

Table S2. Taxonomic assignment of shac basecalled Flongle and MinION barcodes, and barcodes generated via Sanger sequencing of those samples for which barcodes could be generated. If no species match was found on BOLD, assignment to higher taxonomic levels was done both on BOLD (incl. tree-based assignment) and GenBank.

Query ID ¹	BOLD		GenBank assignment based on best match (% similarity) ³
	Best ID ^{2,3}	% similarity within the same BIN	
1f ambs=0 estgaps=0	<i>Myrmica scabrinodis</i>	100	<i>aloba, spinosior, sabuleti</i>
1m ambs=0 estgaps=0	<i>Myrmica scabrinodis</i>	100	
1s ambs=7	<i>Myrmica scabrinodis</i>	100	
2f ambs=0 estgaps=0	<i>Myrmica scabrinodis</i>	100	
2m ambs=0 estgaps=0	<i>Myrmica scabrinodis</i>	100	
2s ambs=16	<i>Myrmica scabrinodis</i>	100	
3f ambs=1 estgaps=1	<i>Pogonognathellus flavescens</i>	100	
3m ambs=0 estgaps=0	<i>Pogonognathellus flavescens</i>	100	
3s ambs=3	<i>Pogonognathellus flavescens</i>	100	
4f ambs=0 estgaps=0	<i>Pseudisotoma sensibilis</i>	99.69	Tomoceridae 93.42
4m ambs=0 estgaps=0	Tomoceridae	93.43	
5f ambs=0 estgaps=0	<i>Minyriolus pusillus</i>	100	
5m ambs=0 estgaps=0	<i>Minyriolus pusillus</i>	100	
5s ambs=1	<i>Minyriolus pusillus</i>	100	
6f ambs=0 estgaps=0	<i>Pseudisotoma sensibilis</i>	99.69	
6m ambs=0 estgaps=0	<i>Pseudisotoma sensibilis</i>	99.54	Tomoceridae 93.42
6s ambs=9	<i>Pseudisotoma sensibilis</i>	99.08	
7m ambs=0 estgaps=0	Tomoceridae	93.43	
7s ambs=0	Tomoceridae	93.43	Tomoceridae 93.42
8f ambs=3 estgaps=1	<i>Gongylidiellum latebricola</i>	100	
8m ambs=0 estgaps=0	<i>Gongylidiellum latebricola</i>	100	
8s ambs=1	<i>Gongylidiellum latebricola</i>	100	
9f ambs=0 estgaps=0	<i>Lasius platythorax/niger</i>	100	<i>psammophilus</i>
9m ambs=0 estgaps=0	<i>Lasius platythorax/niger</i>	100	<i>psammophilus</i>
9s ambs=0	<i>Lasius platythorax/niger</i>	100	<i>psammophilus</i>

10m ambs=0 estgaps=0	<i>Lithobius tenebrosus</i>	99.84	<i>nodulipes</i>	
10s ambs=3	<i>Lithobius tenebrosus</i>	99.69	<i>nodulipes</i>	
11s ambs=0	Parasitidae	83.72		Parasitidae 83.77
12s ambs=0	<i>Rhacognathus punctatus</i>	99.84		
13s ambs=0	<i>Minyriolus pusillus</i>	100		
15f ambs=2 estgaps=2	<i>Pogonognathellus flavescens</i>	100		
15m ambs=0 estgaps=0	<i>Pogonognathellus flavescens</i>	100		
15s ambs=0	<i>Pogonognathellus flavescens</i>	100		
16f ambs=0 estgaps=0	<i>Neon reticulatus</i>	100		
16m ambs=0 estgaps=0	<i>Neon reticulatus</i>	100		
16s ambs=0	<i>Neon reticulatus</i>	100		
18s ambs=0	<i>Lithobius agilis</i>	100	<i>pelidnus</i>	
20f ambs=0 estgaps=0	<i>Tetramorium impurum</i>	99.68		
20m ambs=0 estgaps=0	<i>Tetramorium impurum</i>	100		
20s ambs=2	<i>Tetramorium impurum</i>	100		
21f ambs=0 estgaps=0	<i>Otiorhynchus gemmatus</i>	99.69		
21m ambs=0 estgaps=0	<i>Otiorhynchus gemmatus</i>	100		
21s ambs=0	<i>Otiorhynchus gemmatus</i>	100		
22f ambs=0 estgaps=0	<i>Rhacognathus punctatus</i>	99.85		
22m ambs=0 estgaps=0	<i>Rhacognathus punctatus</i>	99.85		
22s ambs=0	<i>Rhacognathus punctatus</i>	99.85		
24f ambs=0 estgaps=0	<i>Lithobius agilis</i>	100	<i>pelidnus</i>	
24m ambs=0 estgaps=0	<i>Lithobius agilis</i>	100	<i>pelidnus</i>	
24s ambs=0	<i>Lithobius agilis</i>	99.84	<i>pelidnus</i>	
26f ambs=2 estgaps=7	Arthropoda ⁴	84.13		
26m ambs=1 estgaps=6	Arthropoda ⁴	84.13		
28f ambs=0 estgaps=0	<i>Platynocheilus peltifer</i>	99.85		
28m ambs=0 estgaps=0	<i>Platynocheilus peltifer</i>	99.85		
28s ambs=0	<i>Platynocheilus peltifer</i>	99.85		
30f ambs=0 estgaps=0	<i>Pemphigus populivenae</i>	99.69	<i>groenlandicus, monophagus, populiglobuli, sp. D</i>	
30m ambs=0 estgaps=0	<i>Pemphigus populivenae</i>	99.69	<i>groenlandicus, monophagus, populiglobuli, sp. D</i>	

