

SUPPLEMENTAL APPENDIX 1. Morphological data matrix, scored for taxa in this study.

Character and state designations are provided in Appendix 2. Individual specimens were scored;

asterisks (*) indicate cases where specimens of the same taxon differed.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
'Autana'	1	0	?	1	1	0	1	?	?	1	1	1	0	0	?
<i>Apinagia corymbosa</i>	1	1	0	?	1	0	1	?	?	1	1	1	0	0	?
<i>Apinagia fimbriifolia</i>	1	0	?	1	1	0	1	?	?	1	1	1	1	0	?
<i>Apinagia fluitans</i>	1	1	0	?	1	0	1	?	?	1	1	1	0	0	?
<i>Apinagia longifolia</i>	1	1	0	?	1	0	0	3	0	?	0/1*	1	0	0/1*	0/?*
<i>Apinagia nana</i>	1	0	?	1	0	0	0	2	0	?	0	0	?	0	?
<i>Apinagia richardiana</i>	1	1	0	?	1	0	0	1	0	?	0/1*	1	0	0/1*	0/?*
<i>Apinagia riedelii</i>	1	1	1	?	1	0	0	2	1	?	1	1	0	1	0
<i>Apinagia staheliana</i>	1	1	0	?	1	0	0	1	0	?	1	1	0	1	0
<i>Apinagia yguazuensis</i>	1	1	0	?	0	0	0	1	0	?	1	1	1	0	?
<i>Apinagia</i> sp.	1	1	0	?	1	0	0	2	0	?	1	1	0	1	0
<i>Castelnavia fluitans</i>	0	0	?	1	1	0	0/1	0	0	0	0	0/1	0	0	?
<i>Castelnavia monandra</i>	0	0	?	1	1	0	0/1	0	0	0	0	0/1	0	0	?
<i>Castelnavia multipartita</i> f. <i>multipartita</i>	0	0	?	1	1	0	0	1	0	?	0	1	0	0	?
<i>Castelnavia multipartita</i> f. <i>pendulosa</i>	0	1	0	?	1	0	1	?	0	0	0	1	0	0	?
<i>Castelnavia noveloi</i>	?	0	?	1	0	0	1	?	0	1	0	1	0	0	?
<i>Castelnavia princeps</i>	0	0	?	1	1	0	0/1	0/1/2	0	1	0	0/1	0	0	?
<i>Jenmaniella ceratophylla</i>	1	0	?	1	1	0	1	?	?	1	0	1	0	0	?
<i>Jenmaniella fimbriata</i>	1	0	?	1	1	0	1	?	?	1	0	1	0	0	?
<i>Lonchostephus elegans</i>	1	0	?	0	1	0	1	?	0	1	1	1	0	0	?
<i>Lophogyne lacunosa</i>	1	0	?	1	0	0	1	?	?	0	1	0/1	?	0	?
<i>Marathrum aeruginosum</i>	1	0	?	1	1	0	1	?	?	1	1	1	1	1	0
<i>Marathrum foeniculaceum</i>	1	0	?	1	1	1	1	?	?	1	0	1	0	0	?
<i>Marathrum tenue</i>	1	0	?	1	1	0	1	?	?	1	0	1	1	0	?
<i>Marathrum utile</i>	1	0	?	1	1	0	0	1	0	?	0	1	0	0	?
<i>Monostylis capillacea</i>	1	1	0	?	1	0	1	?	?	1	1	1	0	0	?
<i>Mourera fluviatilis</i>	0	0	?	0	1	0	0	1	0	?	1	1	0	1	0/1/2*
<i>Mourera weddelliana</i>	1	0	?	0	1	0	1	?	0/1*	1	1	1	0	1	1
<i>Oserya coulteriana</i>	1	1	0	?	1	0	1	?	?	0	1	1	0	0	?
<i>Oserya longifolia</i>	1	0	0	?	1	0	1	?	?	0	1	1	0	0	?
<i>Oserya perpusilla</i>	1	0	?	1	1	0	0	1/2*	0	?	0	0	?	0	?
<i>Podostemum ceratophyllum</i>	1	1	0	?	1	1	1	?	?	0	0	1	0	0	?
<i>Rhyncholacis applanata</i>	1	0	?	0	1	0	0	1	1	?	1	0	?	0	?
<i>Rhyncholacis penicillata</i>	1	0	?	0	1	0	1	?	?	1	1	1	0	0	?
<i>Tristicha trifaria</i>	1	1	0	?	0	0	2	?	0	?	0	0	?	0	?
<i>Tulasneantha monadelpha</i>	1	0	?	0	1	0	0	4	0	?	1	1	1	1	1
<i>Vanroyenella plumosa</i>	1	0	?	1	1	0	1	?	?	2	0	1	0	0	?
<i>Weddellina squamulosa</i>	1	1	0	?	0	0	1	?	0	1	0	0	0	?	?

