Championing the next generation of One Health researchers

Reducing the risk to livestock and people. For more about ZELS: bbsrc.ukri.org/zels
Ensuring a next generation of scholars can continue conducting interdisciplinary research into zoonotic diseases in emerging livestock systems is essential for One Health success. The ZELS-Associated Studentship Programme (ZELS-AS) has played a critical role in this. ZELS-AS saw students from a range of disciplines, including those from developing countries, undertaking One Health doctoral studies associated with a ZELS project. Dr Stefano Catalano, a veterinarian and parasitologist, undertook his PhD at the Royal Veterinary College (RVC), supervised by Professor Joanne Webster (RVC) and Dr Mariama Sene (Université Gaston Berger, Senegal). He was set to be the first ZELS-AS student to graduate.

His work was the first to detect a potentially zoonotic Schistosoma hybrid naturally occurring in a non-human vertebrate, and also confirmed the prominent role that rodents may play in the transmission of intestinal schistosomiasis in endemic areas of Senegal and elsewhere. The information obtained could be applied to better tailor schistosomiasis control programmes on a local scale, and to influence the public health agenda in many African countries where the disease is endemic. After malaria, schistosomiasis (blood flukes infection) is the tropical disease with the biggest socioeconomic impact. It infects at least 240 million people globally, predominantly in sub-Saharan Africa.

For three years, Stefano and his Senegalese colleagues spent months before and after the rainy season trapping and examining rodents in northern Senegal. Each evening they set up traps that were checked the following morning, while recording capture-related data and starting laboratory analyses. At the same time, colleagues were diagnosing schistosome infections in local communities as part of the associated ZELS project Epidemiology and evolution of zoonotic schistosomiasis in a changing world, led by Professor Webster.

A paper Stefano authored in the Journal of Infectious Diseases (JID) in which he presented his findings was made a JID Editor’s Choice and also adapted into a version aimed at teenagers, with translation into French too. Stefano has first-authored three other papers and he was awarded both a Fellowship Fund Award to attend the 5th International One Health Congress in Saskatoon, Canada, and the Walter and Dorothy Plowright Memorial Prize for Young Researchers for his PhD work.

During his studies, Stefano benefited from annual ZELS and ZELS-AS meetings, regular meetups and a journal club with other ZELS-AS scholars. While his results highlight the possible increased range of animals that can serve as hosts to parasites and the increased vigour and adaptability that hybridisation can confer on parasites, the ZELS-AS programme showed how a supportive and complementary cohort of scholars can help make excellent One Health research possible.

**Epidemiology and evolution of zoonotic schistosomiasis in a changing world**

Principal Investigator: Professor Joanne Webster, Royal Veterinary College, UK

Partners:
- Royal Veterinary College, UK (lead)
- RISEAL, Niger
- The Natural History Museum, UK
- University Gaston Berger, Senegal

“**You can have millions poured into schistosomiasis interventions on humans but how can you control and eliminate this disease if you are not aware of potential animal reservoirs that keep the disease circulating?**”

Dr Stefano Catalano, ZELS-AS graduate

“**The ZELS-AS initiative has been a highly productive and gratifying experience. By its very nature, this format has successfully maximised collaboration and the cross-fostering of ideas.**”

Professor Joanne Webster, RVC

ZELS project lead and Stefano Catalano’s ZELS-AS supervisor