

Host ant use by large blue butterflies across Europe

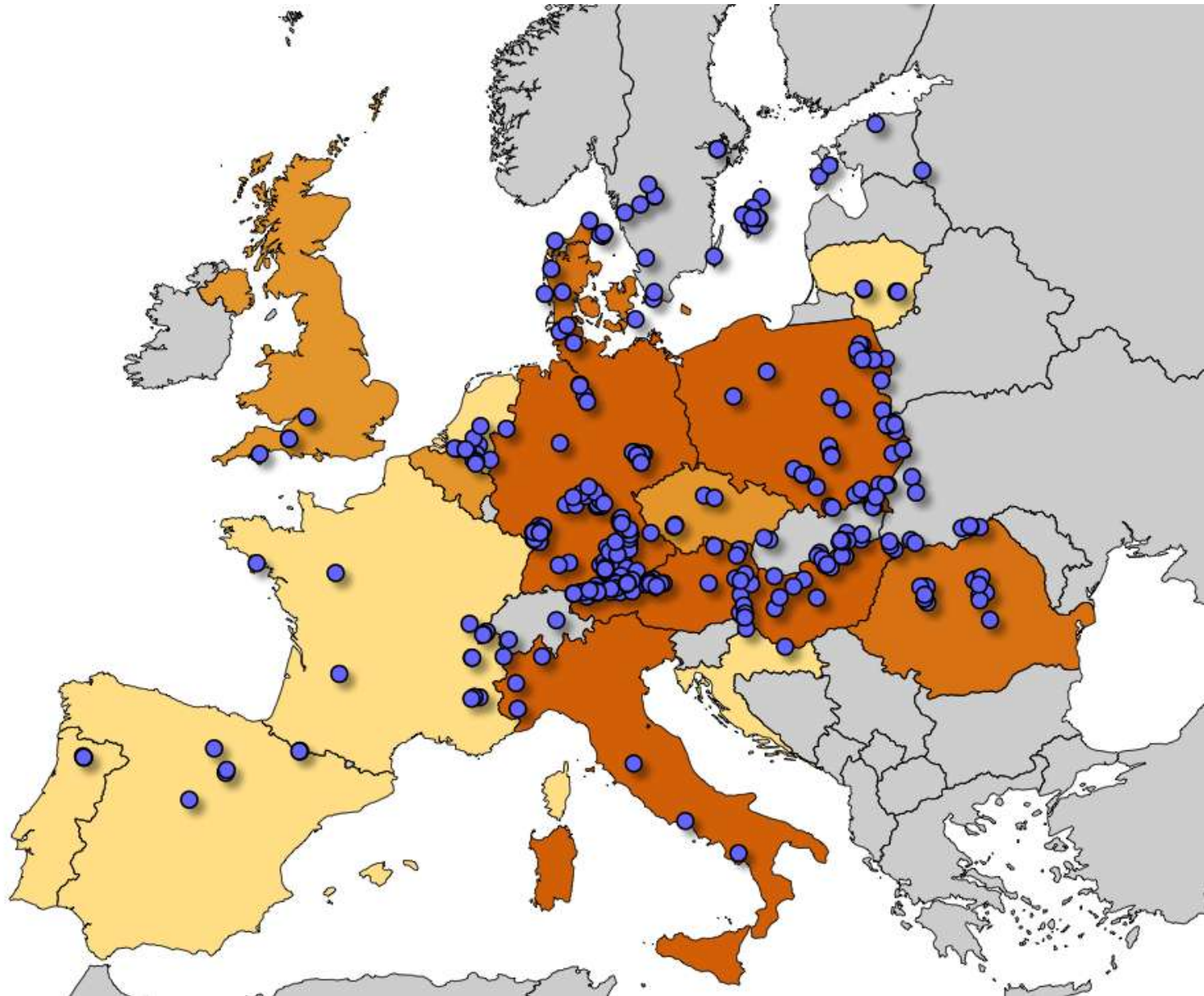
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And a few additional coauthors...

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403 *Maculinea* sites across Europe



Maculinea species included



M. arion



M. nausithous



M. teleius

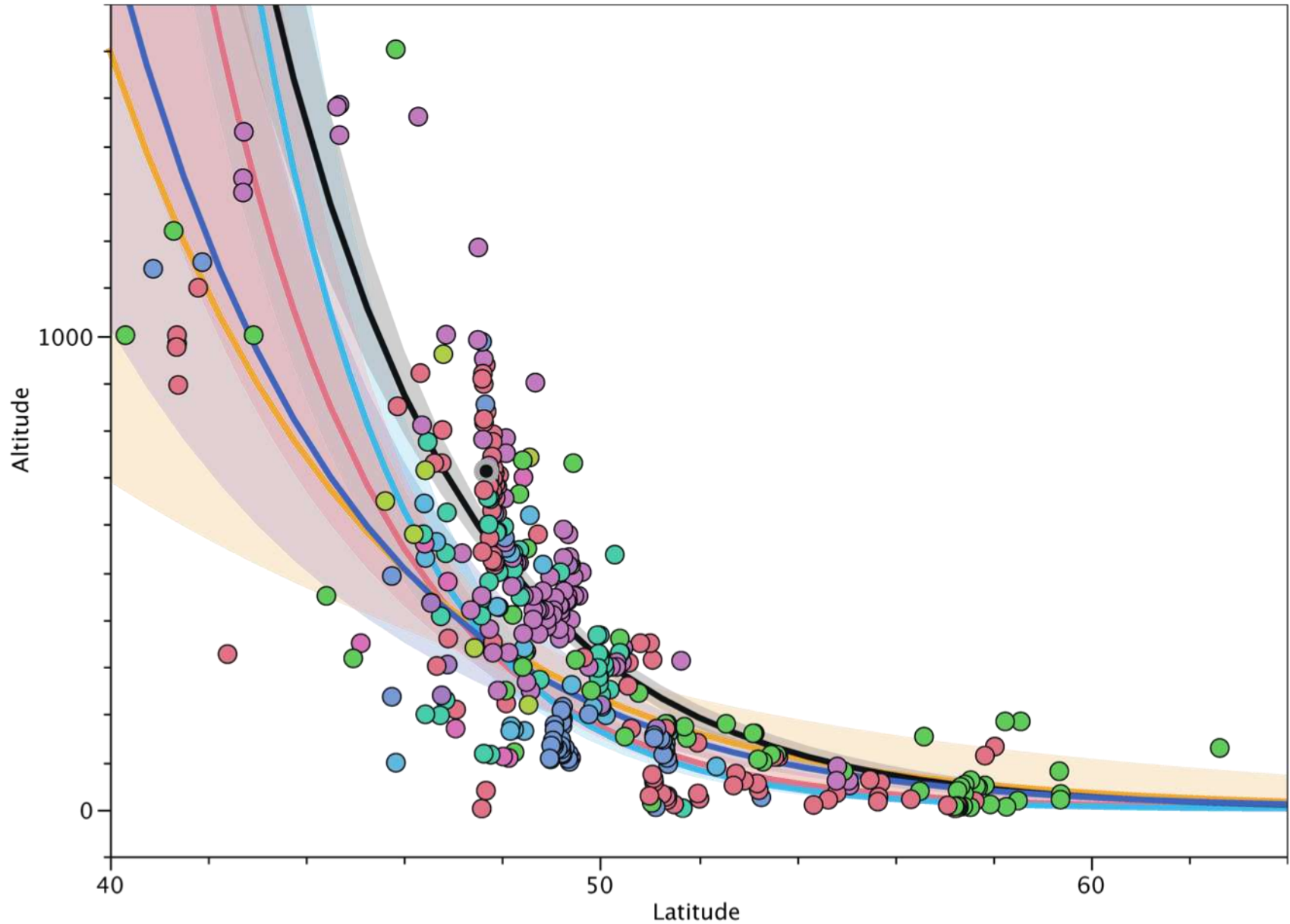
M. alcon



M. 'rebeli'



Altitudinal distribution



Myrmica ant exploitation by *Maculinea*



What determines host ant use?



