32B4g[a]	1.50	2.228 ± .004	.01354 ± .00017	.001169 ± .000038	6.37	84.34	31.7	48.94 ± .61
UW32B4h	1.50	2.061 ± .004	.06107 ± .00062	.000780 ± .000037	6.76	88.83	7.0	47.70 ± .59
UW32B4i[a]	1.50	2.167 ± .033	.22706 ± .00235	.000985 ± .000366	.56	87.18	1.9	49.21 ± 5.81
UW32B4j[a]	1.50	2.790 ± .004	.06993 ± .00059	.003357 ± .000020	34.96	64.48	6.1	46.88 ± .33
UW32B4k[a]	1.50	3.391 ± .004	.01862 ± .00017	.005456 ± .000047	20.36	52.37	23.1	46.28 ± .72
UW32B4l	1.50	11.705 ± .023	.01929 ± .00055	.033407 ± .000229	10.43	15.63	22.3	47.66 ± 3.41
UW32B4m[a]	1.50	3.889 ± .006	.06168 ± .00062	.006905 ± .000075	9.05	47.53	7.0	48.15 ± 1.15
UW32B4n	1.50	2.560 ± .004	.06425 ± .00057	.002513 ± .000033	16.74	71.01	6.7	47.36 ± .53
UW32B4o[a]	1.50	6.998 ± .014	.02173 ± .00037	.018012 ± .000237	7.12	23.90	19.8	43.63 ± 3.58
UW32B4p	1.50	1.909 ± .003	.01519 ± .00015	.000286 ± .000016	14.30	95.39	28.3	47.45 ± .28
UW32B4q	1.50	1.919 ± .003	.01555 ± .00024	.000362 ± .000061	2.76	94.25	27.7	47.12 ± .94
UW32B4r	1.50	1.860 ± .003	.06203 ± .00055	.000142 ± .000026	10.40	97.75	6.9	47.38 ± .42
UW32B4s	1.50	1.846 ± .002	.01994 ± .00019	.000072 ± .000012	19.84	98.68	21.6	47.46 ± .22
UW32B4t	1.50	1.872 ± .006	.07044 ± .00083	.000244 ± .000099	1.67	96.21	6.1	46.93 ± 1.54
UW32B4u	1.50	1.843 ± .002	.02021 ± .00021	.000077 ± .000030	8.43	98.60	21.3	47.35 ± .46
UW32B4v	1.50	1.865 ± .003	.02155 ± .00029	.000078 ± .000062	3.07	98.61	20.0	47.90 ± .96
UW32B4w	1.50	1.852 ± .002	.01812 ± .00017	.000099 ± .000014	17.60	98.25	23.7	47.40 ± .24
Inverse isochron age ± 2σ		47.37 ± .13[b]			Total fusion age ± 2σ			47.21 ± .14
^{40}Ar/^{39}Ar intercept ± 2σ		294.6 ± 3.0		MSWD .72	Weighted mean age ± 2σ			47.37 ± .12[b]
5 crystal laser incremental heating:								
UW32B4x1	.22	2.069 ± .007	.03062 ± .00075	.000699 ± .000136	1.49	89.91	14.0	48.46 ± 2.09
UW32B4x2	.24	1.843 ± .004	.02803 ± .00035	.000044 ± .000048	4.60	99.16	15.3	47.62 ± .75
UW32B4x3	.25	1.831 ± .003	.02752 ± .00042	.000044 ± .000045	4.43	99.16	15.6	47.29 ± .69
UW32B4x4	.27	1.827 ± .002	.02509 ± .00032	.000041 ± .000025	9.28	99.19	17.1	47.21 ± .40
UW32B4x5	.29	1.829 ± .002	.02226 ± .00026	.000007 ± .000010	17.39	99.72	19.3	47.51 ± .20
UW32B4x6	.35	1.833 ± .002	.02058 ± .00023	.000013 ± .000006	27.31	99.63	20.9	47.56 ± .15
UW32B4x7	.45	1.835 ± .002	.02204 ± .00027	.000010 ± .000011	20.29	99.67	19.5	47.66 ± .21
UW32B4x8	1.50	1.841 ± .003	.02094 ± .00027	.000039 ± .000016	14.80	99.22	20.5	47.59 ± .28
Inverse isochron age ± 2σ		47.53 ± .14[b]			Total fusion age ± 2σ			47.55 ± .13
^{40}Ar/^{39}Ar intercept ± 2σ		368.6 ± 146.1		MSWD .80	Weighted mean age ± 2σ			47.55 ± .12[b]
Combined age:								
Inverse isochron age ± 2σ		47.48 ± .10[b]			Total fusion age ± 2σ			47.37 ± .11
^{40}Ar/^{39}Ar intercept ± 2σ		295.3 ± 3.6		MSWD .72	Weighted mean age ± 2σ			**47.48 ± .10**[b]
								±.17[c]
								±.82[d]
T2 sanidine, J = .014628 ± .16%, μ = 1.0035 ± .1%:								
5 crystal laser fusions:								
UW32B8a	1.50	2.628 ± .028	.14659 ± .00148	.002877 ± .000206	1.33	67.92	2.9	46.50 ± 3.43
UW32B8b	1.50	4.977 ± .081	.15465 ± .00364	.010679 ± .000452	.82	36.74	2.8	47.63 ± 8.01
UW32B8c	1.50	3.360 ± .017	.15331 ± .00213	.005093 ± .000253	1.55	55.44	2.8	48.51 ± 3.91
UW32B8d	1.50	3.784 ± .025	.13225 ± .00165	.006835 ± .000316	1.32	46.78	3.3	46.13 ± 4.89
UW32B8e	1.50	3.947 ± .044	.25677 ± .00400	.006718 ± .000529	.89	50.10	1.7	51.44 ± 8.29
UW32B8f	1.50	2.629 ± .027	.16530 ± .00185	.002773 ± .000394	.90	69.15	2.6	47.36 ± 6.15
UW32B8g	1.50	2.635 ± .015	.14869 ± .00292	.003379 ± .000599	.53	62.39	2.9	42.88 ± 9.15
UW32B8h	1.50	2.238 ± .013	.14056 ± .00203	.001430 ± .000411	.61	81.41	3.1	47.47 ± 6.28
UW32B8i	1.50	2.329 ± .029	.12828 ± .00382	.001857 ± .001236	.23	76.68	3.4	46.53 ± 18.84
UW32B8j	1.50	2.723 ± .021	.13936 ± .00250	.003422 ± .000503	.66	63.10	3.1	44.78 ± 7.71
UW32B8k	1.50	2.017 ± .012	.18300 ± .00211	.000537 ± .000386	.51	92.63	2.3	48.65 ± 5.89
UW32B8l	1.50	1.944 ± .013	.11527 ± .00196	.000260 ± .000253	.66	96.28	3.7	48.72 ± 3.90
UW32B8m	1.50	2.217 ± .019	.08825 ± .00338	.000450 ± .000847	.28	94.10	4.9	54.23 ± 12.85
UW32B8n	1.50	3.233 ± .018	.17945 ± .00220	.004693 ± .000528	.47	57.40	2.4	48.32 ± 8.06
UW32B8o	1.50	1.930 ± .006	.12747 ± .00151	.000369 ± .000064	2.58	94.63	3.4	47.57 ± 1.02
UW32B8p	1.50	2.007 ± .009	.11761 ± .00157	.000503 ± .000094	1.69	92.83	3.7	48.52 ± 1.50
UW32B8q	1.50	2.425 ± .010	.14396 ± .00183	.002024 ± .000110	2.22	75.62	3.0	47.75 ± 1.73
UW32B8r	1.50	1.941 ± .007	.14025 ± .00189	.000389 ± .000123	1.78	94.40	3.1	47.72 ± 1.90
UW32B8s	1.50	1.898 ± .004	.12602 ± .00153	.000340 ± .000071	3.21	94.99	3.4	46.96 ± 1.10
Inverse isochron age ± 2σ		47.56 ± .66[b]			Total fusion age ± 2σ			47.58 ± .77
^{40}Ar/^{39}Ar intercept ± 2σ		296.5 ± 15.3		MSWD .44	Weighted mean age ± 2σ			47.58 ± .56[b]
20 crystal laser incremental heating:								
UW32B8t1[a]	.23	20.936 ± .037	.14467 ± .00263	.066271 ± .000464	5.83	6.49	3.0	35.53 ± 6.99
UW32B8t2	.26	1.877 ± .006	.15121 ± .00184	.000263 ± .000137	1.45	96.25	2.8	47.06 ± 2.10
UW32B8t3	.30	1.860 ± .005	.14891 ± .00211	.000232 ± .000087	2.12	96.70	2.9	46.86 ± 1.35
UW32B8t4	.52	2.251 ± .006	.17307 ± .00209	.001483 ± .000084	2.40	80.94	2.5	47.45 ± 1.31
UW32B8t5	1.50	2.464 ± .020	.16222 ± .00330	.002013 ± .000205	1.21	76.20	2.7	48.89 ± 3.24
Inverse isochron age ± 2σ		46.73 ± 1.42[b]			Total fusion age ± 2σ			46.50 ± .97
^{40}Ar/^{39}Ar intercept ± 2σ		321.1 ± 52.6		MSWD .49	Weighted mean age ± 2σ			47.26 ± .83[b]
Combined age:								

