



The cost of maturing early in a solitary carnivore.

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Abstract: Central to the theory of life history evolution is the existence of trade-offs between different traits, such as the trade-off between early maturity and an extended period of body growth. Based on analysis of the reproductive tracts of harvested Eurasian lynx (*Lynx lynx*) females in Norway, we find that females that mature early are generally heavier than those that postpone maturation. A higher proportion of 1.5-year-old females showed signs of ovulation in areas with high prey density, where they were also heavier. Further, we show that female Eurasian lynx that mature early have the same number of placental scars (an index of breeding investment and litter size) as older females, suggesting that they have a relatively high investment in their first litter. This induces a cost in terms of body weight development, as those females that had matured at the age of 1.5 years were substantially lighter by the age of 2.5 years than those that postponed breeding. This effect tended to be more pronounced in areas with low prey density. We discuss to what extent this might affect their future fitness prospects, and suggest that such costs of maturing early in terms of body weight development might be high in terrestrial large carnivores due to a prolonged period of postnatal care.

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