

Armillaria phylogeny

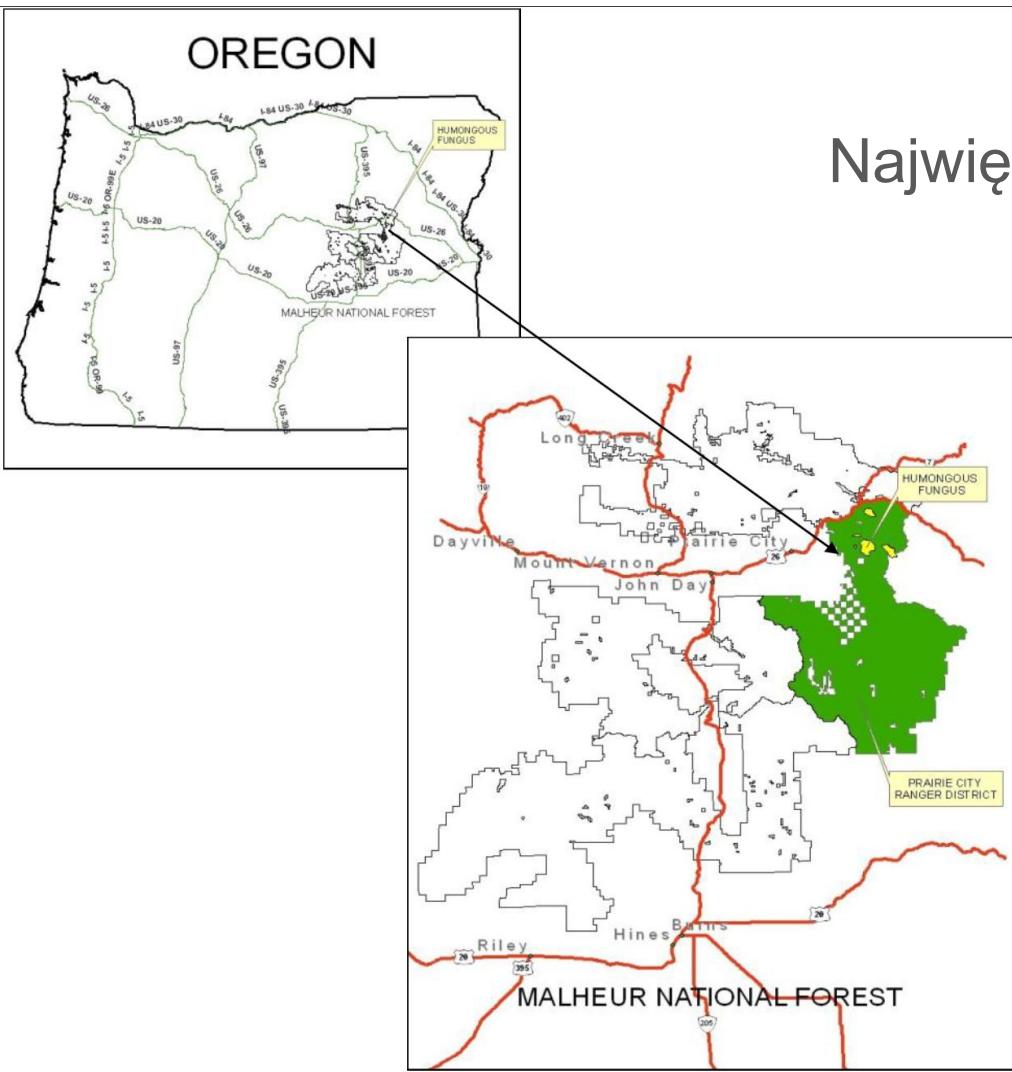


A close-up photograph of a cluster of bright yellow mushrooms, likely Kuehneromyces mutabilis, growing on a fallen log in a forest. The mushrooms have shiny, rounded caps and thick, brownish-yellow stems. They are surrounded by fallen autumn leaves and green moss. The background is blurred, showing more of the forest floor.

Czemu opieńka?







Największe żywe organizmy

Osobnik w Oregonie zajmuje ponad 3 mile kwadratowe i ma 8 tysięcy lat

Clonal evolution and genome stability in a 2500-year-old fungal individual

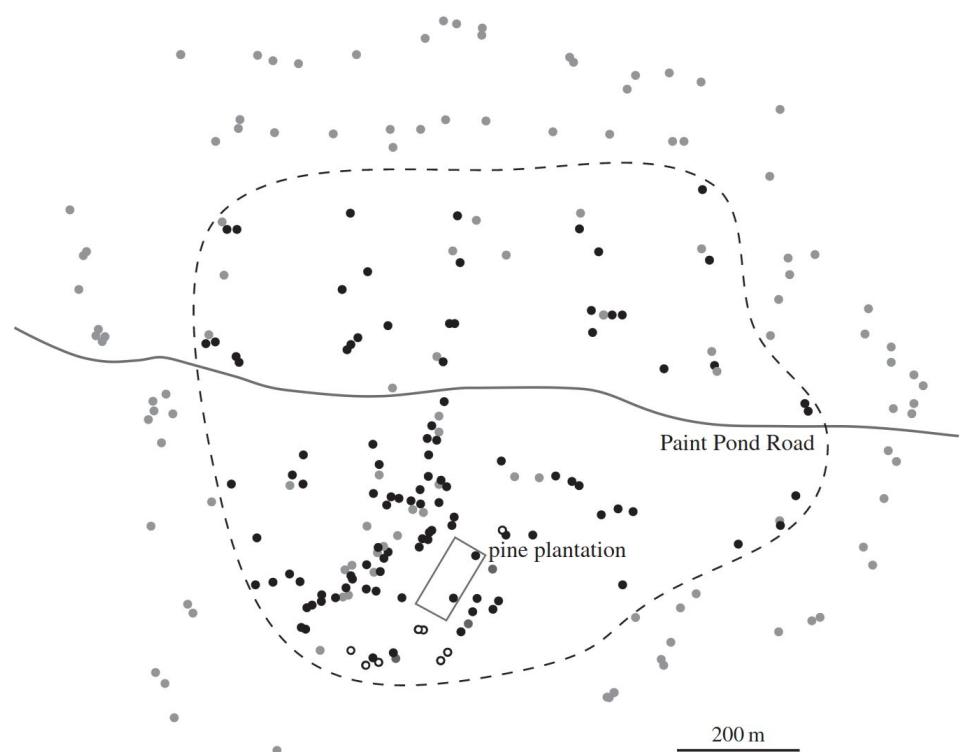
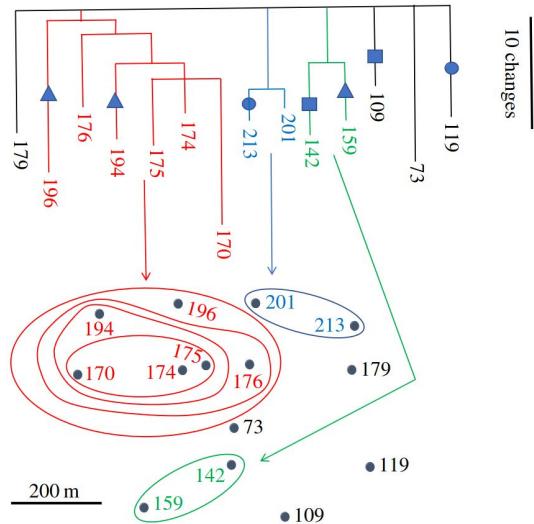
James B. Anderson¹, Johann N. Bruhn², Dahlia Kasimer¹, Hao Wang^{3,4},
Nicolas Rodrigue^{3,4} and Myron L. Smith³

¹Department of Biology, University of Toronto, Mississauga, Ontario, Canada L5 L 1C6

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ID JBA, 0000-0001-7332-8435; JNB, 0000-0002-3469-2522



