



Research

European wildcat and domestic cat: Do they really differ?

Greta Veronica Berteselli^{a,*}, Barbara Regaiolli^b, Simona Normando^a, Barbara De Mori^a, Cesare Avesani Zaborra^b, Caterina Spiezio^b^a Department of Comparative Biomedicine and Food Science, University of Padua, Legnaro, Padua, Italy^b Research and Conservation Department, Parco Natura Viva, Bussoleng, Verona, Italy

ARTICLE INFO

Article history:

Received 30 November 2016

Received in revised form

24 July 2017

Accepted 5 September 2017

Available online 14 September 2017

Keywords:

wild felid

house cat

species-specific behavior

behavioral repertoire

ABSTRACT

The wildcat (*Felis silvestris*) is considered a “strictly protected” species, and it is included in CITES Appendix II. Nevertheless, it is classed as threatened in many European countries. Improving our knowledge on the behavior of the European wildcat might be valuable for the conservation of this species in the wild as well as for its husbandry in captive environment. The aim of this study was to enhance biological and behavioral knowledge of the European wildcat by comparing its behavior with that of the domestic cat. Individual and social behaviors of a group of European wildcats in captivity were observed and compared with behaviors of a domestic cats’ group to underline similarities and differences. Six European wildcats housed at Parco Natura Viva and 5 domestic cats (*Felis silvestris catus*) were the subjects of this study. Two 10-minute daily sessions per subject were run. For each subject, a total of 120 minutes of observational data were collected. Individual and social behaviors of the 2 groups were recorded. A continuous focal animal sampling method was used to assess the amount of time spent in all behaviors. Results of this study underline that both captive wildcats and domestic cats showed species-specific behaviors. However, captive wildcats performed more “not observed,” “vigilance,” and “scent marking” than domestic cats, whereas domestic cats performed more “individual sleeping” than captive wildcats. In conclusion, findings of this study seem to suggest that behavioral differences between European wildcat and domestic cat are less common than are their similarities. However, further research on the behavior of wildcats is needed to improve the *ex situ* and *in situ* conservation of this species.

© 2017 Elsevier Inc. All rights reserved.

Introduction

The European wildcat, *Felis silvestris silvestris* (Schreber, 1775), is considered a subspecies of *Felis silvestris*. The domestic cat is arbitrarily considered either as a subspecies of *F. silvestris* (*Felis silvestris catus*) or as a distinct species (*Felis catus*) (Macdonald et al., 2010).

The European wildcat is a medium-sized carnivore, with a general color pattern of brown gray or dark gray. It is more robust than the domestic counterpart. A combination of external features such as the typical black dorsal line, 4–5 black lines on the head and black tail rings, allows to distinguish wildcats from its domestic form and from most of the hybrids (Lapini, 2006; Lozano and Malo, 2012).

* Address for reprint requests and correspondence: Greta Veronica Berteselli, Istituto Zooprofilattico Sperimentale di Abruzzo e Molise “G. Caporale”, Campo Boario, Teramo 64100, Italy.

E-mail address: greta.berteselli@gmail.com (G.V. Berteselli).

The distribution of the European wildcat extends from the Iberian Peninsula to Caucasus Mountains and up to Scotland (Driscoll et al., 2007). It is considered an endangered species and is strictly protected under Annex IV of European Habitat Directive (92/43/EEC); in addition, this felid is included in the CITES Appendix II (Lozano and Malo, 2012). The wildcat has been categorized as “least concern” by the International Union for Conservation of Nature due to the wide geographic distribution of the species (Driscoll et al., 2007). However, the population trend is globally decreasing. In Italy, the European wildcat population is fragmented and residual populations can be found in North East and Central Italy and in Sicily (Pierpaoli et al., 2003; Lapini, 2006). The European wildcat is threatened by several factors, including habitat fragmentation and destruction, which have gravely reduced the populations. Other important threats for the European wildcat population include hybridization with the domestic cat (genetic introgression), human-induced mortality (hunting, poisoning, and road and railway kills), infectious diseases (feline immunodeficiency virus, feline leukemia,

and feline parvovirus), and competition with other species such as lynx, red deer, and boar (Nowell and Jackson, 1996; Macdonald et al., 2004; Phelan and Sliwa, 2006; Driscoll et al., 2007; Oliveira et al., 2008; Lozano and Malo, 2012; Beugin et al., 2016). Improving our knowledge of the behavior of the European wildcat might be valuable for the conservation of this species in the wild and also for its husbandry in captive environments (Stanton et al., 2015).

The wildcat is a solitary, crepuscular, and territorial species; moreover, it is shy and aggressive and tends to avoid humans. The kittens remain with the mother for about 5 months, after which they become independent and leave the mother's home range (Nowak, 1997; Yamaguchi et al., 2015). Female and male European wildcats do not associate outside the mating season (Lozano and Malo, 2012; Beugin et al., 2016). However, the *Felidae* are known to include both solitary and social species. Opportunistic domestic cats without kinship can congregate temporarily around resources, establishing social relationships between more predisposed individuals (Dehasse, 2008; Bradshaw, 2016).