Table A1 (*Continued*)

Sample and experiment	Power (W)	^{40}Ar/^{39}Ar	^{37}Ar/^{39}Ar	^{36}Ar/^{39}Ar	^{40}Ar* (10^{-13} mol)	^{40}Ar* (%)	K/Ca	Apparent age ± 2σ Ma
Inverse isochron age ± 2σ		47.53 ± .58[b]			Total fusion age ± 2σ			47.28 ± .62
^{40}Ar/^{39}Ar intercept ± 2σ		299.0 ± 14.7		MSWD .45	Weighted mean age ± 2σ			**47.48 ± .47**[b]
								±.68[c]
								±.94[d]
RP3 sanidine, J = .014563 ± .10%, μ = 1.0035 ± .1%:								
Single crystal laser fusions:								
UW32C9a[a]	1.50	1.866 ± .002	.01536 ± .00015	.000064 ± .000007	20.07	98.81	28.0	47.80 ± .16
UW32C9b	1.50	1.864 ± .003	.02390 ± .00023	.000116 ± .000009	15.82	98.02	18.0	47.38 ± .19
UW32C9c	1.50	1.862 ± .002	.01583 ± .00014	.000101 ± .000006	39.88	98.22	27.2	47.42 ± .15
UW32C9d	1.50	1.863 ± .002	.02045 ± .00017	.000101 ± .000012	18.35	98.23	21.0	47.45 ± .22
UW32C9e	1.50	1.856 ± .002	.01986 ± .00018	.000076 ± .000012	14.83	98.62	21.6	47.46 ± .22
UW32C9f	1.50	1.859 ± .002	.02124 ± .00020	.000093 ± .000008	19.76	98.36	20.2	47.41 ± .16
UW32C9g[a]	1.50	1.891 ± .003	.01603 ± .00014	.000167 ± .000005	32.80	97.22	26.8	47.65 ± .16
UW32C9h[a]	1.50	1.956 ± .003	.01659 ± .00019	.000386 ± .000012	14.03	94.00	25.9	47.67 ± .22
UW32C9i	1.50	1.909 ± .002	.01698 ± .00017	.000276 ± .000019	14.72	95.56	25.3	47.30 ± .31
UW32C9j	1.50	1.897 ± .002	.01623 ± .00018	.000213 ± .000012	14.56	96.51	26.5	47.48 ± .22
UW32C9k[a]	1.50	1.859 ± .002	.02408 ± .00022	.000064 ± .000005	32.37	98.84	17.9	47.63 ± .14
UW32C9l	1.50	2.008 ± .003	.01785 ± .00016	.000581 ± .000007	35.92	91.29	24.1	47.54 ± .18
UW32C9m	1.50	1.900 ± .002	.01587 ± .00016	.000215 ± .000010	18.30	96.48	27.1	47.54 ± .20
UW32C9n	1.50	1.866 ± .003	.01610 ± .00015	.000113 ± .000024	9.70	98.03	26.7	47.43 ± .39
UW32C9o	1.50	1.898 ± .002	.01942 ± .00018	.000198 ± .000008	20.33	96.76	22.1	47.61 ± .17
UW32C9p[a]	1.50	1.856 ± .002	.01630 ± .00014	.000054 ± .000004	40.66	98.96	26.4	47.62 ± .13
UW32C9q	1.50	1.868 ± .003	.01563 ± .00015	.000107 ± .000007	21.82	98.12	27.5	47.52 ± .17
UW32C9r	1.50	1.902 ± .002	.01928 ± .00017	.000213 ± .000009	17.28	96.53	22.3	47.61 ± .17
UW32C9s	1.50	1.876 ± .002	.01639 ± .00016	.000151 ± .000008	24.08	97.44	26.2	47.41 ± .17
UW32C9t	1.50	1.854 ± .003	.01616 ± .00019	.000085 ± .000013	17.99	98.46	26.6	47.33 ± .25
Inverse isochron age ± 2σ		47.42 ± .10[b]			Total fusion age ± 2σ			47.53 ± .06
^{40}Ar/^{39}Ar intercept ± 2σ		307.3 ± 15.8		MSWD .85	Weighted mean age ± 2σ			47.47 ± .07[b]
5 crystal laser incremental heating:								
UW32C9u[a]	.23	2.467 ± .013	.01762 ± .00100	.001801 ± .000225	.98	78.31	24.4	50.06 ± 3.45
UW32C9u	.24	1.917 ± .011	.01788 ± .00061	.000091 ± .000170	1.25	98.44	24.0	48.91 ± 2.63
UW32C9u	.25	1.868 ± .010	.01623 ± .00050	.000130 ± .000136	1.42	97.76	26.5	47.35 ± 2.12
UW32C9u	.27	1.851 ± .003	.01787 ± .00037	.000063 ± .000050	3.92	98.83	24.1	47.44 ± .77
UW32C9u	.30	1.843 ± .003	.01823 ± .00023	.000054 ± .000024	9.21	98.96	23.6	47.30 ± .39
UW32C9u	.32	1.839 ± .003	.01903 ± .00021	.000030 ± .000007	34.59	99.35	22.6	47.37 ± .17
UW32C9u	.39	1.840 ± .003	.01845 ± .00025	.000031 ± .000018	88.01	99.33	23.3	47.40 ± .30
UW32C9u	.52	1.843 ± .003	.02033 ± .00030	.000056 ± .000006	55.39	98.94	21.1	47.30 ± .17
