

## Temporal dynamics activity of invasive *Vespula* spp. workers in Argentina.

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The fluctuations in activity levels of insects depend on the success of reproductive individuals, which in turn are affected by a combination of endogenous and exogenous factors. In social insects however, the abundance of individuals is largely explained by the activity of workers outside the nest. This is because the population defined as the number of nests, usually associated with one or a few reproductive females or queens, may not explain the considerable variation that can be observed in the number of workers among them and during nest phenology. For invasive social wasps, such as *Vespula germanica* and *V. vulgaris* in several countries and regions of the Southern Hemisphere, the drivers of worker abundance are important because they can determine the impact these species have on the native systems and, as they have become urban pests that may sting, how and when they pose a major risk to people and their goods. Our aim was to understand, the activity of workers of invasive populations of *Vespula* spp., by analysing the relative importance of endogenous and exogenous factors on worker local abundance, in Southern Argentina. This is the first attempt to model the activity levels of *Vespula* spp. over time. We show that in, as expected, the annual worker activity of *Vespula* spp. wasps presents fluctuations over the years, showing no periodicity within the time window studied, and mainly influenced by the mean atmospheric pressure. However, within a flight season, the levels of wasp activity are influenced by the workers abundance in a previous time. This work provides useful information to understand the fluctuations and driving factors that affect *Vespula* spp. worker activity in an invaded area. This could be a necessary step to develop and revise plans to control and/or management this invasive species.

