



BOOK OF ABSTRACTS



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In a geological era dominated by human activity, we are experiencing an alarming deterioration of natural environments responsible for environmental disequilibrium and biodiversity loss of unprecedented proportions. The worsening of the ecological imbalance is mainly caused by urban expansion leading to habitat fragmentation resulting in a non-random process of biodiversity loss. This decrease in species richness harmonizes with an increased abundance of invasive mosquito species able to thrive in urban environments thanks to an overabundance of resources. Thus, our interest is to evaluate the risk of (re)-emergence of arboviruses considering anthropogenic and ecological factors (biotic and abiotic) as the driving forces able to modulate the spatiotemporal distribution of vectors, hosts, and pathogens. Based on a coordinated approach of mosquito surveillance, pathogen screening, and environmental monitoring we found *Culex pipiens* mosquitoes infected with USUTU virus and *Setaria* sp. in central Italy. Studying the Usutu reservoirs' biodiversity, we observed a correlation between host biodiversity and USUTU frequency across months. In-deep studies of land cover and degree of urbanization revealed these two variables able to model the distribution of *Cx. pipiens* and *Aedes albopictus*. These analyses repeated over time will allow a detailed map of the risks associated with mosquitoes and the chance to optimize control strategies.

Keywords: mosquito, vector borne diseases, arbovirosis

OC203. A social-ecological systems approach to tick and tick-borne disease risk: exploring local actor engagement in collective action tick bite prevention strategies in the Occitanie region in southern France

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Tick and tick-borne diseases (T&TBDs) are a One Health problem affecting both veterinary and public health worldwide. Due to anthropogenic and bio-physical factors (e.g. societal, cultural, economic, political and climatic variables) various tick species' geographic distribution, and thus T&TBD risk, is increasing globally. Vectors of the highest pathogen diversity, ticks are now considered the primary zoonotic disease vector affecting public health in Europe. Today, acaricides are the primary control method, having seemingly profound negative impacts on environmental health, as well as potentially increasing acaricide resistance in tick populations. Therefore, T&TBD risk is simultaneously health-related (human, veterinary and environmental), ecological (ecosystem functions and biodiversity) and economic, depending on local social and ecological parameters that influence this risk. We argue that One Health-inspired tick bite prevention strategies that integrate local societal and biophysical parameters, as well as multi-sector actor collaboration are the most effective T&TBD risk defense. This approach requires local actor T&TBD risk knowledge combined with science-driven data within multi-actor T&TBD risk network(s). For these reasons, we propose a transdisciplinary method that mobilizes participatory approaches involving local actors to create a shared vision of T&TBD risk. Local actor typologies were first identified using participant observations and secondary data (e.g. the literature), followed by semi-structured interviews with 23 local actors to determine needs, priorities and perceptions regarding local T&TBD risk. Finally, participatory workshops were organized with local actors to discuss social-ecological T&TBD risk indicators and potential collective action-oriented tick bite prevention strategies based on a shared vision of local T&TBD risk.

Keywords: tick-borne disease, One Health, social-ecological systems, local actors, participatory approach

OC204. Sandflies vectors of *Leishmania infantum* in Greek islands

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Leishmania infantum, the causative agent of human and canine leishmaniosis, is one of the most important zoonotic parasites, with a continuous spread from the Mediterranean areas to continental Europe. It is transmitted by female phlebotomine sand flies during successive blood meals. In an effort to evaluate the seroprevalence of leishmaniosis in populations of dogs leaving on the Aegean islands of Crete and Leros, we also collected sandflies from these locations in order to gain information of the species present and their possible role as reservoirs of the parasite. Sand fly collection was performed using the Centre for Disease Control (CDC) miniature light traps and BG Sentinel traps, at regular intervals for two sandfly activity seasons (April to October). A total of 1,299 sand flies belonging to nine species were captured from the 2 islands. The predominant species, based on collected female sand flies, were *Phlebotomus papatasi* (30.2%), *P. similis* (26.3%), *P. neglectus* (18.7%), *P. tobbi* (9.9%) and *Sergentomyia minuta* (7.7%), followed by *P. simici*, *P. perfiliewi*, *Sergentomyia dentata* and *P. mascittii*, several of those being competent vectors of *L. infantum*. Moreover, all female captured sand flies were tested for the presence of *L. infantum*, with a real-time qPCR assay. *L. infantum* infection in dogs was confirmed in both islands (seroprevalence up to 30%), however, none of the sandflies was found to harbour parasites' DNA based on the molecular analyses. The results of our survey confirm that the environment in both islands is favourable for completion of the *L. infantum* life-cycle.

Keywords: *Leishmania*, sandflies, *Phlebotomus*, zoonoses

OC205. Vector borne diseases: an expanding health threat for animals and humans

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Vector-borne diseases (VBDs) are caused by a range of pathogens transmitted to animals and humans by blood-feeding arthropods, e.g., ticks, fleas, mosquitoes and sand flies. On top of threatening human health, they have a major impact on the health and welfare of companion animals and livestock affecting their productivity, resulting in great economic losses. VBDs represent a growing global threat, due to their constant spread from traditional geographical and temporal restraints to new areas, exposing new populations to previously unknown infectious agents and posing unprecedented challenges to practitioners. The constantly changing epidemiology of VBDs is being influenced by