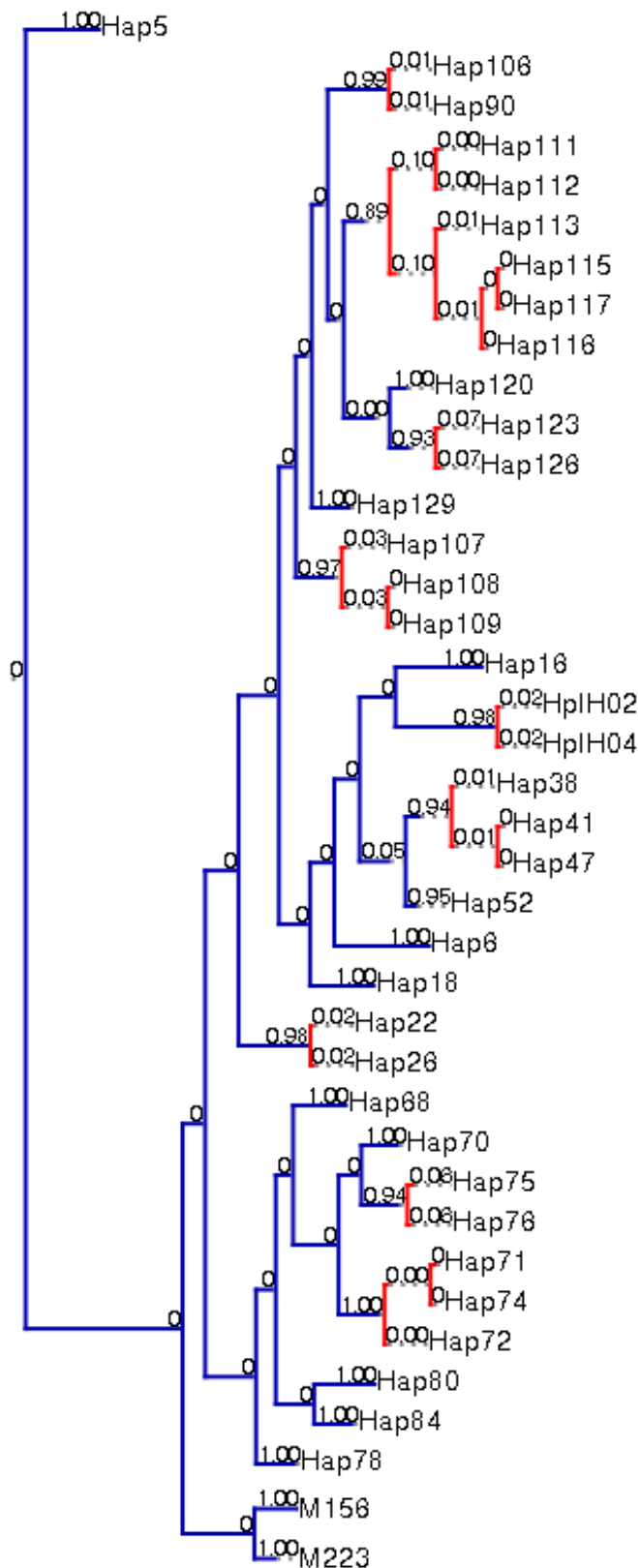


Figure S6. Raw results from bPTP analyses. Monophyletic groups forming species according to the analyses are represented in red on the trees.

bPTP analysis on 28S+COI phylogeny (Fig. 8): [https://species.h-](https://species.h-its.org/ptp/result/?job_id=124210&email=coline.royaux@mnhn.fr)

[its.org/ptp/result/?job_id=124210&email=coline.royaux@mnhn.fr](https://species.h-its.org/ptp/result/?job_id=124210&email=coline.royaux@mnhn.fr)



Maximum likelihood solution:

