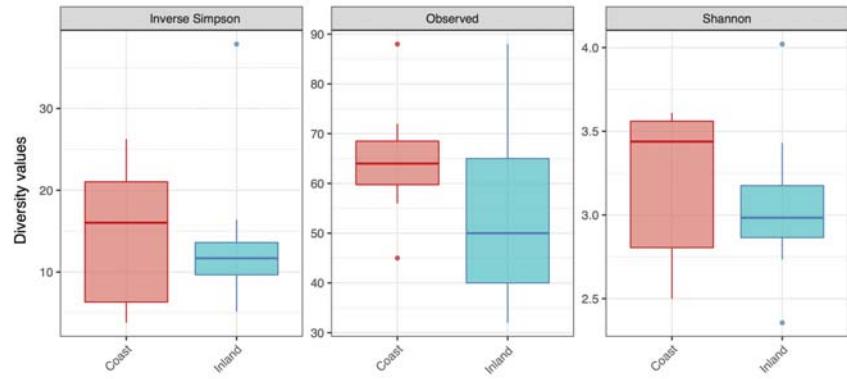
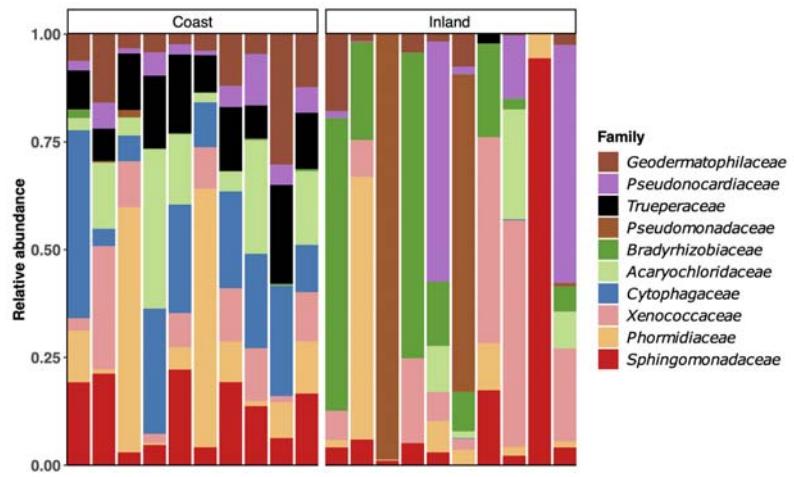




Supplementary Figure 1. Map showing the location of the two sampling areas



Supplementary Figure 2. Diversity indices of hypolithic (Coast vs Inland) bacterial communities.



Supplementary Figure 3. Relative abundance of bacterial families in hypolithic (Coast vs Inland) communities.

Supplementary Table 1. List of molecular markers sequenced in this study and the primers used for amplification.

Marker	Primer F (forward)	Primer R (reverse)
ITS	ITS1F (Gardes and Bruns 1993)	ITS4 (White <i>et al.</i> 1990)
LSU	LR0R (Rehner and Samuels 1994)	LR5 (Vilgalys and Hester 1990)
mtSSU	mrSSU1 (Zoller <i>et al.</i> 1999)	mrSSU3R (Zoller <i>et al.</i> 1999)
<i>RPB1</i>	RPB1-Af (Stiller and Hall 1997)	RPB1-Cr (Matheny <i>et al.</i> 2002)

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- Matheny PB, Liu YJ, Ammirati JF, Hall BD. 2002.** Using RPB1 sequences to improve phylogenetic inference among mushrooms (*Inocybe*, *Agaricales*). *Am J Bot* **89**: 688–698.
- Rehner SA, Samuels GJ. 1994.** Taxonomy and phylogeny of *Gliocladium* analysed from nuclear large subunit ribosomal DNA sequences. *Mycol Res* **98**: 625–634.
- Stiller JW, Hall BD. 1997.** The origin of red algae: implications for plastid evolution. *PNAS* **94**: 4520–4525.
- Vilgalys R, Hester M. 1990.** Rapid genetic identification and mapping of enzymatically amplified ribosomal DNA from several *Cryptococcus* species. *J Bacteriol* **172**: 4238–4246.
- White TJ, Bruns TD, Lee SB, Taylor JW. 1990.** Amplification and direct sequencing of fungal ribosomal genes for phylogenies In: Innis MA, Gelfand DH, Sninsky JJ, White TJ, eds. *PCR Protocols: a guide of methods and applications*. New York: Academic Press, 315–322.
- Zoller S, Scheidegger C, Sperisen C. 1999.** PCR primers for the amplification of mitochondrial small subunit ribosomal DNA of lichen-forming ascomycetes. *Lichenologist* **31**: 511–516.