30s ambs=0	<i>Pemphigus populivenae</i>	99.69	<i>groenlandicus, monophagus, populiglobuli, sp. D</i>
31s ambs=2	Entomobryidae	100	Entomobryidae 84.99
32f ambs=2 estgaps=2	<i>Pogonognathellus flavescens</i>	100	
32m ambs=0 estgaps=0	<i>Pogonognathellus flavescens</i>	100	
32s ambs=1	<i>Pogonognathellus flavescens</i>	99.84	
33f ambs=0 estgaps=0	<i>Ceratocombus coleoptratus</i>	100	
33m ambs=0 estgaps=0	<i>Ceratocombus coleoptratus</i>	100	
33s ambs=0	<i>Ceratocombus coleoptratus</i>	100	
34f ambs=2 estgaps=2	Harpactea lepida	100	
34m ambs=0 estgaps=0	Harpactea lepida	100	
35f ambs=1 estgaps=1	<i>Pogonognathellus flavescens</i>	99.69	
35m ambs=0 estgaps=0	<i>Pogonognathellus flavescens</i>	99.69	
35s ambs=3	<i>Pogonognathellus flavescens</i>	99.84	
36f ambs=2 estgaps=2	<i>Nothrus silvestris</i>	99.69	
36m ambs=0 estgaps=0	<i>Nothrus silvestris</i>	99.69	
36s ambs=2	<i>Nothrus silvestris</i>	99.69	
37s ambs=0	Tomoceridae	87.44	Tomoceridae 87.58
38f ambs=0 estgaps=0	Entomobryidae	100	Entomobryidae 85.15
38m ambs=0 estgaps=0	Entomobryidae	100	Entomobryidae 85.15
38s ambs=1	Entomobryidae	100	Entomobryidae 85.15
39f ambs=0 estgaps=0	Entomobryidae	100	Entomobryidae 85.15
39m ambs=0 estgaps=0	Entomobryidae	100	Entomobryidae 85.15
39s ambs=2	Entomobryidae	100	Entomobryidae 85.15
40f ambs=0 estgaps=0	<i>Lasius platythorax/niger</i>	100	<i>psammophilus</i>
40m ambs=0 estgaps=0	<i>Lasius platythorax/niger</i>	100	<i>psammophilus</i>
40s ambs=0	<i>Lasius platythorax/niger</i>	99.84	<i>psammophilus</i>
41f ambs=0 estgaps=0	Campodeidae	86.32	Campodeidae 84.49
41m ambs=0 estgaps=0	Campodeidae	86.32	Campodeidae 84.49
41s ambs=0	Campodeidae	86.32	Campodeidae 84.49
42f ambs=0 estgaps=0	Tomoceridae	93.43	Tomoceridae 93.42
42m ambs=0 estgaps=0	Tomoceridae	93.43	Tomoceridae 93.42