UW32C9u	1.50	1.857 ± .002	.01915 ± .00025	.000093 ± .000010	150.19	98.35	22.5	47.35 ± .19
Inverse isochron age ± 2σ		47.32 ± .22[b]			Total fusion age ± 2σ			47.37 ± .13
^{40}Ar/^{39}Ar intercept ± 2σ		314.0 ± 161.5		MSWD .30	Weighted mean age ± 2σ			47.34 ± .10[b]
5 crystal laser incremental heating:								
UW32C9v[a]	.23	2.344 ± .010	.01755 ± .00070	.001439 ± .000180	1.28	81.71	24.5	49.63 ± 2.77
UW32C9v	.25	1.857 ± .003	.01796 ± .00030	.000105 ± .000041	4.45	98.16	23.9	47.27 ± .64
UW32C9v	.28	1.852 ± .003	.01799 ± .00022	.000054 ± .000013	13.30	98.96	23.9	47.52 ± .25
UW32C9v	.32	1.836 ± .002	.01796 ± .00020	.000019 ± .000005	36.63	99.53	23.9	47.38 ± .15
UW32C9v	.45	1.849 ± .003	.01871 ± .00023	.000036 ± .000005	151.58	99.25	23.0	47.59 ± .17
UW32C9v	1.50	1.843 ± .003	.01863 ± .00024	.000037 ± .000013	115.10	99.24	23.1	47.43 ± .23
Inverse isochron age ± 2σ		47.31 ± .26[b]			Total fusion age ± 2σ			46.51 ± .13
^{40}Ar/^{39}Ar intercept ± 2σ		526.3 ± 363.7		MSWD 1.07	Weighted mean age ± 2σ			47.46 ± .11[b]
Combined age:								
Inverse isochron age ± 2σ		47.40 ± .07[b]			Total fusion age ± 2σ			47.47 ± .07
^{40}Ar/^{39}Ar intercept ± 2σ		309.5 ± 13.2		MSWD .90	Weighted mean age ± 2σ			**47.45 ± .06**[b]
								±.15[c]
								±.82[d]
2211A sanidine and anorthoclase, J = .00950 ± .17%, μ = 1.0040 ± .1%:								
Single crystal sanidine laser fusions:								
UW39E2a	1.50	3.112 ± .008	.01091 ± .00028	.000117 ± .000059	1.56	98.89	39.4	51.98 ± .63
UW39E2b[a]	1.50	3.466 ± .009	.03177 ± .00082	.000464 ± .000149	.77	96.09	13.5	56.20 ± 1.49
UW39E2c	1.50	3.110 ± .007	.01489 ± .00032	.000103 ± .000050	2.44	99.03	28.9	52.02 ± .54
UW39E2d	1.50	3.104 ± .006	.01181 ± .00028	.000131 ± .000037	2.13	98.76	36.4	51.78 ± .41
UW39E2e	1.50	3.140 ± .008	.01922 ± .00051	.000227 ± .000106	.91	97.89	22.4	51.93 ± 1.07
UW39E2f	1.50	3.139 ± .011	.02014 ± .00082	.000090 ± .000114	.83	99.18	21.4	52.58 ± 1.18
UW39E2g	1.50	3.196 ± .011	.05728 ± .00137	.000429 ± .000308	.38	96.15	7.5	51.92 ± 3.06
UW39E2h	1.50	3.109 ± .008	.01733 ± .00052	.000250 ± .000111	.75	97.64	24.8	51.29 ± 1.12
UW39E2i	1.50	3.191 ± .013	.02975 ± .00122	.000245 ± .000274	.39	97.77	14.5	52.70 ± 2.74
UW39E2j	1.50	3.118 ± .011	.01672 ± .00056	.000131 ± .000154	.64	98.77	25.7	52.02 ± 1.56
UW39E2k	1.50	3.152 ± .021	.01693 ± .00059	.000179 ± .000146	.70	98.34	25.4	52.36 ± 1.60
UW39E2l	1.50	3.065 ± .009	.01185 ± .00077	.000090 ± .000124	.87	99.14	36.3	51.34 ± 1.26
Inverse isochron age ± 2σ		50.96 ± 1.71[b]			Total fusion age ± 2σ			51.90 ± .27
^{40}Ar/^{39}Ar intercept ± 2σ		727.6 ± 1430.2		MSWD .46	Weighted mean age ± 2σ			52.18 ± .31[b]
Single crystal anorthoclase laser fusions:								
UW39E2m	1.50	3.187 ± .013	.18105 ± .00242	.000416 ± .000330	.33	96.56	2.4	51.99 ± 3.27
UW39E2n	1.50	3.154 ± .013	.79130 ± .00917	.000545 ± .000358	.41	96.83	.5	51.63 ± 3.55
UW39E2o	1.50	3.217 ± .019	.89628 ± .01208	.000571 ± .000329	.26	96.91	.5	52.69 ± 3.30
UW39E2p	1.50	3.101 ± .010	.16533 ± .00218	.000084 ± .000121	.78	99.59	2.6	52.17 ± 1.23
UW39E2q[a]	1.50	3.410 ± .012	.26742 ± .00378	.000295 ± .000326	.38	98.03	1.6	56.41 ± 3.23
UW39E2r	1.50	3.489 ± .020	.96113 ± .01210	.000497 ± .000372	.27	97.92	.4	57.66 ± 3.72