Supplementary Table 2. Best partitioning scheme and associated substitution models used in the different phylogenetic analyses as estimated with PartitionFinder.

<b>Phylogenetic analysis</b>	<b>Best partitioning scheme</b>	<b>Nucleotide substitution models</b>
<i>Stellarangia</i> spp.	(ITS1-2, <i>RPB1</i> _intron)	K80+I+G (ITS1-2, <i>RPB1</i> _intron)
	(5.8S)	K80 (5.8S)
	(LSU, <i>RPB1</i> _exon_p1)	K80+I+G (LSU, <i>RPB1</i> _exon_p1)
	( <i>RPB1</i> _exon_p2, mtSSU)	HKY+I ( <i>RPB1</i> _exon_p2, mtSSU)
	( <i>RPB1</i> _exon_p3)	K80 ( <i>RPB1</i> _exon_p3)
<i>Buellia</i> spp.	(ITS1-2)	GTR+G (ITS1-2)
	(5.8S)	K80+I+G (5.8S)

Supplementary Table 3. The BLAST results based on ITS data for the different lichen specimens of the genera *Stellarangia* (code S), *Xanthoparmelia* (X) and *Buellia* (B). The accession numbers of the closest matches in the GenBank database are provided, as well as the cover and identity percentages. An indication of the habitat (epilithic, E; hypolithic, H) of each specimens is given in the last two columns.

	Closest relative	Accession number	Cover (%)	Ident. (%)	Habitat	
					E	H
	ITS					
<b>S1 (AL8, AL38)</b>	<i>Stellarangia elegantissima</i> <i>Stellarangia testudinea</i>	KT291454 KC179312	100 86	96.6 99.8	x	X
<b>S2 (AL49, AL59, AL36)</b>	<i>Stellarangia elegantissima</i> <i>Stellarangia testudinea</i>	KT291454 KC179312	100 86	96.7 100		X
<b>S3 (AL17, AL30, AL58, AL47, AL53, AL32)</b>	<i>Stellarangia elegantissima</i>	KT291454	100	96.3	x	X
<b>S4 (AL23, AL25)</b>	<i>Stellarangia elegantissima</i> <i>Stellarangia namibiensis</i>	KT291454 KC179311	100 86	97.6 99.2	x	
<b>X1</b>	<i>Xanthoparmelia taractica</i>	MN103185	100	91.7	x	
<b>B1 (AL21)</b>	<i>Buellia almeriensis</i> <i>Buellia badia</i>	MKF062519 MK812426	84 64	83.85 91.3	x	
<b>B2 (AL62)</b>	<i>Buellia russa</i>	DQ534454	100	86		X
<b>B3 (AL35)</b>	<i>Buellia frigida</i>	AY667583	99	88.1		X

Supplementary Table 4. Species in family *Teloschistaceae* used in phylogenetic reconstructions of the genus *Stellarangia* and their GenBank accession numbers. Highlighted codes are those corresponding with sequences obtained in the present study.

Species	GenBank Accession No.			
	ITS	LSU	mtSSU	<i>RPB1</i>
<i>Haloplaca</i> sp.	KC179295	KC179203	KC179537	na
<i>Follmannia orthoclada</i>	KC179291	KC179191	na	na
<i>Leproplaca xantholyta</i>	KC179451	KC179208	KC179542	na
<i>Sirenophila eos</i>	KC179300	KC179246	KC179585	KT291581
<i>S. gallowayii</i>	KC179301	KC179247	KC179586	na
<i>S. jackelixii</i>	KC179303	KC179248	KC179587	na
<i>Scutaria andina</i>	KC179298	KC179242	KC179581	na
<i>Solitaria chrysophtalma</i>	KC179408	KC179251	KC179590	KT291577
<i>Stellarangia elegantissima</i>	KC179310	KC179254	KC179593	KT291580
<i>S. elegantissima</i> Cele75	KT291454	KT291541	KT291488	na
<i>S. namibensis</i>	KC179311	Na	na	na
<i>S. namibensis</i> E156	<b>MZ367686</b>	<b>MZ391147</b>	na	<b>MZ367573</b>
<i>S. namibensis</i> AL23	<b>MZ367687</b>	<b>MZ391148</b>	na	<b>MZ367574</b>
<i>S. namibensis</i> AL25	<b>MZ367688</b>	Na	<b>MZ363730</b>	na
<i>S. namibensis</i> OTU89	<b>MZ367689</b>	Na	na	na
<i>Stellarangia</i> sp. AL17	<b>MZ367690</b>	<b>MZ391149</b>	na	<b>MZ367575</b>
<i>Stellarangia</i> sp. AL30	<b>MZ367691</b>	<b>MZ391150</b>	na	<b>MZ367576</b>
<i>Stellarangia</i> sp. AL32	<b>MZ367692</b>	Na	na	na
<i>Stellarangia</i> sp. AL47	<b>MZ367693</b>	Na	na	na
<i>Stellarangia</i> sp. AL53	<b>MZ367694</b>	<b>MZ391151</b>	na	na
<i>Stellarangia</i> sp. AL58	<b>MZ367695</b>	Na	na	na
<i>Stellarangia</i> sp. OTU214	<b>MZ367696</b>	Na	na	na
<i>Stellarangia</i> sp. OTU119508	<b>MZ367697</b>	Na	na	na
<i>S. testudinea</i>	KC179312	Na	na	na

