

S.04-9-Poster

Water mites as parasites of Hemiptera. What is their role in the interactions between native and alien Corixidae?Céspedes Castejón, V.¹, Stoks, R.², Sánchez, M.I.³, Green, A.J.⁴

(1) Doñana Biological Station. (2) Laboratory of Aquatic Ecology, Evolution and Conservation. (3) Doñana Biological Station. (4) Doñana Biological Station

Correspondence e-mail: [vanessa.cespedes@ebd.csic.es]

The invasive species *Trichocorixa verticalis verticalis* (TVV) is originally from North America and has become the dominant Corixidae species in saline wetlands in the south-western Iberian Peninsula. We report on field studies and laboratory experiments which compare infection levels, prevalence and PO (Phenoloxidas) activity of parasitic water mites between TVV and native Hemipterans in Doñana, and consider the implications for the success of the invasion by TVV. We conducted a laboratory experiment to infect different hemipteran species including TVV with the mite *Eylais infundibulifera* at 5 and 10 g/l salinity. We quantified Phenoloxidase (PO) activity, a key immune response in insects. PO and prevalence of mites were also quantified in field samples collected from Doñana. The effects of parasitism on the immune response of species studied (*Sigara lateralis*; *S. scripta*; *S. stagnalis*; *Corixa affinis* and TVV) as indicated by a decrease of PO activity were significant but varied between species. Field data show corixids were much more affected by water mites than other aquatic insects in Doñana ponds., and that TVV suffers higher infection levels by mites than native corixidae. These data are supported by higher infection rates for TVV in laboratory experiments. In contrast to “enemy release”, our results suggest that the invasion success of TVV in natural wetlands of low salinity may be limited owing to a higher susceptibility to parasitic mites compared with native species. TVV is highly dominant in wetlands too saline for mites.

S.04-10-Oral

Evidences for a stochastic geometry of biodiversity in a Mediterranean shrubland: the effects of species abundances, richness and intraspecific clusteringChacón Labella, J.¹, Cruz, M. de la², Escudero, A.³

(1) Universidad Rey Juan Carlos. (2) Universidad Rey Juan Carlos. (3) Universidad Rey Juan Carlos

Correspondence e-mail: [julia.chacon@urjc.es]

Most ecological theories seeking to explain coexistence in megadiverse communities share a set of three rules describing a stochastic geometry of biodiversity: (1) individuals show intraspecific clustering; (2) species abundances vary following a log-normal distribution; (3) the spatial arrangement between species is independent. The first two rules have received strong empirical support, however the third one remains highly unexplored. To fill this gap, we evaluated the independent species arrangement rule in a species-rich shrubland, and its potential drivers: the levels of species richness and intraspecific clustering experienced by a given species at different scales and the relative abundance of such species in the community. Here we show that interspecific associations were rare and that independence was positively related to species richness and intraspecific clustering, and negatively related to relative species abundances. Our results concur with the independent species arrangement rule and provide empirical support to a stochastic geometry of biodiversity. In a context of species-rich plant communities, the likelihood of two species to encounter become really small. However, what our study reveals as a novelty in this context, is that both, intraspecific clustering and the relative species abundances are playing a fundamental role determining the probability of two species to encounter and interact, especially at very fine spatial scales.