42s ambs=0	Tomoceridae	93.43	Tomoceridae 93.42
43s ambs=0	Tomoceridae	87.44	Tomoceridae 87.58
45f ambs=0 estgaps=0	<i>Sintula corniger</i>	99.69	
45m ambs=0 estgaps=0	<i>Sintula corniger</i>	99.69	
46f ambs=0 estgaps=0	<i>Sintula corniger</i>	99.53	
46m ambs=0 estgaps=0	<i>Sintula corniger</i>	99.69	
47m ambs=0 estgaps=0	<i>Tapinocyba pallens</i>	99.69	
47s ambs=2	<i>Tapinocyba pallens</i>	100	
48f ambs=0 estgaps=0	<i>Tapinocyba pallens</i>	99.07	
48m ambs=0 estgaps=0	<i>Tapinocyba pallens</i>	99.07	
48s ambs=0	<i>Tapinocyba pallens</i>	99.38	
49s ambs=3	<i>Pogonognathellus flavescens</i>	99.68	
50s ambs=0	<i>Hebrus ruficeps</i>	100	
51f ambs=3 estgaps=1	<i>Tipula melanoceros</i>	98.92	
51m ambs=0 estgaps=0	<i>Tipula melanoceros</i>	98.92	
51s ambs=0	<i>Tipula melanoceros</i>	98.92	
52f ambs=1 estgaps=1	<i>Hebrus ruficeps</i>	100	
52m ambs=0 estgaps=0	<i>Hebrus ruficeps</i>	100	
52s ambs=0	<i>Hebrus ruficeps</i>	100	
53f ambs=1 estgaps=1	<i>Hebrus ruficeps</i>	100	
53m ambs=0 estgaps=0	<i>Hebrus ruficeps</i>	100	
53s ambs=1	<i>Hebrus ruficeps</i>	100	
54f ambs=0 estgaps=0	Sarcoptiformes	80.12	Sarcoptiformes 80.18
54m ambs=0 estgaps=0	Sarcoptiformes	80.12	Sarcoptiformes 80.18
54s ambs=3	Sarcoptiformes	79.96	Sarcoptiformes 80.03
55f ambs=0 estgaps=0	Sarcoptiformes	80.12	Sarcoptiformes 80.18
55m ambs=0 estgaps=0	Sarcoptiformes	80.12	Sarcoptiformes 80.18
56f ambs=1 estgaps=1	<i>Hebrus ruficeps</i>	100	
56m ambs=0 estgaps=0	<i>Hebrus ruficeps</i>	100	
56s ambs=0	<i>Hebrus ruficeps</i>	100	
57m ambs=0 estgaps=0	<i>Hebrus ruficeps</i>	100	

57s ambs=0	<i>Hebrus ruficeps</i>	100	
58f ambs=0 estgaps=0	<i>Piratula latitans</i>	100	
58m ambs=0 estgaps=0	<i>Piratula latitans</i>	100	
58s ambs=0	<i>Piratula latitans</i>	100	
59s ambs=0	<i>Pselaphus heisei</i>	100	
60f ambs=2 estgaps=2	<i>Hebrus ruficeps</i>	100	
60m ambs=0 estgaps=0	<i>Hebrus ruficeps</i>	100	
60s ambs=9	<i>Hebrus ruficeps</i>	100	
61f ambs=1 estgaps=1	<i>Hebrus ruficeps</i>	100	
61m ambs=0 estgaps=0	<i>Hebrus ruficeps</i>	100	
61s ambs=1	<i>Hebrus ruficeps</i>	100	
62f ambs=0 estgaps=0	<i>Ceratocombus coleoptratus</i>	99.85	
62m ambs=0 estgaps=0	<i>Ceratocombus coleoptratus</i>	99.85	
62s ambs=1	<i>Ceratocombus coleoptratus</i>	99.85	
63f ambs=0 estgaps=0	Tomoceridae	86.57	Tomoceridae 85.76
63m ambs=0 estgaps=0	Tomoceridae	86.57	Tomoceridae 85.76
63s ambs=1	Tomoceridae	86.57	Tomoceridae 85.76
65f ambs=0 estgaps=0	Tomoceridae	98.47	Entomobryidae 83.46, Tomoceridae 83.31
65m ambs=0 estgaps=0	Tomoceridae	98.47	Entomobryidae 83.46, Tomoceridae 83.31
65s ambs=1	Tomoceridae	98.45	Entomobryidae 83.46, Tomoceridae 83.31
66s ambs=6	<i>Arctosa lutetiana</i>	99.84	
67f ambs=0 estgaps=0	Campodeidae	86.24	Campodeidae 84.49
67m ambs=0 estgaps=0	Campodeidae	86.24	Campodeidae 84.49
67s ambs=0	Campodeidae	86.24	Campodeidae 84.49
68f ambs=0 estgaps=0	Tomoceridae	98.47	Entomobryidae 83.46, Tomoceridae 83.31
68m ambs=0 estgaps=0	Tomoceridae	98.47	Entomobryidae 83.46, Tomoceridae 83.31
68s ambs=3	Tomoceridae	98.45	Entomobryidae 83.46, Tomoceridae 83.31
71f ambs=0 estgaps=0	Tomoceridae	93.43	Tomoceridae 93.42
71m ambs=0 estgaps=0	Tomoceridae	93.43	Tomoceridae 93.42
71s ambs=2	Tomoceridae	93.19	Tomoceridae 93.42
72f ambs=4 estgaps=5	Rhagidiidae	99.83	Rhagidiidae 99.45

