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K R I S T I N O H L S O N

SWEET IN TOOTH AND CLAW

Stories of Generosity and Cooperation in the Natural World



TEACHER'S GUIDE BY CHRIS GILBERT



I. Introduction

In *Sweet in Tooth and Claw*, Kristin Ohlson invites the reader “to reexamine our tired, unhelpful red-in-tooth-and-claw assumptions about the world around us. Of course, there is competition, but there is also cooperation and peaceful coexistence and generosity that surprises even hard-eyed scientists” (p. 381). For many readers, this idea is surely provocative, as the dominant view is that nature is largely characterized by struggle, and only the fittest species survive. Ohlson’s work reminds us that this narrative is flawed, as the natural world also consists of mutualisms, or mutually beneficial relationships. As a classroom text, *Sweet in Tooth and Claw* offers students invaluable learning opportunities, and beckons them to explore nature with a focus on cooperation. As you guide students through an exploration of this book, this teacher’s guide will serve as a helpful navigational companion. This guide features three sections: comprehension and discussion questions, thematic activities and research topics, and a resources section. Importantly, this guide has an interdisciplinary focus and features a range of questions and activities appropriate for use with students in a variety of educational settings, including high school and college classrooms. The activities and questions featured here can be easily modified and scaled, as they were constructed with flexibility in mind. Additionally, students are encouraged throughout to utilize technology and work together as they engage in a study of Ohlson’s rich text. We hope this guide will prove useful for you as you join your students in an exploration of this fascinating book.

COVER: A white-winged dove, Gila woodpecker, and bees share fruit, pollen, and nectar from a saguaro cactus in the Sonoran Desert. The woodpeckers (right) peck holes in the cactus for their nests, which can later be reused by owls, wrens, and other species. BARBARA CARROLL / GETTY IMAGES

A common bonnet mushroom and a holly seedling growing in a symbiotic relationship in the New Forest National Park, United Kingdom. GUY EDWARDES / MINDEN PICTURES

II. *Comprehension and Discussion Questions*

This section features a variety of questions for each of the book's chapters. Some questions serve as comprehension questions while others inspire reflection and analysis.

Preface

- 1.) In what ways does the statement "...what we decide to focus on not only informs our view of the world, but will also guide our path through it" (pp. 6-9) resonate with you?
- 2.) "I don't think we have any alternative other than remaining optimistic. Optimism is an absolute necessity, even if it's only optimism of the will ... and pessimism of the intellect" (p. 9). How can someone have both an optimistic will and a pessimistic intellect? What do you think about this idea?
- 3.) What effect do you think the idea that "competition [serves as] biology's brutal architect" (p. 11) has had, not only on our view of nature but also on our view of ourselves in relation to each other?
- 4.) What do you think about the idea that we are "missing the generosity and cooperation that exist in the natural world" (p. 14)? What are the implications of acknowledging what we are currently missing?
- 5.) What do you think about the idea that we should take an "honorable harvest" (p. 15) from nature?

An Underground Tapestry of Give-and-Take

- 1.) According to Ohlson, why did the trees have such "sad faces" (p. 21)?
- 2.) What is the Mother Tree Project, and why is it important?
- 3.) What do you know about the practice of clear-cutting? According to Ohlson, what are some of its consequences?
- 4.) Do you think it's possible to find a more honorable way of harvesting trees that would still allow foresters, such as those mentioned in this chapter, to maintain their livelihood? Why? Why not?
- 5.) According to Ohlson, what led to decreased crop diversity in the forests? Also, what did Ohlson's research reveal about the effects of this practice? Does this conclusion surprise you? Why? Why not?
- 6.) What are hyphae? What is their significance?
- 7.) One of the central concepts introduced in this chapter is mutualism. What is it? What are several examples of mutualism in the environment where you live?
- 8.) What is the "wood-wide web" (p. 33), and what does it have to do with the film *Avatar*?
- 9.) What is the "dialogue among plants" (p. 36) that Ohlson refers to? From your perspective, what are the implications of this discovery?
- 10.) In what ways do salmon benefit the forests? Relatedly, what is the "salmon shadow" (p. 42)?

- 11.) What is the physical manifestation of “forest memory” (p. 53)? What role could it play in restoring degraded landscapes?
- 12.) In the context of collaboration or competition, does this first chapter confirm or challenge your view of nature? In what ways?

