

Briefing Note 2: Understanding Flaviu

Introduction

On 7 July 2016 a Eurasian lynx named Flaviu escaped from Dartmoor Zoological Park. After a period of three weeks, Flaviu was recaptured and returned to captivity. During this period it is reported that Flaviu attacked and killed four lambs. This suggests a predation rate of around 69 sheep per year which is significantly higher than the European average (0.40 sheep per year) and the rate estimated for Norway (10.51 sheep per year) in [White et al. \(2016\)](#). Given this difference, AECOM were asked by the Lynx UK Trust to review the case of Flaviu and identify any factors which could explain why the observed predation rate was higher than expected. The results are summarised below.

1) Differences in the behavior of captive and wild lynx

There are a number of studies which look at the rates of success among species reintroduction projects and the factors which can determine success or failure. [Jule et al. \(2008\)](#), for example, looked at the success of carnivore reintroduction schemes and found that the source of the released animals i.e. whether they were wild-caught or captive-born, was key to determining whether the schemes were likely to be a success or a failure. In particular, the study found that reintroductions using captive-born animals were much more likely to fail than those using wild animals. This was also found to be the case in studies by [Fischer & Lindenmayer \(2000\)](#), [Griffith et al. \(1989\)](#), and [Wolf et al. \(1996\)](#).

[Jule et al. \(2008\)](#) explain that the source of reintroduced predators is important because animals which have been raised in captivity often demonstrate a lack of socially learned skills such as hunting, conditioning and familiarity with humans and human environments, and experience feeding on livestock and non-wild prey. As a result, they can be less successful at capturing wild prey which leaves them susceptible to starvation and/or higher rates of predation on domestic species.

With regards to lynx in particular, [Linnell et al. \(2009\)](#) reviewed past examples of reintroduction projects and found that in several cases captive-born lynx starved to death, became specialist sheep predators, or were recaptured due to a lack of shyness towards humans. In Poland, for example, 30 captive-born lynx were released; of which 13 died in the first three years and one persisted in killing livestock because it failed to develop the hunting skills needed to tackle wild prey. In Germany, 24 captive-born lynx were released, two of which had to be recaptured due to a lack of shyness towards people and four died of starvation. While in the Czech Republic, six captive born lynx were released, one of which died from malnutrition two months after its release and by the end of the first year there were no signs of any of the others.

The evidence therefore suggests that a captive-born lynx such as Flaviu may have lacked the skills needed to hunt wild prey and as a result may have preyed upon lambs which were easier to capture. A trial reintroduction using wild-caught lynx would be expected to have a greater chance of successful predation behaviour and lower rates of livestock predation.

2) Lack of suitable habitat and available prey

[Jule et al. \(2008\)](#) also found that habitat suitability and prey availability are key factors in determining the success of a reintroduction project. Lynx in particular require significant areas of forest cover, with [Niedziałkowska et al. \(2006\)](#) finding that lynx in Poland are typically found in areas of dense forest, although can survive in areas with at least 40% forest cover. While [Basille et al. \(2009\)](#) found that the availability of roe deer populations – which are the preferred prey of lynx – are a key factor in determining lynx distribution.

In Norway, where sheep predation is higher than the European average, studies such as [Moa et al. \(2006\)](#) and [Odden et al. \(2008\)](#) have found that lynx show a preference for forested areas with high roe deer density as they are specially adapted for hunting deer in forests. These studies have also found that lynx actively avoid areas with high sheep densities and predation is typically due to incidental encounters with sheep in forested areas. Further studies in Norway such as [Odden et al. \(2006\)](#), [Odden et al. \(2013\)](#), and [Gervasi et al. \(2013\)](#) suggest that high rates of livestock predation are at least in part a response to the limited availability of roe deer prey. Together, these studies suggest that a lack of forest cover and limited availability of prey can lead to higher rates of livestock predation than would be observed in areas which are more suited to supporting lynx.

For the case of Flaviu, the escaped lynx was inadvertently released into the Dartmoor area in Devon. According to [Devon County Council \(2009\)](#), Devon is one of the least wooded counties in Britain with a total woodland cover of 10%. This is much lower than the 40% forest cover required to support lynx identified by [Niedziałkowska et al. \(2006\)](#) and much lower than the level of forest cover in the Kielder area which is estimated to be around 69% in [White et al. \(2016\)](#).

Anecdotal evidence also suggests that the roe deer population is much lower in the Dartmoor area than in Kielder, although quantifiable survey data was unavailable for the preparation of this Briefing Note, and more primary research would therefore be required to verify this claim.

As a result of these factors, it appears that Flaviu would have been unlikely to encounter roe deer in suitably forested areas and so may not have had the opportunity to develop normal hunting behaviour. Instead, Flaviu would have been more likely to encounter sheep in an agricultural landscape which he may have targeted as an alternative source of food.

The evidence therefore appears to suggest that the area in which Flaviu escaped would not have provided sufficient woodland cover or prey availability to support a wild lynx preying on wild prey. As a result, Flaviu would have been more likely to prey upon livestock than would be expected in an area more suitable for lynx. A trial reintroduction in Kielder where there is much higher forest cover and a greater density of prey would be expected to better support lynx and have significantly lower rates of livestock predation.

Conclusions

The evidence suggests that there may be two underlying factors which could help to explain Flaviu's high rate of sheep predation: he is a captive-bred lynx and is unlikely to have developed the skills required to hunt wild prey; and there is a lack of suitable habitat and prey availability in the Dartmoor area which means he would have been unlikely to encounter suitable opportunities for hunting wild prey.

This combination of factors may have led Flaviu to predate upon livestock at a higher rate than would be expected in more suitable areas. A trial reintroduction of wild-caught lynx in Kielder Forest would be expected to have significantly lower levels of livestock predation as the lynx would already have the necessary skills required to hunt wild prey, and there would be greater potential to encounter suitable opportunities for hunting wild prey due to the dense forest cover and high roe deer density.

References

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