1) Encounter

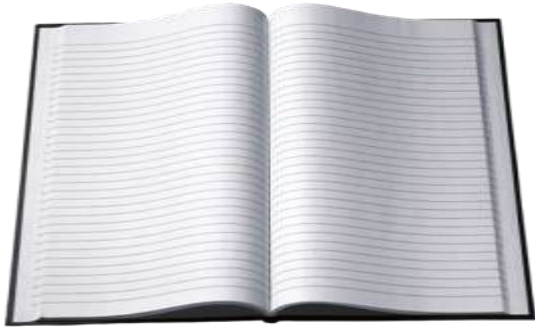
Ant community

2) Infection

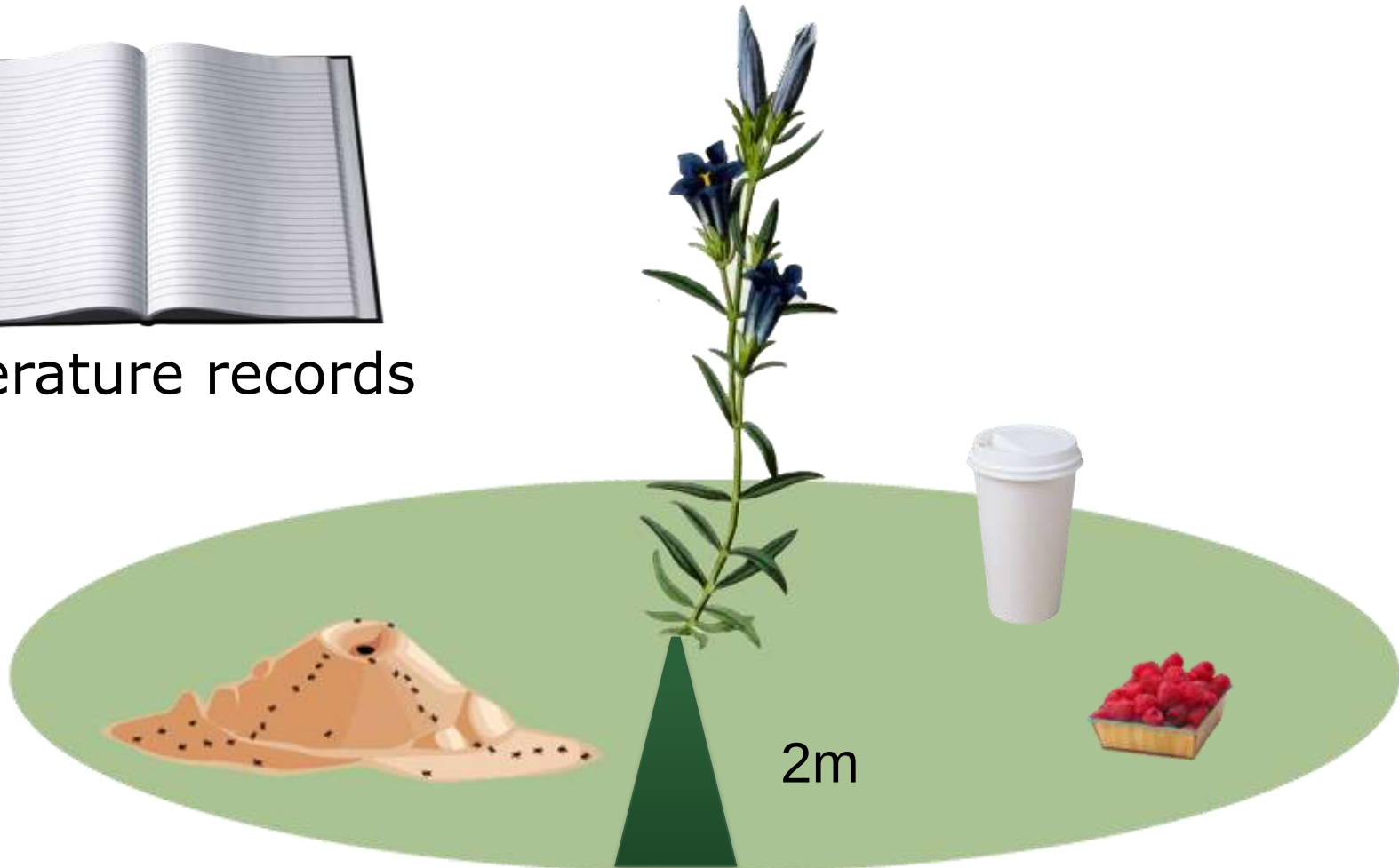
Adaptation (mimicry) – Host specificity

3) Exploitation

Data collection



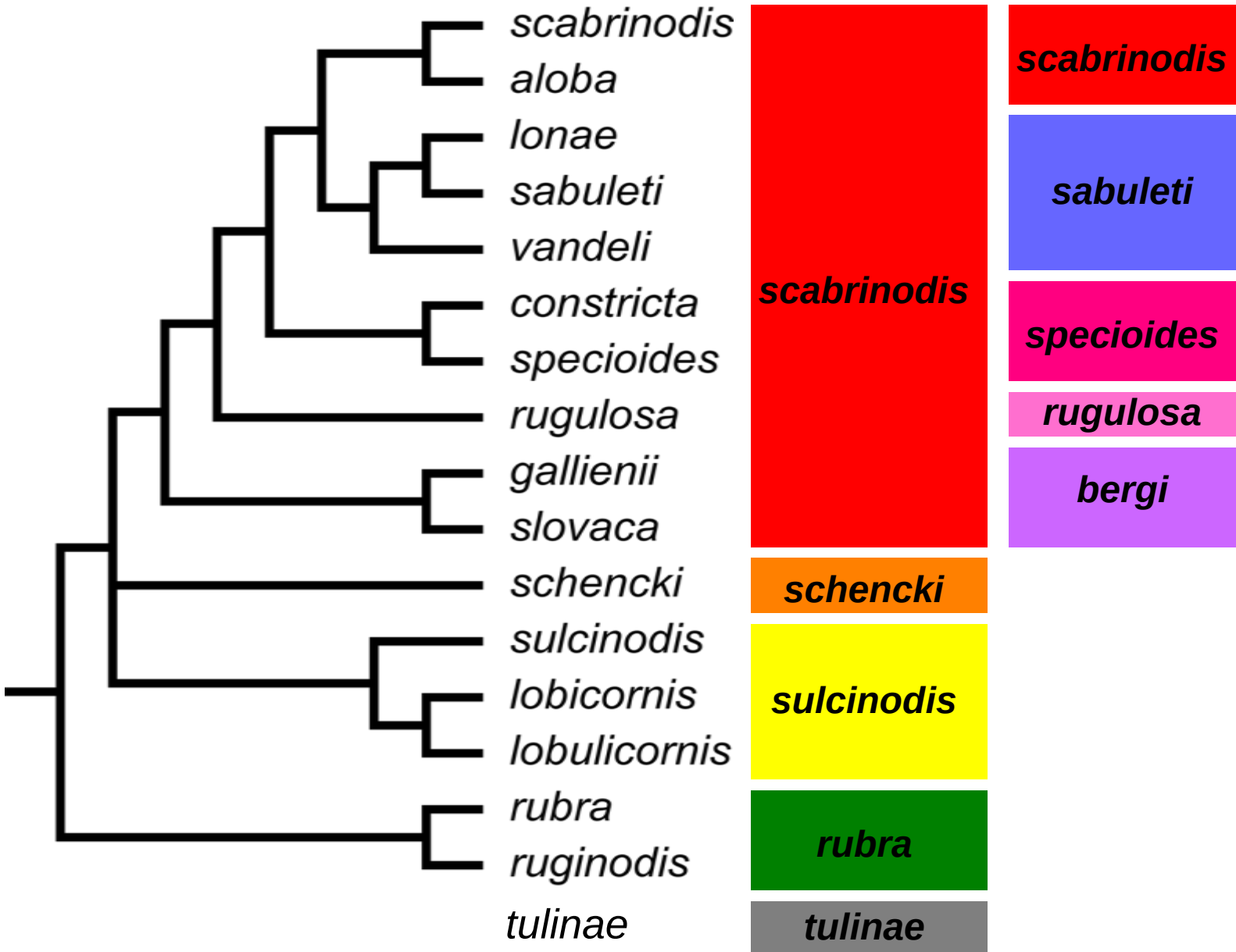
Literature records



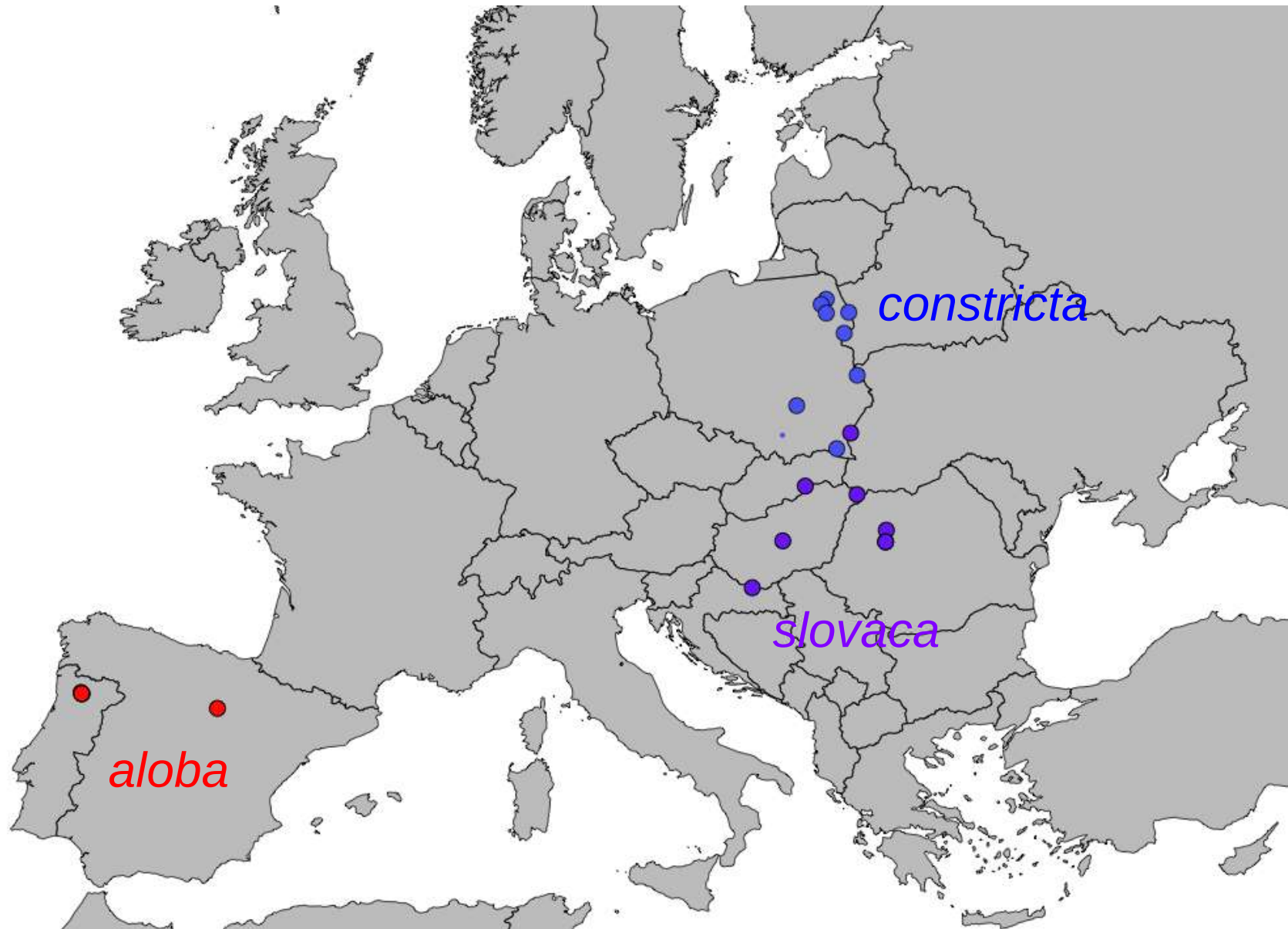
Nests excavated
(late spring / early summer)

Pitfall traps / baiting
(to determine ant community)

