



Spatial and temporal variation in the community structure of insects and its relationship with vegetation and hydroperiod in a coastal wetland of the South American Pacific

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INTRODUCTION

Wetlands represent a biological corridor for migratory bird species and are habitats for a wide variety of invertebrates. Ventanilla Wetlands Regional Conservation Area is a coastal wetland, located in the Ventanilla district, province of Callao, Lima department, Peru. This wetland is within a highly anthropogenical area, therefore, it is necessary to conduct studies on its biological communities.

OBJECTIVE

Evaluate the variation of the insect community structure in the wetland, at a spatial and temporal level, and determine the influence of vegetation and hydroperiod on these changes.

METHODS

The richness, abundance and diversity of plants and insects, including the composition of trophic guilds, were evaluated in eighth sites for six months, from February 2016 to February 2017, distributed in three vegetal communities: *Distichlis spicata* (DSC), *Schoenoplectus americanus* (SAC) y *Sarcocornia fruticosa* (SFC) (Figure 1). For plants, the point intercept method was used and for insects, 10 pitfalls and five pantraps for 48 hours in two transects. The information was analyzed for sites, month, and hydroperiod.

RESULTS

Ten species of plants and 198 morphospecies of insects were identified. For both groups, plants and insects, the internal sites (E4, E5, E6), February 2016 and the dry hydroperiod were the most diverse. Nine trophic guilds were identified, detritivores, predators, phytophages and parasitoids were the most important. The GLM with negative binomial regression indicates that, during the wet hydroperiod, insect richness decreases by 10.6%, but abundance increases 52%, while the greater the number of plant species, the greater the richness and abundance of insects, increasing by 23% and 31% respectively (Figure 2). The correspondence analysis showed no association between the sampling sites and the guilds in each month. The NMDS showed that predators were more important during dry hidroperiod and detrivores during wet hydroperiod (Figure 3).

CONCLUSIONS

The richness plants and the hydroperiod influenced in the composition of insects. Diversity varies between months and there are some dominant families that appear in especific conditions in the wetland. The composition of predators and detritivores varies between hydroperiods, due to the conditions caused by water levels.

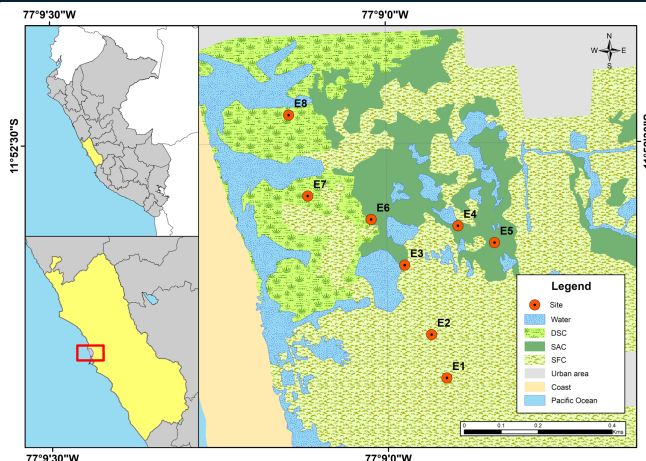


Figure 1. Ventanilla wetlands regional conservation area.

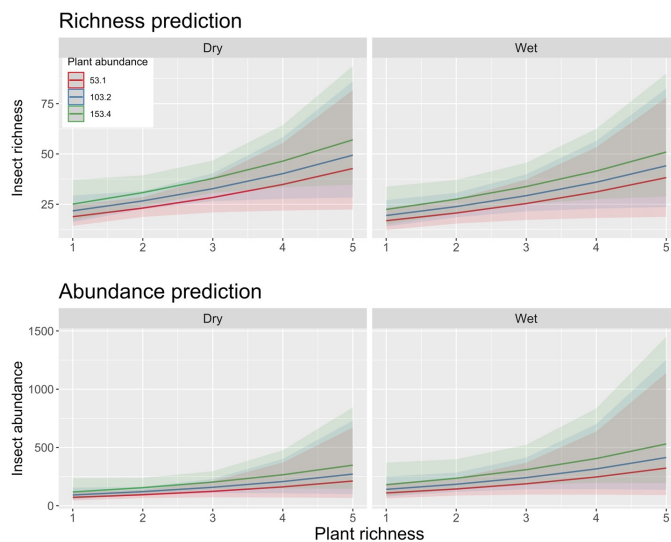


Figure 2. Prediction of insect richness and abundance.

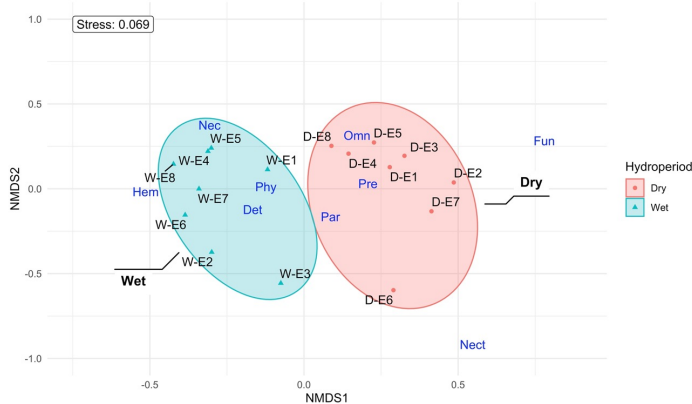


Figure 3. NMDS for trophic guilds by hydroperiod.

1. Sánchez P; Alvaríño L; Iannacone J. 2019. Diversidad de insectos terrestres en cuatro comunidades vegetales del área de conservación regional (ACR) húmedales de Ventanilla, Callao, Perú. *The Biologist*, 17(1):73–94.
2. Rossi C. 2022. Comparación de la riqueza de insectos utilizando dos métodos de recolección en un humedal costero del Pacífico suramericano. *Revista de la Academia Colombiana de Ciencias Exactas, Físicas y Naturales*. 46(181):947–958.