RESPONSE

Feline leukaemia virus outbreak in the Iberian lynx in 2007: analysing partial data may lead to misconceptions

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In López et al. (2009), we reported an outbreak of feline leukaemia virus (FeLV) in the Doñana Iberian lynx population, and described the management measures adopted for its control. Among the factors suspected to increase the individual contact rate (and thus the potential for favouring the dispersion of the FeLV), we discussed the implication of supplementary feeding stations (SFS). However, the SFS were not considered to play a central role in the spreading of the virus throughout the population (see López et al., 2009).

Palomares, López-Bao & Rodríguez (2010) provide a potential explanation for the evolution of the FeLV outbreak in the Doñana population based only on partial data (video- and photo-trapping inside the SFS and radio-tracking data), which may lead to fundamental misconceptions when interpreting the possible scenarios for the evolution of this outbreak: only 10 individuals out of the 16 living in the Coto del Rey subpopulation (CRS) in late 2006 were radio-tagged, while video- and photo-trapping conducted inside the SFS does not provide complete knowledge of the use of space by the Iberian lynx.

All FeLV-viraemic Iberian lynxes detected in 2007 were from the CRS subpopulation. Coto del Rey is an area of about 10 000 ha of suitable habitat for the Iberian lynx (according to Palomares, 2001), with stable breeding territories in the north and south and a central connecting area commonly used in dispersal (Fig. 1). During 2007, two of the six juveniles living in CRS were recorded both in the north and in the south (Fig. 1), and two more were also suspected to move between the two breeding cores. Moreover, no lynx from any other subpopulation was recorded that year in CRS. Under this scenario, we consider that Coto del Rey acted as a single subpopulation when the FeLV was circulating.

Because Román (a male living in the south of CRS) was the first detected FeLV-positive individual, Palomares and colleagues assume that he was also likely to be the first FeLV-infected Iberian lynx in the population. Given that two of the 10 Iberian lynxes (Inesperado and Cacao) found to be FeLV-viraemic had neither been radio-tagged nor analysed by late 2006, we believe that this is a risky assumption. A plausible alternative explanation for the origin of the outbreak is that either Inesperado or Cacao (who comes from the same territory in north CRS) were first infected by contact with a domestic cat and that the virus reached south CRS as one of these untagged individuals moved between the two breeding cores in CRS. Thus, although the hypothesis proposed by Palomares and colleagues is plausible, we cannot discard other ecologically possible scenarios either.

Although the SFS may seem not to be the main factor explaining the transmission of FeLV throughout the population, we consider that its potential role in the spread of the outbreak cannot be neglected. Although both the inter-sexual differences in the response to FeLV observed in the Iberian lynx and the low sample size prevent the drawing of definitive conclusions, explanations regarding the role of the SFS that do not take these two factors into account may be oversimplistic. All five adult males living in CRS were positive and became persistently infected, while only two of the adult females were positive and both turned the virus into latency. Only one adult female (Wari) out of the three females sharing the SFS with Román in 2006 was analysed in 2007, and tested negative. In our opinion, the fact that Wari was negative in September does not mean that she was not infected during the mating season, as a complete clearance from infection can occur in both domestic cats (Barr & Bowman, 2006) and the Iberian lynx (LIFE project, unpubl. data). Support for this idea comes from the fact that Wari and Román copulated after the male tested positive, and copulation is thought to be one of the most effective ways of transmitting FeLV (Rojko & Kociba, 1991). One of the two other females sharing the SFS with Román in 2006...
Figure 1 Map of the Coto del Rey subpopulation in 2007. Grey patches are suitable habitat for the Iberian lynx according to Palomares (2001). Thick-line polygons represent the minimum convex polygon resulting from photo-trapping in 2007, direct sightings and radio-tracking locations of all individuals living in the area in late 2006. The thin line represents the boundaries of the Doñana Natural Space.

Figure 1

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Finally, Palomares et al. (2010) discuss the potential relevance in the persistence of the outbreak of the antibiotic residues found in the domestic rabbits used in the SFS. Recognized as one of the potential factors increasing the susceptibility of individuals to FeLV (López et al. 2009), the role of antibiotics deserves further attention, and is currently under study.

Finally, we believe that the importance of the SFS in the FeLV outbreak that hit the Doñana Iberian lynx population in 2007 should not be underestimated. Along with the other factors that encourage lynx–lynx contact in the population, and that are described in López et al. (2009), the SFS may play an important role in the spread of the virus in CRS. Although we have not been able to evaluate the effect of each of the techniques implemented to control the outbreak, the measures described in López et al. (2009) were efficient in an overall sense in controlling this disease.
References


