

# DIVERSITY OF AUQUENORRHYNCHA IMMERSED IN THE URBAN SPRAWL

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## INTRODUCTION

The rapidly increasing urban sprawl endangers the diversity inside and outside metropolitan areas. Therefore, conserving and proposing management plans for urban parks and forests is vital to maintaining environmental services for long-term. Mexico City is one of the biggest cities worldwide with an insatiable increase in demography and land use change (Liu et al., 2016; Montejano-Escamilla et al., 2023). For this reason, we propose to monitor environmental quality using insects and focusing on the taxon Auchenorrhyncha to analyze environmental restoration and ecological succession (Dietrich, 2009) and for most of the species there is sensitivity to feed on native plants/vegetation (Biedermann et al., 2005; Hamilton and Whitcomb, 2010; Wallner et al., 2013; Everwand et al., 2014).

## METHODOLOGY

This study was conducted in Mexico City (CDMX), on two urban recreational gardens: Hundido and Venados, two urban forests: Bosque de San Juan de Aragón and Bosque de Chapultepec, and one State park: Sierra Guadalupe. Fieldwork was done from early August 2023 until late January 2024 by using a sweep net, Malaise, pan traps, and a vacuum machine. Biological materials were stored at CNIN (UNAM). Hill numbers were obtained by iNEXT and taxonomic distinctiveness. The urban sprawl surrounding the sampling sites was analyzed at the landscape level. Based on Auchenorrhyncha diversity, management regime, and site characteristics, a disturbance thermometer was performed with all variables taken.

## DISCUSSION

The highest richness recorded was in the most conserved areas of Quercus forest in Sierra Guadalupe, the opposite was the case of Hundido and Venados, which maintain a more intense management regime to keep landscapes with a good-looking shape and use of exotic vegetation. It is important to consider make modification to management plans for green areas for the benefit of maintaining environmental services and insect diversity in cities.

## CONTACT AND REFERENCES



## RESULTS

### 1 Diversity

A total of 10,297 organisms have been sorted and divided into: 14 families, 81 genera, and 106 species. In addition, a new species of the genus *Amblysellus* feeding on wild grasses of public parks (Fig. 1) was found. 22 species retained at CNIN were also found taken in Bosque de Chapultepec from 1920 to 1940s. Concerning Hill numbers (Fig. 2), the most significant value found was Sierra Guadalupe reflecting a community with high richness, equity, and low dominance. The Venados was the site with a distribution of diversity in different taxa but a low diversity dominated by pest species (Fig. 3).

