

Monitoring of an Infective Keratoconjunctivitis outbreak in Alpine ibex populations within the Stelvio National Park and the Swiss National Park

Luca Corlatti ^{1,5 *}, Thomas Rempfler ², Alessandro Gugliatti ¹, Alessandro Bianchi ³, Flurin Filli ², G. Battista Silvestri ⁴ & Luca Pedrotti ¹

¹ Stelvio National Park, Bormio (IT)

⁴ Province of Sondrio, Sondrio (IT)

² Swiss National Park, Zernez (CH)

⁵ Institute of Wildlife Ecology and Game Management, Vienna (AUT)

³ Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia, Sondrio (IT)

* Correspondence: luca.corlatti@boku.ac.at

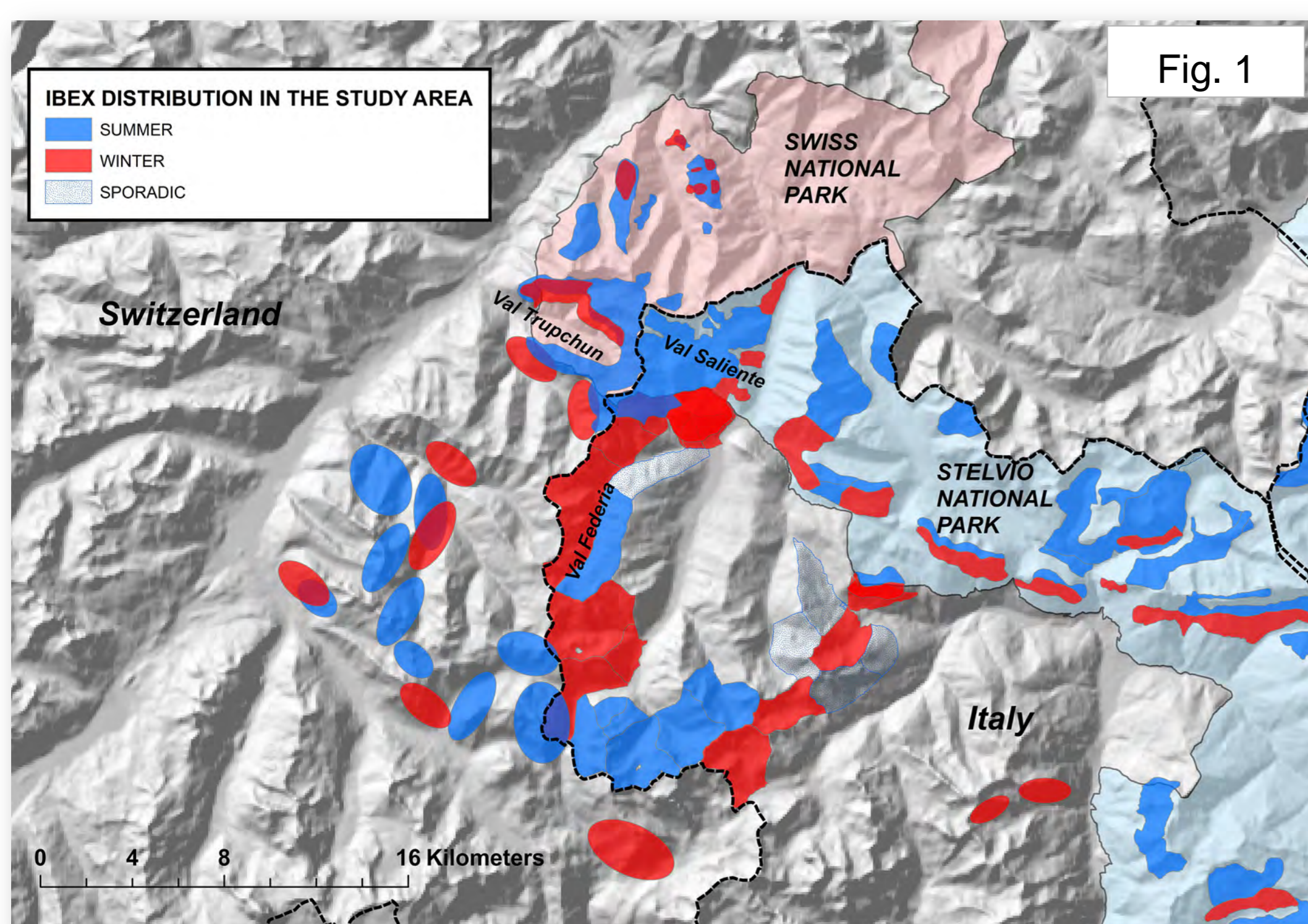


Fig. 1

Introduction

The monitoring of infectious diseases is a key aspect of wildlife surveillance. Ibex are widely distributed within the Stelvio National Park, the Swiss National Park, and in neighbouring areas (Figure 1), with summer densities of about 9 ind. / km² and 11 ind. / km² in the Italian and Swiss areas respectively.