Clonal evolution and genome stability in a 2500-year-old fungal individual

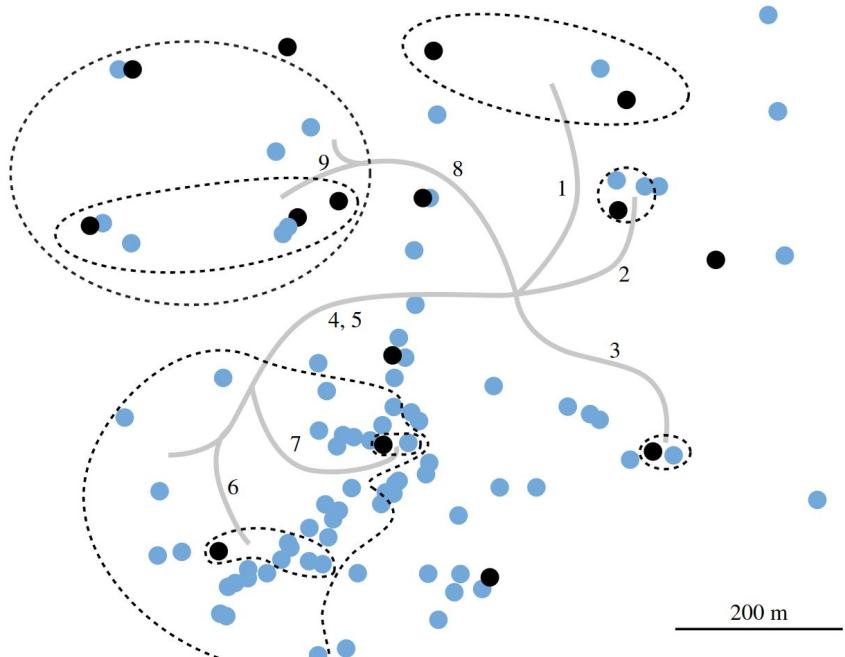
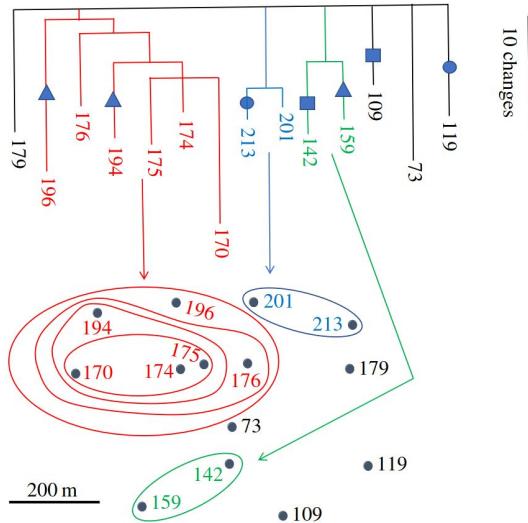
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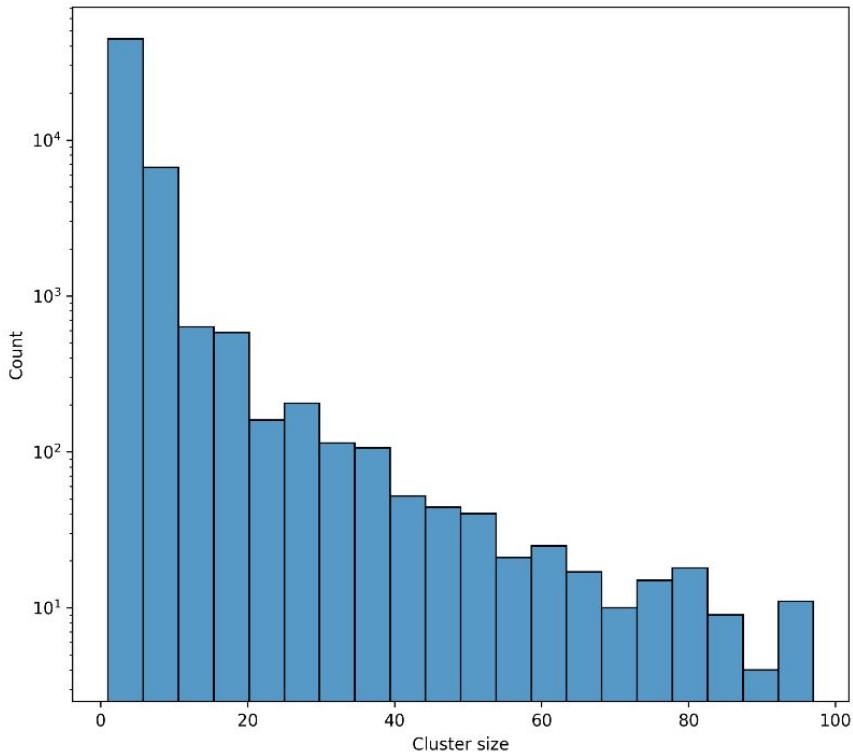
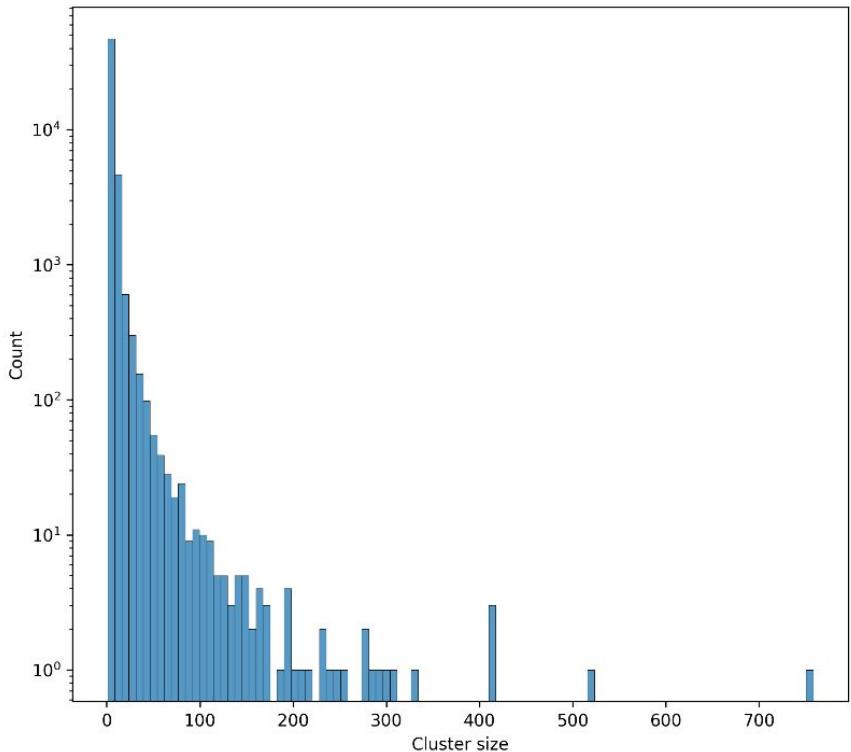


9 gatunków z dostępnymi w NCBI anotacjami genów kodujących białka

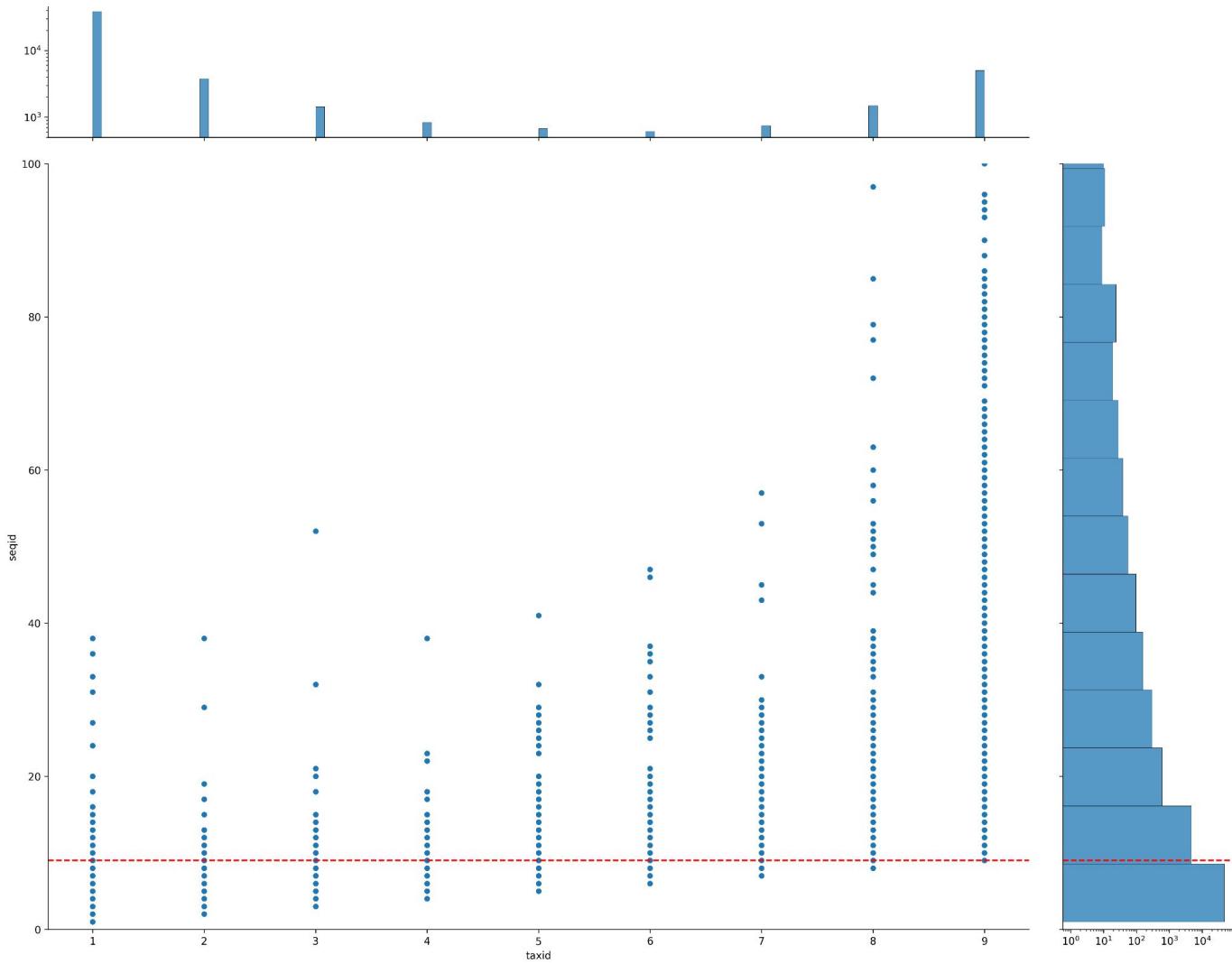
<i>Armillaria borealis</i>	GCA_030435635.1
<i>Armillaria mellea</i>	GCA_030407055.1
<i>Armillaria fumosa</i>	GCA_030407015.1
<i>Armillaria nabsnona</i>	GCA_030407065.1
<i>Armillaria luteobubalina</i>	GCA_030435615.1
<i>Armillaria novae-zelandiae</i>	GCA_030435655.1
<i>Armillaria ostoyae</i>	GCA_900157425.1
<i>Armillaria gallica</i>	GCA_002307695.1
<i>Armillaria solidipes</i>	GCA_002307675.1

Wyniki

Klastrowanie sekwencji (mmseqs2)



Klastrowanie sekwencji (mmseqs2)



Do konstrukcji drzew wybrano 3140 klastrów

Tylko klastry które:

- miały dokładnie 9 sekwencji
- miały dokładnie jedną sekwencję z każdego gatunku

Wykluczono więc klastry zawierające paralogi.