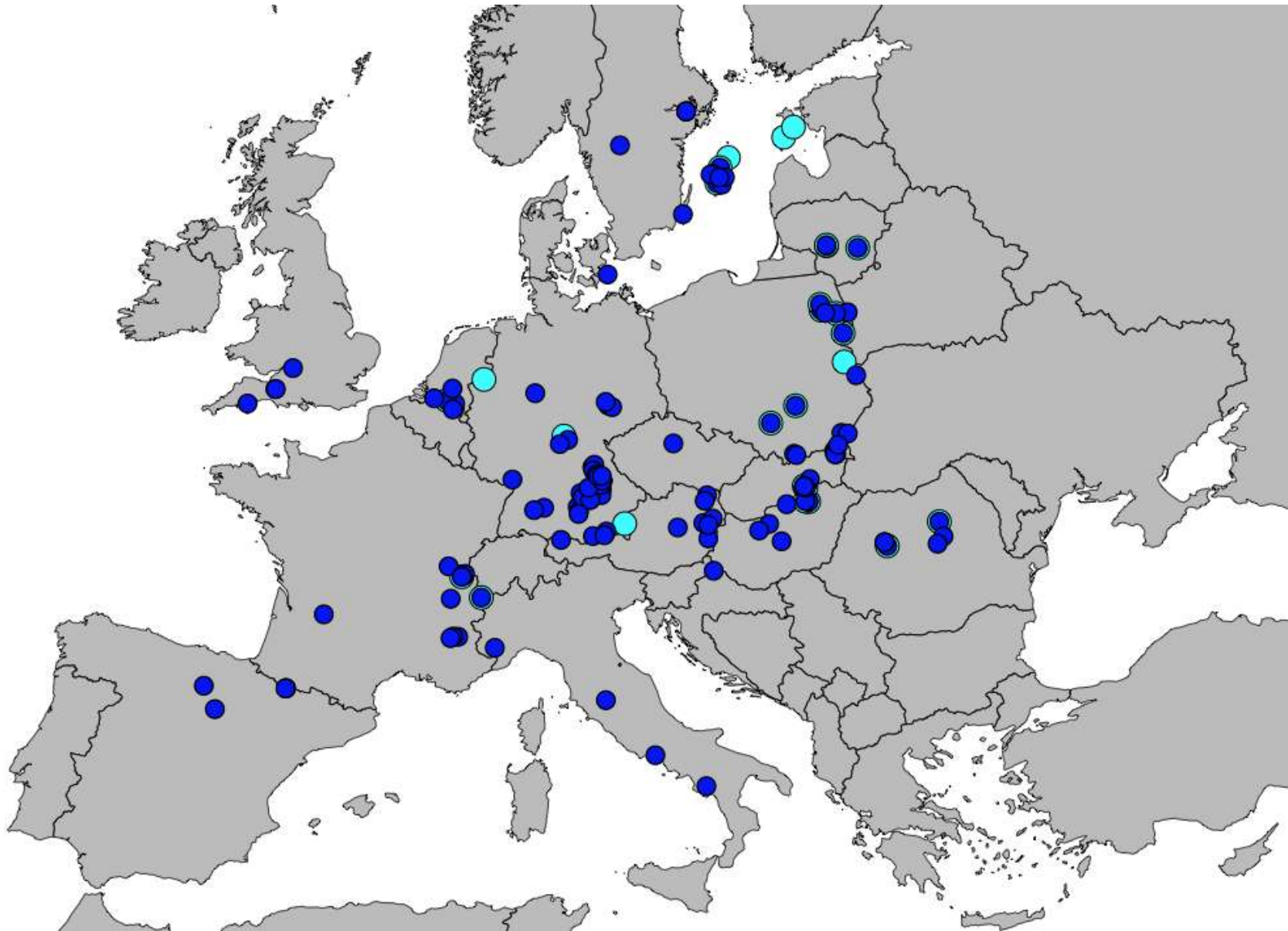
Myrmica ants



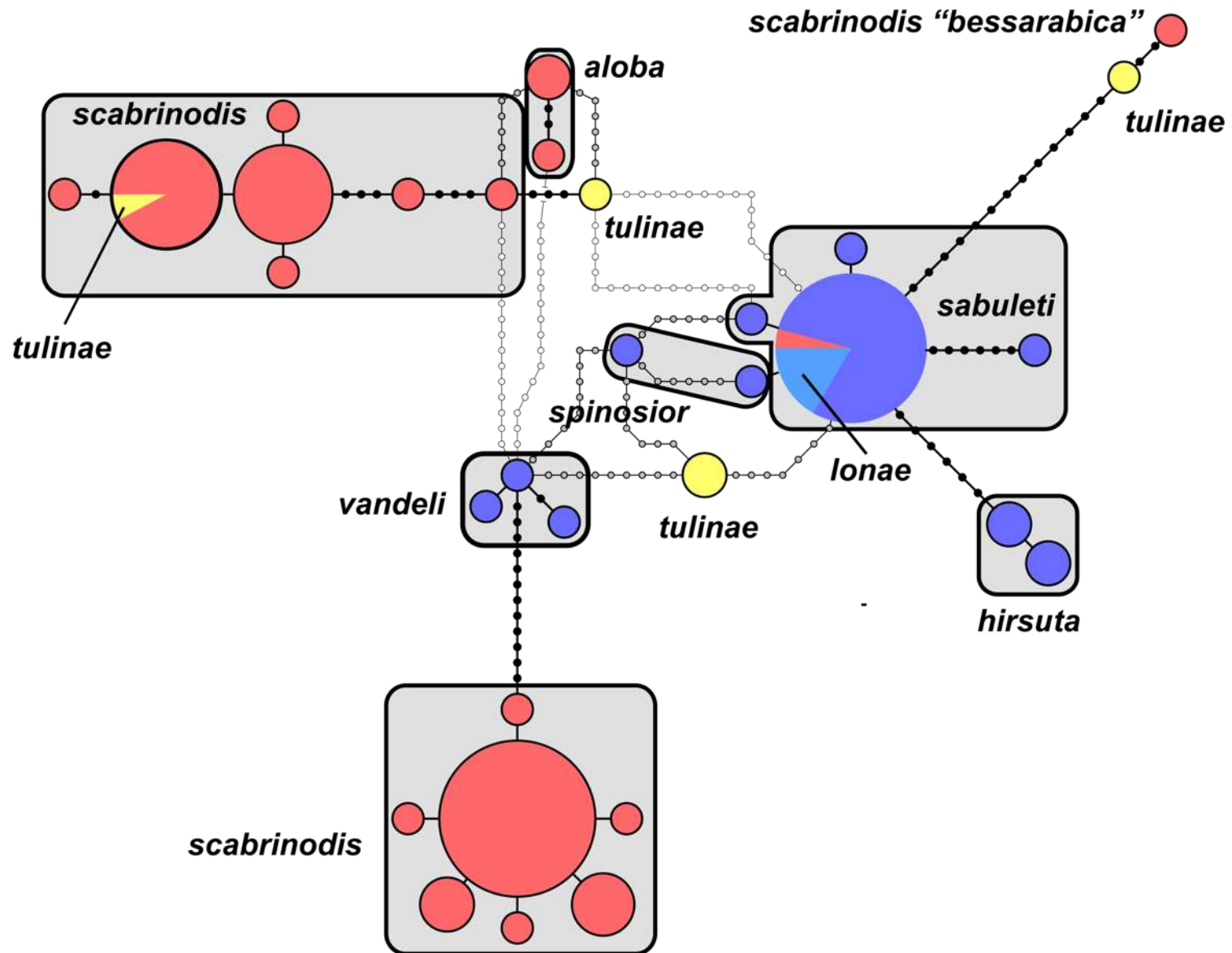
Regional *Myrmica* species



