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**Summary: Causes of Mortality in Reintroduced Eurasian Lynx in Switzerland**

 During the nineteenth century, lynx located in many central and western European countries, including Switzerland, had been completely eradicated. Lynx were able to be reintroduced into the Swiss Alps and Jura Mountains in the twentieth century. Even though reintroduction of the lynx was successful, the growth of the reintroduced populations halted. The purpose of this study was to document the causes of mortality in the lynx populations, as documentation of that kind is rare, and to determine the significance that those causes have on the longevity and stability of the lynx populations.

 In order to document the causes of mortality, the researchers studied seventy-two lynx that had been found dead over the course of twelve years (from 1987-1999), and established their cause of death. Of the seventy-two lynx, fifty-two of them died from noninfectious diseases or human related causes, and the other thirteen died from infectious diseases. But of those seventy-two lynxes, when the researchers only took into account the felines that had been part of a radio telemetry program, the number of lynx that died from infectious diseases was significantly larger then when considered with the whole group. This led the researchers to hypothesize that even a small number of infectious diseases can have a significant impact on the continuance of the lynx population in the mountains of Switzerland.

 The researchers’ process of documenting and establishing causes of death included differentiating the lynx populations within the areas of study by location, and then grouping by age and gender. Full necropsies were performed on each lynx, and any external parasites were identified by their morphological characteristics, which are their external structures and features (Biology Online). Protozoan parasites, which live off of the cells and tissues of other organisms (Protozoan Parasites), and helminth parasites, which are round or flat worms that are usually found in animals (**Helminth Parasites) were tested for in fecal samples from fifty-eight lynx. If bacterial infections were suspected in a lynx, bacteriological examinations were performed to determine the number of microbes contained in the possible infection site (Bacteriological Examination). Lynx were also tested for rabies if they were found in an area that had been known to be affected at the time of discovery. Once the lynx had been examined, they were further classified by their means of discovery, whether by chance or portable transmitters known as radio telemetry, as well the year of death and cause of death.**

 **The results of the researchers examinations established that fifteen of the seventy-two lynx were found by radio telemetry and the other fifty-seven were discovered by chance and reported. Thirteen of the lynx died from infectious causes, the majority of those being parasitic, with bacterial diseases following. Fifty-two of the lynx died from noninfectious causes, most of which were human related vehicular collisions and poaching. Of all the analyzed animals, seventy-four percent had some kind of parasite, and of the seven that had been tested for rabies, none tested positive. Twenty-nine of the lynx were juveniles, (animals younger than ten months). Fourteen were subadults, (males younger than three years, and females younger than two years). And twenty-six were adults (males older than three years, and females older than two years), which were all of reproductive age.**

 **These findings illustrate that infectious diseases may have an impact on the lynx populations in Switzerland or other small populations, especially if the adults of the population are contracting the infections. Whether the cause of death is an infectious disease, a noninfectious disease, or other cause, if the animals of reproductive age are dying more frequently than those of non-reproductive age the population may not be able to survive because of a lack of new offspring.**

Works Cited

“Bacteriological Examination.” *Chestofbooks.com.* StasoSphere. 11 November 2012. Web. 28 March 2013. http://chestofbooks.com/health/wounds/Infected-Wound-Treatment/II- Bacteriological-Examination.html#.UVpWI1eH98E

 “Helminth Parasites.” *Parasite.org.au.* The Australian Society for Parasitology Inc. N.d. Web. 28 March 2013. http://parasite.org.au/para-site/contents/helminth-intoduction.html

“Morphological Features.” *Biology-online.org.* Biology-online.org. 3 October 2005. Web. 28 March 2013. http://www.biology-online.org/dictionary/Morphological\_features

“Protozoan Parasites.” *Safewater.org.* Safe Drinking Water Foundation. N.d. Web. 28 March 2013. http://www.safewater.org/PDFS/resourcesknowthefacts/Protozoan\_Parasites.pdf

“Radio Telemetry.” *Michigan.gov.* Michigan.gov. N.d. Web. 28 March 2013. http://www.michigan.gov/dnr/0,1607,7-153-10370\_12143-70426--,00.html

Schmidt-Posthaus, Heike et al. “Causes of Mortality in Reintroduced Eurasian Lynx in Switzerland.” *Journal of Wildlife Diseases* 38.1 (2002). Web. 4 February 2013.