MONITORING OF MOSQUITO BREEDING SITES USING DRONES AND MULTISPECTRAL CAMERAS IN PERI URBAN AREAS OF SPAIN

R. BUENO MARÍ, Á. GIL ARQUES, I. MIRALLES BETORET, AND M. GARCÍA HOWLETT

Research and Development (R+D) Department, Laboratorios Lokímica, Valencia, Spain

Abstract Some *Aedes* mosquitoes, mainly *Aedes caspius* and *Aedes detritus*, cause relevant nuisances in urban and peri urban areas situated close to some wetlands in Spain. These floodwater mosquitoes are particularly difficult to control at larval stage after intensive rains, since they can quickly colonize large breeding sites (marshes, lagoons, temporary ponds, etc.) which are usually covered by dense vegetation. Consequently, a quick and precise identification process of potential breeding sites is essential to apply effective larval control measures. In this context, we developed a system to monitor flooded areas suitable for floodwater mosquito proliferation using drones and multispectral cameras. Multispectral sensors allow the identification of water accumulation (even fully covered by dense vegetation), thanks to longitudinal and transversal overlapped images that are taken and processed in the field only in few minutes.

We expose some cases of regular surveillance of breeding sites in different wetlands of Eastern Spain using this novel technology, as well as it's validation process thanks to continuous terrestrial monitoring conducted. The final goal is to systematize the use of drones equipped with multispectral cameras as an Early Warning System (EWS) in mosquito surveillance and control programs.

Key words New technologies, Early Warning Systems (EWS), Aedes, wetlands, larval control