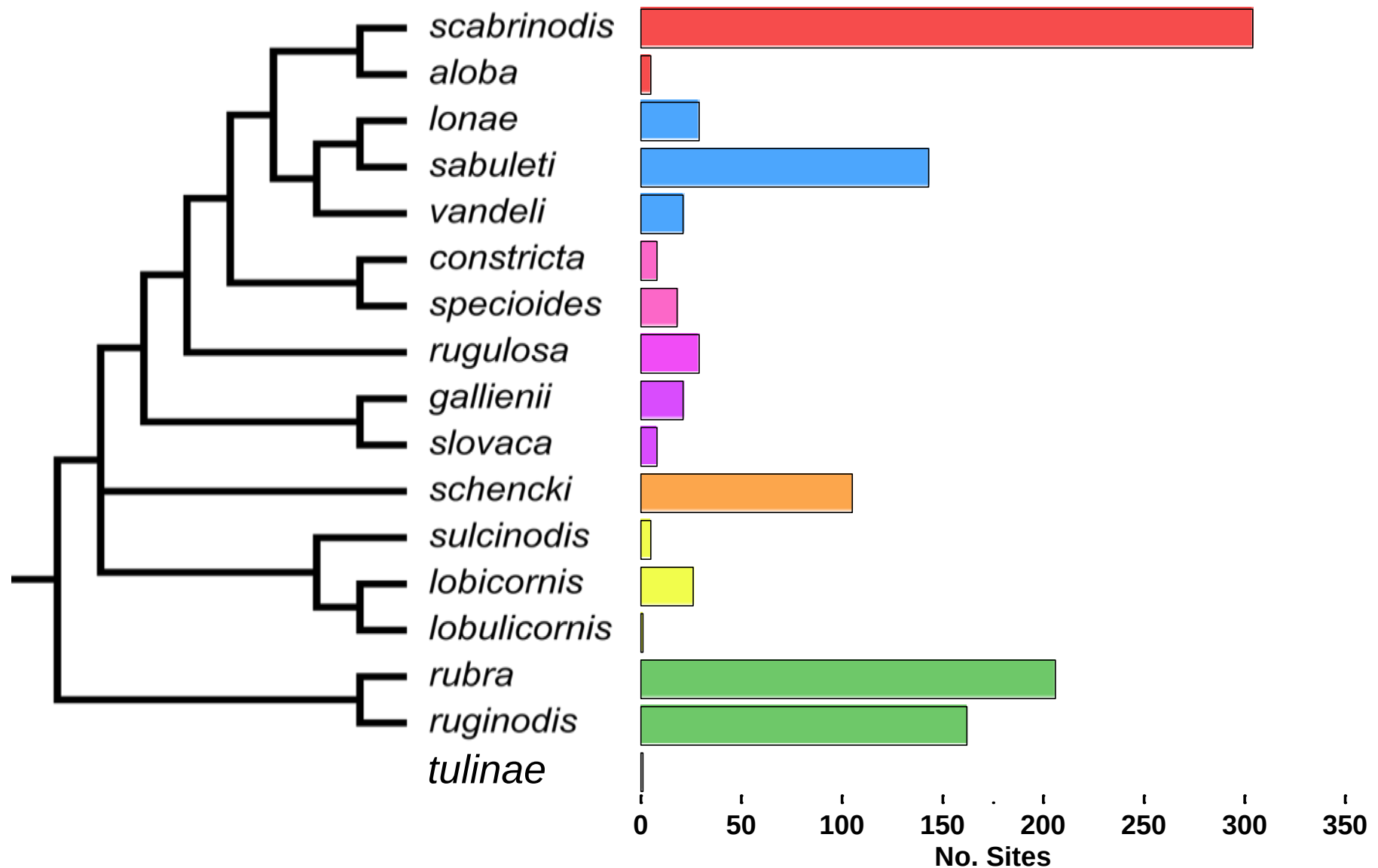
Myrmica sabuleti & *M. ionae*



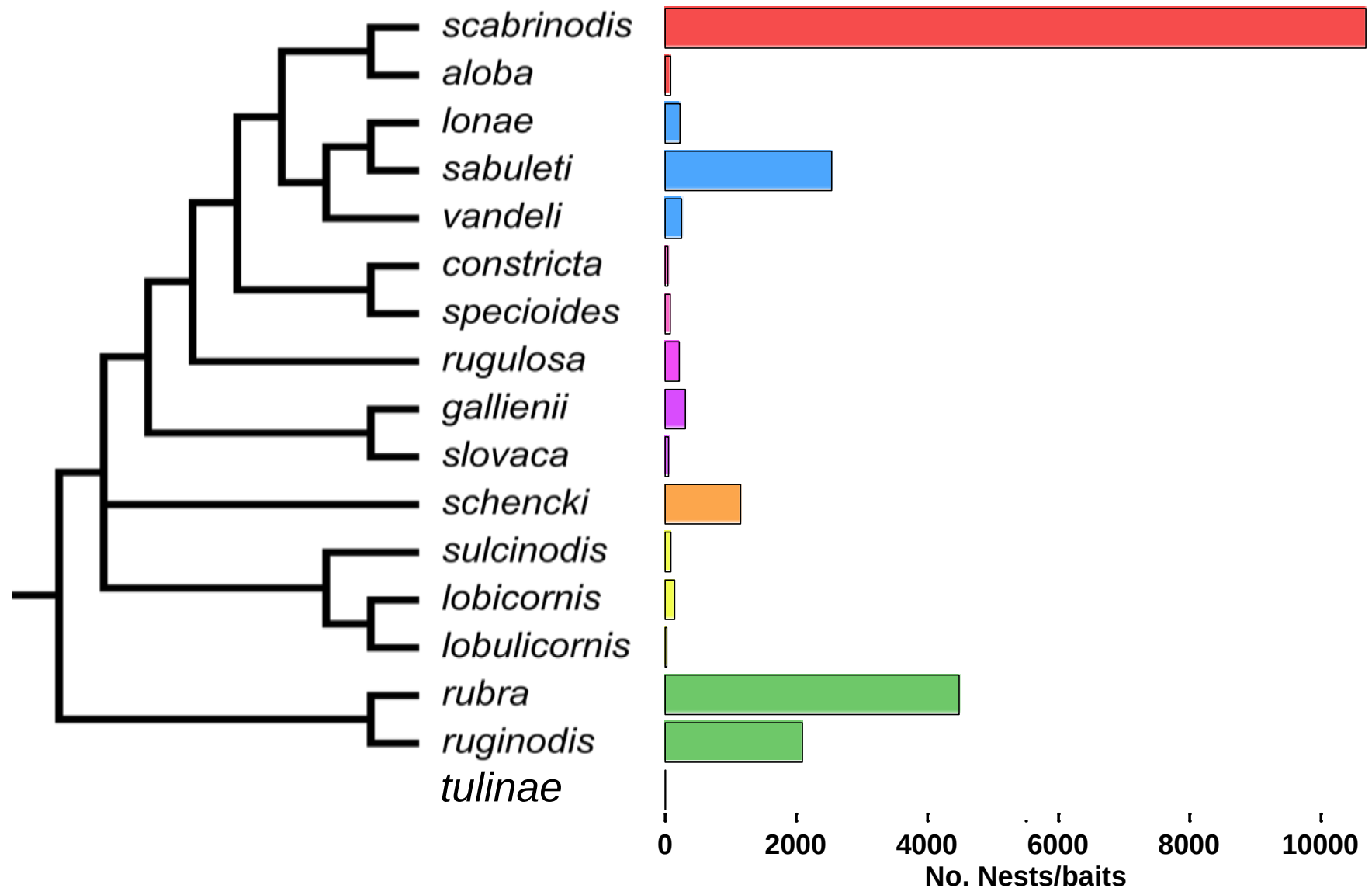
Cytochrome-B Haplotypes