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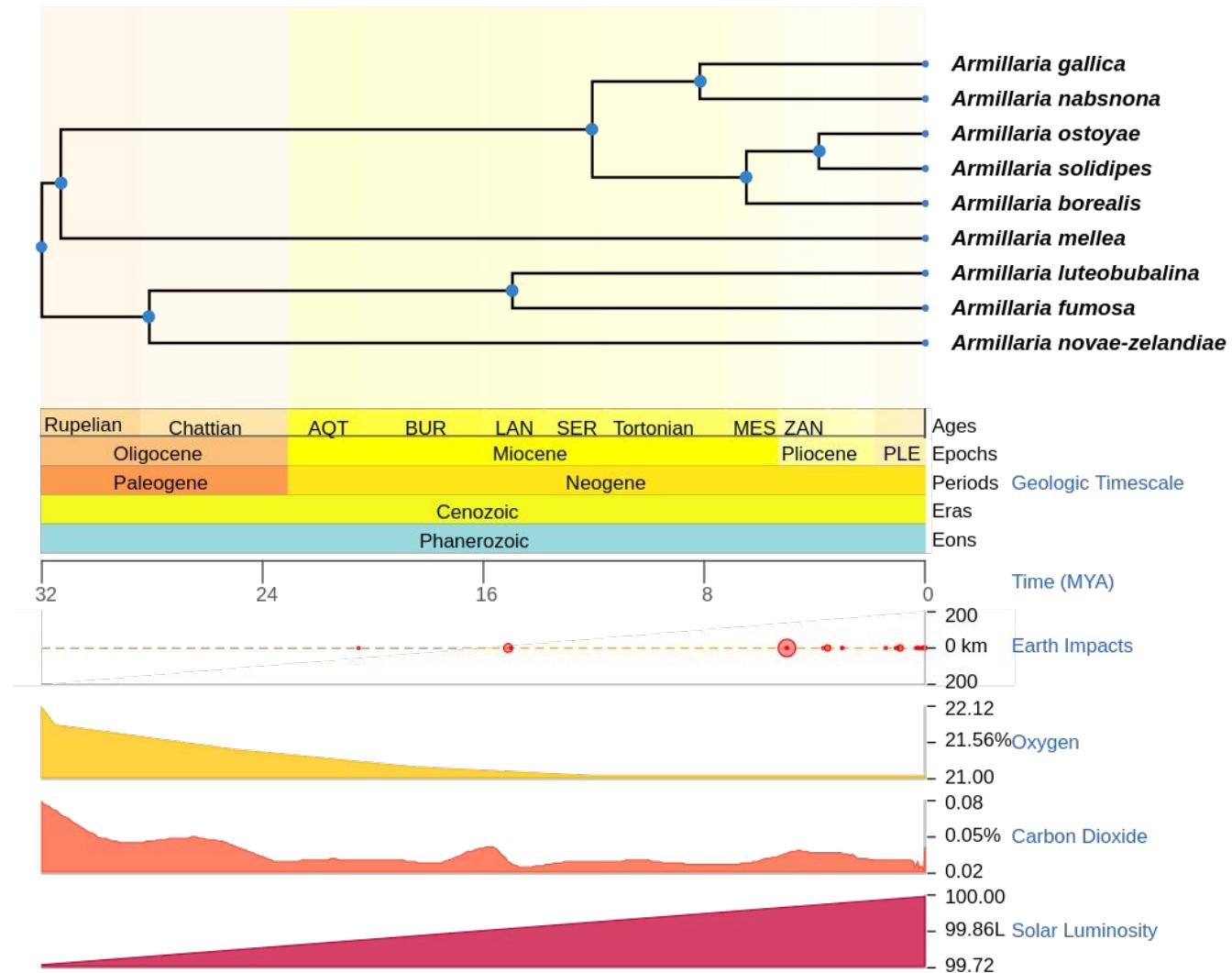
Multiuliniowienie (mafft)

- 1000 iteracji
- uliniowienie globalne

Konstrukcja drzew ML rodzin białek (raxml-ng)

- 20 drzew startowych (10 losowych i 10 o drzew MP)
- 100 bootstrapów do wykorzystania przy filtrowaniu drzew później
- model: LG+G8+F

Timetree

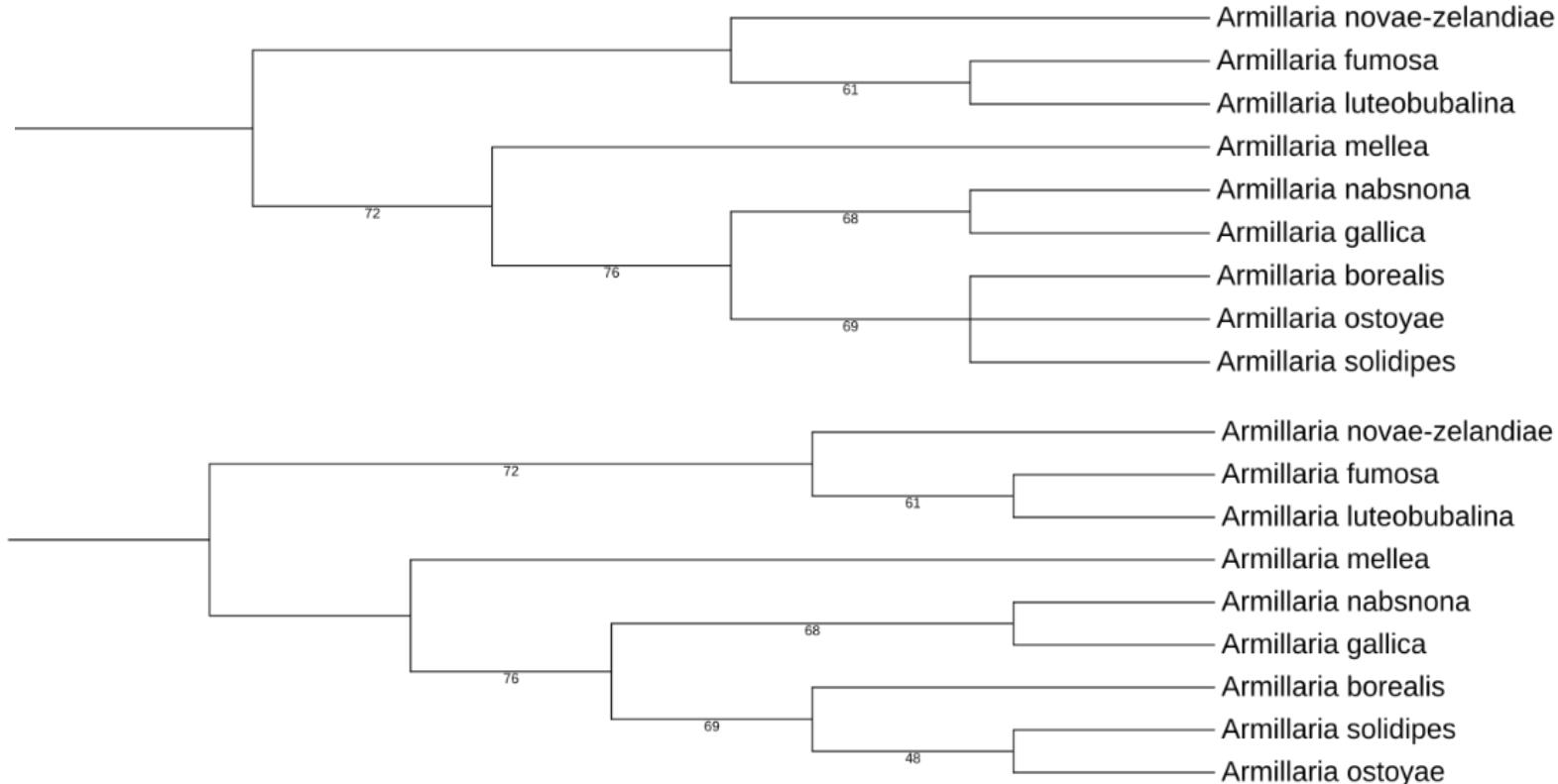


Drzewa konsensusowe (raxml-ng)

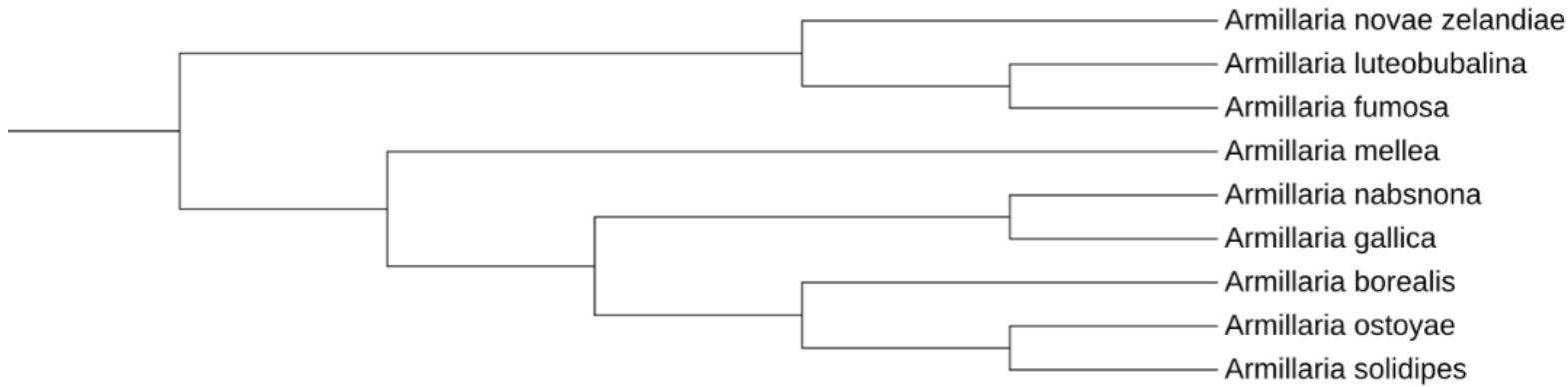
Dwa warianty:

- majority rule consensus (0.5)
- majority rule consensus with greedy heuristic

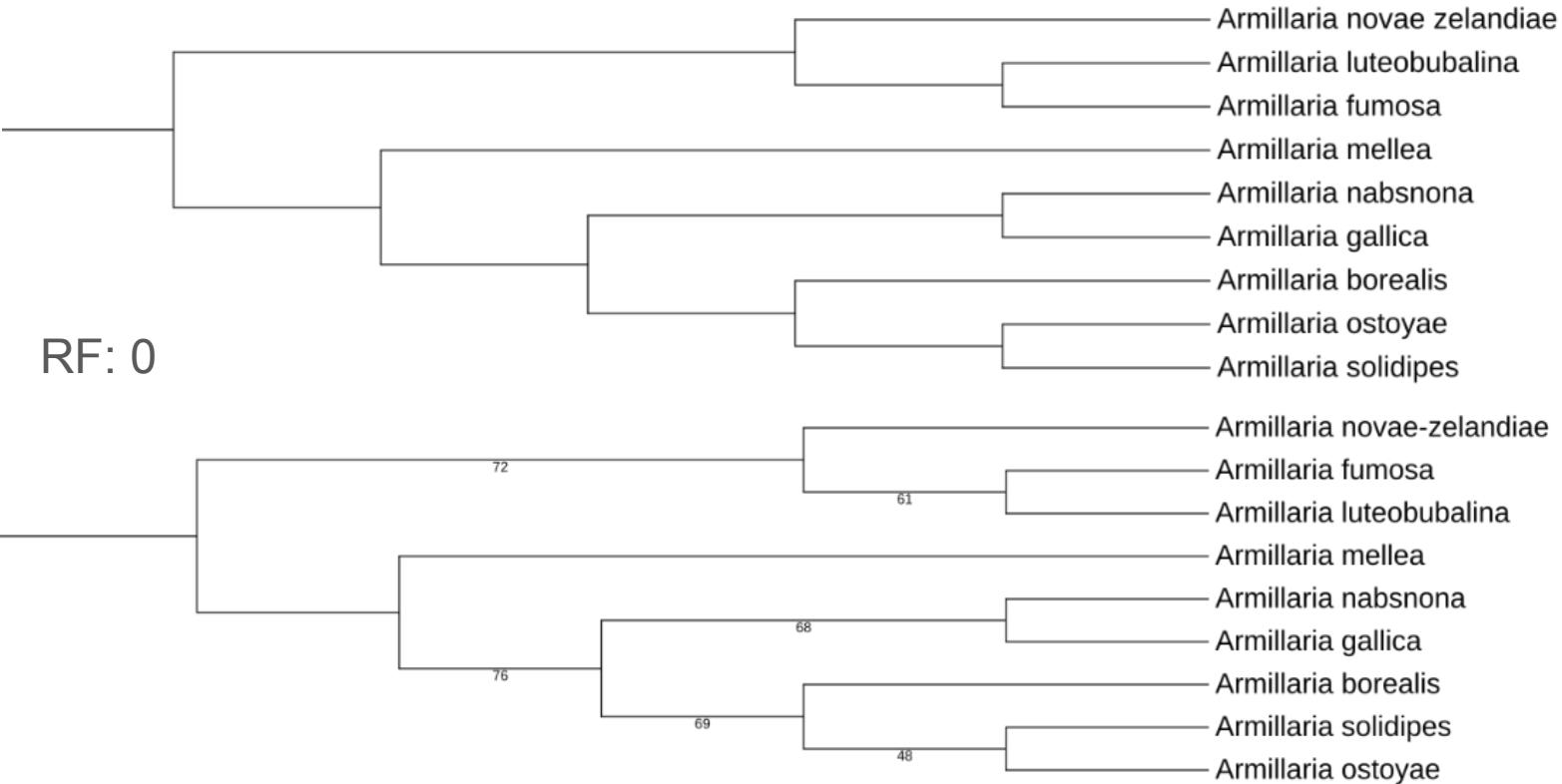
Drzewa konsensusowe (raxml-ng)



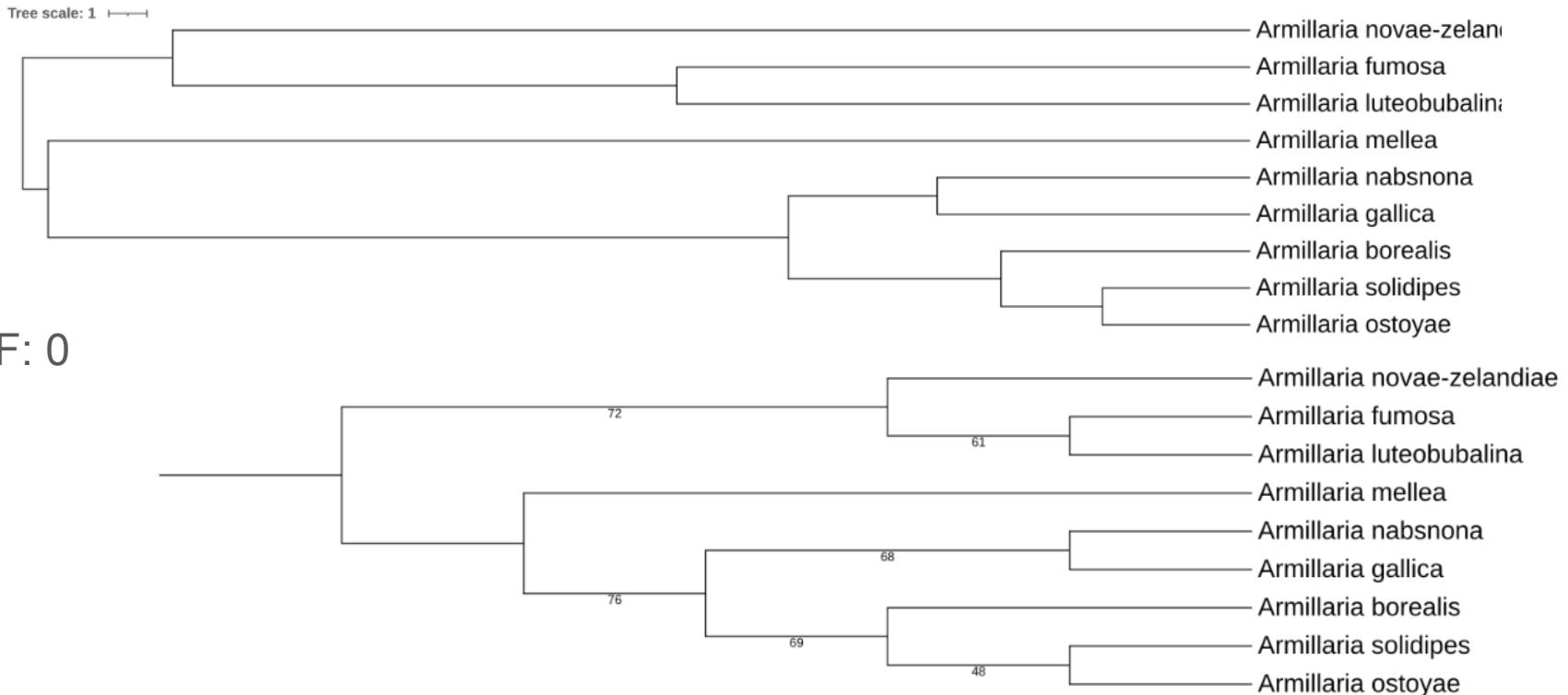
Superdrzewa (duptree)