Table A1 (*Continued*)

Sample and experiment	Power (W)	$^{40}Ar/^{39}Ar$	$^{37}Ar/^{39}Ar$	$^{36}Ar/^{39}Ar$	$^{40}Ar^*$ (10^{-13} mol)	$^{40}Ar^*$ (%)	K/Ca	Apparent age ± 2σ Ma
UW39E2s	1.50	3.169 ± .012	.36466 ± .00479	.000435 ± .000177	.65	96.82	1.2	51.84 ± 1.78
UW39E2t	1.50	3.529 ± .058	5.99495 ± .09061	.002526 ± .001228	.09	92.07	.1	55.07 ± 12.26
UW39E2u	1.50	3.186 ± .033	.18666 ± .00320	.000285 ± .000672	.20	97.78	2.3	52.63 ± 6.70
UW39E2v[a]	1.50	3.517 ± .040	.48133 ± .00713	.000435 ± .000368	.40	97.39	.9	57.78 ± 3.84
UW39E2w	1.50	3.112 ± .015	.42119 ± .00523	.000290 ± .000265	.41	98.27	1.0	51.68 ± 2.65
UW39E2x	1.50	3.135 ± .012	.20560 ± .00258	.000225 ± .000139	.58	98.37	2.1	52.10 ± 1.43
UW39E2y	1.50	3.109 ± .007	.18406 ± .00210	.000193 ± .000103	.87	98.60	2.3	51.79 ± 1.04
UW39E2z	1.50	3.161 ± .012	.15134 ± .00236	.000338 ± .000176	.57	97.19	2.8	51.90 ± 1.78
UW39E2aa	1.50	3.111 ± .012	.19686 ± .00252	.000355 ± .000117	.69	97.10	2.2	51.05 ± 1.22
UW39E2bb	1.50	3.138 ± .013	.18215 ± .00245	.000296 ± .000209	.40	97.63	2.4	51.77 ± 2.10
UW39E2cc	1.50	3.090 ± .013	.19468 ± .00259	.000263 ± .000151	.62	97.95	2.2	51.15 ± 1.54
UW39E2dd	1.50	3.099 ± .016	.17849 ± .00321	.000205 ± .000225	.48	98.47	2.4	51.57 ± 2.27
UW39E2ee	1.50	3.151 ± .018	.19829 ± .00293	.000216 ± .000175	.53	98.44	2.2	52.40 ± 1.83
UW39E2ff	1.50	3.130 ± .013	.18119 ± .00241	.000274 ± .000144	.64	97.84	2.4	51.74 ± 1.48
UW39E2gg	1.50	3.111 ± .016	.19228 ± .00244	.000146 ± .000310	.43	99.07	2.2	52.07 ± 3.09
UW39E2hh	1.50	3.143 ± .027	.19352 ± .00392	.000497 ± .000528	.23	95.78	2.2	50.88 ± 5.27
UW39E2ii	1.50	3.398 ± .017	.23982 ± .00359	.000372 ± .000219	.46	97.29	1.8	55.79 ± 2.23
UW39E2jj	1.50	3.105 ± .008	.12480 ± .00169	.000186 ± .000109	1.00	98.52	3.4	51.69 ± 1.11
UW39E2kk	1.50	3.145 ± .019	.19323 ± .00291	.000103 ± .000212	.41	99.48	2.2	52.85 ± 2.18
UW39E2ll	1.50	3.134 ± .016	.19217 ± .00316	.000102 ± .000301	.42	99.49	2.2	52.66 ± 3.01
UW39E2mm[a]	1.50	3.471 ± .024	.39106 ± .00578	.000289 ± .000241	.43	98.39	1.1	57.61 ± 2.50
UW39E2nn	1.50	3.120 ± .015	.14079 ± .00195	.000047 ± .000214	.49	99.88	3.1	52.64 ± 2.17
UW39E2oo	1.50	3.096 ± .019	.16343 ± .00253	.000088 ± .000326	.36	99.55	2.6	52.06 ± 3.27
UW39E2pp[a]	1.50	3.374 ± .027	.27059 ± .00353	.000158 ± .000376	.31	99.22	1.6	56.48 ± 3.80
UW39E2qq[a]	1.50	3.447 ± .025	.83447 ± .01168	.000359 ± .000371	.37	98.78	.5	57.47 ± 3.73
UW39E2rr	1.50	3.108 ± .010	.15162 ± .00188	.000182 ± .000155	.87	98.63	2.8	51.80 ± 1.56
UW39E2ss	1.50	3.180 ± .023	.13344 ± .00242	.000340 ± .000375	.31	97.14	3.2	52.19 ± 3.77
UW39E2tt[a]	1.50	3.353 ± .035	.25168 ± .00464	.000234 ± .000514	.23	98.49	1.7	55.74 ± 5.18
UW39E2uu	1.50	3.092 ± .021	.23134 ± .00307	.000063 ± .000235	.40	99.95	1.9	52.22 ± 2.41
UW39E2vv	1.50	3.108 ± .021	.17959 ± .00264	.000176 ± .000274	.41	98.75	2.4	51.86 ± 2.78
UW39E2ww[a]	1.50	3.386 ± .022	.26037 ± .00375	.000157 ± .000253	.45	99.20	1.7	56.69 ± 2.59
UW39E2xx	1.50	3.077 ± .013	.14732 ± .00194	.000294 ± .000147	.76	97.52	2.9	50.71 ± 1.50
UW39E2yy	1.50	3.356 ± .018	.11731 ± .00232	.000359 ± .000394	.32	97.09	3.7	55.01 ± 3.92
Inverse isochron age ± 2σ		48.53 ± 3.12[b]			Total fusion age ± 2σ			52.75 ± .39
$^{40}Ar/^{39}Ar$ intercept ± 2σ		1392.7 ± 2308.8		MSWD .83	Weighted mean age ± 2σ			51.92 ± .35[b]
Combined age:								
Inverse isochron age ± 2σ		50.05 ± 1.48[b]			Total fusion age ± 2σ			52.52 ± .27
$^{40}Ar/^{39}Ar$ intercept ± 2σ		1049.4 ± 1167.0		MSWD .72	Weighted mean age ± 2σ			**51.91 ± .22**[b] ±.27[c] .93[d]

