

Supplementary file 8 – Summary of state changes throughout trees for each character.

Character 1: Number of leaves per pseudobulb

change	average
1-leaved → 2-leaved	3.90
2-leaved → 1-leaved	0.08

Character 2: Pseudobulb size

change	average
distinct → indistinct	2.00
indistinct → distinct	0.00

Character 3: Swollen apical sterile flower

change	average
absent → present	1.00
present → absent	0.00

Character 4: Number of flowers per inflorescence

change	average
1-flowered → 2–3-flowered	0.88
1-flowered → multiple-flowered	3.75
2–3-flowered → 1-flowered	0.10
2–3-flowered → multiple-flowered	0.04
multiple-flowered → 1-flowered	7.98
multiple-flowered → 2–3-flowered	3.12

Character 5: Connation of lower margin of lateral sepals

change	average
free → connate	23.38
connate → free	10.03

Character 5: Ratio of sepal lengths (lateral to dorsal)

change	average
similar in size → different in size	8.07
different in size → similar in size	5.31