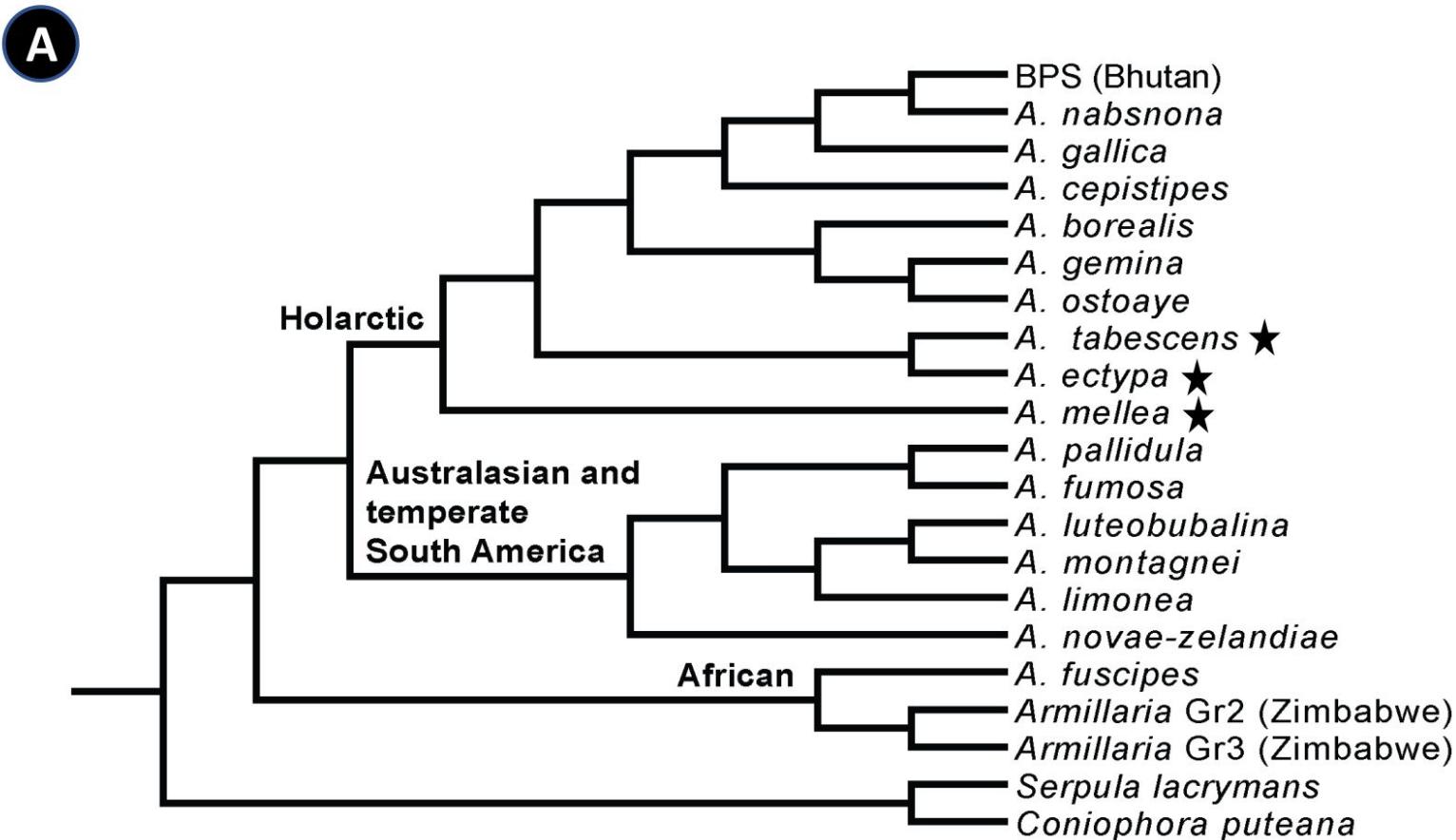


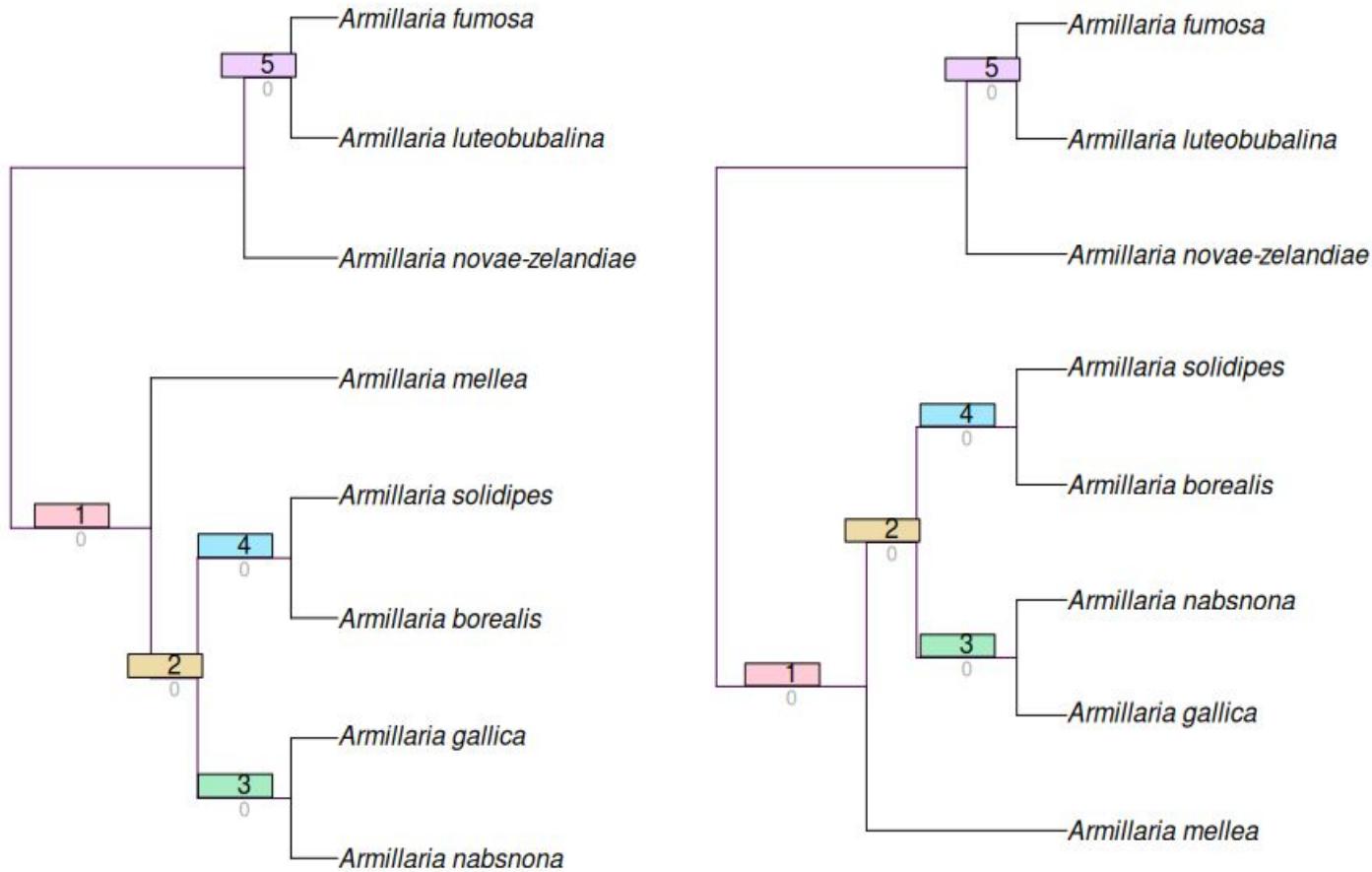
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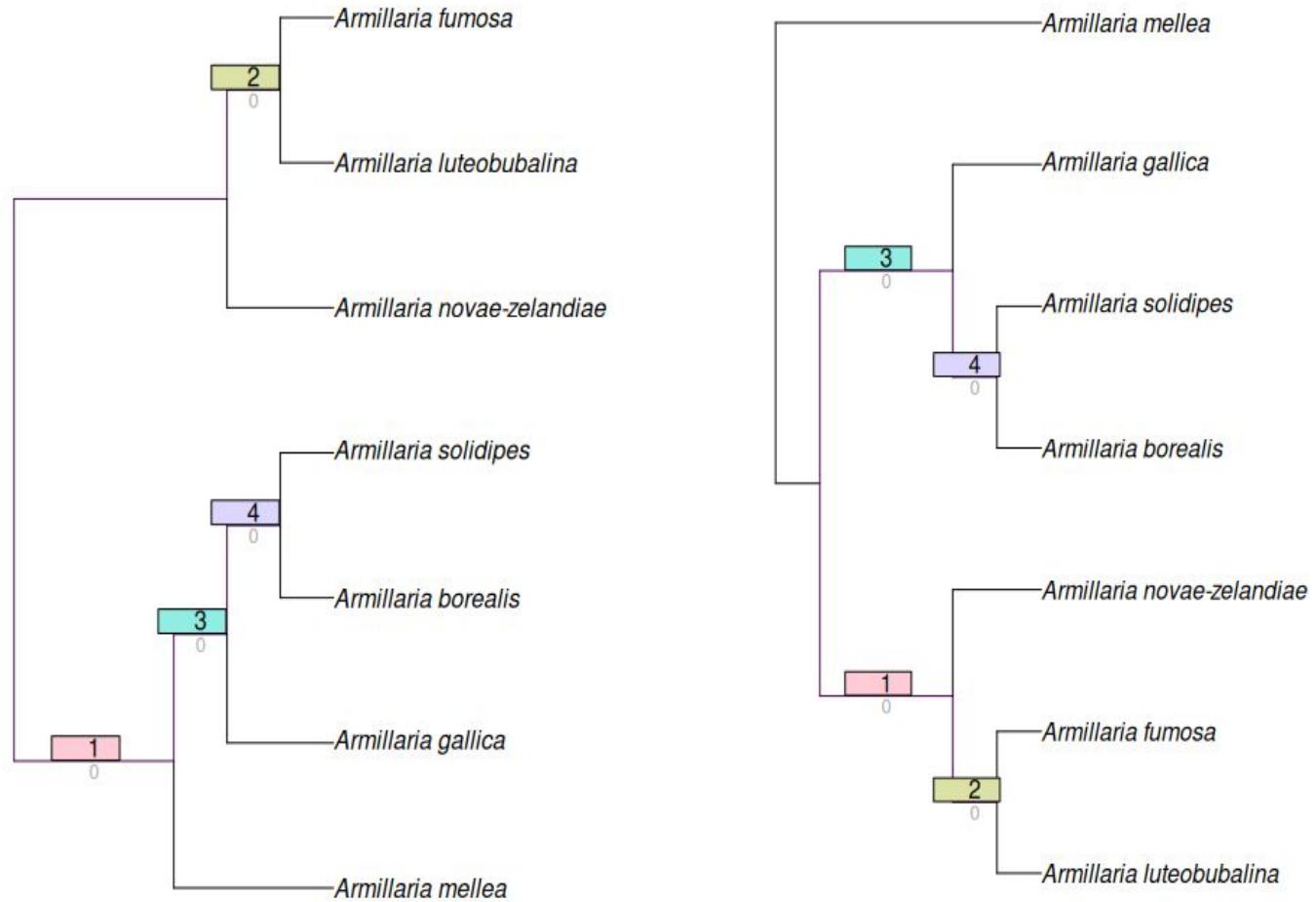


