

**Appendix S19.** Top five most important mycobiont genera and photobiont species/OTUs for the connectivity of the *Trebouxia*–mycobiont network (Fig. 8B, Appendix S17), ranked by betweenness centrality. Degree and betweenness centrality are broadly in agreement as to the most generalist taxa.

Mycobionts (genera, numbers based on *Trebouxia* consensus delimitation)

Genus	Degree	Betweenness (normalized)	n
<i>Ramalina</i>	11	0.280	20
<i>Xanthoparmelia</i>	9	0.173	18
<i>Caloplaca</i>	5	0.146	7
<i>Usnea</i>	5	0.121	20
<i>Lecanora</i>	5	0.119	9

Photobionts (consensus delimitation)

Species	Degree	Betweenness (normalized)	n
A13	8	0.318	15
A52/53	5	0.120	10
C cf. 34	4	0.103	10
C. cf. 20	4	0.083	11
I cf. 23	4	0.081	6

Photobionts (97% OTU clustering)

Species (parent)	Degree	Betweenness (normalized)	n
A97_denovo6 (A13)	6	0.301	9
C97_denovo116 (C cf. 34)	4	0.133	10
I97_denovo212 (I17)	2	0.088	4
C97_denovo160 (C. cf. 20)	3	0.081	3
A97_denovo77 (A52/53)	4	0.077	8