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Polar Bears: The Natural History of a Threatened Species

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POLAR BEARS: THE NATURAL HISTORY OF A THREATENED SPECIES. By Ian Stirling. Markham, Ontario: Fitzhenry & Whiteside, 2011. 300 pp. $40.00 (softcover). ISBN: 978-1554551552.

The polar bear is fascinating as a fierce symbol of the Arctic. They are the iconic rulers of the natural Arctic environment. They are adapted to survive and even prosper in the sea-ice covered waters of the North. Unfortunately, they are also the animals most likely to suffer from the effects of a warmer Arctic with less sea-ice cover and more industrial activity. What does the future hold for the polar bear?

World-renowned authority on polar bears, Ian Stirling, presents with this book a comprehensive work on polar bears that attempts to answer this question. Stirling was a scientist with the Canadian Wildlife Service for close to 40 years and a professor at the University of Alberta, Canada. POLAR BEARS: THE NATURAL HISTORY OF A THREATENED SPECIES summarizes decades of research findings on polar bears. It thoroughly informs on the current population, on physiology, on hunting and reproductive behavior, on prey animals, and on conservation measures and changing environmental conditions.

This book offers delightful yet thorough information on the uniqueness of this majestic creature and how it evolved to cope with the extremely cold Arctic sea-ice environment. I was mesmerized by the breadth and ingenuity of research methods. Tagging experiments reveal that bears roam their environment following their main food source, the ringed seal. They can casually travel tens of kilometers per day, and walk slowly and efficiently so as not to overheat their fatty frames. Their roaming amounts to home ranges of 150,000 km^2. No wonder the female spontaneously ovulates during courtship. She first has to be found by a male bear in her vast territory. Studies of the chemical composition of body fat show that bears have specialized almost entirely to hunt small seals. Countless hours of observations shed light on the hunting techniques, which varies from stalking sunbathing seals to ''still-hunting,'' which is motionless waiting at a breathing hole of an unsuspecting seal. Sometimes crashing through the snow roof into the hidden lair to kill a seal pup is the efficient way to find a chubby meal. Stirling explains that the large bears cannot sustain themselves on small onshore prey like abundant birds.

The book is illustrated with magnificent photos of the author and many other prominent researchers and wildlife photographers, documenting the polar bear's hunting strategies, their rarest behavior, their cutest twin cubs, and their bloody feeding. It is also rich in photos, maps, and graphs that give insight into research and management practices like tagging and observational studies and relocation of problem bears. Sometimes the photos are just hilarious, like the ''triptych'' of a hunting bear—first silently approaching, then forcefully jumping, and finally two paws sticking out of the snow (the rest of the bear presumably hanging headfirst into a seal lair).

Stirling presents dry scientific facts, but he also enthusiastically recounts early explorer's anecdotes on polar bear behavior. For example, do polar bears really drop rocks on walrus? Not likely, as it has not been observed, according to Stirling. But, one bear has been seen to suddenly jump on oil drums to get within biting reach of a scientist on the high platform of an observation tower. The book genuinely pays respect to the traditional knowledge and expertise of Inuk hunters whom Stirling has interacted with over his many years of fieldwork.

The book concludes with an important overview of conservation issues and the threat of climate warming to habitat loss of the polar bear. It becomes evident that great strides have been made in conservation issues, with restricted hunting Arctic-wide since 1973; this culminated with the recognition of the polar bear as a threatened species by the U.S. Fish and Wildlife Service in 2008 and thus even more formal protection.

One will not get away from this book without a sense of concern about future industrial development of the Arctic region. As one example, Ian Stirling sensibly describes controversial experiments with captive polar bears to investigate the potential effect of oil spills. The bears dived without hesitation into a pool purposefully contaminated with oil and immediately started licking their matted furs afterwards, just like they do with seal fat after messy feeding. Unfortunately the oil ingested was poisonous and killed two of the bears in the experiment. This sad outcome crucially enforced the notion that potential oil spills could have devastating effects on nearby bears.

However, the most imminent threat to polar bears is the loss of their sea-ice habitat with climate warming. Arctic-wide lengthening of the open water season means that polar bears have less time to hunt seals and fatten up, and have to swim ashore and fast for longer periods of time. The detailed data records presented for the Canadian Arctic convincingly show that early break-up dates of the sea ice, which have commonly occurred throughout the last decade, result in lower weight bears, and small litters. The appearance of many ''problem bears'' near human settlements (and dumps), especially along Hudson Bay and on Baffin Island, also correlated with years of early sea-ice break-up. The more desperately hungry the young bears are, the more likely they will search for alternative food sources. Stirling provides his readers with scientific ammunition for a debate on polar bear future.

This book is a true gem for everyone who would like to learn more about the superbly adapted polar bear. It inspires awe in the sea-ice world and calls for preservation of this critical habitat to ensure the polar bear's survival into the future.

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