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Urban Carnivores: Ecology, Conflict, and Conservation by S.D. Gehrt, S.P.D. Riley, and B.L. Cypher [editors]

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BOOK REVIEW

Urban Carnivores: Ecology, Conflict, and Conservation. 2010. Stanley D. Gehrt, Seth P.D. Riley, and Brian L. Cypher [editors]. Johns Hopkins University Press, Baltimore, MD. 285 pages. ISBN-13: 978-0-8018-9389-5. \$75.00.

The idea of producing a book on urban carnivores was first discussed during a symposium in 2006 at The Wildlife Society Conference in Anchorage, Alaska. The editors of the book—Gehrt, Riley, and Cypher—began soliciting manuscripts from experts in urban carnivore ecology, and the result was a unique volume exploring the many facets of the various carnivore species that have ventured into and established populations in urban centers.

The first 3 chapters are introductory, covering topics such as the urban ecosystem, carnivore behavior and ecology and their relationship to urbanization, and urban carnivore conservation and management. The next 9 chapters cover the suite of urban carnivores that have been targets of research: Raccoons (*Procyon lotor*), kit foxes (*Vulpes macrotis*), red foxes (*Vulpes vulpes*), coyotes (*Canis latrans*), striped skunks and allies (*Mephitis* spp.), Eurasian badgers (*Meles meles*), bobcats (*Lynx rufus*), mountain lions (*Puma concolor*), domestic cats (*Felis catus*), and domestic dogs (*Canis familiaris*). The remaining 5 chapters delve into a variety of other topics, such as taxonomic analysis of urban carnivore ecology, community ecology of urban carnivores, response to human–carnivore conflicts in urban areas, conservation of urban carnivores, and future directions for management of urban carnivores. The chapters dealing directly with urban carnivore species are organized by several topics, including general life history, behavior, survival and mortality, habitat use, population density, home range and movements, diet, diseases, and the 3 most important, which comprise the crux of the book: socioecological and economic issues, conservation and management, and interactions with humans. There are smaller between-chapter sections that briefly highlight 3 other urban carnivores: the arctic fox (*Alopex*

lagopus = *Vulpes lagopus*), stone marten (*Martes foina*), and gray fox (*Urocyon cinereoargenteus*).

Why urban carnivores, rather than the many other species that occur in urban areas? The authors argue that carnivores are unique in providing a link between rural wild areas and urban centers. For some carnivore species, urban areas are ecological sinks, whereas for others, urban populations may provide source populations for conservation efforts. Humans and carnivores share a long history, which stretches back hundreds of thousands of years. Humans at one time were prey for some carnivores, and carnivores have been harvested by humans for thousands of years as a source of food and fur. There seems to be at times a love-hate relationship between humans and carnivores, and this theme is explored in many ways throughout the book.

As human urban centers expand and encroach in wild areas, encounters with carnivores are bound to happen. Some urban centers gradually engulf natural areas, which allows carnivores to adapt to urban life. This gradual adaptation is likely what allowed red foxes in Great Britain and kit foxes in Bakersfield, California, to persist amid human development. Other species, such as the coyote, likely moved into urban areas after these ecosystems were already established. Yet other species, such as the mountain lion, hang on the outer periphery of urban areas, only occasionally making forays into the cities.

Rigorous studies conducted on urban carnivores are surprisingly few, despite the many possible research topics open to exploration and documentation. The authors summarize historic and current literature on urban carnivore ecology and include anecdotal observations recorded by researchers, which provide additional richness to the text. Unpublished data sets are also included, and the book provides an excellent opportunity to release these data sets in a readable and organized format.

The relationship between urban carnivores and roads is an important aspect of urban ecology, and is a reoccurring theme in the book. Every urban carnivore discussed in the book

encounters roads and they typically either avoid roads completely or incorporate them into their foraging activities. Foraging on roads typically means scavenging for road kills, which is risky, even life-threatening, behavior. In fact, in the urban environment, vehicle–animal collisions are a primary source of mortality. Some roads, such as multilane highways, become effective movement barriers and in some cases restrict gene flow. Other roads, such as 2-lane routes with minimal traffic, are not effective barriers. The authors discuss these effects of roads on urban carnivores at great length, making the case that roads are important features on the urban landscape as it relates to urban carnivores.

One of my favorite unifying themes in the book is the idea that urban carnivores are wildlife ambassadors. Humans living in urban environments rarely observe wildlife, especially mammalian carnivores. Seeing a mountain lion or a coyote is not only exhilarating, but illustrates that we are not alone in this world and that wild animals really do exist! But, at the same time, seeing these animals in our neighborhoods represents our encroachment into wildlife habitats, and the habituation of these carnivores to humans and the urban matrix may lead to undesirable encounters. Reports of carnivores

attacking pets and even humans pop up frequently in the mass media and are a solemn reminder that conflicts do occur. In these situations, the urban carnivore ends up the loser. However, with education, wildlife awareness, and urban carnivore advocacy, it seems possible for humans and wildlife to co-occur and coexist. It only takes a few moments to study the facts and treat urban wildlife with respect. Arming oneself with knowledge and acting accordingly in a responsible manner are sure signs that the urban carnivore ambassadorship is working.

Overall, this book is an important vehicle for communicating the urban carnivore dynamic to the natural history reader and scientist alike. The book is quick to point out that there are many data gaps in urban carnivore ecology and further research is needed. Hopefully this book will catalyze further research on this topic, perhaps bridging the huge gulf between humans and urban wildlife, especially carnivores.

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