

Research project IZS VE 08/12

Prioritising infectious diseases, their early detection and control scenarios, in the ungulate populations of the North-Eastern Italian Alps

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Emerging or re-emerging infections (including zoonoses) are more likely to originate from: wildlife, non-wildlife animals, drug-resistant pathogens and vector-borne diseases. In the eastern Alps the number of wildlife, and mainly of ungulates (red deer, roe deer, chamois, ibex, moufflon and wild boar) is constantly increasing. As a consequence, contacts at the wild/domestic animal-human interface have also been increasing, making the circulation of pathogens between the different components of the ecological interface more likely. In such a situation, early detection and the prompt response to the introduction or re-introduction of a pathogen is a pre-requisite of any human and animal health risk management model.

The early detection of a pathogen is aimed at reducing the high-risk period of an epidemic during which the infection can spread uncontrolled. The length of the first high-risk period mainly depends on the awareness and preparedness regarding the possible risk. The second high-risk period elapses from the first diagnosis until the enforcement of control measures. The efficacy of the control measures is related to the knowledge of:

- ecology of the involved pathogen;
- ecology and demography of the host population/s;
- epidemiology of the pathogen in the susceptible populations.

The capacity to interrupt the chain of the infection is represented by the ability to halt the ecological relationships that link the pathogen to the host population.

In this context, and taking into account the main role of the Institute, the project aims to:

- assess which infections have the highest risk of being introduced (or re-introduced) at the wild ungulate-domestic animal-human interface, and which of them will be more likely to have clear health implications (prioritization);
- collect and collate relevant data on the possible host populations (wild ungulates), the risk management model and the components of a control scenario, in order to build a geodatabase as a basic instrument for planning both surveillance and (if this is the case) control/eradication activities (data management);
- develop diagnostic tools and surveillance strategies aimed at the early detection of the identified infections and the design of feasible control scenarios (early detection and eradication scenarios).