We Need Better Metaphors

- 1.) What is Yellow 54?
- 2.) In what ways do bees “cheat,” or fail to fulfill their role in their mutualistic relationship with flowers?
- 3.) Ohlson notes how “mainstream scientific thinking...has cleaved to a belief in competition and selfishness ever since the time of Darwin” (p. 63). While several theories for the persistence of this belief are discussed in this chapter, share your own hypothesis for the dominance of competition over mutualism in scientific thought.
- 4.) Do you think, as Ohlson suggests on p. 65, that our scientific focus, or lens, is influenced by biases and cultural trends? Why? Why not?
- 5.) In what ways is Darwin’s theory of natural selection reflective of the larger social systems and ideologies of his time?
- 6.) What is “Social Darwinism” (p. 70)? Additionally, in what ways is this idea still alive today?
- 7.) Why was Peter Kropotkin so important? And why do you think his ideas were so dangerous to the rich and powerful?
- 8.) What do you find particularly striking and/or surprising about Kropotkin’s life and ideas? Additionally, how do you react to this quote: “‘Who are the fittest: those who are continually at war with each other, or those who support one another?’ we at once see that those animals which acquire habits of mutual aid are undoubtedly the fittest” (p. 77)?
- 9.) How do you react to the idea that Darwin actually meant: “the fittest are not
- 10.) the physically strongest, nor the cunningest, but those who learn to combine so as mutually to support each other, strong and weak alike, for the welfare of the community” (p. 83). In other words, have we misinterpreted Darwin’s theory?
- 11.) Other than anarchy, are there other contemporary social and political movements you would associate Kropotkin’s views with? Why? Why not?
- 12.) “...we—as the supposed apex organisms in this long churn of evolutionary history—are only fulfilling our biological destiny as we eat up the rest of the planet...life is all a zero-sum game, in which a benefit for one is a loss for another” (p. 92). Do you agree or disagree with this quote? Why?
- 13.) In your own words, explain the idea of “relaxed selection” (p. 96).

We Are Ecosystems

- 1.) What are bacteria? Who discovered them?
- 2.) “Whenever scientists probe such extreme environments—boiling geothermal vents, stinking sulfuric ponds, Antarctic ice, the bottom of the ocean with tons of water pressure bearing down—they find bacteria” (p. 107). Are you surprised by the existence of bacteria in these extreme environments? Why? Why not?
- 3.) Aside from the probiotic-related labels Ohlson mentions on p. 108, how often in your daily life are you reminded of the existence of microorganisms?
- 4.) “...but we now understand that all of us macros are like meat and vegetable floaters in an incredibly vast broth of microorganisms” (p. 109). Does this passage confirm or challenge (and perhaps even expand!) your view of the natural world? Explain.
- 5.) Conduct some brief online research and identify at least one form of bacteria that serves as an “active cooperator” (p. 113). Share your findings with others.
- 6.) How do you react to David Johnson’s assertion that plants represent “microbes’ first experiment with artificial intelligence” (p. 114)?



Dr. Suzanne Simard examines mycorrhizae—a composite structure formed by fungi and roots—in Nelson, British Columbia. BRENDAN GEORGE KO

- 7.) According to Ohlson, what does our normal temperature have to do with microbes?
- 8.) “We are not individuals but ecosystems, each of us hosting a whirl of organisms busily interacting with us and with each other in a complex web of connection” (p. 117). What are your thoughts on Ohlson’s view of human beings as ecosystems within even larger ecosystems?
- 9.) In what ways can viruses be symbiotic? Also, do you view viruses as living things? Why? Why not?
- 10.) How does Ohlson’s statement that “Everything is part of the heap. And the heap is in us” (p. 123) impact your view of human beings and the place we occupy in the natural world?
- 11.) According to Ohlson, where is the densest part of our microbiota located?
- 12.) What effect does eating sugary foods have on our microbiota?
- 13.) Given the positive effects of living closer to natural areas, what modifications can you make to your living space to break down barriers that separate you from nature?

Transforming Deserts into Wetlands

- 1.) What are your thoughts on the idea that it is possible to rehydrate the West? Relatedly, can you think of a time when the American West was *not* dry?
- 2.) “Back in the 1970s, pretty much everyone agreed that some one hundred years of cattle grazing had caused a host of environmental problems, including the degradation of these creeks” (p. 151). How exactly did cattle grazing contribute to the degradation of these creeks? You could explain this process through writing, or you might illustrate this process by drawing/diagramming.
- 3.) What is a rhizome? What does it have to do with soil stabilization?
- 4.) “Some environmental groups are eager to get rid of all grazing on public lands, and I’m sure I would have felt that way myself before I started seeing how farmers, ranchers, and other careful stewards of the land can heal landscapes” (p. 157). Do you agree with the idea of stopping all grazing on public lands? Why? Why not?
- 5.) Who was Allan Savory? Why do his ideas matter?
- 6.) In what ways is the relationship between grazing animals and rangelands an excellent example of mutualism? According to Savory, how did human intervention alter this relationship?
- 7.) What are some of the benefits and challenges associated with sustainable grazing practices?
- 8.) According to Ohlson, how did beavers accelerate the recovery of the creeks and the surrounding landscape?
- 9.) In what ways does this chapter touch on the importance of humans working together?
- 10.) What are your thoughts on the statement: “If people disrespect each other, they will disrespect the land” (p. 172)?

