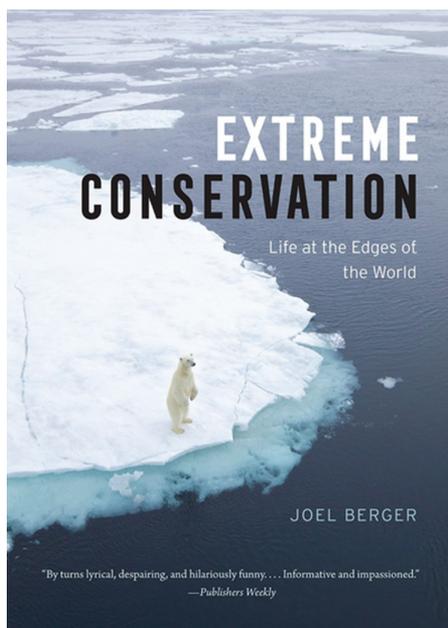


illustrated book that should appeal to book lovers interested in botany, especially that of the more unusual plants. It is appropriate for high school, college, and adult readers. In addition to an index, the book includes a time line, a detailed list of citations, a bibliography, and a list of associations and websites.



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## ECOLOGY & CONSERVATION

***Extreme Conservation: Life at the Edges of the World.*** By Joel Berger. 2018. University of Chicago Press. (ISBN 9780226366265). 376 pp. Hardcover, \$30.00.

Finding several orphaned musk oxen less than one year old in the days following the discovery of a slaughtered herd underscores the lack of knowledge relating to these animals. The adults were beheaded, but it is unknown who did it or for what purpose. What will happen to the juveniles without adults to protect them or teach them how to survive in the Arctic tundra? Joel Berger takes the reader to unfamiliar territories – both in terrain and in conservation efforts – throughout the world as he emphasizes the challenge of studying in habitats that are inhospitable to humans but rapidly evolving due to climate change.

John Muir, noted naturalist and the “Father of the National Parks,” commented that “observation

is what science is all about.” But observation is anything but easy in the environments inhabited by the species Berger chooses to study. Lack of accessibility to modern conveniences means that creativity and stamina are required to overcome the obstacles to obtaining a decent vantage point. There are no easy roads to the wild musk ox territories in Alaska, and using noisy machines such as snowmobiles and helicopters to approach them would alter their behaviors. Hiking in on foot leaves the human observer vulnerable to other dangers, such as frostbite or becoming the target of a charging male ox that weighs as much as 800 pounds. Berger discovers there are very few places to run and hide in the tundra once a male notices him in his polar bear costume collecting observational data. His quick thinking saves him when he pulls off his costume head and tosses it away from himself. The confused musk ox comes to a halt trying to process what just happened. Before he can figure it out, Berger’s colleagues swoop in to rescue him in their helicopter.

One reason Berger seeks to learn about these animals in their native habitat is to study the effects of humans, particularly on large mammals. The disappearance of large mammals since the mid-1800s aligns with the increased use of firearms for hunting around the world. Some noted effects on populations due to hunting include an increase in the numbers of elephants born without tusks in Zambia in the last century (from 10% of births to 38%). Likewise, a significant decrease in the average size of horns on bighorn sheep has been noted and attributed to hunting. Sheep with smaller horns are less likely to be hunted and therefore live longer and breed more.

Observations of animal behavior have led to some interesting inferences, but Berger is quick to point out the need for – and often lack of – sufficient data before reaching conclusions. It has been observed that baboons prefer to hang out around people. Is this behavior due to increased opportunities for food, or better protection from predators, or something else entirely? Female zebras and giraffes have been observed lingering near train tracks prior to and shortly after giving birth. Moose have been observed preferring to calve near roads in the Tetons. These observations raise questions that can only be answered by further study.

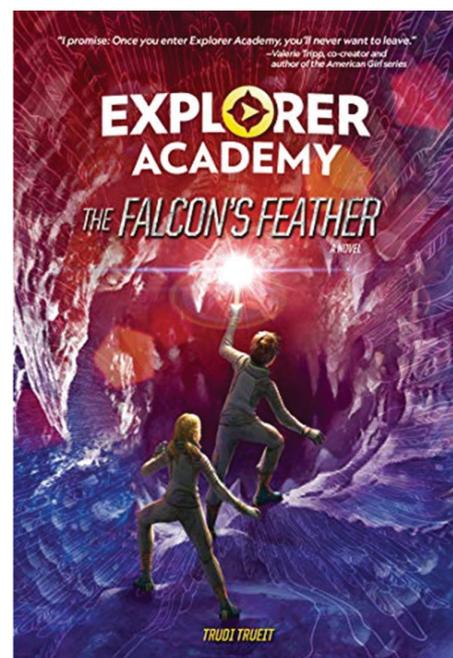
Berger’s approach to environmental conservation relies on gaining support from the local community, often a daunting task. “When can we shoot them?” is a common question from residents at community meetings in Alaska regarding the conservation of the musk ox, whose range became part of the national park system relatively recently – in 1980, without input from the residents whose

families have lived there thousands of years. This caused resentment among the community members, making it difficult to gain their support. Economic concerns also need to be taken into account in such cases. For example, the wild yak competes with herds of domestic animals in the Tibetan Plateau for food and water that are becoming scarcer as the environment gets warmer each year. Farmers are understandably more focused on protecting grazing land for their herds than on the survival of yaks.

