safety, following an order of the President of the provincial government. This decision was supported by the Ministry of the Environment and ISPRA (National Wildlife Institute), as it was in accordance with the provisions of the PACOBACE (National Alpine Action Plan on Bear Management). Almost three weeks were required to capture the bear. During this time forestry staff patrolled the area where Daniza occurred, to reduce further unpleasant encounters. On the 10th September Daniza was captured darting her while feeding on a carcass of a preyed sheep, but died during the capture. Subsequent investigations showed that the tranquilizer and the dosage used as well as the shot fired with the tranquilizer gun were adequate, but for unknown reasons the female did not tolerate the anaesthesia.

The Autonomous Province of Trento applied the law and the National Action Plan – both acts state that human safety comes first. The decision to remove the bear was also taken as a way to improve human attitudes (mainly of local residents) toward bears in Trentino by demonstrating that the authorities would react to dangerous situations.

The event had a big media impact, fuelled by a strong divergence between animal rights groups and local residents. The case of Daniza and her cubs received a very high attention of a large part of the Italian society concerned with the welfare of bears. This incident stresses the need for improved communication with the public, and of a rigorous approach to the management of the bear population that should be based on authoritative science based evaluations made by the competent authorities of all the possible alternatives to address the conflicts. This is particularly important when the removal of animals is being considered, which should be used as a last option, only when no other measures are applicable.

The cubs were left in the wild, considering the likelihood for cubs of this age (8–9 months) to survive, and in line with the suggestions of the literature on the subject. Furthermore it was proposed to:

1. Fit one of the cubs with a VHF ear tag radio transmitter;

2. Make food available to the cubs in the initial phase, immediately after the loss of their mother;

3. Monitor the movements of the cubs intensively (initially via radio, then with camera traps and direct observation by raising the awareness of hunters and encouraging them to report sightings);

4. Establish specific guidelines for the best management of the cubs, in collaboration with ISPRA and the Ministry of the Environment, and by exchanging ideas with international experts;

5. Preparing road signs in the most dangerous areas to reduce the risk of road accidents;

6. Prepare targeted communication material (a special brochure sent to all the families living in the area frequented by the cubs, updating the website, press releases, press conference with the mass media, meetings with environmental and animal protection associations, among other measures);

7. Organise a round table of experts (30th October 2014), for a direct exchange of ideas on these matters.

All these actions permitted us to monitor the cubs in a continuous manner until the 10th of November, precisely the time when most bears in the alpine region go into hibernation, after which no more data were received. Genetic monitoring carried out at the beginning of 2015 after bears emerged from their winter dens confirmed the presence of both young bears and their survival through the winter season. The data seems to confirm the good survival rates of orphan cubs aged more than 6 months, but it is too early to state the impact on the behaviour of the cubs in a long run.

3. Conclusions

Without effective policies to address the conflicts between bears and humans, including the management of bears that pose risks to humans, the efforts to recover a population of bears in the Alps risk failure, and there is the concrete possibility of an increase in the illegal killing of bears, as it has happened in other regions of Europe.

Short Communication

DEFINING, PREVENTING AND REACTING TO PROBLEM BEAR BEHAVIOUR IN EUROPE

Aleksandra Majić , Miha Krofel
University of Ljubljana, Biotechnical Faculty, Jamnikarjeva 101, Ljubljana, Slovenia

1. Introduction

Throughout history people have had conflict with bears. A good understanding of the causes of human-bear conflicts is the first step for reaching an effective solution. In this article we first review existing knowledge of human-bear conflicts and experiences with different mitigation measures. We also provide an overview of official frameworks for dealing with problem bears in 15 European countries, and finally, we propose a set of recommendations for effective management of problematic bear behaviour. This article is a summary of the report "Defining, preventing and reacting to problem bear behaviour in Europe" that was published by the European Commission in the beginning of 2015.

2. Human-bear conflicts

Human-bear conflicts are very diverse and are mainly connected with the bear's opportunistic foraging and consumption of food. There are two main processes that define the potential of bears to systematically exhibit problematic behaviour: habituation to human presence, and conditioning to anthropogenic food. Habituation is an adaptive mechanism through which bears become tolerant of people, thus loosing fear of people, while food conditioning is a learning process through which certain behaviours are reinforced by positive stimuli. Bears that are habituated to people and/or conditioned to food of anthropogenic sources are much more prone to causing problems to humans.