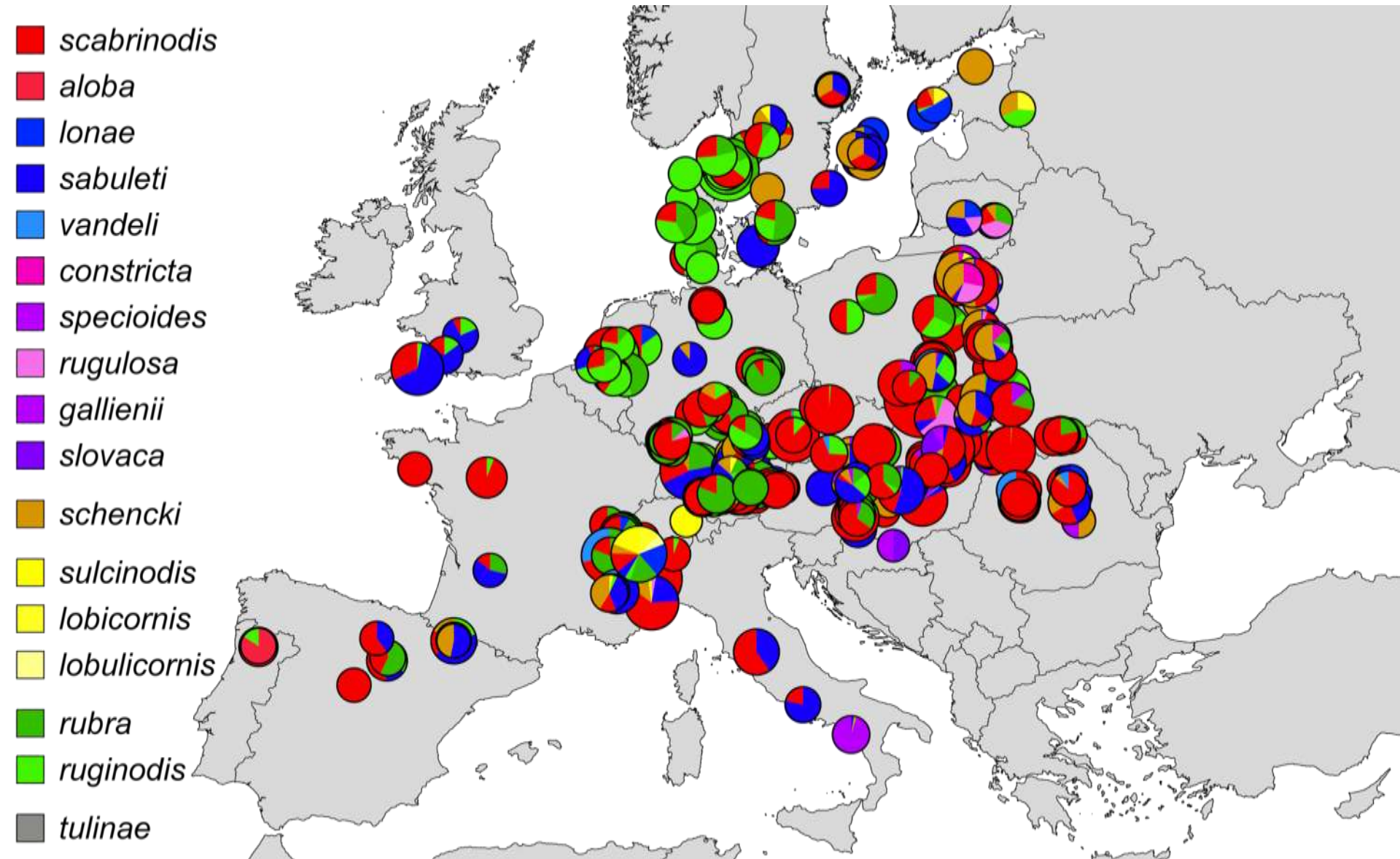
Myrmica ant occurrence on sites



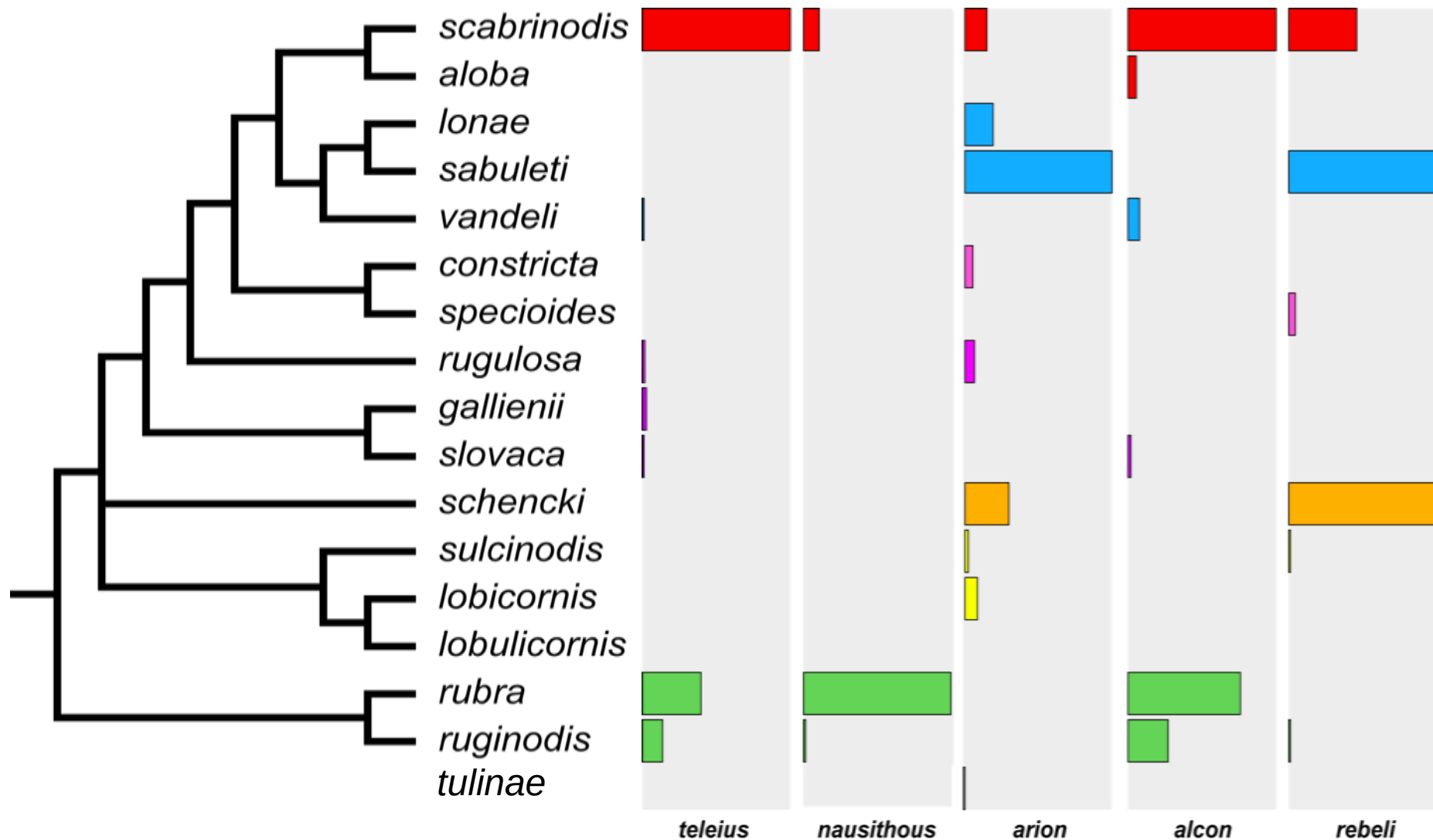
Myrmica ants – No. nests / baits / traps