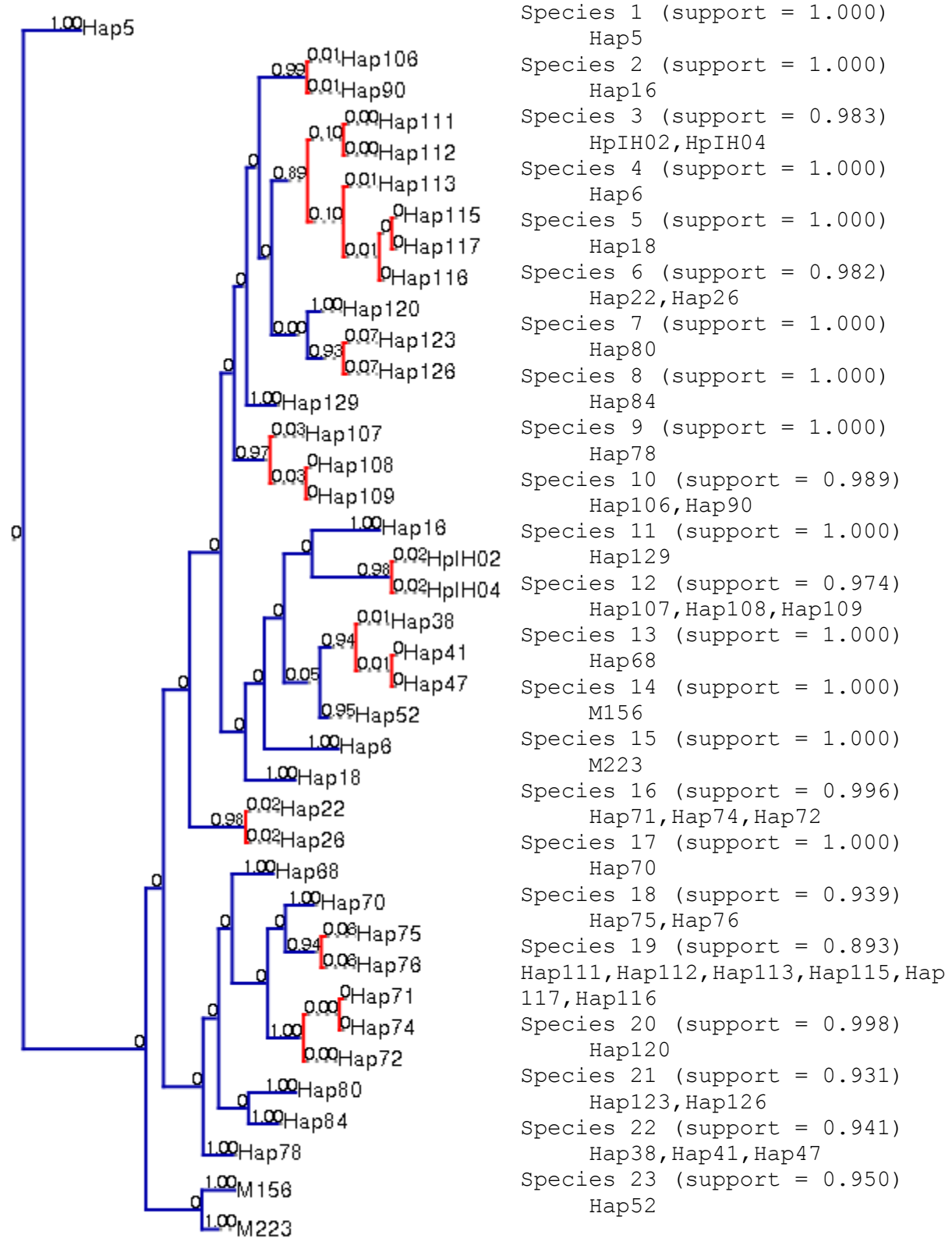
- # Max likilhood partition
- Species 1 (support = 1.000)
Hap5
 - Species 2 (support = 1.000)
Hap16
 - Species 3 (support = 0.983)
HpIH02, HpIH04
 - Species 4 (support = 1.000)
Hap6
 - Species 5 (support = 1.000)
Hap18
 - Species 6 (support = 0.982)
Hap22, Hap26
 - Species 7 (support = 1.000)
Hap80
 - Species 8 (support = 1.000)
Hap84
 - Species 9 (support = 1.000)
Hap78
 - Species 10 (support = 0.989)
Hap106, Hap90
 - Species 11 (support = 1.000)
Hap129
 - Species 12 (support = 0.974)
Hap107, Hap108, Hap109
 - Species 13 (support = 1.000)
Hap68
 - Species 14 (support = 1.000)
M156
 - Species 15 (support = 1.000)
M223
 - Species 16 (support = 0.996)
Hap71, Hap74, Hap72
 - Species 17 (support = 1.000)
Hap70
 - Species 18 (support = 0.939)
Hap75, Hap76
 - Species 19 (support = 0.893)
Hap111, Hap112, Hap113, Hap115, Hap117, Hap116
 - Species 20 (support = 0.998)
Hap120
 - Species 21 (support = 0.931)
Hap123, Hap126

0.10

Species 22 (support = 0.941)
 Hap38, Hap41, Hap47
 Species 23 (support = 0.950)
 Hap52

