

THE ANTI-SOCIAL SOCIAL CATS

A review of the current knowledge of social behaviour in lynx (*Lynx rufus*, *Lynx pardinus*, *Lynx lynx*, and *Lynx canadensis*)

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BACKGROUND



Lynx are medium sized carnivorous cats found throughout the northern hemisphere consisting of four known species.[1]

Lynx are largely solitary animals. The few social behaviours they use are essential for mate selection and raising of young [1]

Social behaviour in lynx include:

- Direct communication (physical interactions)
- Indirect communication (Scent-marking)
- Territoriality
- Reproduction
- Parent-offspring interactions
- Sibling-sibling interactions



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EVOLUTION



- **Specialized hunting techniques** led to the evolution of a solitary life-style [1]
- **Maternal parental care** system led to the only social groups in lynx being between mothers and off-spring, and only until off-spring are self-sufficient [1]
- The evolutionary function of social behaviours is mainly due to **reproduction** [1]
- Most social behaviours in lynx are **genetic and instinctual**, while some are learned when young through sibling and parental interactions [1]

PRE-MATING BEHAVIOUR



- **Scent-marking** is the primary pre-mating social behaviour Including: urine spraying, scratching, rubbing, and licking [2]
- Used to advertise **presence and reproductive state** [2]
- Defines **territory**, which females require before they will mate to secure access to enough resources [2,3]
- Territories of unrelated lynx of the same sex will have **very little overlap**, while individuals of the opposite sex will have **significant overlap** [2, 3]
- Mother lynxes will tolerate territory overlap with their daughter [2, 3]
- Scent-marking and territory can be easily disturbed by human activity [3]

POST-MATING BEHAVIOUR

Mother-offspring interactions

- Include: Grooming, play, care, and aggression (rarely) [4]
- Used to **teach** kittens and form bonds [3, 4]

Sibling-sibling interactions

- Include: Play, grooming, and aggression [4]
- Used to learn **social structure** and practice life skills [4]
- Kittens can form **dominance hierarchies** as they age, resulting in increased aggression (Figure 1) [4, 5]
- Social interaction become less friendly and more neutral as kittens age. Changes in interactions are possible reason for kitten **dispersal** [4,5]

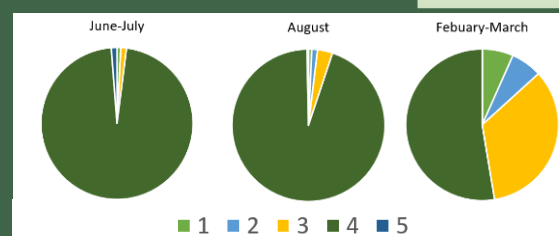


Fig. 1. Proportion of each social behaviour in kittens different development stages. 1-Identifying contact, 2-butting, 3- grooming 4- play, 5- aggression. Adapted from Naidenko 2001 [4]

RESEARCH SIGNIFICANCE

- Provides a better understanding of feline behaviour
- Can be used to minimize human impact and avoid disrupting lynx social behaviour
- Contributes to knowledge for conservation efforts
- Can help in providing natural opportunities for social behaviour in captivity
- Can aid in methods for reintroduction of lynx to areas they have gone locally extinct



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References:

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[1] Kleiman, D. G., & Eisenberg, J. F. (1973). Comparisons of Canid and Felid social systems from an evolutionary perspective. *Animal Behaviour*, 21(4), 637–659. [https://doi.org/10.1016/S0003-3472\(73\)80088-0](https://doi.org/10.1016/S0003-3472(73)80088-0)

[2] Vogt, K., Zimmermann, F., Kölliker, M., & Breitenmoser, U. (2014). Scent-marking behaviour and social dynamics in a wild population of Eurasian lynx (*Lynx lynx*). *Behavioural Processes*, 106, 98–106. <https://doi.org/10.1016/j.beproc.2014.04.017>

[3] Schmidt, K., Jędrzejewski, W., & Okarma, H. (1997). Spatial organization and social relations in the Eurasian lynx population in Białowieża Primeval Forest, Poland. *Acta Theriologica*, 42, 289–312. <https://doi.org/10.4098/AT.arch.97-30>

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