Clearly, Berger takes his mission to study how animals adapt to extreme environments very seriously, but he writes with humor and empathy. His storytelling is compelling. He leaves the reader amused, alarmed, and fascinated by his adventures. The need to study and protect extreme environments and the animals living there is well documented. Be glad that someone like Berger is willing to do it.



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## FOR THE YOUNGER AUDIENCE (TWEEN SCIENTIFIC FICTION)

***Explorer Academy: The Falcon's Feather (Book 2).*** By Trudi Trueit. 2019. National Geographic Partners. (ISBN 978142633040). 216 pp. Hardcover, \$16.99.

*The Falcon's Feather* is the second book in the Explorer Academy series from National Geographic,

infusing the brand's print expertise and connections to the world of geographical storytelling with problem-solving, globe-trotting plotlines, slick maps and illustrations, and a hefty dose of science for younger readers. The plot of this installment is a mile-a-minute mashup of what it would be like if James Bond were a globe-trotting, puzzle-loving tween in an upgrade of the *Magic Treehouse* series, and I wanted to love it. However, this particular treatment dehumanizes issues of safety, trauma, and mental health while surfacing the costs of what we consider as entertainment.

Once I was a nerdy, science-fiction-loving kid, delighting in the sort of middle-grades books that left me satisfied by a good story but also wanting to know more about planetary dynamics, deep-ocean ecology, or solvents. Now I am a science teacher, as well as a parent of young readers and an avid consumer of YA and middle-grades fiction. All this is to say that I was ready to adventure with Cruz, a student at Explorer Academy. In *The Falcon's Feather*, we join Cruz and his friends aboard a research vessel in a world tricked out with futuristic tech gadgets, the lightest of Harry Potter–archetype school drama, and an alarming number of folks who want Cruz and/or the people close to him dead.

To be clear, there is some intriguing science and inspiring exploration in this book, as well as some light, age-appropriate romance between young people. However, rooting for our intrepid main character and absorbing the wide range of fast-paced, fun science and geography woven into this book became exhausting for me as the shadow of danger grew without bounds. The entire plot hinges on Cruz following clues from his dead mother, murdered by her previous employer (turned crime syndicate), that will hopefully lead to the formula she discovered for a regenerative serum. This setup is just the tip of the death-and-peril iceberg: someone tosses Cruz's room, sabotages his diving gear, kidnaps his dad, and tries to

kill him in a remote cave in Iceland after killing his mom's good friend. Oh, and there are still two unnamed operatives of the syndicate aboard the boat. All the small puzzles that move Cruz and the plot forward are interesting and are solved in the text seamlessly a few paragraphs later for those who are stumped or interested in other features of the story, but that's a small compensation for the experiences many young people will have as they follow a kid constantly on the run who doesn't know whom to trust.

The pressure on Cruz is constant, and the intent is that the pressure propels the plot forward. However, it primarily served to remind me that our tween and teen children are growing up in a world where anxiety is increasingly their most authentic motivation for academic excellence. I'm skeptical that amplifying that experience, as this book does, is a healthy gift to kids.

In the world of today – between school violence, the rise of performance anxiety among tweens and teens, the pressures of state-mandated testing on teachers and students, the dearth of available school psychologists and counselors (in this book and in real life), systemically racist policies that result in a disproportionate share of persecution and death among young Black and brown men (like Cruz), and now the short- and long-term effects of the global pandemic and its consequences – suffice it to say that our youth have enough to worry about without this book verifying that constant anxiety is a plausible coping mechanism for any of the above, or even entertaining.

But I'm not the target audience, so I informally asked my high schoolers, after describing my concerns, about whether or not middle-grade and YA readers should be encouraged to read such a book. My students pointed out that the favorite stories of their youth often include death. However, all their beloved examples narrate adventures in clearly delineated fantasy or mythological settings. By contrast, this book is set in

the near-now but lacks any of the insight into systemic inequity, danger, or personal growth that is increasingly commonplace in contemporary YA and middle-grades fiction of the “here and now.”

It does not escape me that Cruz is searching for a healing potion: a balm for injury, insurance against pain. I, too, longed for one after reading this book. On the other hand, you may have a student who is reading at or slightly below grade level and has grown weary of the traditional fare, or a cartoon-watching daredevil who wants to think about what it means to be brave. In that context, and with your participation in supporting conversations about the above issues, this book might be a motivating read.



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