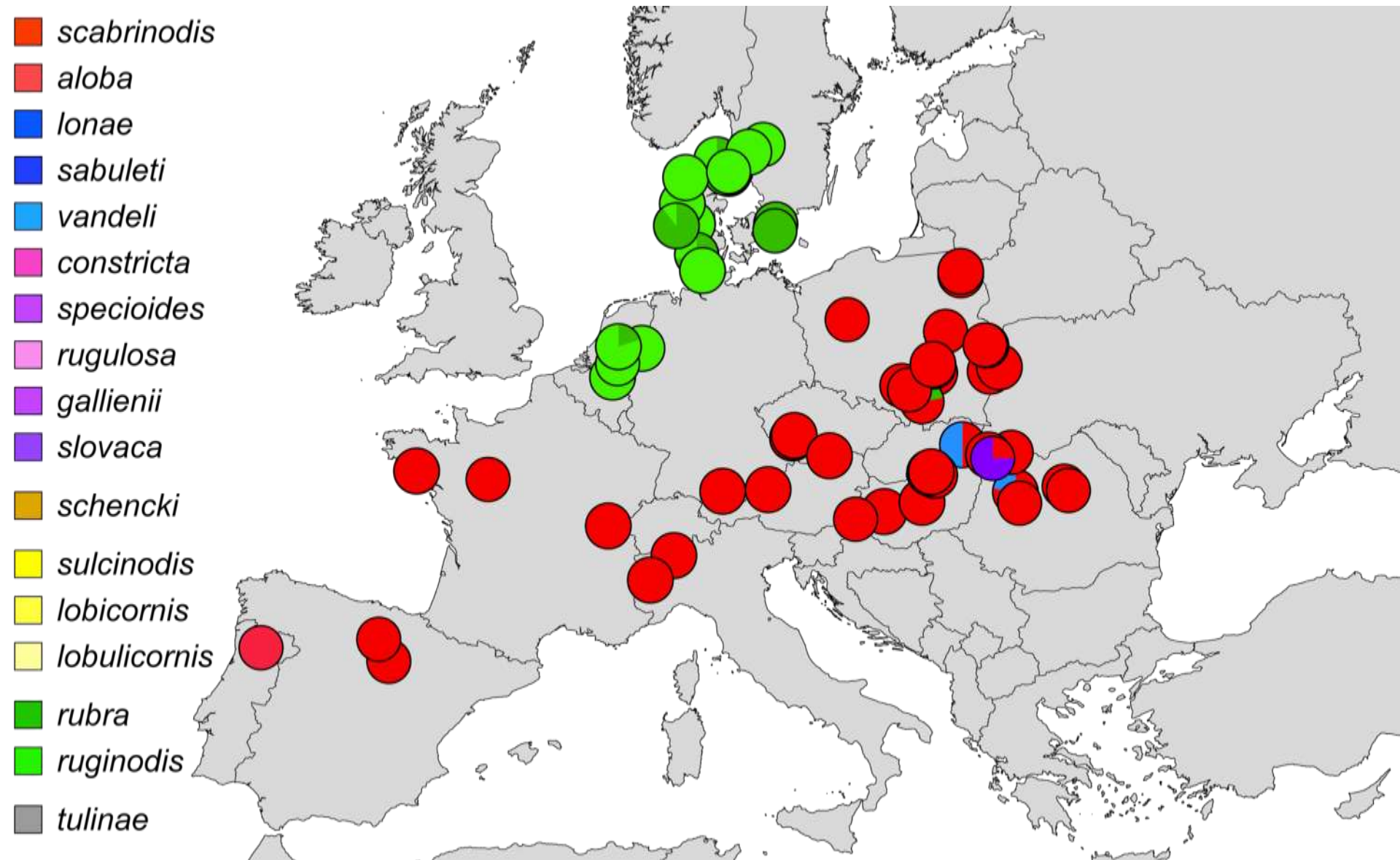
Myrmica community distribution



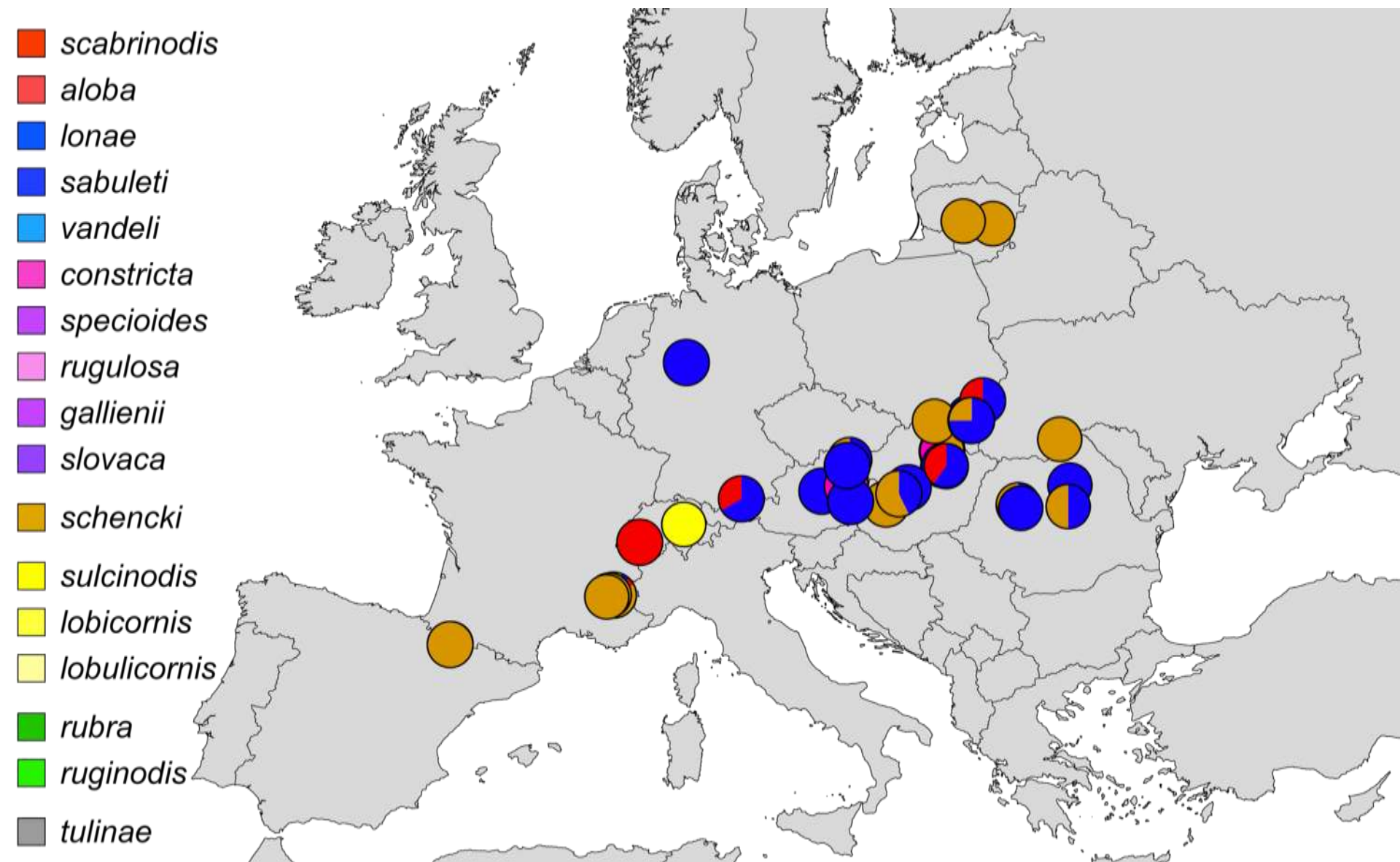
Myrmica ants – Host of *Maculinea*



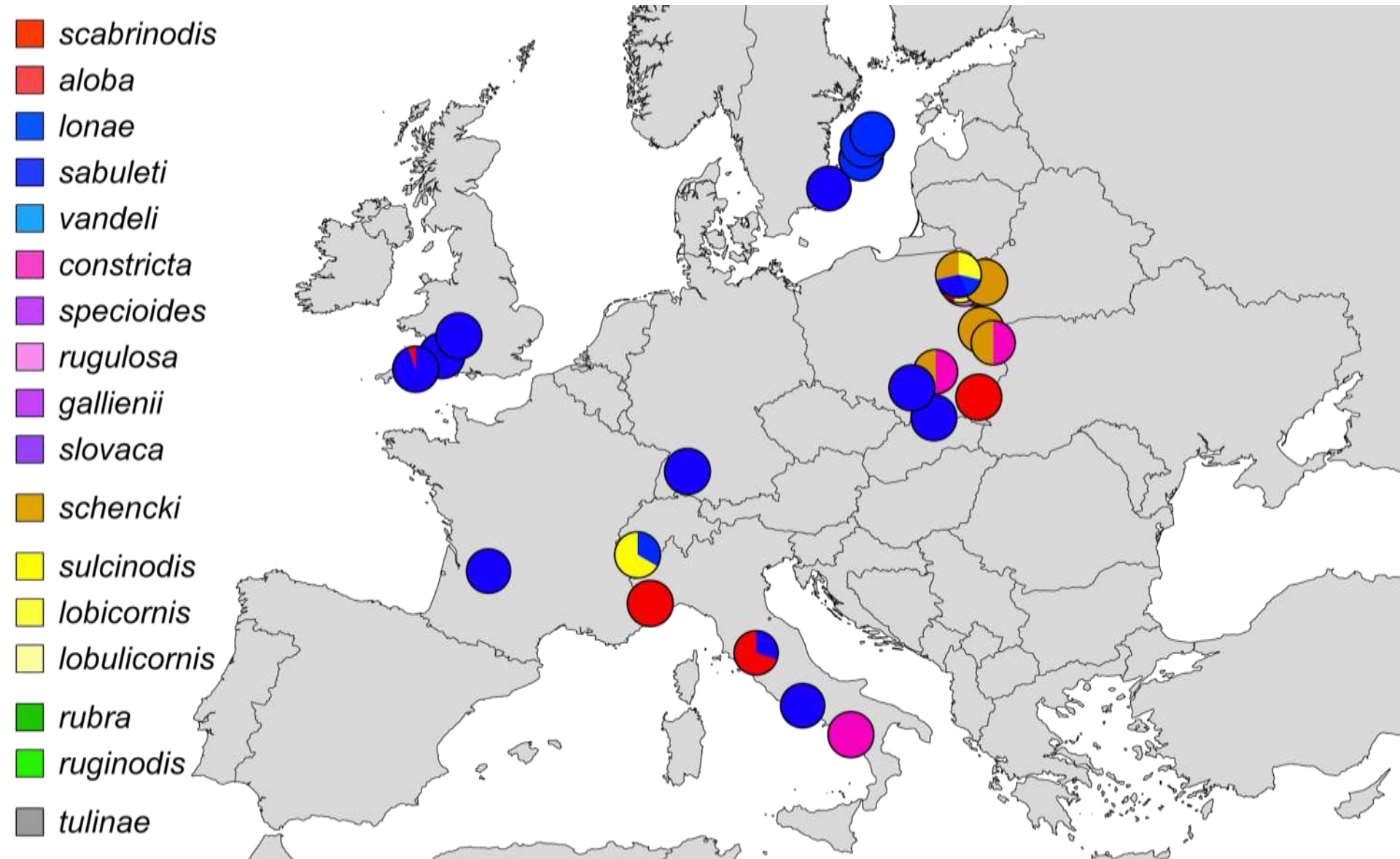
Maculinea alcon host distribution



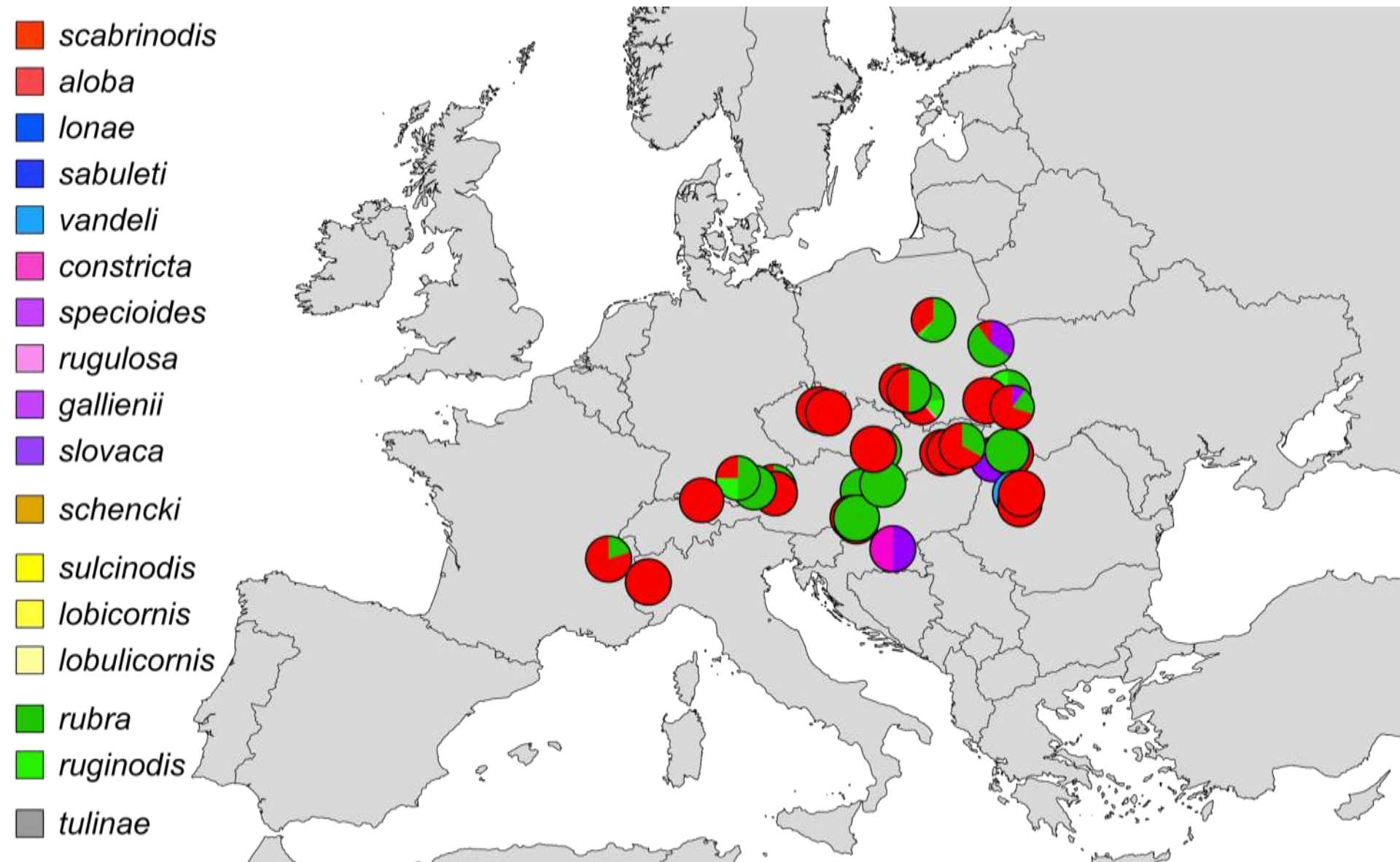