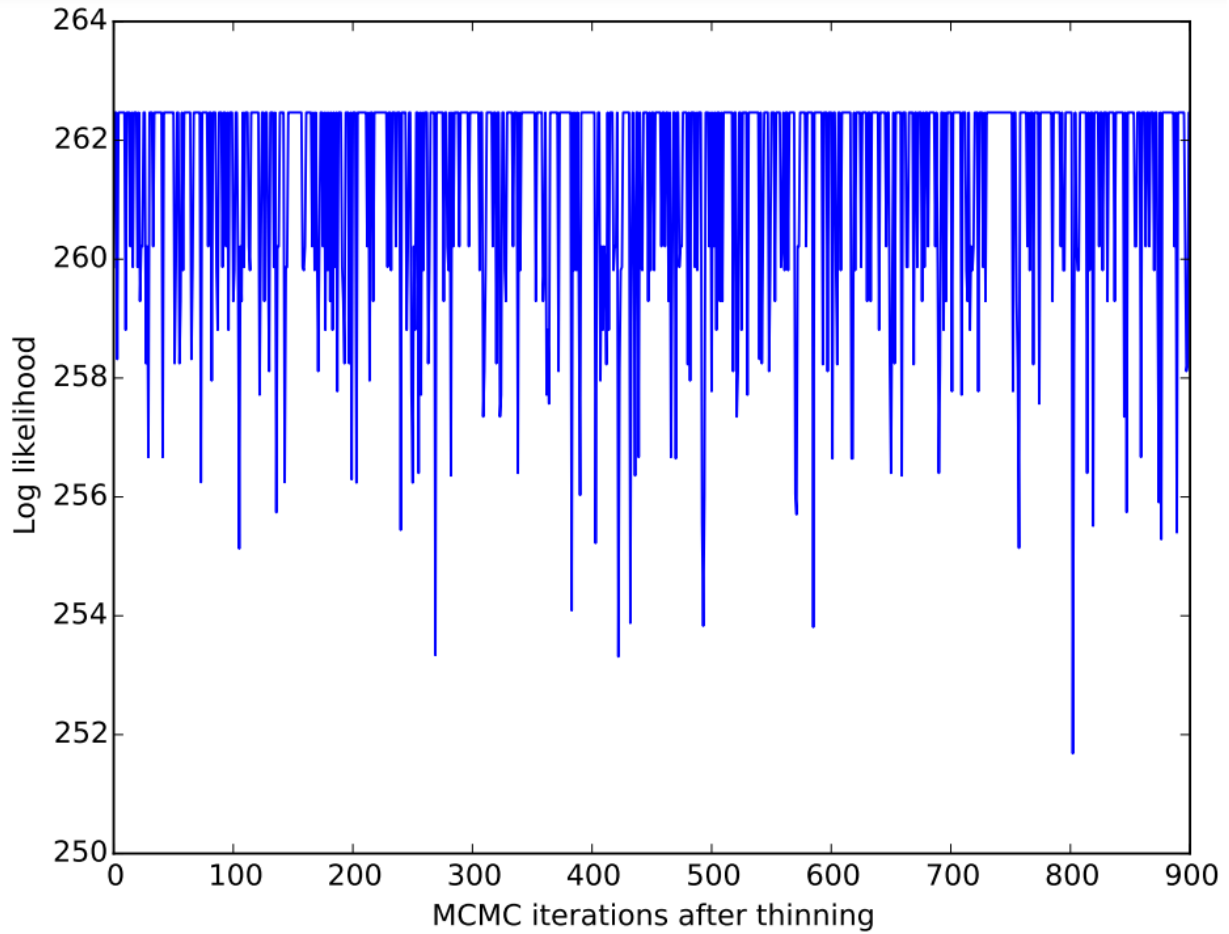
Highest Bayesian supported solution:

Most supported partition found by simple heuristic search



0.10

Likelihood trace plot:



Delimitation summary:

Hap16: 1.000
M223: 1.000
Hap5: 1.000
Hap70: 1.000
M156: 1.000
Hap84: 1.000
Hap6: 1.000
Hap80: 1.000
Hap68: 1.000
Hap78: 1.000
Hap129: 1.000
Hap18: 1.000
Hap120: 0.998
Hap74, Hap72, Hap71: 0.996
Hap106, Hap90: 0.989
HpIH02, HpIH04: 0.983
Hap22, Hap26: 0.982
Hap107, Hap108, Hap109: 0.974
Hap52: 0.950
Hap38, Hap41, Hap47: 0.941
Hap75, Hap76: 0.939
Hap123, Hap126: 0.931
Hap111, Hap112, Hap113, Hap115, Hap117, Hap116: 0.893

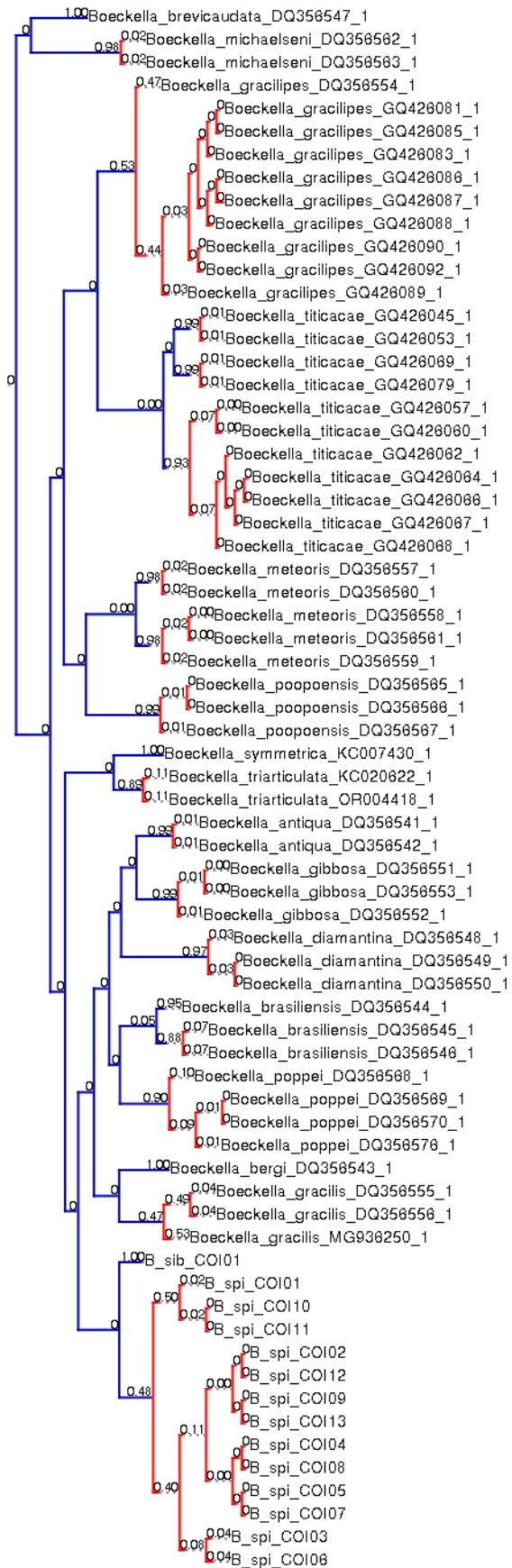
Hap111, Hap112: 0.103
Hap116, Hap113, Hap115, Hap117: 0.100
Hap123: 0.067
Hap126: 0.067
Hap75: 0.061
Hap76: 0.061
Hap38, Hap41, Hap47, Hap52: 0.050
Hap107: 0.026
Hap108, Hap109: 0.026
Hap22: 0.018
Hap26: 0.018
HpIH02: 0.017
HpIH04: 0.017
Hap90: 0.011
Hap106: 0.011
Hap38: 0.009
Hap41, Hap47: 0.009
Hap116, Hap115, Hap117: 0.007
Hap113: 0.007
Hap74, Hap71: 0.004
Hap72: 0.004
Hap111: 0.003
Hap112: 0.003
Hap120, Hap123, Hap126: 0.002