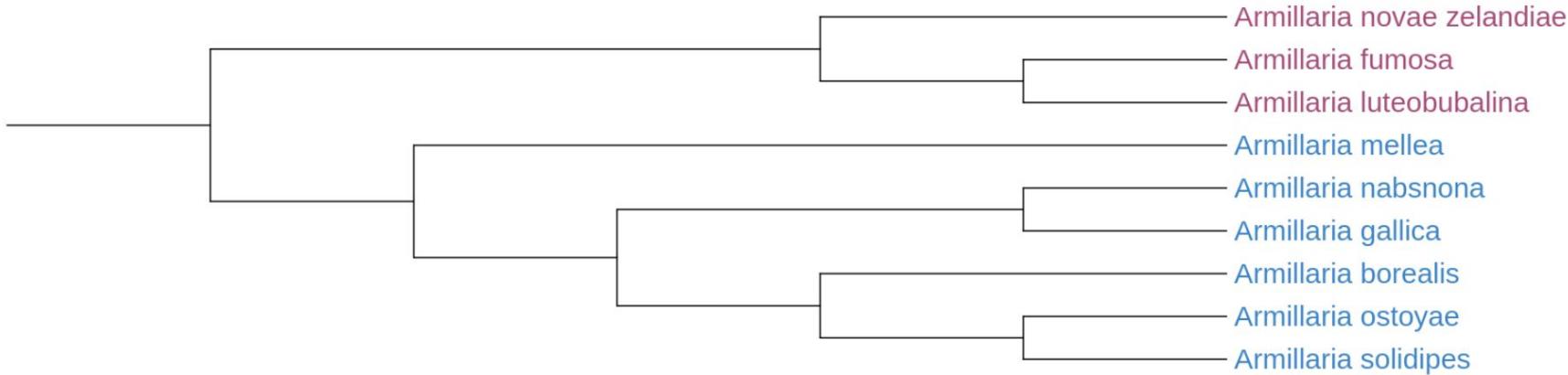
Porównanie z timetree







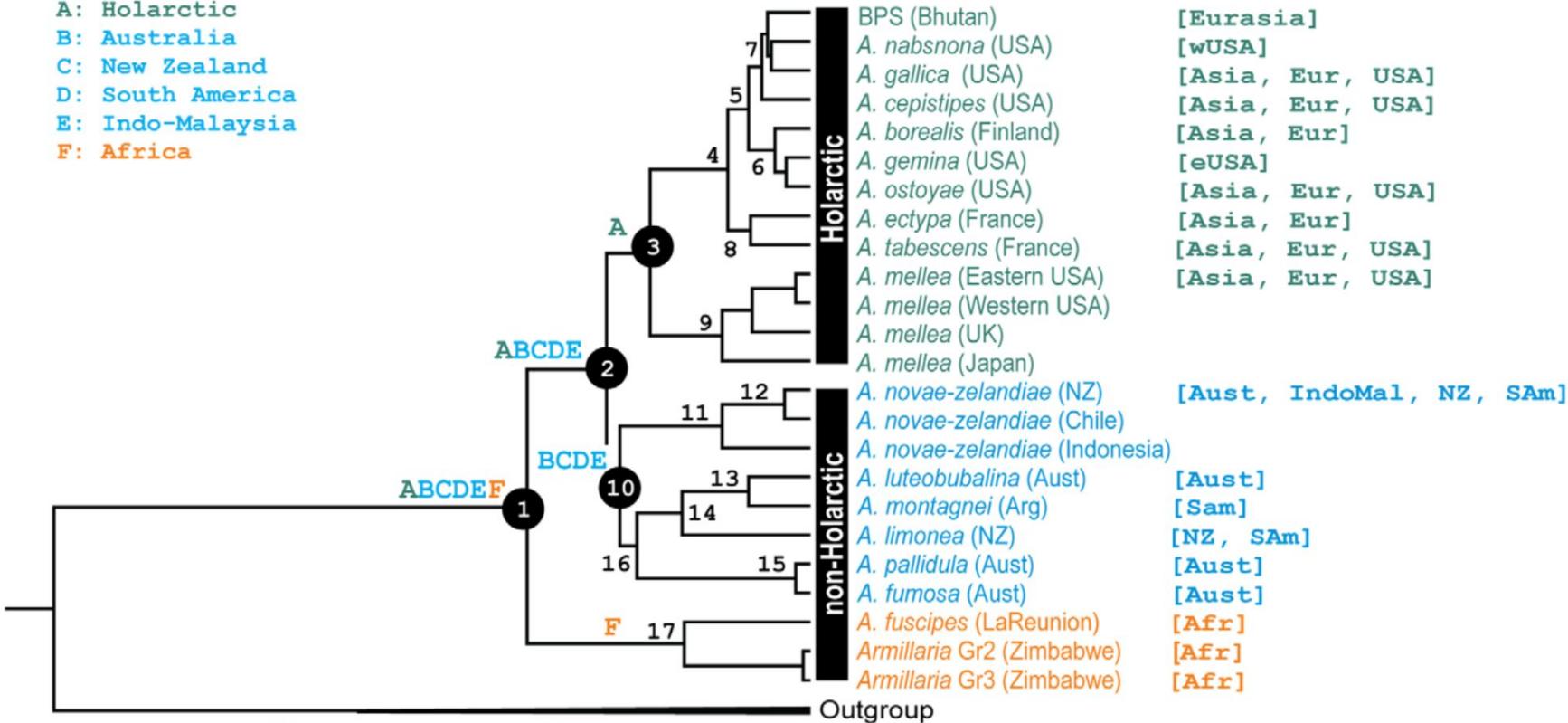


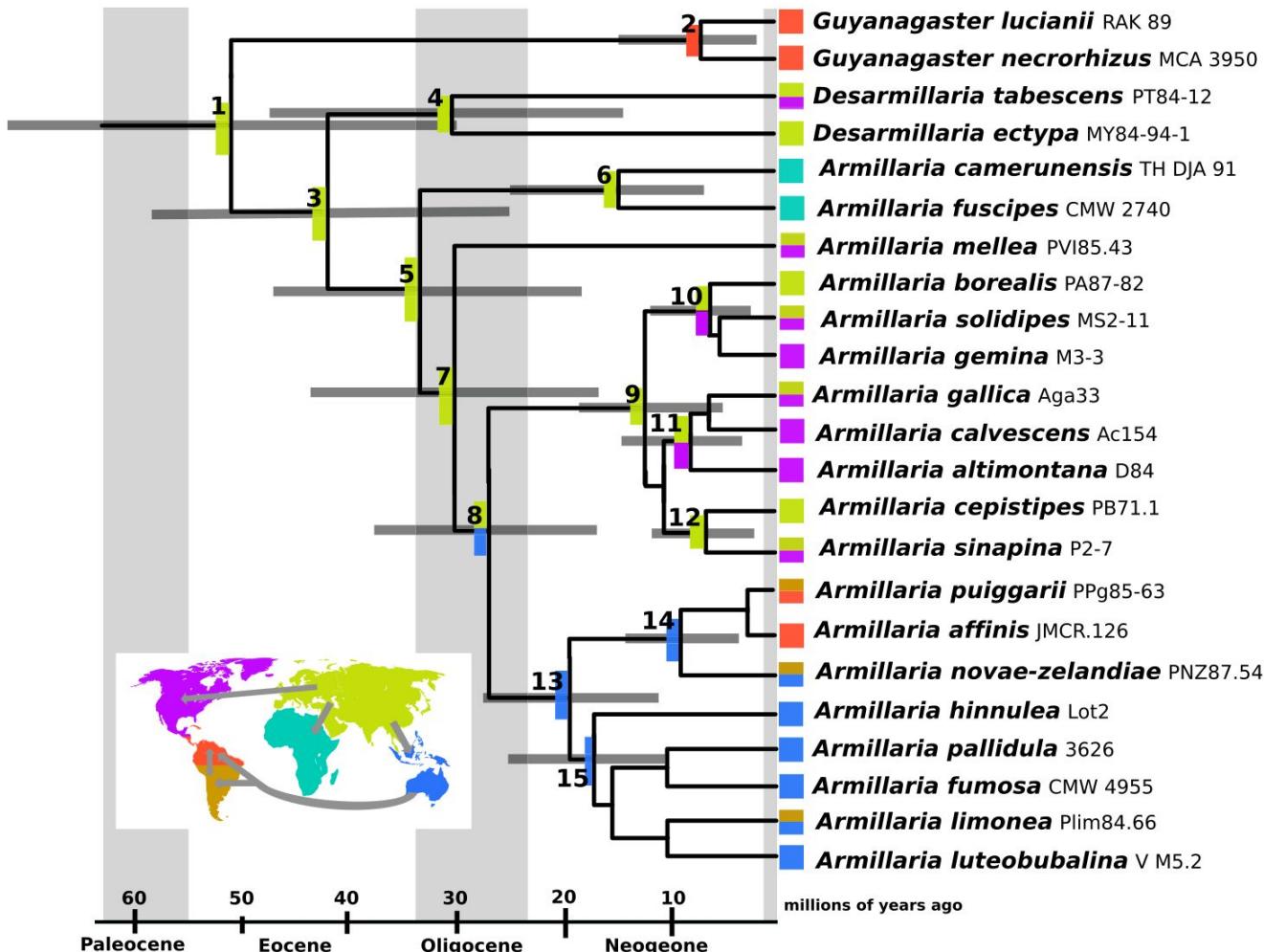


Australia i Oceania, Południowa Ameryka

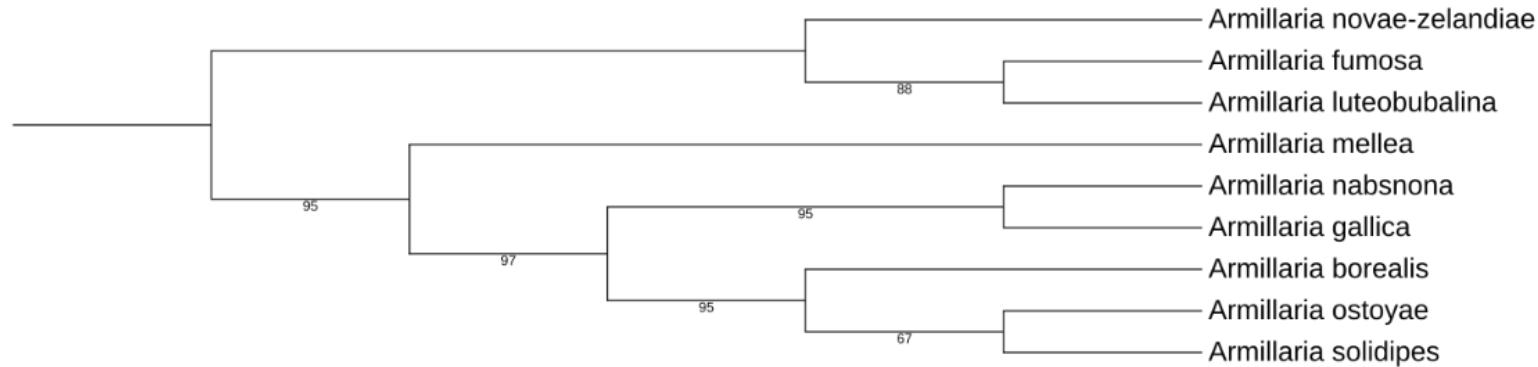
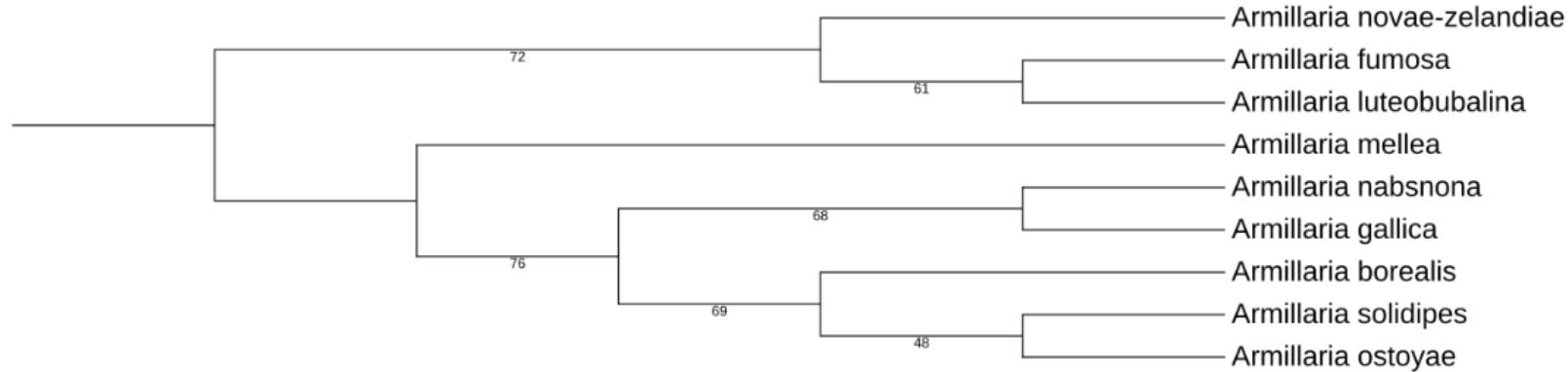


A: Holarctic
 B: Australia
 C: New Zealand
 D: South America
 E: Indo-Malaysia
 F: Africa