Note: All ages calculated relative to 28.34 Ma for the Taylor Creek rhyolite sanidine (Renne et al. 1998) using the decay constants of Steiger and Jäger (1977). Uncertainties in Ar isotope ratios reported at 1σ analytical precision; uncertainties in ages reported at 2σ analytical precision. Corrected for ^{37}Ar and ^{39}Ar decay, half-lives of 35.2 days and 269 years, respectively. Corrections for undesirable nucleogenic reactions on ^{40}K and ^{40}Ca are as follows: $(^{40}Ar/^{39}Ar)_K = 0.00165$, $(^{36}Ar/^{37}Ar)_{Ca} = 0.000269$, and $(^{39}Ar/^{37}Ar)_{Ca} = 0.000709$. MSWD = mean squared weighted deviation.

[a] Analysis excluded from age calculation (see text).
[b] Analytical uncertainties. Bold text indicates preferred age for individual ash beds.
[c] Intercalibration and analytical uncertainties.
[d] Fully propagated uncertainties.

Table A2
Species data, Laguna del Hunco flora

Species no.	Plant group	Name	Organ category[a]	Margin state (dicot leaves)	Exemplar specimen no.[b]
TY001	Filicopsida	Unknown fern sp.	Leaf	NA	LH15-1001
TY002	Filicopsida	Unknown fern sp.	Leaf	NA	LH6-211
TY003	Filicopsida	Unknown fern sp.	Leaf	NA	MEF180 (LH-4)
TY004	Filicopsida	*Azolla* sp.	Leaf	NA	LH13-1136a,b
TY005	Coniferales	"*Libocedrus*" *prechilensis* Berry	Leaf	NA	MEF 971; LH13-200
TY007	Coniferales	Podocarpaceae (planated foliage)	Leaf	NA	LH6-016
TY008	Coniferales	Podocarpaceae	Leaf	NA	LH6-112
TY009	Coniferales	*Podocarpus andiniformis* Berry	Leaf	NA	LH13-172
TY010	Coniferales	"*Zamia*" *tertiaria* Engelhardt	Leaf	NA	LH22-23
TY011	Coniferales	*Araucaria pichileufensis* Berry	Leaf	NA	LH13-28
TY012	Coniferales	Araucariaceae (pollen cone)	Fertile	NA	LH13-1135
TY013	Coniferales	*Araucaria* (seed and cone scale)	Seeds/fruits	NA	MEF 982; LH13-119
TY014	Coniferales	*Araucaria* ("wide" cone scale)	Seeds/fruits	NA	LH13-16
TY015	Ginkgoales	*Ginkgo patagonica* Berry 1935	Leaf	NA	LH16-7
TY016	Cycadales	Cycad aff. *Dioon*	Leaf	NA	MEF-470 (LH-4)

Table A2 (*Continued*)

