

Species at Risk

Eurasian lynx – effect of habitat fragmentation at the periphery of a globally common species



Abstract

The Eurasian lynx (*Lynx lynx*) is a widely distributed felid and, as such, is not considered to be threatened. On the other hand, some European populations show declining trends. The population living in northeastern Poland is on the western-most limit of the natural range of the species and it occupies highly fragmented habitat. We tested if the current distribution of Eurasian lynx populations has a noticeable effect on their genetic diversity. Based on analysis of microsatellite markers, the lynx from the NE Poland appeared to have lower genetic variability than those inhabiting continuous habitat (Latvia and Estonia). The sampled populations were also significantly genetically differentiated from each other with the NE Polish lynx forming a clearly distinct genetic group. The NE Polish population also showed a lack of variability in the coat pattern, whereas the lynx from more continuous habitat had very diverse fur patterns. The results suggest that the peripheral populations of Eurasian lynx may be genetically isolated from the core of the species range and thus exposed to the increased risk of genetic drift.

Many of the worlds' cat species are currently considered endangered (Nowell and Jackson 1996). Although often officially protected, their populations decline due to habitat fragmentation, poaching, or food resource depletion. For instance, just a few years ago one of the rarest felid species, the Iberian lynx (*Lynx lynx*), has approached the verge of extinction (Breitenmoser et al. 2002) giving rise to concern about other cats, as the threats that are common for all carnivores are imminent. Moreover, there is an increasing amount of evidence that not only rare and geographically limited, but also previously common, widely distributed species are now listed as threatened with extinction (Gaston and Fuller 2007). The mechanisms of this process stem from the fact that it is at the level of population where extinction rates are substantial (Hughes et al. 1997). The more isolated a population is, the higher extinction risk it faces due to depletion of its genetic variation (Frankham 1995).

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