<i>S. testudinea</i> AL8	<b>MZ367698</b>	<b>MZ391152</b>	na	<b>MZ367577</b>
<i>S. testudinea</i> AL36	<b>MZ367699</b>	Na	na	na
<i>S. testudinea</i> AL38	<b>MZ367700</b>	Na	na	na
<i>S. testudinea</i> AL49	<b>MZ367701</b>	<b>MZ391153</b>	na	<b>MZ367578</b>
<i>S. testudinea</i> AL59	<b>MZ367702</b>	Na	na	na
<i>S. testudinea</i> OTU69	<b>MZ367703</b>	Na	na	na
<i>S. testudinea</i> OTU75002	<b>MZ367704</b>	Na	na	na
<i>Teloschistopsis bonae-spei</i>	KC179322	KC179257	KC179596	na
<i>T. eudoxa</i>	KC179324	KC179258	KC179597	na

Supplementary Table 5. Species in *Buellia* used in phylogenetic reconstructions and their GenBank accession numbers. Highlighted codes are those corresponding with sequences obtained in the present study.

Species	ITS GenBank Accession No.
<i>Anaptychia ciliaris</i>	AY143391
<i>Buellia</i> sp.	JX036043
<i>Buellia</i> sp. AL21	<b>MZ373309</b>
<i>Buellia</i> sp. AL27	<b>MZ373310</b>
<i>Buellia</i> sp. AL28	<b>MZ373311</b>
<i>Buellia</i> sp. AL29	<b>MZ373312</b>
<i>Buellia</i> sp. AL35	<b>MZ373313</b>
<i>Buellia</i> sp. AL62	<b>MZ373314</b>
<i>Buellia</i> sp. AL67	<b>MZ373315</b>
<i>Buellia</i> sp. AL68	<b>MZ373316</b>
<i>Buellia</i> sp. AL71	<b>MZ373317</b>
<i>Buellia almeriensis</i>	MF062519
<i>B. aethalea</i>	AY143410
<i>B. anisomera</i>	DQ534453
<i>B. asterella</i>	AF250785
<i>B. badia</i>	MK812426
<i>B. capitis-regum</i>	AF540497
<i>B. chujana</i> (Type)	NR 138413
<i>B. dijiana</i>	AF250788
<i>B. disciformis</i>	AY143392
<i>B. elegans</i>	KX512901
<i>B. erubescens</i>	KX512902
<i>B. frigida</i>	KX512903
<i>B. geophila</i>	MN615682

<i>B. georgei</i>	AF250787
<i>B. griseovirens</i>	AF540500
<i>B. insignis</i>	MN615681
<i>B. mamillana</i>	MN615693
<i>B. numerosa</i>	LC153799
<i>B. ocellata</i>	AF540502
<i>B. papillata</i>	AF250790
<i>B. polita</i>	MN615679
<i>B. punctata</i>	KX512899
<i>B. russa</i>	DQ534454
<i>B. schaeereri</i>	AF250791
<i>B. subdisciformis</i>	AF352323
<i>B. submuriformis</i>	AF540504
<i>B. subnumerosa</i>	LC153800
<i>B. subsororioides</i>	KM044008
<i>B. taishanensis</i>	MG250190
<i>B. tesserata</i>	KX512904
<i>B. triseptata</i>	AF540506
<i>B. zoharyi</i>	AJ421418