Several factors affect the risk of human-bear conflict but probably the most important one is access to anthropogenic food sources (e.g. garbage and slaughter remains, among others).

Other factors that influence the risk of occurrence of human-bear conflict are:

Season: spring and autumn are the two seasons with the highest incidents of human-bear conflicts. Both are related to a seasonal increase in bear feeding activity, when bears emerge from dens in the spring, and excessive feeding in preparation for the denning period in the autumn (i.e. hyperphagia).

Natural food availability: in years of poor natural food availability (e.g. due to annual variations in tree mast production) bears more often search for food in the vicinity of people; this causes a considerable increase in bear-related incidents and/or use of anthropogenic food by bears.

Cover for bears: better cover availability (e.g. dense vegetation) in human-dominated landscapes facilitates use of areas in immediate vicinity of human settlements and thus increases the probability for human-bear conflicts.

Status of bears: subadult bears and adult females with cubs are the two categories that most often cause bear incidents, and are most frequently removed as problem bears.

Other factors that specifically increase the risk of bear attacks on people include wounded animals (e.g. during hunting or in traffic accident), the presence of a dog, sudden unexpected close encounters, the proximity to a den and the presence of a carcass used by a bear.

Although problem bears represent only a small part of bear population, they usually cause the majority of human-bear conflicts, while other bears rarely or never come into conflict only rarely or never. For example, during the telemetry monitoring of habituated male "Rožnik" in Slovenia, this single bear was responsible for 40% of all reported bear incidents with approximately 400-500 bears in Slovenia (Jerina et al., 2011).

3. Conflict mitigation measures

Various measures have been developed in attempts to solve human-bear conflicts. Among them is the aversive conditioning of bears, which denotes a procedure when a negative stimulus to bears is applied by managers to prevent future unwanted behaviour (Table 1). Aversive conditioning of bears, as well as of other wildlife, generally has met with mixed results, sometimes being effective for a short-term, but long-term behavioural changes are often limited. However, certain patterns emerged during the bibliographic review which indicate that in specific situations some of the aversive stimuli can have a long-term effect when applied properly. . Well-established monitoring that quickly detects problem behaviours in bears is crucial for successful application of aversive conditioning. Pain stimuli (e.g. rubber bullets) proved to be the most successful, although taste aversion can also be effective for specific foods sources. Prevention of access to anthropogenic food sources must be assured in order to achieve full effectiveness of aversive conditioning. It must also be understood that application of aversive conditioning can be very costly and demands a considerable effort. Based on our current knowledge, aversive conditioning of bears is most warranted in the following cases:

1. When potential conflict behaviour is detected early in the development of the bear's behaviour.

2. When a short-term solution is needed.

3. When adequate resources are available for continuous treatments of each problem bear.

4. When possibilities for removal of the bear are limited.

Removal from population can be an effective short-term solution for individuals strongly habituated to human presence or conditioned to anthropogenic food. However, these measures must be coupled with other measures to prevent development of new problem bears (e.g. implementation of damage prevention measures on pastures, use of bear-proof garbage bins). Application of this measure may be limited in small and threatened bear populations.

Limiting access to anthropogenic food is often regarded as the most effective way to prevent conflicts with bears,. First systematic approaches to limiting access to anthropogenic food were implemented in North America. Strict garbage management, regulations on human food storage, prohibition of bear feeding and intensive public education about proper behaviour in bear habitat proved very successful. After application of these measures, human-bear conflicts decreased considerably. For example, in Yellowstone National Park, attacks on people dropped for almost 90% and at the same time there was less need for management removals of bears (Meagher and Phillips, 1983; Gunther and Hoekstra, 1998).

4. European management frameworks

The analysis of existing scientific knowledge would suggest that preventive proactive measures should be a priority. Nevertheless, European brown bear management plans mostly deal with reactive management of specific unwanted bear behaviours. These documents provide variable levels of detail, but generally foresee the following management measures: close monitoring, aversive conditioning, removal or fencing of the attractant, removal of individual animals (lethal or translocations to nature/captivity), compensation payments for the damages, and information campaigns. Often special emergency teams are formed to take urgent actions regarding problem bear management.

