

## Appendix 1: Comparing Sampling Methods

Sampling methods inevitably generate different subsets of the overall ant fauna. As visualised by the Venn diagrams and the rarefaction curves, each method applied here—Winkler extraction, above-ground baiting, subterranean baiting, and pitfalls—yielded a set of species unique to this sampling method. The subterranean baits systematically sampled fewer species than above-ground ones but nevertheless provided unique species, which confirms earlier reports that subterranean baits yield species not captured by Winkler or pitfall sampling [1]. Thus, we suggest that they become part of standard sampling protocols, since without them one would miss an entire subset of ant fauna. Furthermore, subterranean baits require relatively little expenditure of time compared to the unique species they provide.

Winkler sampling and pitfalls always yielded higher species numbers than any baits, which is consistent with previous studies [2–4], even when compared to passive subterranean sampling methods (Berlese, soil cores [5,6]). Winkler extraction is undoubtedly one of the most effective ways of sampling high species numbers [7], but as shown here, pitfalls can yield even higher species richness, as shown in PPF with a considerably lower effort (Table 3). However, this also depends on time of exposure, pitfall size [8,9], and the state of the habitat [10]. One noticeable exception is the generally species-poor NSF, which had a higher or equal Chao 2 estimation of total species richness for above-ground baiting and for pitfalls. The Winkler extractions in that site were particularly poor in species richness. This could be related to a poorer litter quality, related to the dominating tree species [11], however we did not control for that.

Both pitfall and Winkler sampling methods are ‘passive’ sampling methods, which are not influenced by the diet of the species. This means that estimates of relative abundances within an ant community might be more accurate, being unbiased by differences in recruitment. However, it is important to note that the relative abundance in pitfalls and Winkler samples can also be biased [12,13]. For instance, in our study, the genus *Camponotus* was almost entirely absent from all Winkler samples, although it was among the most common genera in NPF and NSF [14]. This is probably because most *Camponotus* are fast-running species that escape during litter sifting. Moreover, contrary to baiting, both techniques are more limited in the ecological information gained from the sampling. The use of a range of four different baits, mimicking natural resources above and below ground, enabled us to go further into analysing the level of strata specialisation and dietary habits of subterranean ants.

## References

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