Agriculture That Nurtures Nature

- 1.) How would you define regenerative agriculture?
- 2.) What are some advantages of utilizing agricultural practices to promote biodiversity?
- 3.) “This is America’s largest crop, covering an area the size of sixty-nine million football fields, and the way farmers grow it has an oversized impact on our landscapes, air, water, and health” (p. 183). An oversized impact in what ways? You might conduct some brief online research to learn more.
- 4.) According to Ohlson, what are some of the advantages of using cover crops?
- 5.) What is agroecology?
- 6.) What are some of the environmental consequences of status-quo agriculture? Despite these consequences, why are status-quo agricultural practices still utilized (hint: Consider who profits from them)?
- 7.) “If you have a chemical view of soil, you just think of soil as a place to grow plants...With that view, the only way to make things grow is to manipulate them chemically. But if you see soil as a living, mutualistic dynamic ecosystem that’s changing all the time, that’s full of microbes, it’s a whole different view and it affects the way you do things” (p. 198). Compare and contrast these two views of soil. What are the advantages and disadvantages of each perspective? Additionally, which view most closely mirrors your own? How so?
- 8.) In what ways does landscape simplification create “bee carnage” (p. 205)?
- 9.) According to Ohlson, what impact have industrial agricultural practices had on the “craftsmanship of seed saving” (p. 225)?
- 10.) What are some of the drawbacks of using GMO seeds? How does their use interfere with biodiversity and forms of mutualism in nature?
- 11.) In what ways has modern plant breeding turned most crop plants into “idiots” (p. 233)?
- 12.) From your reading of this chapter, do you think it’s possible for farmers to have both healthy landscapes and healthy profits, or are these two things mutually exclusive? Why?

I’ll Take My Coffee with Birds

- 1.) What is the phorid fly, and how does it reproduce?
- 2.) What do you think about Edward O. Wilson’s argument that “[t]here is a misguided focus solely on protecting the physical environment” (p. 252)?
- 3.) What is the “sharing vs. sparing” (p. 253) argument in agriculture, and which side of the debate do you identify with? Why?
- 4.) Ohlson references Vandermeer’s observation that most people view “biodiversity as things that look something like us—things with eyes that we can look into” (p. 259). Does this describe your view? Or, does your view of biodiversity also include the world of microbes and insects?

- 5.) Describe the “sun coffee” (p. 262) system. What are some of its drawbacks?
- 6.) “They were working on a Bird Friendly certification for coffee growers, and they wanted her to find out if having birds on the plantations benefited the farmers” (p. 264). What did Perfecto and her students discover? Were you surprised by this? Why? Why not?
- 7.) What is the “healthy matrix” (p. 268) Ohlson refers to, and why does it matter?
- 8.) How would you summarize the complex interactions between multiple species at Azteca Crossing?
- 9.) What is coffee leaf rust? What threat does it present?
- 10.) As an intellectual exercise, pretend you are arguing against the use of “silver-bullet approaches peddled by huge corporations” (p. 278) and instead arguing for biodiversity preservation. What would you say? What forms of evidence would you use to support your argument?
- 11.) What mutualistic relationship exists inside the Heliconia flowers?

Healing from Ridgetop to Reef

- 1.) Why would clear-cutting a forest negatively affect nearby streams?
- 2.) What is the mission of the MidCoast Watersheds Council?
- 3.) Compare and contrast a naturally developed forest with a commercial plantation. From an ecological perspective, which type of forest is superior? Why?
- 4.) According to Ohlson, who references the work of Mark Kurlansky, overfishing did not decimate the salmon population. In actuality, what did?
- 5.) In what ways are old-growth trees utilized by the marbled murrelet?
- 6.) Explain how trees located along riverbanks, along with their root systems, benefit salmon.
- 7.) What sort of problems do culverts present for salmon? How would you address this issue?
- 8.) “...environmentalists also need a diverse portfolio of restoration strategies to heal the disrupted relationship between land and water” (p. 313). Why is it important for environmentalists to maintain such a diverse portfolio?
- 9.) Explain the mutualistic relationship between coral and algae. Additionally, why are corals referred to as the “rainforests of the sea” (p. 319)?
- 10.) How are island birds and coral health connected? And what role does poop play in this connection?
- 11.) In what ways does this chapter illustrate the potential of human beings to both harm and heal nature?