Summary:

Acceptance rate: 0.056259999999999998
Merge: 49924
Split: 50076
Estimated number of species is between 22 and 26
Mean: 23.28

bPTP analysis on COI phylogeny (Fig. S5): https://species.hits.org/ptp/result/?job_id=124367&email=coline.royaux@mnhn.fr

Maximum likelihood solution:



- # Max likilhood partition
- Species 1 (support = 1.000)
Boeckella_brevicaudata_DQ356547_1
- Species 2 (support = 0.982)
Boeckella_michaelseni_DQ356562_1, Boeckella_michaelseni_DQ356563_1
- Species 3 (support = 0.973)
Boeckella_diamantina_DQ356548_1, Boeckella_diamantina_DQ356549_1, Boeckella_diamantina_DQ356550_1
- Species 4 (support = 0.992)
Boeckella_poopoensis_DQ356565_1, Boeckella_poopoensis_DQ356566_1, Boeckella_poopoensis_DQ356567_1
- Species 5 (support = 0.535)
Boeckella_gracilipes_DQ356554_1, Boeckella_gracilipes_GQ426081_1, Boeckella_gracilipes_GQ426085_1, Boeckella_gracilipes_GQ426083_1, Boeckella_gracilipes_GQ426086_1, Boeckella_gracilipes_GQ426087_1, Boeckella_gracilipes_GQ426088_1, Boeckella_gracilipes_GQ426090_1, Boeckella_gracilipes_GQ426092_1
- Species 6 (support = 1.000)
Boeckella_bergi_DQ356543_1
- Species 7 (support = 0.469)
Boeckella_gracilis_DQ356555_1, Boeckella_gracilis_DQ356556_1, Boeckella_gracilis_MG936250_1
- Species 8 (support = 1.000)
Boeckella_symmetrica_KC007430_1
- Species 9 (support = 0.889)
Boeckella_triarticulata_KC020622_1, Boeckella_triarticulata_OR004418_1
- Species 10 (support = 0.900)
Boeckella_poppei_DQ356568_1, Boeckella_poppei_DQ356569_1, Boeckella

_poppei_DQ356570_1,Boeckella_poppei_DQ356576_1

Species 11 (support = 0.990)

Boeckella_antiqua_DQ356541_1,Boeckella_antiqua_DQ356542_1

Species 12 (support = 0.990)

Boeckella_gibbosa_DQ356551_1,Boeckella_gibbosa_DQ356553_1,Boeckella_gibbosa_DQ356552_1

Species 13 (support = 1.000)

B_sib_COI01

Species 14 (support = 0.483)

B_spi_COI01,B_spi_COI10,B_spi_COI11,B_spi_COI02,B_spi_COI12,B_spi_COI09,B_spi_COI13,B_spi_COI04,B_spi_COI08,B_spi_COI05,B_spi_COI07,B_spi_COI03,B_spi_COI06

Species 15 (support = 0.987)

Boeckella_titicacae_GQ426045_1,Boeckella_titicacae_GQ426053_1

Species 16 (support = 0.990)

Boeckella_titicacae_GQ426069_1,Boeckella_titicacae_GQ426079_1

Species 17 (support = 0.926)

Boeckella_titicacae_GQ426057_1,Boeckella_titicacae_GQ426060_1,Boeckella_titicacae_GQ426062_1,Boeckella_titicacae_GQ426064_1,Boeckella_titicacae_GQ426066_1,Boeckella_titicacae_GQ426067_1,Boeckella_titicacae_GQ426068_1