Proactive management aimed at preventing the occurrence of problem bears is typically related to implementation of individual projects and in most cases it is not systematically organized. Such measures include: prevention of damages to agriculture, prevention of access to organic waste, enhancing the trophic value of bear habitat (i.e. feeding of bears at feeding stations, planting of wild fruit trees), information campaigns to influence problematic human behaviour (intentional or unintentional feeding or disturbing of bears), dialogue with stakeholders, emergency teams, green bridges and specific road signs as well as abandoning the practice of rehabilitation of orphaned bears. In general, countries with smaller (more endangered) populations tend to have more complex and better defined protocols for dealing with problem bears. Social context defined mostly by different tolerance levels seems to play a considerable role in the (1) identification of the problem bears, and the (2) selection of the reactive management measures (Majić Skrbinšek and Krofel, 2015).

5. Risk assessment protocol and management recommendations

Thirty four European brown bear experts and managers were brought together in two workshops, in Ljubljana (Slovenia) and in Venzone (Italy), during 2014, to discuss and develop a general approach to risk assessment regarding brown bear behaviours that can threaten human safety. In Table 2 is the final output of those meetings, organized as a risk assessment protocol. The protocol indicates the degree of problem and urgency of the action in three categories identified with different colours: green (least problematic, not urgent), yellow (problematic, action needed), and red (most problematic, urgent reaction needed). For each of the identified bear behaviours a set of management actions is recommended. Additional recommendations for specific bear categories are discussed in the next section.

6. Considerations for specific bear categories

6.1. Injured/handicapped bears

An injured bear will more likely exhibit problematic behaviours. When an injured or otherwise handicapped bear occurs, an ad hoc assessment should be carried out by a bear manager (intervention group) and a veterinarian. Taking into account the conservation status of the population and the likelihood of the bear's recovery, the following decisions can be made:

1. The bear will recover by itself, no other actions beyond intensive monitoring are recommended.

2. Provide the bear with the necessary treatment and if feasible, return it to the wild and closely monitor its recovery.

3. If complete recovery is unlikely, or treatment is not feasible, and the population is considered viable, remove the bear from the population.

6.2. Orphaned cubs

Orphaned bear cubs are not able survive without their mothers until they are at least six months old (Swenson et al., 1998. Bear cubs which have been raised by humans have a high chance of developing problematic behaviour due to their habituation to humans (Huber, 2009). The practice of rehabilitation of human-raised brown bears is thus generally not recommended in Europe.

6.3. Females with cubs and subadult bears

Females with cubs and subadult bears are more likely to become exposed to situations which lead to habituation and food conditioning. For these two categories it is especially important to implement habituation and food conditioning prevention measures (i.e. instructing the public not to offer food to the female with cubs) and aversive conditioning as soon as possible.

7. Conclusions

Human–bear conflicts are complex and diverse. Consequently there is no single one-size-fits-all solution to effectively prevent all problems. Since a few problem bears are often responsible for most bear incidents, special attention needs to be given to preventing the o of repetitive conflict behaviour. According to available knowledge, preventing access to anthropogenic food in combination with public education is in many cases the most effective approach. Experiences from several regions suggest that this approach gives best results when local inhabitants are actively involved. Successful preventive management is also more acceptable by the public than reactive responses after the conflicts have already occurred. Once problem behaviour is developed in a bear, changing it can be a considerable challenge. Well-established monitoring that quickly detects such behaviours is crucial for successful application of aversive conditioning techniques that reverse the process of habituation to human presence and/or conditioning to anthropogenic food. Once this process has proceeded to higher stages, considerably more effort will be needed to prevent further conflict behaviour and in some cases bear removal may be the only option.

Journal Article Abstract

BEHAVIORAL CORRELATES OF SUPPLEMENTARY FEEDING OF WILDLIFE: CAN GENERAL CONCLUSIONS BE DRAWN?

Sam M.J.G. Steyaert, Jonas Kindberg, Klemen Jerina, Miha Krofel, Matija Stergar, Jon E. Swenson, Andreas Zedrosser

