

# Microhabitat choice of cryptic species: do closely related nematode species really occur together?

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The prevalence of morphologically 'identical' but genetically distinct species, referred as cryptic species, call into question estimates of the existing number of species and may have implications for our understanding of biodiversity-ecosystem functioning relations, but also challenge ecological theory about species interactions. Cryptic species are particularly prominent in marine environments.

Extensive cryptic diversity exists, for instance, in marine free-living nematodes. In *Litoditis marina*, a common bacterivore nematode associated with decomposing macro-algae in the littoral zone of coastal and estuarine environments, at least 10 cryptic lineages have already been demonstrated. At least three of the four most abundant cryptic species were found to co-occur in the field, but the underlying samplings did not allow assessing whether these species truly co-occur or whether they perhaps exhibit differential microhabitat preferences. The lack of easily distinguishable morphological characters prohibits the classical identification approaches. Here, we use qPCR for a rapid detection and quantification of four cryptic species of *L. marina* on macroalgae in the Westerschelde Estuary to investigate whether these four species truly co-occur or show temporal and/or spatial niche differentiation in their natural environment.

Keywords: cryptic diversity; microhabitat preference; coexistence; spatial; temporal