Species 18 (support = 0.981)

Boeckella_meteoris_DQ356557_1,Boeckella_meteoris_DQ356560_1

Species 19 (support = 0.976)

Boeckella_meteoris_DQ356558_1,Boeckella_meteoris_DQ356561_1,Boeckella_meteoris_DQ356559_1

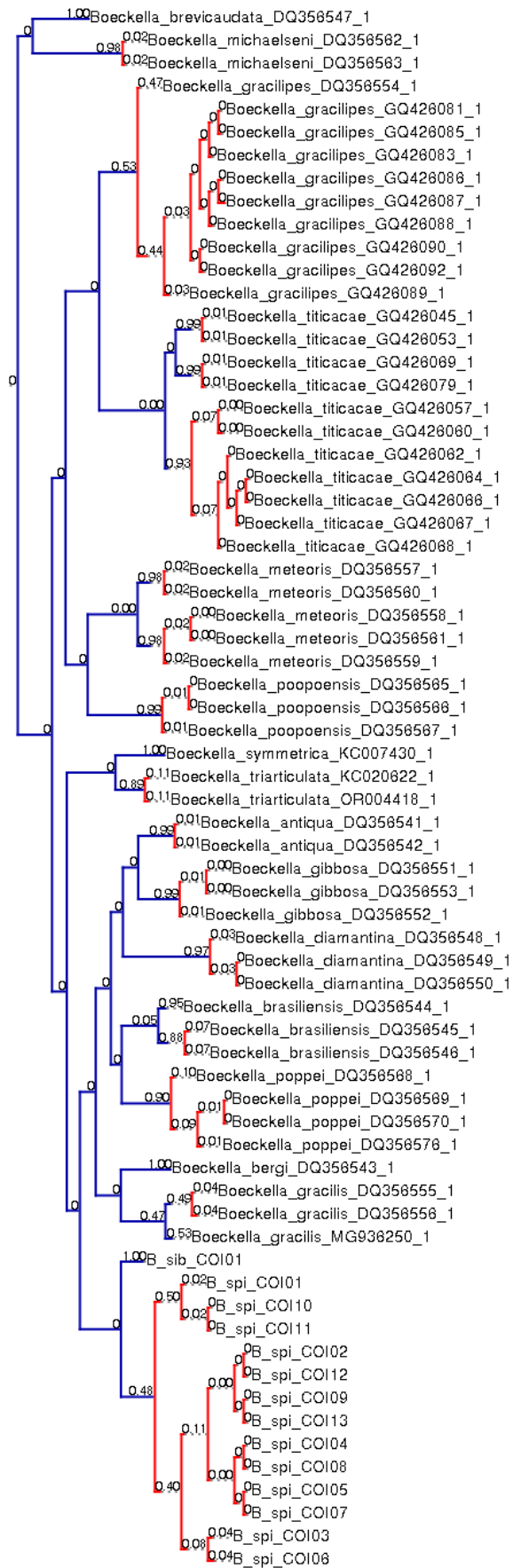
Species 20 (support = 0.949)

Boeckella_brasiliensis_DQ356544_1

Species 21 (support = 0.879)

Boeckella_brasiliensis_DQ356545_1,Boeckella_brasiliensis_DQ356546_1

Highest Bayesian supported solution:



- # Most supported partition found by simple heuristic search
- Species 1 (support = 1.000)
*Boeckella_brevicaudata*_DQ356547_1
- Species 2 (support = 0.982)
*Boeckella_michaelseni*_DQ356562_1,*Boeckella_michaelseni*_DQ356563_1
- Species 3 (support = 0.973)
*Boeckella_diamantina*_DQ356548_1,*Boeckella_diamantina*_DQ356549_1,*Boeckella_diamantina*_DQ356550_1
- Species 4 (support = 0.992)
*Boeckella_poopoensis*_DQ356565_1,*Boeckella_poopoensis*_DQ356566_1,*Boeckella_poopoensis*_DQ356567_1
- Species 5 (support = 0.535)
*Boeckella_gracilipes*_DQ356554_1,*Boeckella_gracilipes*_GQ426081_1,*Boeckella_gracilipes*_GQ426085_1,*Boeckella_gracilipes*_GQ426083_1,*Boeckella_gracilipes*_GQ426086_1,*Boeckella_gracilipes*_GQ426087_1,*Boeckella_gracilipes*_GQ426088_1,*Boeckella_gracilipes*_GQ426090_1,*Boeckella_gracilipes*_GQ426092_1,*Boeckella_gracilipes*_GQ426089_1
- Species 6 (support = 1.000)
*Boeckella_bergi*_DQ356543_1
- Species 7 (support = 1.000)
*Boeckella_symmetrica*_KC007430_1
- Species 8 (support = 0.889)
*Boeckella_triarticulata*_KC020622_1,*Boeckella_triarticulata*_OR004418_1
- Species 9 (support = 0.900)
*Boeckella_poppei*_DQ356568_1,*Boeckella_poppei*_DQ356569_1,*Boeckella_poppei*_DQ356570_1,*Boeckella_poppei*_DQ356576_1
- Species 10 (support = 0.990)