Species no.	Plant group	Name	Organ category[a]	Margin state (dicot leaves)	Exemplar specimen no.[b]
TY017	Dicotyledonae	?Fabaceae	Leaf	Untoothed	LH2-117
TY018	Dicotyledonae	“*Schmidelia*” *proedulis* Berry	Leaf	Toothed	LH6-142
TY019	Dicotyledonae	“*Tetracera*” *patagonica* Berry	Leaf	Toothed	LH15-1000
TY020	Dicotyledonae	“*Celtis*” *ameghenoi* Berry	Leaf	Toothed	LH4-1319
TY021	Dicotyledonae	“*Myrcia*” *chubutensis* Berry	Leaf	Untoothed	LH2-23
TY022	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH4-87
TY023	Dicotyledonae	Malvales (cf. Sterculiaceae)	Leaf	Untoothed	MEF 979; LH11-01
TY024	Dicotyledonae	Sapindales (very large teeth)	Leaf	Toothed	LH17-1
TY025	Dicotyledonae	“*Rhamnidium*”	Leaf	Toothed	LH06-1
TY026	Dicotyledonae	*Lomatia preferruginea* Berry	Leaf	Toothed	LH13 1311-1319
TY027	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH2-1
TY028	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-196
TY029	Dicotyledonae	“*Laurelia*” (*Laureliopsis*) *guiñazui* Berry	Leaf	Toothed	LH13-1323
TY030	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH25-12
TY032	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-01
TY034	Dicotyledonae	cf. *Calophyllum*	Leaf	Untoothed	LH12-01
TY035	Dicotyledonae	“*Banara*” *prehernandiensis* as figured by Berry (1938)	Leaf	Toothed	LH2-259
TY036	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-96
TY037	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-169
TY038	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-118
TY039	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-13
TY040	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LHF39
TY041	Dicotyledonae	Myrtaceae	Leaf	Untoothed	MEF 976; LH22-28
TY042	Dicotyledonae	cf. “*Banara*” *prehernandiensis* as figured by Berry 1925	Leaf	Toothed	LH6-160
TY043	Dicotyledonae	?*Escallonia*	Leaf	Toothed	LH2-06
TY044	Dicotyledonae	*Lomatia occidentalis* (Berry) Frenguelli	Leaf	Toothed	MEF974; LHF40
TY045	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH2-10
TY046	Dicotyledonae	cf. *Macaranga* or *Mallotus*	Leaf	Untoothed	LH6-1190
TY047	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LHF38
TY048	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH12-01
TY049	Dicotyledonae	Unknown dicot sp.	Fertile	NA	LH2-255
TY050	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-254
TY051	Dicotyledonae	*Gymnostoma* sp.	Seeds/fruits	NA	MEF 977; LH22-6
TY052	Dicotyledonae	*Gymnostoma* sp.	Leaf	NA	LH22-6
TY053	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH23-45
TY054	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-110
TY055	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-276
TY056	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-292
TY057	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH19-1
TY058	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH15-36
TY059	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH4-161
TY060	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH25-15
TY061	Dicotyledonae	“*Myrica*” *mira* Berry	Leaf	Toothed	LH20-35
TY062	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	MEF980; LH15-25
TY063	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LHF-01
TY064	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH15-38
TY066	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH1-20
TY067	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-324
TY068	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH25-10
TY069	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-73
TY070	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH18:7-11
TY072	Dicotyledonae	“*Sterculia*” *patagonica* Berry	Leaf	Untoothed	LH2-69
TY073	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-94
TY074	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH20-33
TY075	Dicotyledonae	?Myrtaceae	Leaf	Untoothed	LH2-21
TY076	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH23-48
TY077	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-91

Table A2 (*Continued*)

Species no.	Plant group	Name	Organ category[a]	Margin state (dicot leaves)	Exemplar specimen no.[b]
TY078	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-128
TY079	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-146
TY080	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH17-28
TY081	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH21-6
TY082	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH15-52
TY083	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH2-127
TY084	Dicotyledonae	Lauraceae	Leaf	Untoothed	LH13-1034
TY085	Dicotyledonae	Unknown dicot sp.	Fertile	NA	LH13-100
TY086	Dicotyledonae	Myrtaceae	Fertile	NA	MEF 981; LHF-04
TY087	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LHF-05
TY088	Dicotyledonae	Unknown dicot sp.	Fertile	NA	LH6-331
TY089	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LHF-06
TY090	Dicotyledonae	*Orites bivascularis* Romero, Dibbern and Gandolfo	Seeds/fruits	NA	LHF-07
TY091	Dicotyledonae	Fabaceae sp.	Seeds/fruits	NA	LH17-08
TY092	Dicotyledonae	Unknown dicot sp.	Fertile	NA	LH25-19
TY093	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LH22-29
TY094	Dicotyledonae	cf. Cunoniaceae ("four-winged helicopter")	Seeds/fruits	NA	MEF978; LH6-37
TY095	Dicotyledonae	Unknown dicot sp.	Fertile	NA	LH13-78
TY097	?Coniferales	Unknown	Seeds/fruits	NA	LH25-20
TY098	Monocotyledonae	cf. Arecaceae	Seeds/fruits	NA	LH6-198
TY099	Dicotyledonae	Unknown dicot sp.	Fertile	NA	LH6-80
TY100	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LH6-09
TY101	Dicotyledonae	*Akania patagonica* Gandolfo, Dibbern and Romero	Leaf	Toothed	LH4-1037
TY102	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH2-83
TY103	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH2-313
TY104	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-6
TY105	Dicotyledonae	"*Cupania*" *grosse-serrata* (Engelhardt) Berry	Leaf	Toothed	LH6-206
TY106	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-1142
TY107	Dicotyledonae	"*Coprosma*" *incerta* Berry	Leaf	Untoothed	LH4-70
TY108	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH2-135
TY109	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH15-31
TY111	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-82
TY112	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH6-1019
TY113	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-167
TY114	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH23-32
TY115	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LH23-13
TY116	Dicotyledonae	"*Cupania*" *latifolioides* Berry	Leaf	Toothed	LH13-1370/1420
TY117	Dicotyledonae	"*Cassia*" *argentinensis* Berry	Leaf	Untoothed	LH2-151
TY118	Dicotyledonae	Menispermaceae sp.	Leaf	Untoothed	LH4-36
TY119	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LHF-22
TY120	Dicotyledonae	cf. "*Allophylus*" *eduliformis* (Berry) Berry	Seeds/fruits	NA	LH6-332
TY121	Coniferales	Podocarpaceae (small planated leaves)	Leaf	NA	MEF 973; LH15-27
TY122	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH13-1209
TY123	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH15-53
TY124	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-32
TY125	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH4-01
TY126	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-3
TY128	Dicotyledonae	cf. "*Cochlospermum*" *previtifolium* Berry	Seeds/fruits	NA	LH4-107
TY129	Dicotyledonae	cf. Cunoniaceae ("five-winged helicopter")	Seeds/fruits	NA	LH4-169
TY130	Monocotyledonae	Unknown monocot sp.	Leaf	NA	LH6-1156
TY131	Monocotyledonae	Unknown monocot sp.	Leaf	NA	LH16-33
TY132	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-114
TY133	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LHF41

Table A2 (*Continued*)