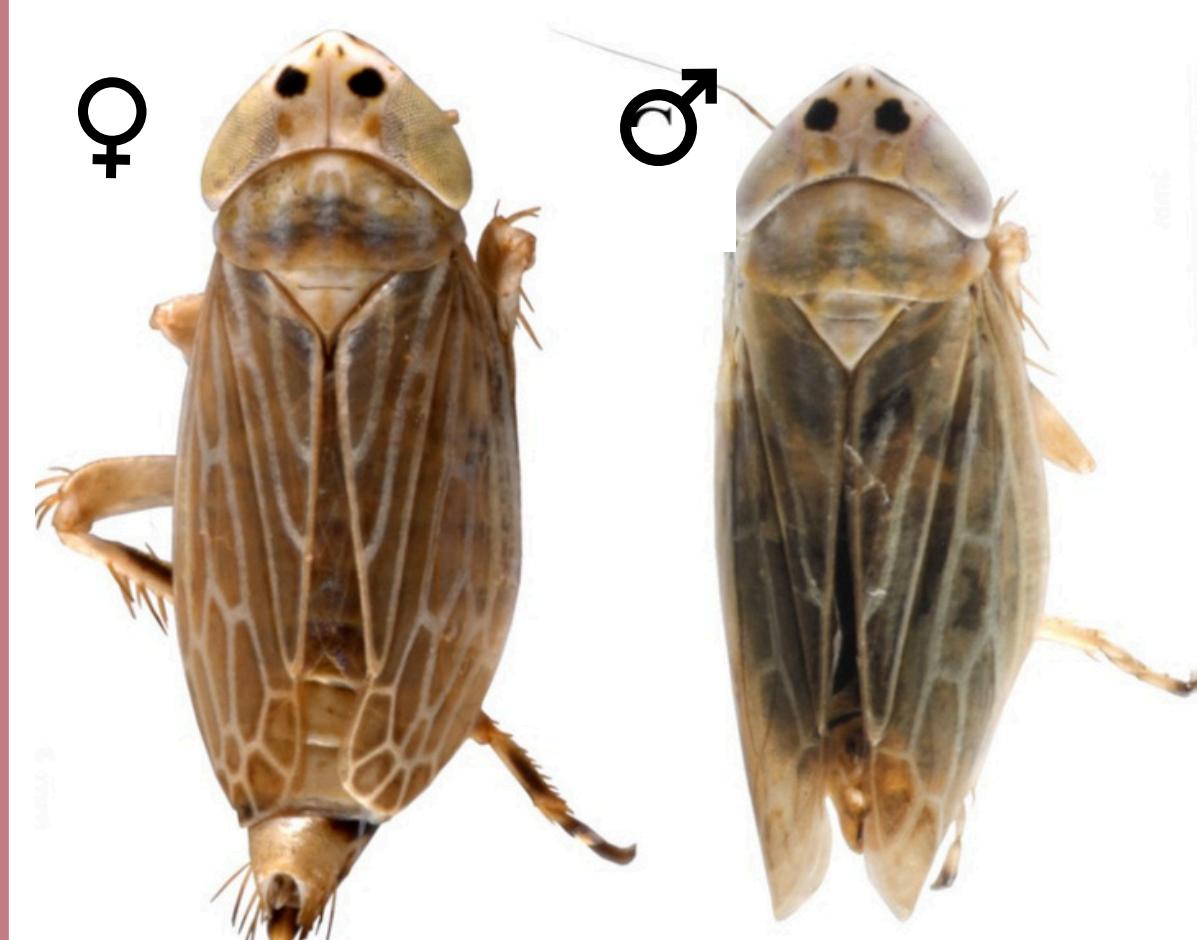


FIG. 1

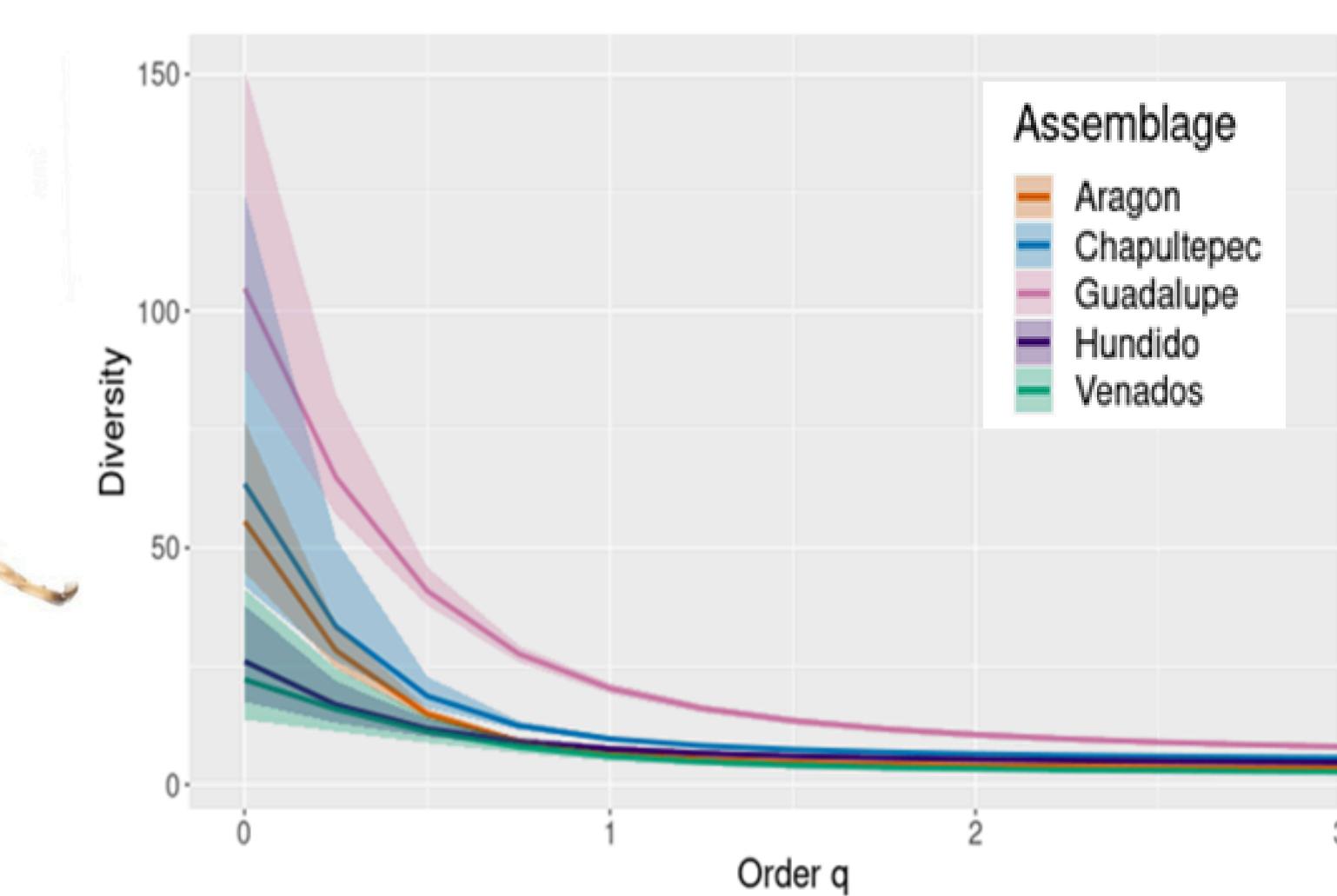


FIG. 2

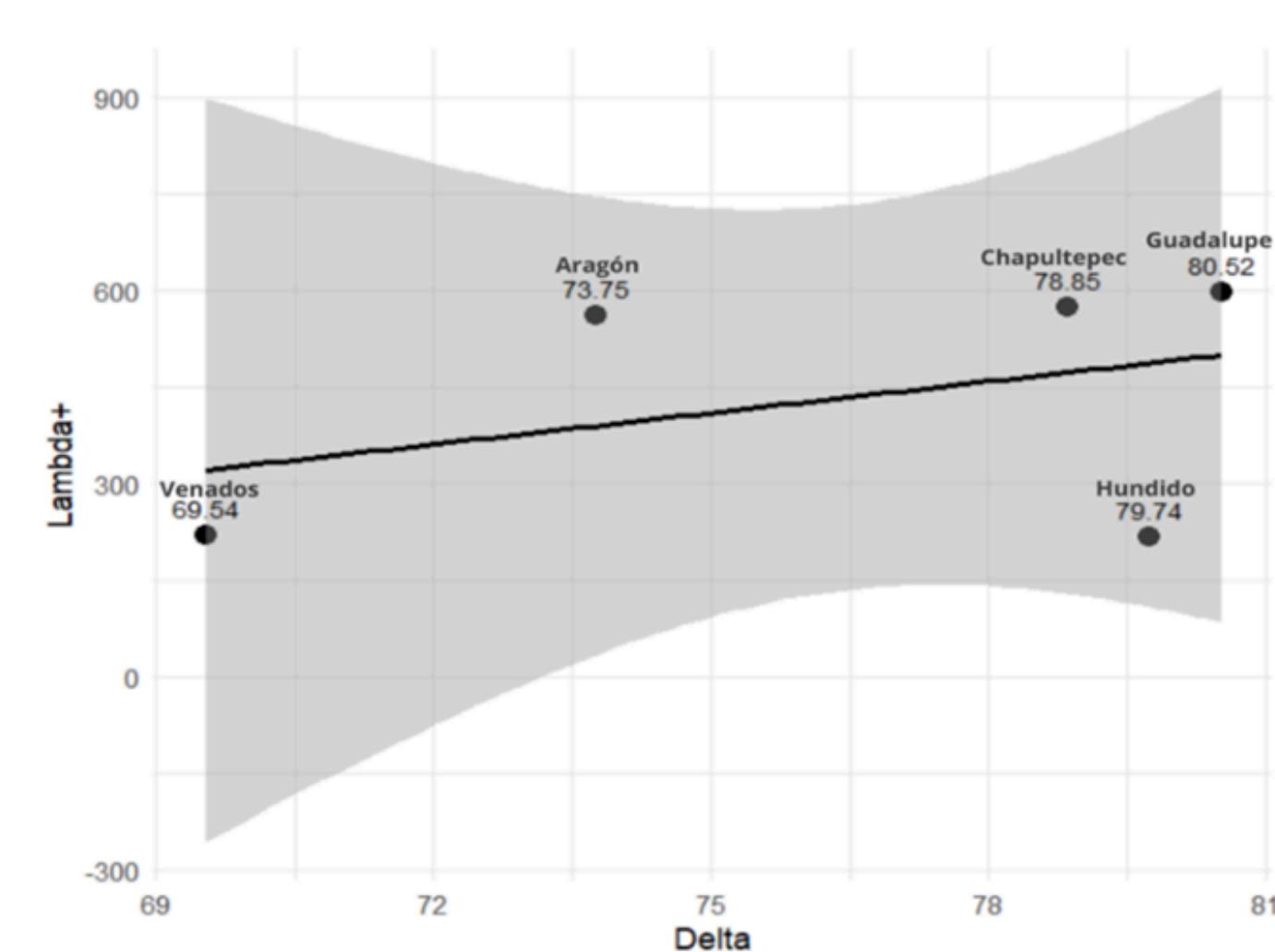


FIG. 3

### 2 Urban landscape

Most sites are isolated by urban zones (Fig. 4). Sierra Guadalupe reported the highest richness in Quercus vegetation compared to lower zones where Eucalyptus was reforested (Fig. 5), sites with a higher intensity of management and use of exotic vegetation presented a lower richness (Parque Hundido and Venados)