Boeckella_antiqua_DQ356541_1,Boeckella_antiqua_DQ356542_1

Species 11 (support = 0.990)
Boeckella_gibbosa_DQ356551_1,Boeckella_gibbosa_DQ356553_1,Boeckella_gibbosa_DQ356552_1

Species 12 (support = 1.000)
B_sib_COI01

Species 13 (support = 0.483)
B_spi_COI01,B_spi_COI10,B_spi_COI11,B_spi_COI02,B_spi_COI12,B_spi_COI09,B_spi_COI13,B_spi_COI04,B_spi_COI08,B_spi_COI05,B_spi_COI07,B_spi_COI03,B_spi_COI06

Species 14 (support = 0.987)
Boeckella_titicacae_GQ426045_1,Boeckella_titicacae_GQ426053_1

Species 15 (support = 0.990)
Boeckella_titicacae_GQ426069_1,Boeckella_titicacae_GQ426079_1

Species 16 (support = 0.926)
Boeckella_titicacae_GQ426057_1,Boeckella_titicacae_GQ426060_1,Boeckella_titicacae_GQ426062_1,Boeckella_titicacae_GQ426064_1,Boeckella_titicacae_GQ426066_1,Boeckella_titicacae_GQ426067_1,Boeckella_titicacae_GQ426068_1

Species 17 (support = 0.981)
Boeckella_meteoris_DQ356557_1,Boeckella_meteoris_DQ356560_1

Species 18 (support = 0.976)
Boeckella_meteoris_DQ356558_1,Boeckella_meteoris_DQ356561_1,Boeckella_meteoris_DQ356559_1

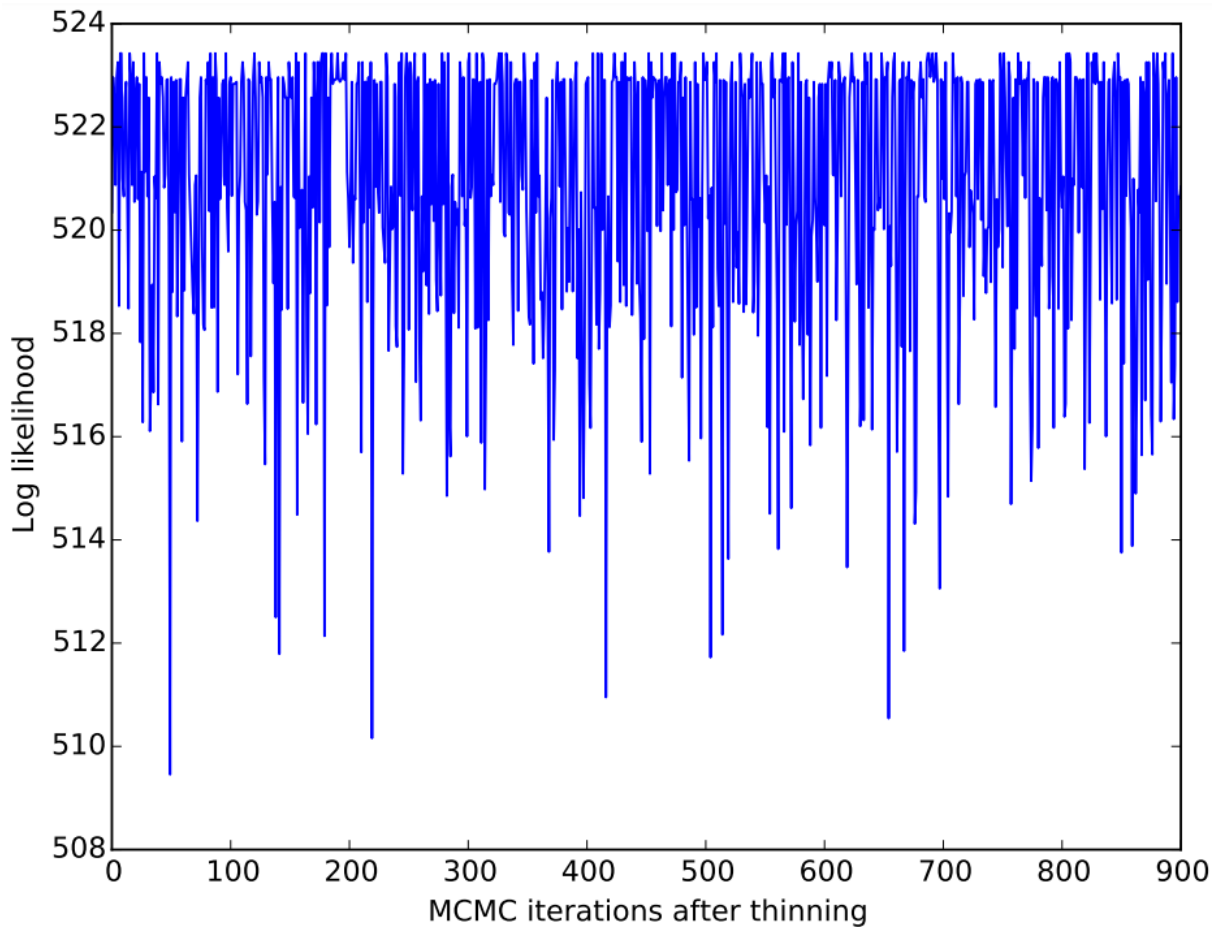
Species 19 (support = 0.949)
Boeckella_brasiliensis_DQ356544_1

