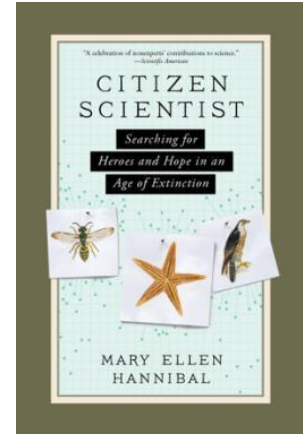


Discussion Guide

Citizen Scientist: Searching for Heroes and Hope in an Age of Extinction By Mary Ellen Hannibal

Citizen science is in many ways a form of observation, but it's also a way to include ourselves in the stories we tell about nature. "Here is I" Hannibal writes, toward the beginning of her own quest to better understand her place in nature – not only in space but in time. The questions below offer different ways to explore how citizen science affects the way we think about and interact with the world around us, and how it encompasses much more than data collection.



CHAPTER 1: After Hannibal helps pry a sea star off her fellow citizen scientist's hand, she remarks, "Neither of us could have known it at the time, but it was possible she would never again have the opportunity to observe a giant sea star in its lair." To be a citizen scientist is to confront loss, but it's also a way to more intimately experience all the species there are left to count. Overall, do you find Hannibal's experiences with citizen science reason for hope or despair? Why?

CHAPTER 2: To what extent is *Citizen Scientist* a California story? How is it a story without borders? In what ways does geography play a role in the book?

CHAPTER 3: With trophic cascades in mind, do you think it makes the most sense to say nature works from the bottom of the food chain up, the top down, or from the middle?

Considering the example of the Amah Mutsun, do you think Western science can be integrated with traditional ecological knowledge? Who benefits, and how?

CHAPTER 4: In the spirit of citizen science's actionability, plan a citizen science expedition yourself. For example, you could count up a single species of plant or animal in a nearby park. Do you see patterns from one open space to another? Did your expedition change the way you feel about the place you chose to explore? Do you find yourself responding to citizen science in ways similar to Hannibal? In different ways?

CHAPTERS 5 AND 6: Browsing Google Earth Outreach and ESRI Story Maps, consider how various kinds of information are being combined to tell new stories about nature.

What would a map of your own story of origin look like – where your ancestors are from, and how you came to live where, and in the manner, you do? How would such a map help tell your family stories about what happened to each family member, where and when?

CHAPTER 7: Natural history museums are founded mostly by amateurs such as Alice Eastwood. How does Eastwood's story affect the way you think about citizen science? In what ways do you think her legacy lives on?

CHAPTER 8: Darwin predicted that species evolve in close relationship with one another, but this wasn't proved until the 1960s. Explain how plants and pollinators depend on each other, and how their interactions are being disrupted by climate change and habitat loss.



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CHAPTER 9: Do you think it's fair to call John Steinbeck, Ed Ricketts, and Joseph Campbell citizen scientists, as Hannibal does? Why or why not? Is it fair to consider storytelling, in some cases, a kind of "science"? What do you think Campbell meant when he said that myth is "nature talking"? And how would you interpret Steinbeck's advice "to look from the tide pool to the stars and then back to the tide pool again."

CHAPTER 10: Do you think that, with the help of citizen science, we might eventually succeed in protecting "nature's half," which E.O. Wilson says is necessary for healthy ecosystem functioning? Why or why not? What do you consider the most promising aspects of citizen science? What do you fear might be its problems or shortcomings?

CHAPTER 11: Through both her father's death and her experiences with citizen science, Hannibal begins to reevaluate how she understands the word *generation* and her and other species' roles in the cycle of life. Do you feel differently, after reading this book, about how you relate to other living things past, present, and future? If so, how?

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