Basic and Applied Ecology 15, 669–676 / **2014**

Supplementary feeding is a common, but controversial, tool in wildlife management, because it can benefit both humans and wildlife (e.g., increased wildlife densities), but has certain downsides (e.g., increased disease transmission). For species that are often involved in human–wildlife conflicts, two opposing paradigms with respect to supplementary feeding exist, i.e., (i) that supplementary feeding is efficient to lure animals away from undesired places (i.e., diversionary feeding; hypothesis 1), and (ii) that supplementary feeding stimulates 'nuisance' behavior (i.e., increased tolerance for humans and selection for human facilities; hypothesis 2). We formulated an alternative hypothesis (hypothesis 3); i.e., that behavioral variation among individuals dilutes population-wide, general patterns with respect to supplementary feeding. Based on GPS relocation data and resource selection functions, we show that neither of the two opposing management paradigms (hypothesis 1 and 2) hold in a particularly 'conflict rich' species, the brown bear (*Ursus arctos*), because individual variation in selection behavior with respect to supplementary feeding diluted population-wide patterns (hypothesis 3), even under very different environmental contexts (Sweden vs. Slovenia; i.e., different human and bear population density, history and intensity of supplementary feeding, topography, etc.). Our results emphasize that individual variation is an important component of behavioral ecology and should be considered in wildlife management and conservation.

Journal Article Abstract

BLACK BEAR EXCLUSION FENCES TO PROTECT MOBILE APIARIES

Tammy E. Otto, Gary J. Roloff

Human–Wildlife Interactions 9, 78–86 / **2015**

Demand for commercial bee (*Apis mellifera*) services recently has increased, resulting in greater use of mobile apiaries for crop pollination. When commercial apiaries are moved into areas occupied by black bears (*Ursus americanus*), conflicts between beekepers and bears sometimes occur. Commercial pollination often involves moving apiaries among agricultural fields, and, thus, permanent fencing is not a viable option for reducing damage by bears. In 2010, we tested the effectiveness of 4 temporary electric fence designs for excluding black bears from bait sites in northern Michigan. We determined the effectiveness of each fence design by observing bear behavior obtained from 24-hour video surveillance. From >433 minutes of bear–fence interactions (BFI), we recorded 168 BFIs in 73 visits by an estimated 15 bears. The only fence design deemed 100% effective at excluding bears consisted of 3 polytape strands charged with 5,000 V and spaced 0.58, 0.39, and 0.23 m from the ground, respectively. Proper fence construction and maintenance are critical elements of effectiveness, and we provide guidance on each. Our results demonstrate that low-cost temporary fencing can be an effective tool for excluding bears from localized sites, such as apiaries.

Journal Article Abstract

FAST FOOD BEARS: BROWN BEAR DIET IN A HUMAN-DOMINATED LANDSCAPE WITH INTENSIVE SUPPLEMENTAL FEEDING

Irena Kavčič, Miha Adamič, Petra Kaczensky, Miha Krofel, Milan Kobal, Kiemen Jerina

Wildlife Biology 21, 1-8 / **2015**

Distribution, quantity and quality of food resources affect the diet and several other life-history traits of large mammals. Supplemental feeding of wildlife has high potential for influencing the behaviour and diet of opportunistic omnivores, such as bears. Supplemental feeding of brown bears *Ursus arctos* is a common practice in several European countries, but the effects of this controversial and expensive management measure on bear diet and behaviour are poorly understood. We analysed 714 brown bear scats collected throughout the year in three regions of Slovenia with different densities of supplemental feeding sites. Supplemental food was the most important food category in the bear diet and represented 34% of the annual estimated dietary energy content (maize: 22%, livestock carrion: 12%). The proportion of supplemental food in the diet varied with season and region, being highest in spring and in the region with the highest density of feeding sites. However, considerable seasonal changes in bear diet, despite year-round access to supplemental food, suggest that bears prefer high-energy natural food sources, particularly insects, fruits, and hard mast, when available. Despite high availability and use of supplemental food, human–bear conflicts are frequent in Slovenia. In addition, evidence from earlier studies suggests that changes in diet and foraging behaviour due to supplemental feeding may affect several aspects of bear biology and in some cases increase the probability of human–bear conflicts. Thus, we caution against promoting unconditional supplemental feeding as a measure to prevent or reduce human–bear conflicts.