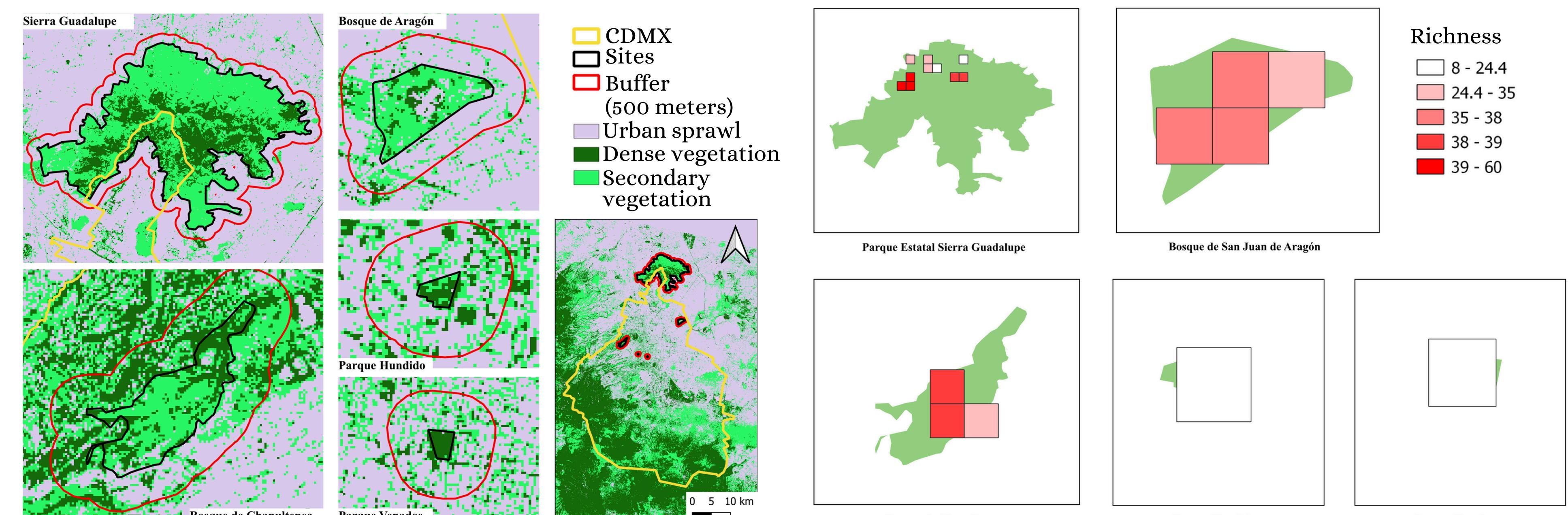


FIG. 4

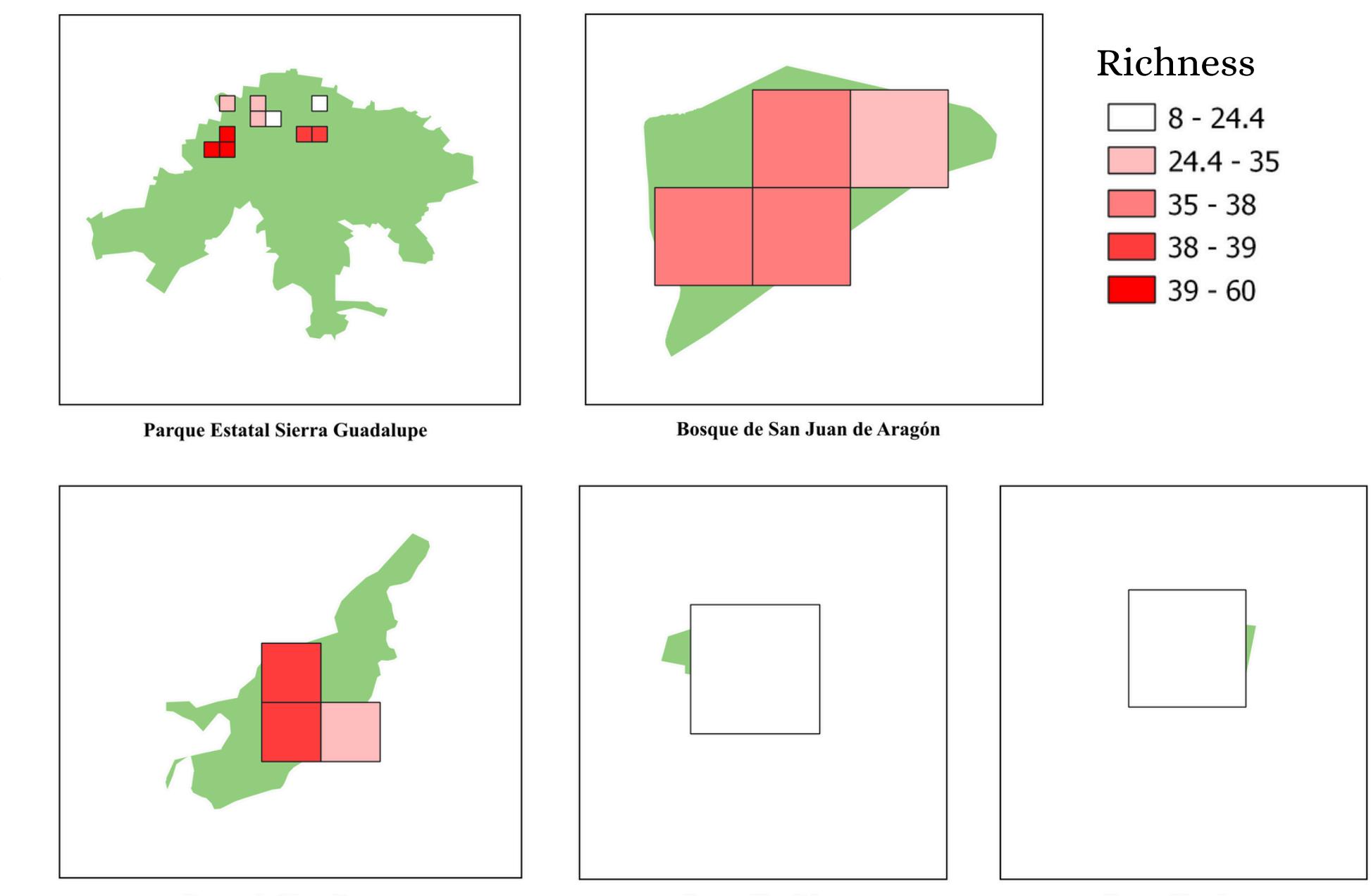


FIG. 5

### 3 Perturbation thermometer

The most constant and resource-reducing activity was mowing, and soil compaction by visitors significantly affected leafhopper abundance. Sites with a lower degree of disturbance were due to the management regime focused on improving environmental services (in Bosque de Chapultepec) and sites with native Quercus vegetation (also in Sierra Guadalupe State park)