Species no.	Plant group	Name	Organ category[a]	Margin state (dicot leaves)	Exemplar specimen no.[b]
TY134	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH6-138
TY135	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH2-90
TY136	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-300
TY137	Bryophyta	Unknown moss sp.	?Fertile	NA	LH20-3
TY138	Dicotyledonae	?Melastomataceae	Leaf	Toothed	LH2-320
TY140	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH6-3
TY141	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-1307
TY142	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH6-1073
TY143	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LH22-1002
TY144	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH6-1196
TY145	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LH6-1017
TY146	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LH6-1189
TY147	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH6-1066
TY148	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-1045
TY149	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LH13-1122
TY150	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-1052
TY151	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH6-1042
TY152	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-1215
TY153	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH6-1180'
TY154	Filicopsida	Unknown fern sp.	Leaf	NA	LH6-1018
TY155	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-1036/1077
TY156	Dicotyledonae	cf. Nymphaeaceae	Axis	NA	LHF-1013
TY157	Dicotyledonae	Myrtaceae	Leaf	Untoothed	LH4-1000
TY158	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-1309
TY159	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-1078
TY160	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-1118
TY161	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-1025
TY162	Filicopsida	Unknown fern sp.	Leaf	NA	LH4-1089
TY163	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH4-1098
TY164	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-1075
TY165	Monocotyledonae	cf. Arecaceae	Seeds/fruits	NA	LH4-1308
TY166	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH4-1113
TY167	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH4-1195
TY168	Filicopsida	Unknown fern sp.	Leaf	NA	LH4-1004
TY169	Dicotyledonae	Unknown dicot sp.	Fertile	NA	LH4-1120
TY170	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH4-1334
TY171	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH13-1027
TY172	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LH13-1117
TY173	Dicotyledonae	cf. Myrtaceae	Fertile	NA	LH13-1129
TY174	Dicotyledonae	Unknown dicot sp.	Seeds/fruits	NA	LH13-1241
TY175	Dicotyledonae	Fabaceae	Leaf	Untoothed	LH13-1028
TY176	Coniferales	Podocarpaceae	Leaf	NA	LH13-1006
TY177	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH13-1559
TY178	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-1561
TY179	Monocotyledonae	?Arecaceae	Leaf	NA	LH13-1098
TY180	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-1193
TY181	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-1105/1469
TY182	Coniferales	?Araucariaceae pollen cone	Fertile	NA	LH9-50
TY183	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH13-1154
TY184	Dicotyledonae	Unknown dicot sp.	Fertile	NA	LH13-1023
TY185	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-1022
TY186	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-1494
TY187	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-1372
TY188	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH13-1276
TY189	Dicotyledonae	cf. Nymphaeaceae	Axis/fruit	NA	LH17-1001
TY190	Dicotyledonae	?Lauraceae	Leaf	Untoothed	LH2-1045
TY191	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH2-1410
TY192	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH2-1330
TY193	Dicotyledonae	?Menispermaceae	Leaf	Untoothed	LH2-1040
TY194	Dicotyledonae	cf. Sterculiaceae	Leaf	Untoothed	LH2-1122

Table A2 (*Continued*)

Species no.	Plant group	Name	Organ category[a]	Margin state (dicot leaves)	Exemplar specimen no.[b]
TY195	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-1279
TY196	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-1160
TY197	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-1210
TY198	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH2-1154
TY199	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH4-1302
TY200	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH6-1256/1302
TY201	Dicotyledonae	Unknown dicot sp.	Leaf	Toothed	LH13-1194
TY202	Dicotyledonae	Unknown dicot sp.	Leaf	Untoothed	LH13-1232

[a] “Fertile” includes pollen organs and perianth parts, that is, excluding seeds and fruits.

[b] The prefix “MEF” indicates formal specimen number (MEF = Museo Paleontológico Egidio Feruglio, the repository for all specimens). Prefix “LH” indicates unique but informal field number handwritten on specimen; locality number precedes hyphen (i.e., “LH02-1160” is from LH-2). “LHF” indicates float specimen.

Table A3

Abundance data, Laguna del Hunco flora

Species no., TY-	Locality no., LH- 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total
1	0	1	0	1	0	1	0	0	0	0	0	0	2	0	1	1	0	0	0	0	0	1	0	0	1	9
2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4	3	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	6
5	2	2	0	0	0	3	0	0	0	0	0	0	16	0	2	0	0	0	0	0	0	0	0	0	0	25
7	1	0	0	0	0	3	0	0	0	0	0	0	11	0	1	0	1	0	0	0	0	3	1	0	1	22
8	0	0	0	3	1	13	0	0	0	0	0	0	0	1	4	0	0	0	0	0	0	1	3	0	0	26
9	0	4	0	0	0	12	0	0	0	0	0	0	37	0	1	0	0	0	0	0	0	0	0	0	0	54
10	0	2	0	3	0	47	0	0	0	2	0	0	88	0	0	0	0	0	0	0	0	3	1	0	3	149
11	0	0	0	0	0	3	0	0	0	0	0	0	26	0	0	0	0	0	0	0	0	1	0	0	0	30
12	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	8
13	0	3	0	0	0	5	0	0	0	0	0	0	45	0	2	0	0	0	0	2	0	2	0	0	0	59
14	0	0	0	0	0	1	0	0	0	0	0	0	9	0	1	0	0	0	0	0	0	0	0	0	0	11
15	0	0	0	0	0	19	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0	0	24
16	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	3
17	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4
18	0	66	1	108	0	44	0	0	0	2	0	0	45	0	5	1	8	4	0	1	0	6	3	1	1	296
19	0	44	0	312	0	11	0	0	0	0	0	0	41	0	2	5	0	1	0	1	0	1	4	0	0	422
20	2	141	3	351	0	21	0	1	0	0	0	0	22	0	2	3	14	11	0	1	0	1	7	13	4	597
21	2	21	1	15	1	185	0	0	0	1	0	0	253	0	16	1	2	0	0	0	0	12	15	0	9	534
22	0	9	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
23	0	13	0	50	0	19	0	0	0	0	1	0	16	0	4	1	2	0	0	0	0	3	0	0	0	109
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
25	0	6	1	99	1	4	0	0	0	0	0	0	11	0	1	1	4	0	0	0	0	2	0	0	0	130
26	0	0	0	0	0	0	0	0	0	0	0	0	37	0	44	0	0	0	0	0	0	0	0	0	0	81
27	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
28	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
29	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	2	2	0	0	14
30	0	3	0	3	0	6	0	0	0	0	0	0	5	0	0	0	0	0	0	2	0	1	0	0	2	22
32	0	0	0	2	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	2	0	0	12
34	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
35	1	4	0	1	0	6	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0	1	18
36	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
37	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2
38	0	13	0	2	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	19
39	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	7	0	1	0	9	0	0	0	0	0	0	5	0	1	0	0	0	0	0	0	1	0	0	0	24
42	0	0	0	13	0	1	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	1	0	0	0	18