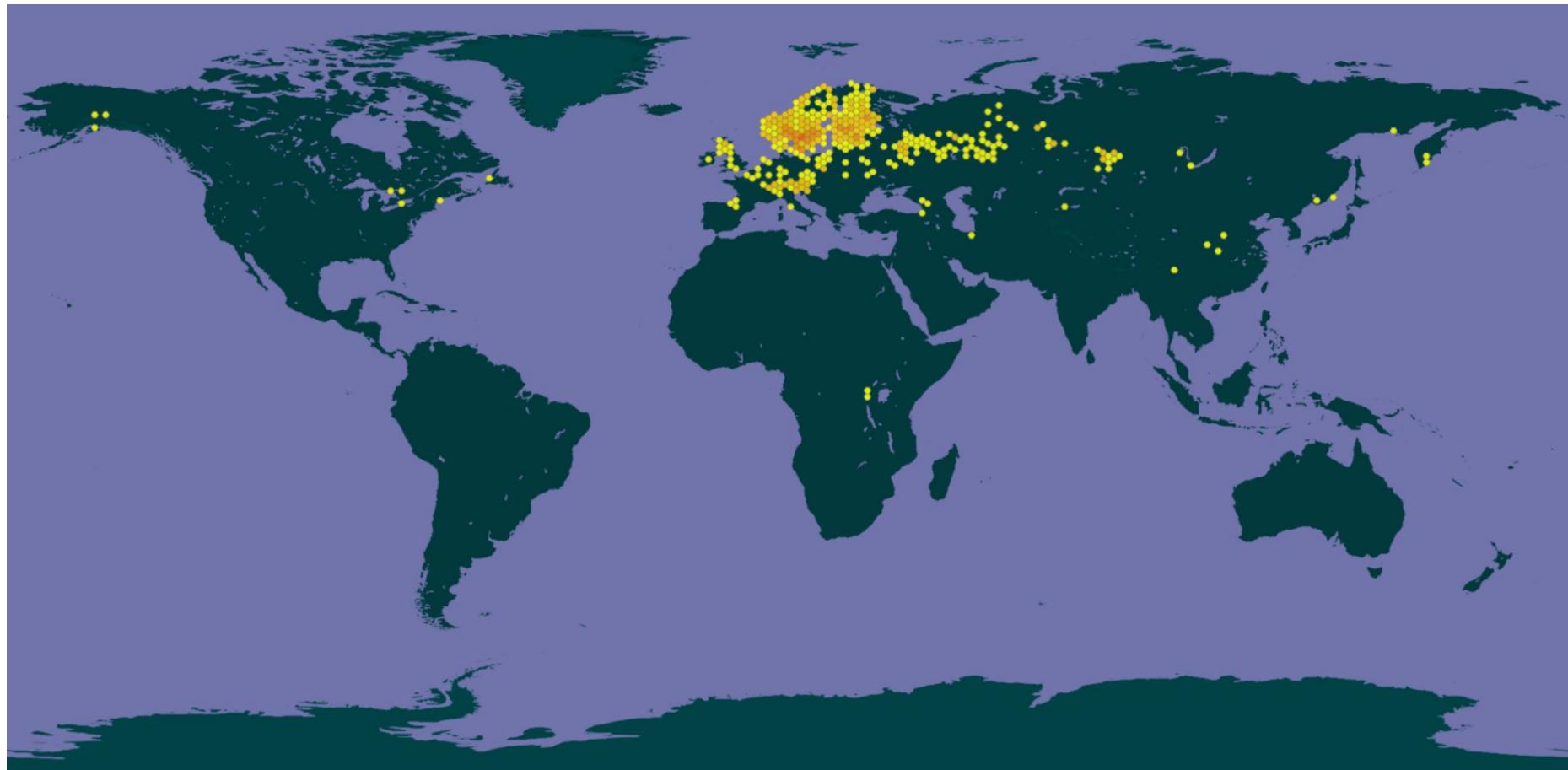


Bonus: filtrowanie



Armillaria borealis

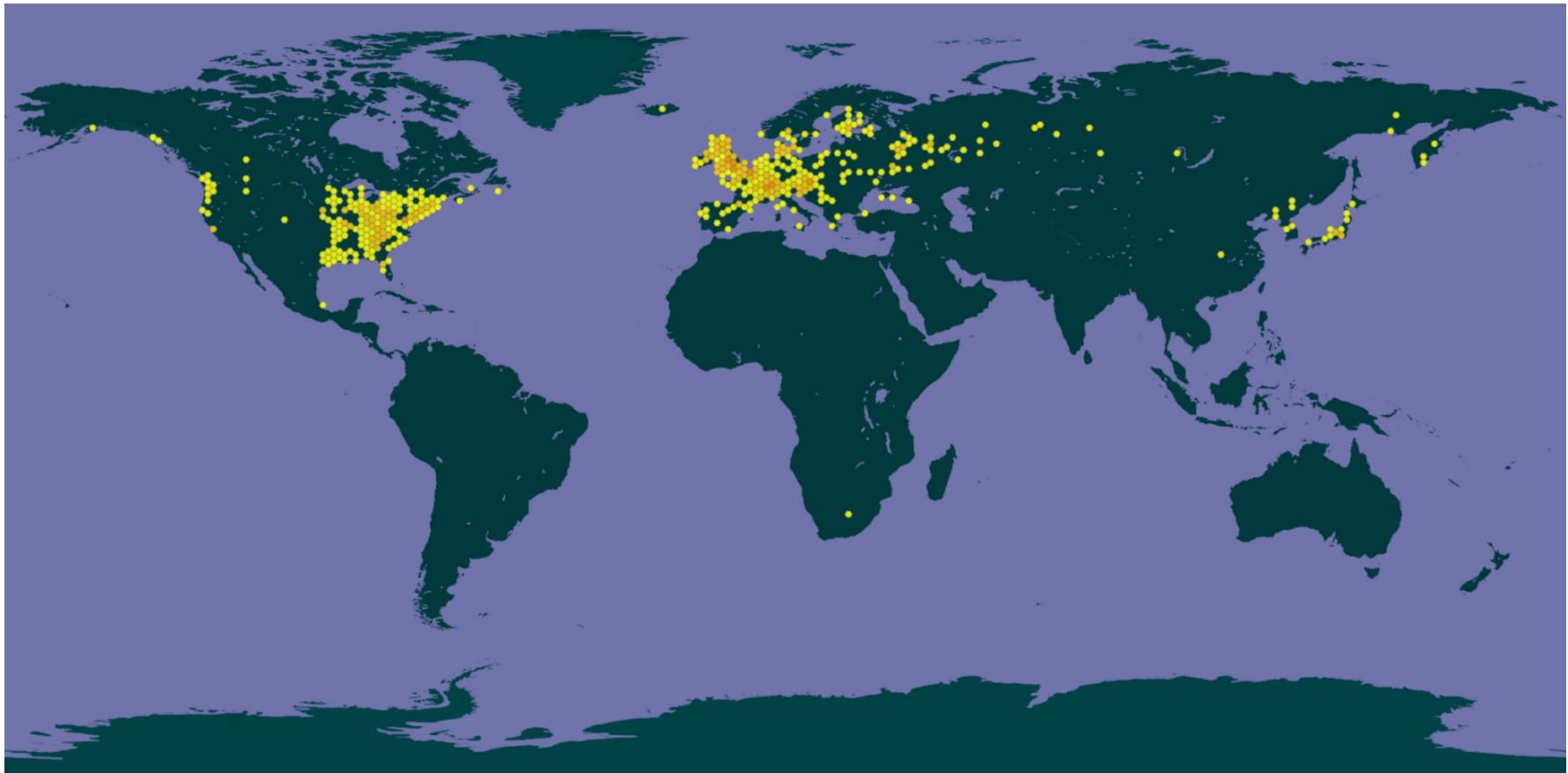
GBIF.org



Armillaria fumosa

GBIF.org

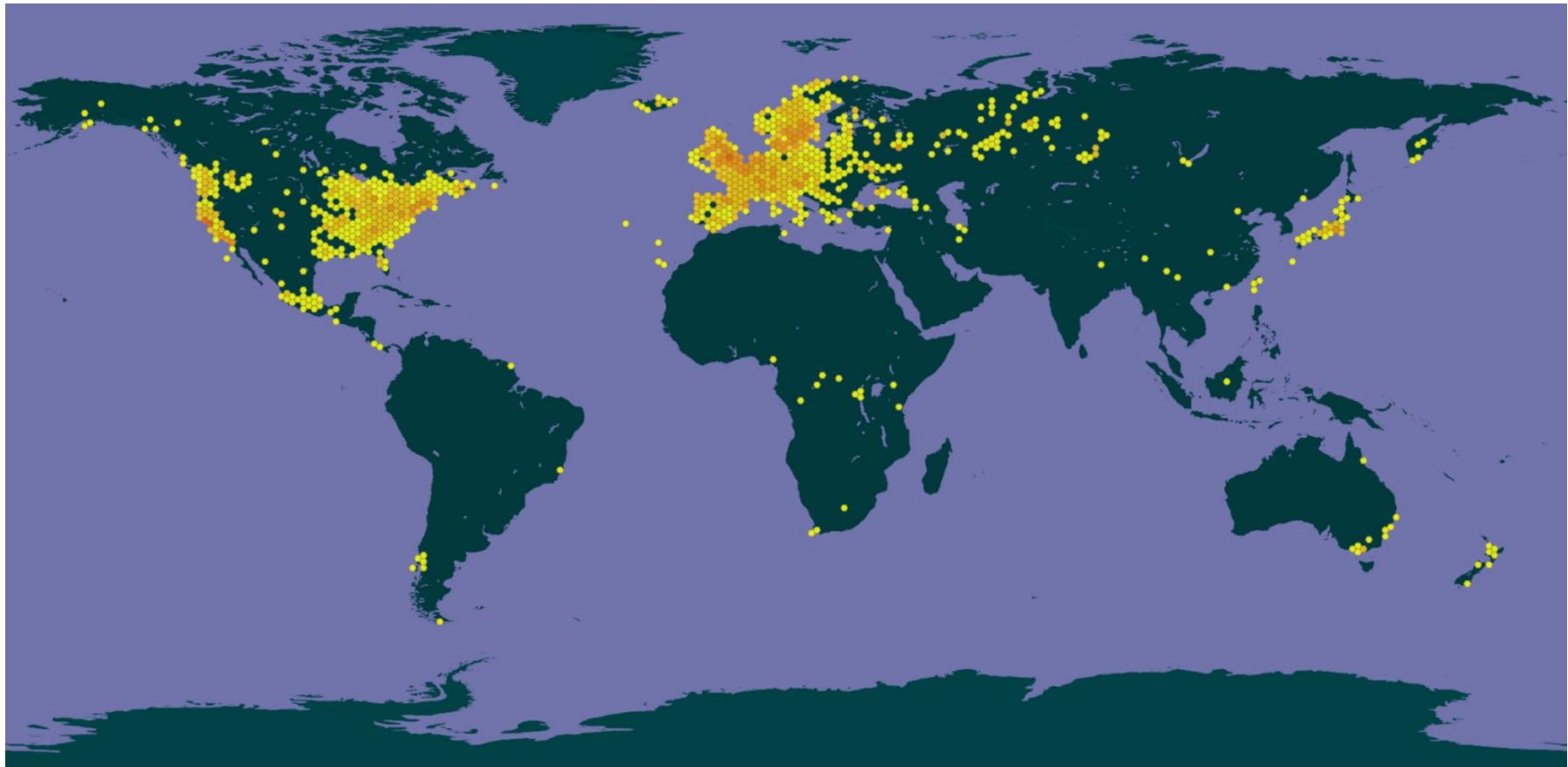


Armillaria gallica