72m ambs=0 estgaps=0	Rhagidiidae	99.63		Rhagidiidae 99.63
74f ambs=0 estgaps=0	Tomoceridae	87.56		Tomoceridae 87.58
74m ambs=0 estgaps=0	Tomoceridae	87.56		Tomoceridae 87.58
74s ambs=1	Tomoceridae	87.56		Tomoceridae 87.58
75s ambs=1	<i>Lithobius tenebrosus</i>	100	<i>nodulipes</i>	
76f ambs=5 estgaps=2	Parasitidae	86.59		Parasitidae 86.68
76m ambs=0 estgaps=0	Parasitidae	86.59		Parasitidae 86.68
76s ambs=2	Parasitidae	86.53		Parasitidae 86.68
77f ambs=0 estgaps=0	Tomoceridae	93.43		Tomoceridae 93.42
77m ambs=0 estgaps=0	Tomoceridae	93.43		Tomoceridae 93.42
77s ambs=1	Tomoceridae	93.51		Tomoceridae 93.42
81f ambs=0 estgaps=0	<i>Lithobius agilis</i>	100	<i>pelidnus</i>	
81m ambs=0 estgaps=0	<i>Lithobius agilis</i>	100	<i>pelidnus</i>	
81s ambs=0	<i>Lithobius agilis</i>	100	<i>pelidnus</i>	
82f ambs=0 estgaps=0	<i>Robertus lividus</i>	97.32		
82m ambs=0 estgaps=0	<i>Robertus lividus</i>	97.32		
82s ambs=0	<i>Robertus lividus</i>	97.32		
83f ambs=0 estgaps=0	Mesostigmata	84.02		Parasitidae 83.77
83m ambs=0 estgaps=0	Mesostigmata	84.02		Parasitidae 83.77
83s ambs=0	Mesostigmata	84.02		Parasitidae 83.77
84f ambs=0 estgaps=0	<i>Lithobius tenebrosus</i>	100	<i>nodulipes</i>	
84m ambs=0 estgaps=0	<i>Lithobius tenebrosus</i>	100	<i>nodulipes</i>	
84s ambs=0	<i>Lithobius tenebrosus</i>	100	<i>nodulipes</i>	
85f ambs=1 estgaps=1	Achipteriidae	88.46		Achipteriidae 83.96
85m ambs=0 estgaps=0	Achipteriidae	88.63		Achipteriidae 83.96
85s ambs=9	Achipteriidae	88.63		Achipteriidae 83.96
86f ambs=0 estgaps=0	Tomoceridae	87.56		Tomoceridae 87.58
86m ambs=0 estgaps=0	Tomoceridae	87.56		Tomoceridae 87.58
86s ambs=1	Tomoceridae	87.56		Tomoceridae 87.58

¹Query ID starts with sample ID (1-86), followed by sequencing approach (f = FLongle, m = MinION, s = Sanger), the number of ambiguities (ambs) and, for the nanopore sequencing approaches, also the number of potential errors (estgaps).

²The best ID not necessarily solely based on the best match, but might include tree-based assignment and considering distribution and habitat preferences of the species sharing a haplotype or BIN (see discussion for specific cases).

³The listed best match, when no species-level identification is possible, is very conservative. We do not necessarily list the closest match on BOLD or GenBank, but the taxonomic level the sample can unambiguously (at least in our opinion, based on similarities to other barcodes on BOLD or GenBank) be assigned to.

⁴The assignment of sample 26 to Arthropoda is highly questionable and likely the result of erroneous data on BOLD