Species 20 (support = 0.879)
Boeckella_brasiliensis_DQ356545_1,Boeckella_brasiliensis_DQ356546_1

Species 21 (support = 0.489)
Boeckella_gracilis_DQ356555_1,Boeckella_gracilis_DQ356556_1

Species 22 (support = 0.531)
Boeckella_gracilis_MG936250_1

Likelihood trace plot:



Delimitation summary:

```
Boeckella_bergi_DQ356543_1: 1.000
  B_sib_COI01: 1.000
  Boeckella_brevicaudata_DQ356547_1: 1.000
  Boeckella_symmetrica_KC007430_1: 1.000
  Boeckella_poopoensis_DQ356565_1, Boeckella_poopoensis_DQ356566_1,
Boeckella_poopoensis_DQ356567_1: 0.992
  Boeckella_antiqua_DQ356541_1, Boeckella_antiqua_DQ356542_1: 0.990
  Boeckella_gibbosa_DQ356551_1, Boeckella_gibbosa_DQ356553_1,
Boeckella_gibbosa_DQ356552_1: 0.990
  Boeckella_titicacae_GQ426069_1, Boeckella_titicacae_GQ426079_1:
0.990
  Boeckella_titicacae_GQ426045_1, Boeckella_titicacae_GQ426053_1:
0.987
  Boeckella_michaelseni_DQ356562_1, Boeckella_michaelseni_DQ356563_1:
0.982
  Boeckella_meteoris_DQ356557_1, Boeckella_meteoris_DQ356560_1: 0.981
  Boeckella_meteoris_DQ356559_1, Boeckella_meteoris_DQ356558_1,
Boeckella_meteoris_DQ356561_1: 0.976
  Boeckella_diamantina_DQ356550_1, Boeckella_diamantina_DQ356548_1,
Boeckella_diamantina_DQ356549_1: 0.973
  Boeckella_brasiliensis_DQ356544_1: 0.949
  Boeckella_titicacae_GQ426057_1, Boeckella_titicacae_GQ426060_1,
Boeckella_titicacae_GQ426062_1, Boeckella_titicacae_GQ426064_1,
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Boeckella_titicacae_GQ426066_1, Boeckella_titicacae_GQ426067_1,
 Boeckella_titicacae_GQ426068_1: 0.926
 Boeckella_poppei_DQ356568_1, Boeckella_poppei_DQ356569_1,
 Boeckella_poppei_DQ356570_1, Boeckella_poppei_DQ356576_1: 0.900
 Boeckella_triarticulata_KC020622_1,
 Boeckella_triarticulata_OR004418_1: 0.889
 Boeckella_brasiliensis_DQ356545_1,
 Boeckella_brasiliensis_DQ356546_1: 0.879
 Boeckella_gracilipes_GQ426089_1, Boeckella_gracilipes_DQ356554_1,
 Boeckella_gracilipes_GQ426081_1, Boeckella_gracilipes_GQ426085_1,
 Boeckella_gracilipes_GQ426083_1, Boeckella_gracilipes_GQ426086_1,
 Boeckella_gracilipes_GQ426087_1, Boeckella_gracilipes_GQ426088_1,
 Boeckella_gracilipes_GQ426090_1, Boeckella_gracilipes_GQ426092_1:
 0.535
 Boeckella_gracilis_MG936250_1: 0.531
 B_spi_COI10, B_spi_COI11, B_spi_COI01: 0.499
 Boeckella_gracilis_DQ356555_1, Boeckella_gracilis_DQ356556_1: 0.489
 B_spi_COI05, B_spi_COI07, B_spi_COI03, B_spi_COI06, B_spi_COI01,
 B_spi_COI10, B_spi_COI11, B_spi_COI02, B_spi_COI12, B_spi_COI09,
 B_spi_COI13, B_spi_COI04, B_spi_COI08: 0.483
 Boeckella_gracilis_DQ356555_1, Boeckella_gracilis_DQ356556_1,
 Boeckella_gracilis_MG936250_1: 0.469
 Boeckella_gracilipes_DQ356554_1: 0.465
 Boeckella_gracilipes_GQ426089_1, Boeckella_gracilipes_GQ426081_1,
 Boeckella_gracilipes_GQ426085_1, Boeckella_gracilipes_GQ426083_1,
 Boeckella_gracilipes_GQ426086_1, Boeckella_gracilipes_GQ426087_1,
 Boeckella_gracilipes_GQ426088_1, Boeckella_gracilipes_GQ426090_1,
 Boeckella_gracilipes_GQ426092_1: 0.435
 B_spi_COI05, B_spi_COI07, B_spi_COI03, B_spi_COI06, B_spi_COI02,
 B_spi_COI12, B_spi_COI09, B_spi_COI13, B_spi_COI04, B_spi_COI08:
 0.403
 Boeckella_triarticulata_OR004418_1: 0.111
 Boeckella_triarticulata_KC020622_1: 0.111