Journal Article Abstract

THE POTENTIAL IMPACTS OF CHANGES IN BEAR HUNTING POLICY FOR HUNTING ORGANISATIONS IN CROATIA

Emma J. Knott, Nils Bunnefeld, Djuro Huber, Slaven Reljić, Vesna Kereži, E.J. Milner-Gulland

European Journal of Wildlife Research 60, 85–97 / **2014**

The brown bear (*Ursus arctos*) in Croatia is currently being managed through trophy hunting, with quotas allocated to local hunting organisations. Human–bear conflict is present at a low level, but any losses are compensated by the hunting organisations that benefit from bear hunting. Attitudes towards bears are generally positive, and the bear population appears stable, or even increasing. Croatia's cur- rent bear hunting policy relies upon both the ecological sustainability of the quotas and the economic sustainability of the hunting organisations. To address the first of these pillars of current policy, we used a two-sex matrix model of the bear population to investigate the biological sustainability of current hunting levels. The model suggests that if the annual allocated quota were fully realised, the population would suffer a considerable decrease over 10 years. A likely explanation for the mismatch between this result and the observed stability of the population is that the bear population size is underestimated. To address the second pillar, we quantified the current structure, costs and benefits of bear hunting to hunting organisations through an interview survey with hunting managers. We found that bear hunting is a substantial component of hunting organisations' income, supporting the other activities of the organisation. Croatia's recent accession to the EU will require changes in their bear management system, potentially stopping bear trophy hunting. Therefore, we assessed the changes in hunting organisations' budgets in the absence of bear hunting. Our results demonstrate that a loss of bear trophy hunting would result in a substantial loss of income to the hunting organisations. Moving bear hunting and compensation mechanisms from local management and responsibility to a more centralised system without trophy hunting, as suggested by EU legislation, will lead to considerable uncertainties. These include how to make centralised decisions on population targets and offtake levels for population control, given the uncertainty around population estimates, and on compensation payments given the loss of the current system which relies heavily on local income from trophy hunting, local relationships and informal monetary and non-monetary compensation.

Journal Article Abstract

DOES DESPOTIC BEHAVIOR OR FOOD SEARCH EXPLAIN THE OCCURRENCE OF PROBLEM BROWN BEARS IN EUROPE?

Marcus Elfström, Andreas Zedrosser, Klemen Jerina, Ole-Gunnar Støen, Jonas Kindberg, Lara Budic, Marko Jonozovič, Jon E. Swenson

The Journal of Wildlife Management 78, 881–893 / **2014**

Bears foraging near human developments are often presumed to be responding to food shortage, but this explanation ignores social factors, in particular despotism in bears. We analyzed the age distribution and body condition index (BCI) of shot brown bears in relation to densities of bears and people, and whether the shot bears were killed by managers (i.e., problem bears; n=149), in self-defense (n=51), or were hunter-killed non problem bears (n=1,896) during 1990–2010. We compared patterns between areas with (Slovenia) and without supplemental feeding (Sweden) of bears relative to 2 hypotheses. The food-search/food-competition hypothesis predicts that problem bears should have a higher BCI (e.g., exploiting easily accessible and/or nutritious human-derived foods) or lower BCI (e.g., because of food shortage) than nonproblem bears, that BCI and human density should have a positive correlation, and problem bear occurrence and seasonal mean BCI of nonproblem bears should have a negative correlation (i.e., more problem bears during years of low food availability). Food competition among bears additionally predicts an inverse relationship between BCI and bear density. The safety-search/naivety hypothesis (i.e., avoiding other bears or lack of human experience) predicts no relationship between BCI and human density, provided no dietary differences due to spatiotemporal habitat use among bears, no relationship between problem bear occurrence and seasonal mean BCI of nonproblem bears, and does not necessarily predict a difference between BCI for problem/non problem bears. If food competition or predation avoidance explained bear occurrence near settlements, we predicted younger problem than nonproblem bears and a negative correlation between age and human density. However, if only food search explained bear occurrence near settlements, we predicted no relation between age and problem or nonproblem bear status, or between age and human density. We found no difference in BCI or its variability between problem and nonproblem bears, no relation between BCI and human density, and no correlation between numbers of problem bears shot and seasonal mean BCI for either country. The peak of shot problem bears occurred from April to June in Slovenia and in June in Sweden (i.e., during the mating period when most intraspecific predation occurs and before fall hyperphagia). Problem bears were younger than nonproblem bears, and both problem and nonproblem bears were younger in areas of higher human density. These age differences, in combination with similarities in BCI between problem and nonproblem bears and lack of correlation between BCI and human density, suggested safety-search and naïve dispersal to be the primary mechanisms responsible for bear occurrence near settlements. Younger bears are less competitive, more vulnerable to intraspecific predation, and lack human experience, compared to adults. Body condition was inversely related to the bear density index in Sweden, whereas we found no correlation in Slovenia, suggesting that supplemental feeding may have reduced food competition, in combination with high bear harvest rates. Bears shot in self-defense were older and their BCI did not differ from that of nonproblem bears. Reasons other than food shortage apparently explained why most bears were involved in encounters with people or viewed as problematic near settlements in our study.