Maculinea rebeli host distribution



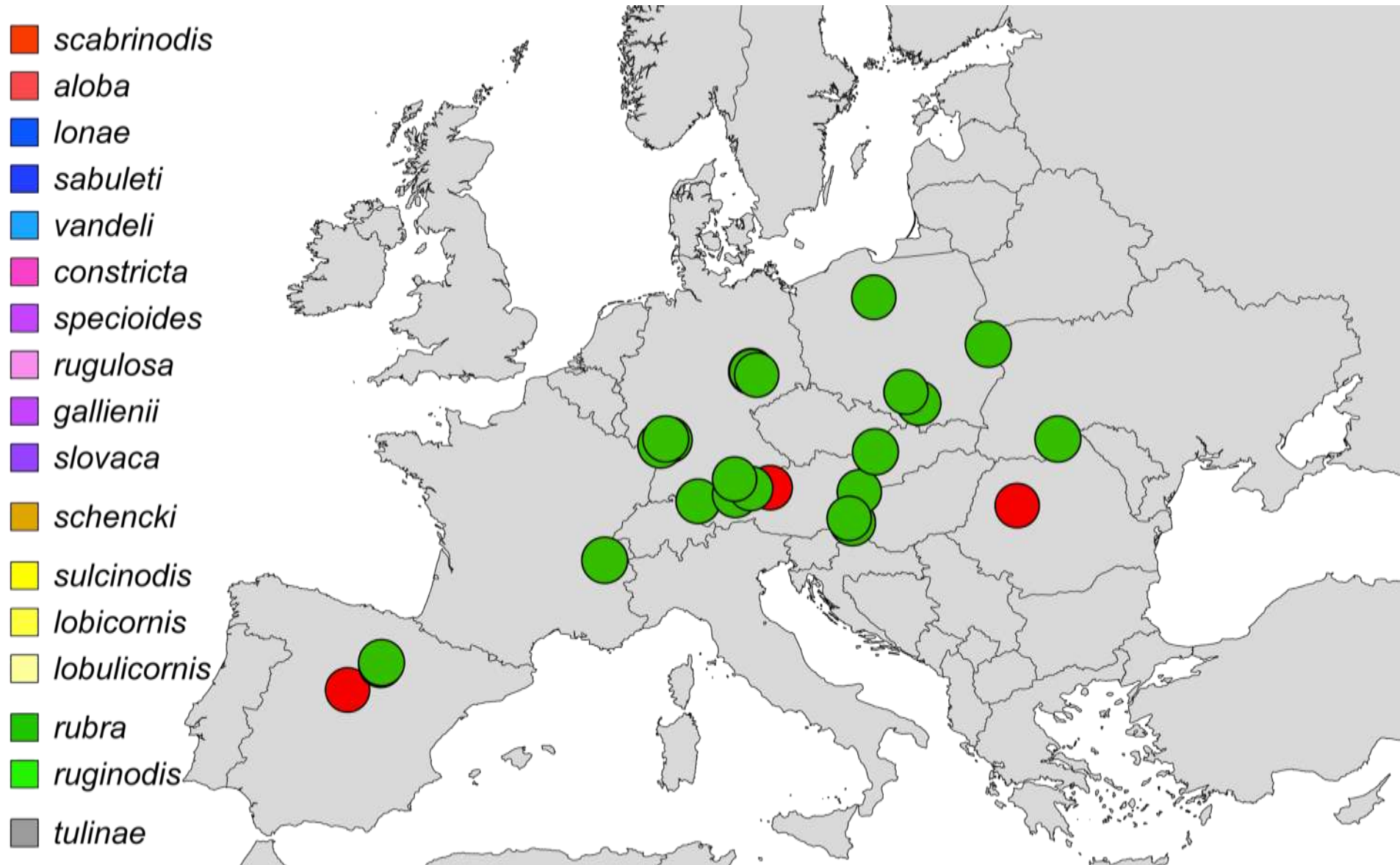
Maculinea arion host distribution



Maculinea teleius host distribution



Maculinea nausithous host distribution

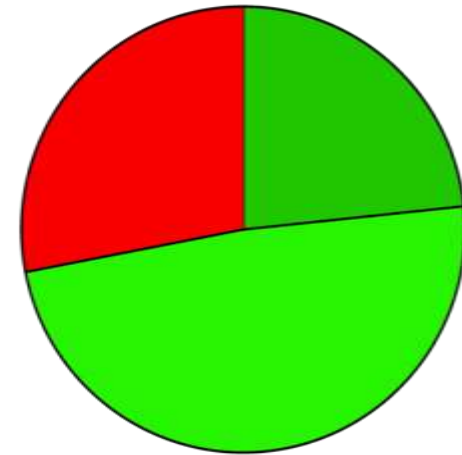


What is host specificity?