The habitat preferences of the European wildcat are controversial. Although it is considered a forest species, alternative environments as scrublands are preferred (Lozano, 2010; Beugin et al., 2016). The wildcat occurrence depends more on prey and shelter availability rather than on the habitat type (Klar et al., 2008; Lozano, 2010; Lozano and Malo, 2012). Diet seems to vary based on prey availability. Wildcats eat mainly small mammals, such as meadow and forest rodents. A preference for rabbits has been reported, if this species is present (Malo et al., 2004; Germain et al., 2009). The European wildcat is considered a facultative specialist carnivore. The feral domestic cat is more generalist and opportunistic, and its diet may also include amphibians, birds, insects and anthropogenic foods (Fitzgerald, 1988; Germain et al., 2009).

The European wildcat (*F. silvestris silvestris*) and the domestic cat are often considered as subspecies of *F. silvestris* (Randi and Ragni, 1991). Therefore, although the European wildcat is not the ancestor of the domestic cat, they are supposed to share a similar ethogram and analogous communication modalities. The domestication of the cat took place in the Near East more than 9000 years ago (Driscoll et al., 2007) when a mutual and cooperative relationship started between human beings and cats. Humans discovered that cats were helpful in defending grains and cereals from rodents, so farmers likely began to encourage wildcats to approach and, or remain in their settlements, providing an environment for domestication. The needs of humans required no change in any behaviors of the wildcats, so the behavioral patterns of the domestic cat probably remained mostly unchanged from the wild counterpart (Serpell, 1988; Overall, 1997; Driscoll et al., 2007).

Research on felids suggests that all felid species display comparable behavioral repertoires (Bradshaw and Cameron-Beaumont, 2000; Sunquist and Sunquist, 2002; Stanton et al., 2015). In captivity, despite environments that might affect animal behavior, felid species behave similarly to each other and to their domesticated counterparts (Cameron-Beaumont, 1997). The behavioral repertoire of the domestic cat (*F. silvestris catus*) has been widely studied and has often been used as a model for wild species such as the European wildcat (Lowe and Bradshaw, 2001). However, further studies should be done to investigate and compare felid behavioral repertoires and to develop a standardized ethogram for these species. Improving our knowledge on animal behavior might be important for the conservation of endangered species in the wild as well as in captive environments (Stanton et al., 2015). Moreover, information on domestic cat behavior and sociality might be useful to improve the management of pet cats and maximize their well-being (Bradshaw, 2016).

The aim of this study was to enhance the knowledge on the biology and behavior of the European wildcat by comparing its

behavioral repertoire with that of the domestic cat. Individual and social behaviors of a group of European wildcats in captivity were observed and compared with behaviors of a group of domestic cats to underline similarities and differences between the 2 groups.

Materials and methods

Subjects

The subjects of this study were 6 European wildcats (*F. silvestris silvestris*) and 5 domestic cats (*F. silvestris catus*). The wildcat group consisted of a pair with their offspring housed at Parco Natura Viva, an Italian zoological garden (45.484351, 10.799502). This group consisted of 3 females and 3 castrated males aged between 1.5 and 12 years (Table 1). The wildcats were fed once a day with chicken or turkey and had 1 fasting day per week to mimic the unpredictable food environment in the wild. In addition, subjects were involved in an environmental enrichment program and received olfactory, manipulative, or food-related enrichment devices on a daily basis. Water was provided *ad libitum*. The enclosure was made of a 64 m² area with branches, plants, wooden logs with nest cavities, and small wooden houses for shelter. The zookeepers visited the cat enclosure only for routine procedures such as feeding, environmental enrichment provisioning, and cleaning. No direct human–animal interaction was allowed.

The second group was composed of 5 domestic cats (*F. silvestris catus*), 4 Maine Coon, and 1 European cat. The group consisted of 3 females and 2 males aged between 1.5 and 4 years (Table 1). Three of the Maine Coon cats were related: the 2 older individuals, Otto and Rosita, were the parents of one of the juveniles, Standing Ovation. At the time of the study, the European cat female, Juliet, was sterilized, and Otto had undergone chemical sterilization. During the data collection period, there were 5 3-month old kittens (Standing Ovation and Toffee offspring) which were not considered as focal subjects. The domestic cat group was housed in a 2-floor house and could not leave the area. Dry cat food was *ad libitum* and wet cat food was provided twice a day (once in the morning and once in the evening). Water was provided *ad libitum* at 2 different drinking points.

Procedure and data collection

For both groups, 2 10-minute daily observational sessions per subject were done, one in the morning and one in the afternoon. A total of 7200 seconds (120 minutes) of observation for each subject was collected. Data on both groups were collected by the same observer. The data collection on the wildcat group behavior started

Table 1
Subjects of the study

Subject	Group	Sex	Age	Breed
A	Wild	M	1	E. Wildcat
B	Wild	M	12	E. Wildcat
C	Wild	F	1.5	E. Wildcat
D	Wild	M	1.5	E. Wildcat
E	Wild	F	6	E. Wildcat
F	Wild	F	1.5	E. Wildcat
Otto	Dom	M	4	Maine Coon
Rosita	Dom	F	3	Maine Coon
Standing Ovation	Dom	M	2.5	Maine Coon
Toffee	Dom	F	1.5	Maine Coon
Juliet	Dom	F	4	E. S. Cat

The table reports the name, group (wild, wildcat; dom, domestic cat), sex (M, male; F, female), age (years at the time of data collection), and breed (E. Wildcat, captive European wildcat; E. S. Cat, European shorthairs cat).

Download English Version:

<https://daneshyari.com/en/article/5535818>

Download Persian Version:

<https://daneshyari.com/article/5535818>

[Daneshyari.com](https://daneshyari.com)