Supplemental Appendix 1 (continued)

	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
'Autana'	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1
<i>Apinagia corymbosa</i>	1	0	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Apinagia fimbriifolia</i>	1	0	0	0	1	0	0	0	0	1	1	0	1	0	1
<i>Apinagia fluitans</i>	1	0	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Apinagia longifolia</i>	1	0	0	0	1	0	0	0	1	0	0	0/1*	0	0	1
<i>Apinagia nana</i>	1	0	0	0	1	1	0	0	0	0	1	?	0	0	1
<i>Apinagia richardiana</i>	1	0	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Apinagia riedelii</i>	1	0	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Apinagia staheliana</i>	1	0	0	0	1	0	0	0	1	0	0	0/1*	0	0	1
<i>Apinagia yguazuensis</i>	1	0	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Apinagia</i> sp.	1	0	0	0	1	0	0	0	1	0	0	0	0	0	1
<i>Castelnavia fluitans</i>	1	0	0	1	0	1	0	1	0	0	1	?	0	0	1
<i>Castelnavia monandra</i>	1	0	0	1	0	1	0	1	0	0	1	?	0	0	1
<i>Castelnavia multipartita</i> f. <i>multipartita</i>	1	0	0	1	0	1	0	1	0	0	1	?	0	0	1
<i>Castelnavia multipartita</i> f. <i>pendulosa</i>	1	0	0	1	0	1	0	1	0	0	1	?	0	0	1
<i>Castelnavia noveloi</i>	1	0	0	1	0	1	0	1	0	0	1	?	0	0	1
<i>Castelnavia princeps</i>	1	0	0	1	0	1	0	1	0	0	1	?	0	0	1
<i>Jenmaniella ceratophylla</i>	1	0	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Jenmaniella fimbriata</i>	1	0	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Lonchostephus elegans</i>	1	2	1	0	1	0	1	0	0	0	0	1	0	1	1
<i>Lophogyne lacunosa</i>	1	0	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Marathrum aeruginosum</i>	1	0	0	0	1	0	0	0	1	0	1	?	0	0	1
<i>Marathrum foeniculaceum</i>	1	0	0	0	1	0	0	0	1	0	0	1	0	0	1
<i>Marathrum tenue</i>	1	1	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Marathrum utile</i>	1	0/1	0	0	1	0	0	0	?	0	0	0	0	0	1
<i>Monostylis capillacea</i>	1	0	0	0	1	0	0	0	0	0	1	?	0	0	1
<i>Mourera fluviatilis</i>	1	2	1	0	1	0	1	0	1	0	0	0/1	0	1	1
<i>Mourera weddelliana</i>	1	2	1	0	1	0	1	0	1	0	0	1	0	1	1
<i>Oserya coulteriana</i>	1	0	0	0	1	0	0	0	0	1	1	?	1	0	0
<i>Oserya longifolia</i>	1	0	0	0	1	0	0	0	0	1	1	?	1	0	0
<i>Oserya perpusilla</i>	1	0	0	0	1	0	0	0	1	?	1	?	0	0	1
<i>Podostemum ceratophyllum</i>	1	0	0	0	1	0	0	0	0	1	1	?	1	0	0
<i>Rhyncholacis applanata</i>	1	1	0	0	1	0	0	0	1	0	0	0	0	0	1
<i>Rhyncholacis penicillata</i>	1	1	0	0	1	0	0	0	1	0	0	0	0	0	1
<i>Tristicha trifaria</i>	0	0	0	0	?	0	1	0	?	0	1	?	0	0	0
<i>Tulasneantha monadelphica</i>	1	2	0	0	1	0	1	0	0	0	0	0	0	1	1
<i>Vanroyenella plumosa</i>	1	1	0	0	1	0	0	0	0	0	1	?	0	1	1
<i>Weddellina squamulosa</i>	0	0	0	?	?	0	1	0	?	0	0	0	0	0	0