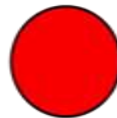
Pikulawka

Læsø Rønnerne east

Host availability



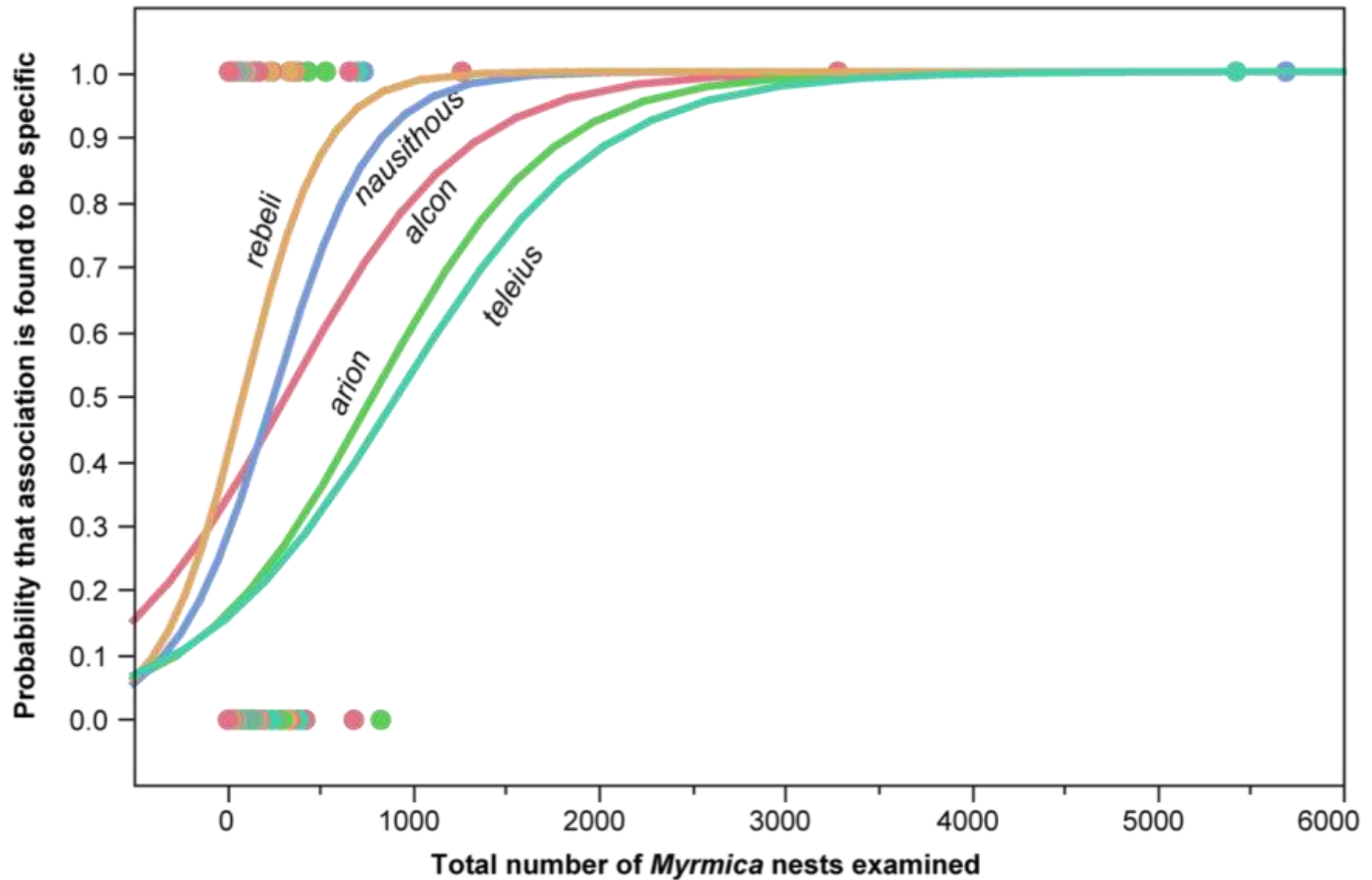
Host use



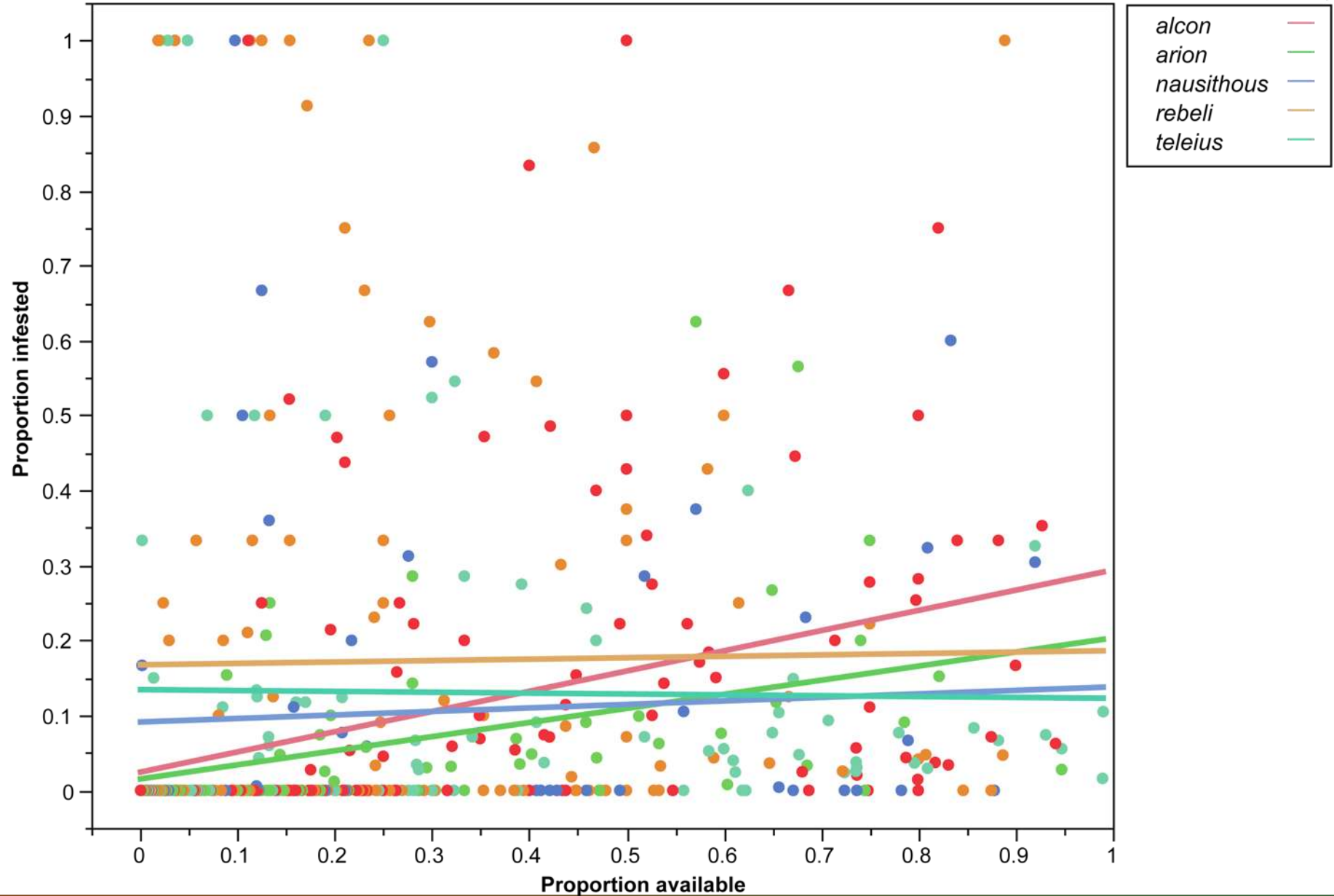
$P = 0.8$

$P < 0.001$

Specificity of host use



Specificity of host use



Conclusions & Perspectives

- Host ant specificity appears to be common, and may be universal.
- There is local adaptation to the most abundant *Myrmica* host, at least for *M. alcon* and *M. arion*
- Switching between hosts within the same species group seems to be easier than across species groups.
- Biogeographical differences in host ant communities may underly the coevolution of *Maculinea* butterflies and their *Myrmica* hosts.

Thank you