Table A3 (*Continued*)

Species no., TY-	Locality no., LH- 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	Total
43	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	13
44	0	9	0	28	0	0	0	0	0	0	0	0	3	0	2	2	2	0	0	0	1	0	0	1	0	48
45	0	3	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	7
46	0	2	0	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
47	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
48	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
49	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
50	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
51	0	1	0	0	0	8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	12
52	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	17
53	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2
54	0	3	0	1	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	7
55	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
56	0	17	2	23	1	8	0	0	0	0	0	0	5	0	0	2	1	0	0	0	0	0	0	5	0	64
57	1	0	1	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	1	0	0	0	0	0	0	8
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
59	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
61	0	4	0	2	1	103	0	0	0	0	0	0	53	0	1	0	0	0	0	1	0	9	5	0	5	184
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
66	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	6
67	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
69	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
70	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	7
72	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
73	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
75	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
76	0	1	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	1	0	0	7
77	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
78	0	1	0	6	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	11
79	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
81	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	4
82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
83	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
84	1	40	3	34	0	6	0	0	1	1	0	0	18	1	2	2	1	0	0	0	1	2	0	3	1	117
85	0	1	1	0	0	1	0	0	0	0	0	0	10	0	0	0	0	0	0	1	0	0	0	0	0	14
86	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
93	0	3	0	0	0	9	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	1	0	0	0	24
94	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
95	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
97	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
98	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
99	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
100	0	10	1	4	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	18
101	0	3	0	3	0	2	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0	1	0	13
102	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
103	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2

Table A3 (*Continued*)

Species no., TY-	Locality no., LH-																									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	Total
104	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
105	0	7	0	0	0	19	0	0	0	0	0	0	16	0	3	0	0	0	0	0	0	0	0	0	1	46
106	0	0	0	5	0	0	0	0	0	0	0	0	9	0	2	0	0	0	0	1	0	0	2	0	0	19
107	0	7	1	97	0	0	0	0	0	0	0	0	1	0	1	11	8	0	0	3	1	1	0	0	0	131
108	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
109	1	0	0	0	0	2	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0	0	0	0	0	8
111	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
112	0	0	0	0	0	7	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	2	13
113	0	5	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	10
114	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	3
115	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
116	2	11	3	3	0	15	0	0	1	0	0	0	13	0	5	4	3	1	0	0	0	3	4	1	6	75
117	4	98	0	29	0	5	0	0	0	0	0	0	99	0	17	2	3	6	0	0	0	1	17	8	0	289
118	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
121	0	4	0	0	0	4	0	0	0	0	0	0	38	0	3	0	0	0	0	0	0	0	0	0	0	49
122	2	3	0	6	0	13	0	0	0	0	0	0	48	0	4	0	0	0	0	0	0	1	1	0	1	79
123	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
124	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
125	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
126	0	2	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
128	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
129	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
130	0	2	0	0	0	4	0	0	0	0	0	0	5	0	0	0	0	1	0	0	0	1	0	0	0	13
131	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
132	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
133	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	3
134	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
135	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
136	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
138	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
140	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
141	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
142	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
143	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
144	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
145	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
146	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
147	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
148	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
149	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
150	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
151	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
152	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
153	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
154	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
155	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
156	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	0	1	0	2	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	6
158	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
159	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
160	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
161	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
162	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
163	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
164	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Table A3 (*Continued*)

Species no., TY-	Locality no., LH-																									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	Total
165	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
166	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
167	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
168	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
169	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
170	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
171	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
172	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
173	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
174	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
175	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	16
176	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3
177	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
178	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
179	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
180	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
181	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
182	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
183	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
184	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
185	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
186	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
187	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
188	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
189	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
190	0	6	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	12
191	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
192	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
193	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
194	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
195	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
196	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
197	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
198	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
199	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
200	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
201	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
202	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	24	647	19	1268	5	685	0	1	3	6	1	2	1123	2	135	42	59	30	1	17	4	73	72	35	49	4303

Note: See table A2 for species information. Locality LH-7 did not produce identifiable material. Some species (TY) numbers were dropped when specimens were lumped or reidentified during processing, so that some values are “missing” (e.g., TY71 does not appear because it was lumped with TY106). The seven species with zero occurrences in the matrix were found only in float blocks and were not included in quantitative analyses.

Table A4
Shared foliar species, Laguna del Hunco and Río Pichileufú floras

Gymnosperms:
Araucaria pichileufensis[a]
Ginkgo patagonica[a]
"*Libocedrus*" *prechilensis*[b]
Podocarpus andiniformis[a]
Podocarpaceae sp. TY176[a]
"*Zamia*" *tertiaria*[a]
Angiosperms:
Akania patagonica[b]
"*Banara*" *prehernandiensis*[a]
"*Cassia*" *argentinensis*[a]
"*Celtis*" *ameghenoi*[b]
"*Coprosma*" *incerta*[a]
"*Cupania*" *grosse-serrata*[a]
"*Cupania*" *latifolioides*[a]
"*Laurelia*" (*Laureliopsis*) *guiñazui*[a]
Lomatia preferruginea[b]
"*Myrica*" *mira*[a]

Note: To enter the list above, the species must occur in our recent collections either at Laguna del Hunco (LH), Río Pichileufú (RP), or both, and if only at one site (LH in all cases), the material must be a reliable match for at least one historic museum specimen from RP referred to the same name by Berry (1938). Of common species at LH, this approach voided the listing of "*Tetracera*" *patagonica*, for which the eponymous RP material is questionable. We avoided Myrtaceae and Lauraceae in this list because of relatively uniform leaf architecture within the families, which makes comparison at the species level unreliable without cuticular data. For botanical authorities, see Berry 1925, 1938, and for *Akania*, see Gandolfo et al. 1988.

[a] Found by us at both LH and RP.

[b] Found by us at LH, consistent with at least one referred specimen from RP of Berry 1938.