

Introduction

Lycosidae, commonly known as *wolf spiders*, are a widespread family of spiders found in diverse habitats, with a particular preference for aquatic or semi-aquatic environments, such as natural wetlands. Preying primarily on invertebrates from the orders Diptera, Hymenoptera and Hemiptera, they serve as apex predators within their trophic level. These spiders have also been recognized as bioindicators in ecological assessments due to their sensitivity to habitat conditions, such as pollution levels, habitat quality and microclimate variations (Marc et al., 1999). Their predilection for semi-aquatic environments and use as bioindicators made them an important taxon for investigation in biodiversity assessments of Constructed Wetlands (CW).



Figure 1: Wolf spider specimen.

Aim

This study aims to assess both the biodiversity sustained by the CW and its effectiveness as a treatment system by sampling and identifying the resident fauna present, with particular emphasis on wolf spiders due to their ecological role and sensitivity to habitat conditions.

Framework

A CW, a biological wastewater treatment system that mimics the processes and conditions found in natural wetlands (Calheiros et al., 2015), located at a tourism house in the north of Portugal (Figure 2) was assessed after fifteen years of operation. The evaluation focused on both system performance and biodiversity within the CW and its environment, with wolf spiders identified among the fauna recorded at the site.



Figure 2: Constructed wetland established in a tourism unit for wastewater treatment, Ponte de Lima.

Methodology

Pitfall traps (Figure 3) were set seasonally at the CW for the biodiversity assessment of the fauna inhabiting it.

The specimens were then separated by taxon, in this specific case *Lycosidae*, accounted and photographed.



Figure 3: Pitfall trap set up at the constructed wetland.

Final considerations

Preliminary results from the established experiments are currently being retrieved and processed; however, several noteworthy findings have already emerged regarding this taxon. One of the most important was the presence of females carrying their egg sacs, behind them, a position that is characteristic of wolf spiders, since other taxa of spiders often carry at the front, allowing for an accurate identification (Figure 4). This, together with the presence of juveniles and the consistent occurrence of *Lycosidae* across all seasons in substantial numbers, suggests a thriving and stable population indicative of a robust and well-structured ecosystem.



Figure 4: Female wolf spider carrying egg sac.

References:

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