Armillaria luteobubalina

GBIF.org





Armillaria nabsnona

GBIF.org



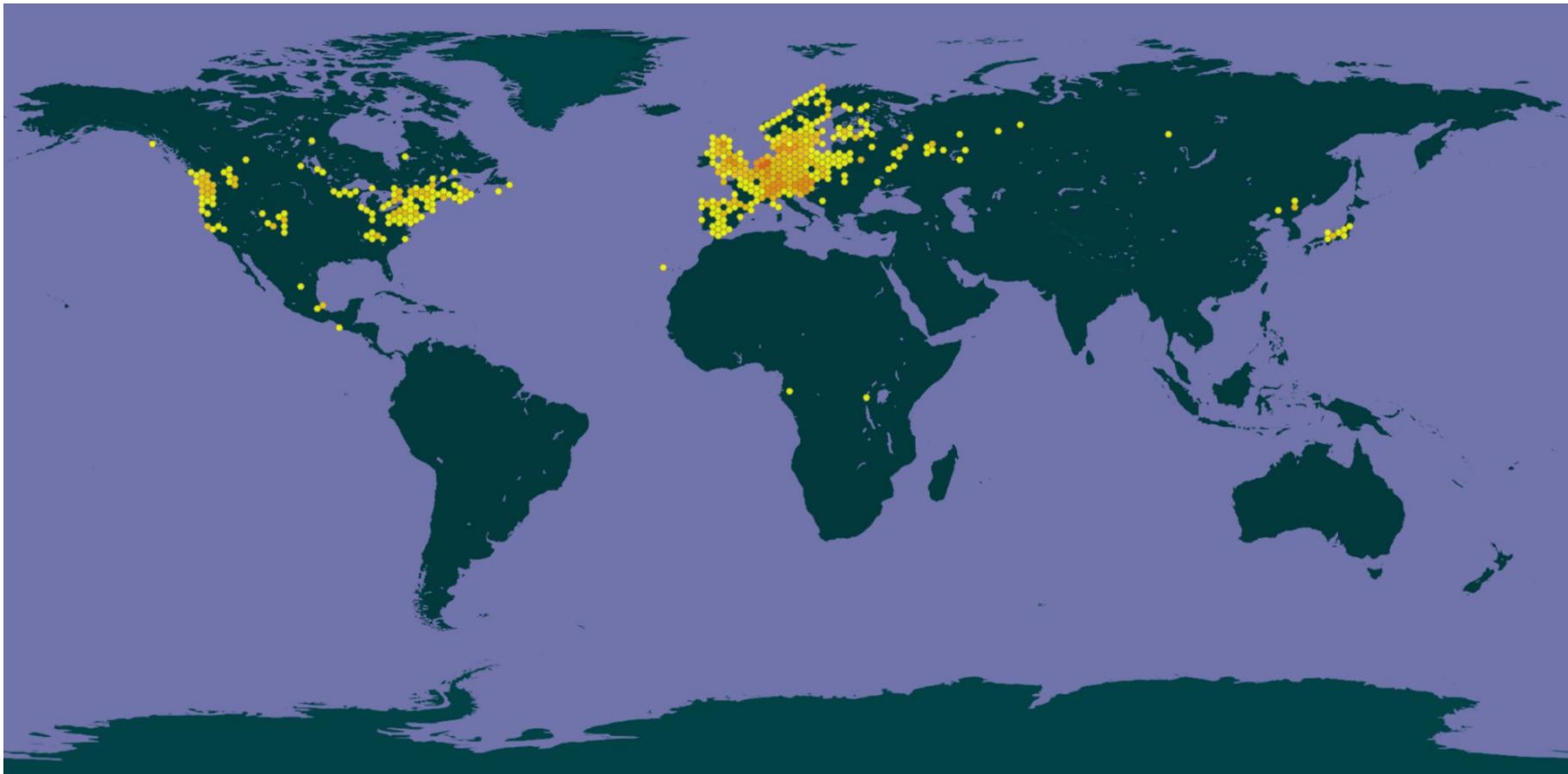
Armillaria nova-zelandiae

GBIF.org



Armillaria ostoyae

GBIF.org



Armillaria solidipes

GBIF.org