In mid July 2015, in the Saliente Valley – on the border between the two Parks – a few male ibex were reported to show signs of eye disease, possibly attributable to Infective Keratoconjunctivitis (IKC).



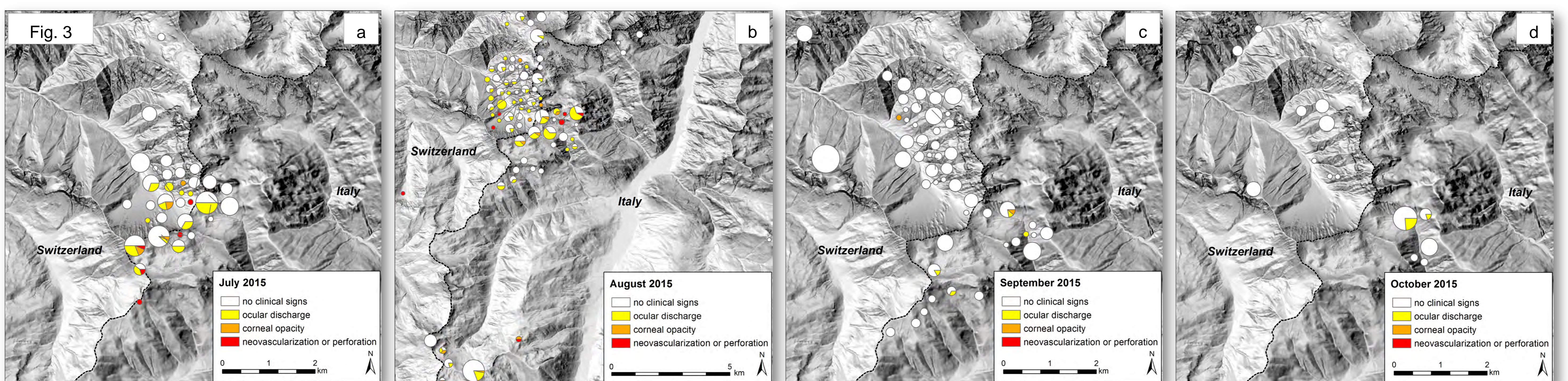
Fig. 2

We aimed to investigate the aetiology of the disease, and monitor the geographical and temporal evolution of the outbreak.

Methods

In July 2015 we darted 9 adult males in the two parks, showing clinical signs attributable to IKC (Figure 2), and collected conjunctival swabs to identify the outbreak's aetiology by means of a Taqman PCR analysis. Between July and October 2015, park wardens were asked to survey the ibex populations at given time intervals and collect information about location, sex, age, presence and characteristics of IKC signs in both eyes for each observed individual. The severity of IKC signs was classified using multiple-choice answers (no clinical signs - 0, ocular discharge - 1, corneal opacity - 2, neovascularization or perforation - 3).

Results



The PCR analysis confirmed the occurrence of *Mycoplasma conjunctivae*. $N = 356$ and $N = 645$ individual observations were collected in the Italian areas and in the Swiss NP, respectively. The IKC geographic distribution was limited to the south-westernmost part of the Swiss NP (Val Trupchun) and to the bordering Val Saliente and Federia (Italy) (Figure 3a-d). In outbreak areas, the percentage of ibex showing signs of IKC was: 20 % in July; 31 % in August; 2 % in September; 8 % in October (but with a limited number of observations). Similarly, the severity of IKC signs in infected animals steadily declined over time in both areas (Figure 3a-d). We had no evidence of mortality events attributable to IKC.

Take-home message

The regression of the IKC outbreak may have been favoured by the timing of the outbreak onset, as well as by good environmental conditions (i.e. food abundance, lack of human disturbance) and sexual segregation. Although we had no evidence of IKC-caused mortality, further monitoring will be necessary to evaluate potential consequences of the outbreak on the population dynamics.

Acknowledgements

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