 B_spi_COI05, B_spi_COI07, B_spi_COI02, B_spi_COI12, B_spi_COI09,
 B_spi_COI13, B_spi_COI04, B_spi_COI08: 0.110
 Boeckella_poppei_DQ356568_1: 0.100
 Boeckella_poppei_DQ356569_1, Boeckella_poppei_DQ356570_1,
 Boeckella_poppei_DQ356576_1: 0.090
 B_spi_COI03, B_spi_COI06: 0.078
 Boeckella_titicacae_GQ426064_1, Boeckella_titicacae_GQ426066_1,
 Boeckella_titicacae_GQ426067_1, Boeckella_titicacae_GQ426068_1,
 Boeckella_titicacae_GQ426062_1: 0.073
 Boeckella_titicacae_GQ426057_1, Boeckella_titicacae_GQ426060_1:
 0.071
 Boeckella_brasiliensis_DQ356545_1: 0.070
 Boeckella_brasiliensis_DQ356546_1: 0.070
 Boeckella_brasiliensis_DQ356544_1,
 Boeckella_brasiliensis_DQ356545_1,
 Boeckella_brasiliensis_DQ356546_1: 0.051
 Boeckella_gracilis_DQ356555_1: 0.041
 Boeckella_gracilis_DQ356556_1: 0.041
 B_spi_COI03: 0.037
 B_spi_COI06: 0.037
 Boeckella_gracilipes_GQ426089_1: 0.030
 Boeckella_gracilipes_GQ426081_1, Boeckella_gracilipes_GQ426085_1,
 Boeckella_gracilipes_GQ426083_1, Boeckella_gracilipes_GQ426086_1,

Boeckella_gracilipes_GQ426087_1, Boeckella_gracilipes_GQ426088_1,
 Boeckella_gracilipes_GQ426090_1, Boeckella_gracilipes_GQ426092_1:
 0.030
 Boeckella_diamantina_DQ356550_1, Boeckella_diamantina_DQ356549_1:
 0.027
 Boeckella_diamantina_DQ356548_1: 0.027
 Boeckella_meteoris_DQ356559_1: 0.023
 Boeckella_meteoris_DQ356558_1, Boeckella_meteoris_DQ356561_1: 0.022
 Boeckella_michaelseni_DQ356562_1: 0.018
 Boeckella_michaelseni_DQ356563_1: 0.018
 Boeckella_meteoris_DQ356557_1: 0.018
 B_spi_COI01: 0.018
 Boeckella_meteoris_DQ356560_1: 0.018
 B_spi_COI10, B_spi_COI11: 0.018
 Boeckella_titicacae_GQ426045_1: 0.012
 Boeckella_titicacae_GQ426053_1: 0.012
 Boeckella_gibbosa_DQ356552_1: 0.010
 Boeckella_antiqua_DQ356542_1: 0.010
 Boeckella_antiqua_DQ356541_1: 0.010
 Boeckella_poppei_DQ356576_1: 0.010
 Boeckella_poppei_DQ356569_1, Boeckella_poppei_DQ356570_1: 0.010
 Boeckella_gibbosa_DQ356551_1, Boeckella_gibbosa_DQ356553_1: 0.009
 Boeckella_titicacae_GQ426069_1: 0.009
 Boeckella_titicacae_GQ426079_1: 0.009
 Boeckella_poopoensis_DQ356565_1, Boeckella_poopoensis_DQ356566_1:
 0.008
 Boeckella_poopoensis_DQ356567_1: 0.008
 B_spi_COI05, B_spi_COI07, B_spi_COI04, B_spi_COI08: 0.004
 B_spi_COI02, B_spi_COI12, B_spi_COI09, B_spi_COI13: 0.004
 Boeckella_titicacae_GQ426060_1: 0.002
 Boeckella_titicacae_GQ426057_1: 0.002
 Boeckella_meteoris_DQ356559_1, Boeckella_meteoris_DQ356557_1,
 Boeckella_meteoris_DQ356560_1, Boeckella_meteoris_DQ356558_1,
 Boeckella_meteoris_DQ356561_1: 0.001
 Boeckella_meteoris_DQ356561_1: 0.001
 Boeckella_titicacae_GQ426045_1, Boeckella_titicacae_GQ426053_1,
 Boeckella_titicacae_GQ426069_1, Boeckella_titicacae_GQ426079_1,
 Boeckella_titicacae_GQ426057_1, Boeckella_titicacae_GQ426060_1,
 Boeckella_titicacae_GQ426062_1, Boeckella_titicacae_GQ426064_1,
 Boeckella_titicacae_GQ426066_1, Boeckella_titicacae_GQ426067_1,
 Boeckella_titicacae_GQ426068_1: 0.001
 Boeckella_gibbosa_DQ356551_1: 0.001
 Boeckella_gibbosa_DQ356553_1: 0.001
 Boeckella_meteoris_DQ356558_1: 0.001

Summary:

Acceptance rate: 0.16483999999999999
 Merge: 49921
 Split: 50079
 Estimated number of species is between 20 and 30
 Mean: 23.21