Publications*

BOOKS

Bears in the Backyard: Big Animals, Sprawling Suburbs, and the New Urban Jungle Hardcover

By Edward Ricciuti / **2014** / Countryman Press / 248 pp

Fang and claw have jumped the white picket fence as encounters with cougars in Chicago, alligators in Florida, and bears virtually everywhere have become increasingly commonplace. Author Edward Ricciuti explores cutting-edge research into why it's happening, how it impacts all of us, and how to deal with it on both societal and personal levels.

As cities and suburbs sprawl, and conservation efforts enable wildlife populations to recover, large wild animals are encroaching on human turf. These creatures might be thrilling to see, but they can bite, scratch, and even kill, and attacks on humans will only increase as we come face to face in the man-made landscape. Readers will learn how to protect against potential dangers even as they are being thoroughly entertained by hair-raising tales of real-life encounters.

The Predator Paradox: Ending the War with Wolves, Bears, Cougars, and Coyotes

By John Shivik / **2014** / Beacon Press / 208 pp

An expert in wildlife management tells the stories of those who are finding new ways for humans and mammalian predators to coexist. Stories of backyard bears and cat-eating coyotes are becoming increasingly common – even for people living in non-rural areas. Farmers anxious to protect their sheep from wolves aren't the only ones concerned: suburbanites and city dwellers are also having more unwanted run-ins with mammalian predators. And that might not be a bad thing. After all, our government has been at war with wildlife since 1914, and the death toll has been tremendous: federal agents kill a combined ninety thousand wolves, bears, coyotes, and cougars every year, often with dubious biological effectiveness. Only recently have these species begun to recover. Given improved scientific understanding and methods, can we continue to slow the slaughter and allow populations of mammalian predators to resume their positions as keystone species?

As carnivore populations increase, however, their proximity to people, pets, and livestock leads to more conflict, and we are once again left to negotiate the uneasy terrain between elimination and conservation. In "The Predator Paradox", veteran wildlife management expert John Shivik argues that we can end the war while still preserving and protecting these key species as fundamental components of healthy ecosystems. By reducing almost sole reliance on broad scale "death from above" tactics and by incorporating nonlethal approaches to managing wildlife – from electrified flagging to motion-sensor lights – we can dismantle the paradox, have both people and predators on the landscape, and ensure the long-term survival of both.

As the boundary between human and animal habitat blurs, preventing human-wildlife conflict depends as much on changing animal behaviour as on changing our own perceptions, attitudes, and actions. To that end, Shivik focuses on the facts, mollifies fears, and presents a variety of tools and tactics for consideration.

Blending the science of the wild with entertaining and dramatic storytelling, Shivik's clear-eyed pragmatism allows him to appeal to both sides of the debate, while arguing for the possibility of coexistence: between ranchers and environmentalists, wildlife managers and animal-welfare activists, and humans and animals.

The Carnivore Way: Coexisting with and Conserving North America's Predators

By Cristina Eisenberg / **2014** / Island Press / 288 pp

What would it be like to live in a world with no predators roaming our landscapes? Would their elimination, which humans have sought with ever greater urgency in recent times, bring about a pastoral, peaceful human civilization? Or in fact is their existence critical to our own, and do we need to be doing more to assure their health and the health of the landscapes they need to thrive?

In "The Carnivore Way", Cristina Eisenberg argues compellingly for the necessity of top predators in large, undisturbed landscapes, and how a continental-long corridor – a "carnivore way" – provides the room they need to roam and connected landscapes that allow them to disperse. Eisenberg follows the footsteps of six large carnivores – wolves, grizzly bears, lynx, jaguars, wolverines, and cougars – on a 7,500-mile wildlife corridor from Alaska to Mexico along the Rocky Mountains. Backed by robust science, she shows how their well-being is a critical factor in sustaining healthy landscapes and how it is possible for humans and large carnivores to coexist peacefully and even to thrive.

University students in natural resource science programs, resource managers, conservation organizations, and anyone curious about carnivore ecology and management in a changing world will find a thoughtful guide to large carnivore conservation that dispels long-held myths about their ecology and contributions to healthy, resilient landscapes.

*Texts from the books' publishers.