Health, zoonotic pathogens and parasites

A camera trap protocol to determine micromammals abundance to support epidemiological studies

García-López, Virginia[1]; Vicente Baños, Joaquin[1*]; Carro, Francisco[2]; Acevedo, Pelayo[1], Ertürk, Alper[1,3]

[1] Universidad de Castilla-la-Mancha, Instituto de Investigación en Recursos Cinegéticos, Ciudad Real, Spain
[2] Research Biological Station (EBD), CSIC, Seville, Spain
[3] Kastamonu University, Kastamonu, Turkey
* joaquin.vicente@uclm.es

DOI: 10.20315/evmc.2025.092

Management of wildlife communities and their ecosystems requires determining and monitoring changes in their specific composition and abundance. Micromammals are crucial species in ecosystems, playing a significant role as prey species and environmental engineers. However, they present complexity when developing monitoring programs. Density estimation of small mammals by capture-recapture generally involves handling them by rapid capture techniques, which sometimes results in the death of the animal, which is unethical. Therefore, we tested, for the first time, a time-lapse based photo-trapping protocol (Space to Event model, STE) in an area of Doñana National Park (Southwest Spain) to determine the abundance of micromammals without the need to capture or handle them. The performed effort allowed determining the micromammal species richness present in the area and compared well against capture methodology. In terms of reliability of abundance estimation, while micromammal densities were within the range of estimations of minimum population size of micromammals determined in the area, its validation as a method to determine density of micromammals still require further efforts. We also evidenced the utility of this approach for monitoring other small-sized terrestrial wildlife, namely reptiles, indicating its potential for camera trap multispecies monitoring. In terms of practicability, field and data processing efforts are feasible and will only get better as new automatic identification tools are incorporated to this protocol. The aspects to improve the protocol include enhancing the optics of camera traps to visualize and identify species, as well as testing camera trap deployment distribution considering habitat availability in areas where, ideally, precise density of small terrestrial wildlife is reliably assessed by independent methods.