Title:

Distribution and salinity tolerance of the invasive isopod *Synidotea laticauda* in the Guadalquivir estuary (SW Spain): Field and laboratory observations.

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Abstract: (Your abstract must use **Normal style** and must fit in this box. Your abstract should be no longer than 300 words. The box will 'expand' over 2 pages as you add text/diagrams into it.)

The effects of the exotic species in native communities are unpredictable and ecological studies should be required for environmental management. In Europe, the exotic species *Synidotea laticauda* has been introduced in several estuaries but there was not any previous biological study about these non-native populations. The spatio-temporal field distribution of *S. laticauda* in the last 30 km of the Guadalquivir estuary (salinities 0 to 30) was assessed during 7 years (August 1997-June 2004) by sampling at each new moon with a mesh size net of 1 mm. Survival and osmoregulatory patterns of the species under different experimental salinity conditions were also estimated. This exotic species is a permanent resident of the estuary, with presence of juveniles and adults during most of the year, but showing maximum densities in the warmest period (summer to early autumn). Spatial patterns were closely related to the salinity gradient: the highest densities were observed between 10 and 30 of salinity, with a maximum at 20 (≈ isosmotic point). In fact, the isopod is a weak osmoregulator, which maintains the osmolality of the hemolymph partially independent of the medium osmolality (in a salinity range of 5 to 25). Moreover, survival experiments showed a high tolerance (mortality < 30%) to sudden salinity changes between 2 and 35 and virtually no mortality in salinities (15-25) close to the isosmotic point (20). Osmoregulatory and survival patterns were not dependent on sex but they seemed to be specific-dependent on salinity acclimation. Although it is a euryhaline species, its weak osmoregulatory capacity explains its salinity-dependent distribution pattern. Our results provide a framework to predict the distribution of this invasive species under sceneries of climate change and consequent freshwater scarcity.