Living in Verdant Cities

- 1.) “It’s easy to forget that I’m downtown, standing on top of a roof, two stories up” (p. 332). Were you surprised by Ohlson’s location? Why? Why not?
- 2.) What does it mean to “green” a city? Are there opportunities to do this where you live?
- 3.) According to Ohlson, how many acres are we losing each day to development?
- 4.) Do you agree or disagree with “the notion that humans have an innate desire to live in proximity to the rest of nature” (p. 340)? Why?
- 5.) What is the “poster child of the Biophilic Cities group” (p. 341)? What makes this location stand out?
- 6.) What is daylighting?
- 7.) In what ways does this chapter illustrate how experiencing nature can provide powerful educational opportunities?
- 8.) What is Naturehood? Can you take inspiration from this program to create change in your location? If so, in what ways?
- 9.) Which of the policy changes (pp. 363–364) recommended by the NWF (National Wildlife Federation) do you think would be most impactful? Why?

A Singapore high-rise apartment building with a lush vertical garden. NAOMI RAHIM / GETTY IMAGES

- 10.) “Who knows how many other animals have adapted to city life and are living among us without our notice?” (p. 376). If you live in an urban environment, take note of the animals around you. Which forms of wildlife have successfully adapted to city life?
- 11.) What will you take with you from this fascinating book?
- 12.) If you could ask Kristin Ohlson one question about this book, what would you ask? Why?

III. Thematic Activities and Research Topics

This section features a number of activities and research topics related to two of the book’s central themes. For each research topic, students could:

- Write a research paper
- Create a *video essay*
- Design a website. Free resources for this include <https://www.weebly.com>, <http://www.wix.com>, and <https://www.adobe.com/express/create/website-page>
- Deliver a presentation. Free resources for this include <http://slides.google.com> and <http://www.prezi.com>

Theme: Cooperation, Generosity, and Connectedness in the Natural World

- **Explore Mutualisms Around You**

“Beneficial partnerships like this between different species are called mutualisms, and they occur in all ecosystems and probably involve every species on Earth. And they are hugely important, influencing everything from nutrient cycles throughout the biosphere to individual cells” (p. 31).

In *Sweet in Tooth and Claw*, Ohlson describes a number of her excursions into nature. These trips offer Ohlson an opportunity to observe many of the mutualistic relationships present in the natural world. Invite your students to initiate their own mutualism-focused research through this activity.

To begin, have your students locate a safe, natural setting that is ideally unscathed by human activity. Next, ask them to plan for a long walk through this setting by referencing a map of the location and gathering some basic supplies (water, a notepad, snacks, a cell phone, etc.); they should also let family and/or friends know where they will be going and when they should return. During the walk, students should focus on being present and observing the natural world around them; also, they should address the questions below in writing during their journey. Finally, instruct them to take several pictures and/or videos of their natural surroundings.

- Where is your walk taking you? Sketch a map of your journey.
- What do you notice about your surroundings? What do your senses reveal?
- Adopt both micro and macro views of your surroundings, and look for mutualistic relationships around you. What do you observe in the dirt under your feet? What do you see in the trees above you? Jot down a few species you notice that could be involved in mutualisms.

Next, ask students to reference their notes and conduct some brief online research to learn more about the potential mutualisms they observed. For instance, if students noticed insects on plants or tree leaves, ask them to research these species to learn more about the nature of their relationship. Finally, ask each student to create a blog by using a free resource such as <http://blogger.google.com> or <http://www.wordpress.com>. On the blog, have students import their writing and associated media. After their blogs are finished, have students share their blog addresses with classmates and encourage them to comment on each other's work. You can also ask students to present a few blog posts highlighting some of the mutualisms they discovered.

- **Illustrate Connectedness through Concept Mapping**

“Not only will the salmon benefit from their newly extended spawning grounds, but the forest alongside North Creek will benefit from the renewed flow of marine nitrogen provided by the dying salmon. ‘Minks, dippers, coyotes, river otters, and so many others will be pulling those salmon carcasses out of the stream and into the woods,’ Engelmeyer said. ‘Things want to heal so much’” (p. 311).

Through her writing, Ohlson takes the reader into various environments to highlight the many relationships that exist among species. The passage above, for example, underscores the connectedness between streams, salmon, predators, and the forest. In this example alone, we can consider how root systems slow riverbank erosion; the resulting clear, flowing streams provide a thriving habitat for salmon; predators that feed on salmon deposit nutrients into the soil, thus benefiting the forests, and so forth. This not only illustrates a number of mutualistic relationships but also underscores the connectedness of all living things. Invite your students to learn more about natural connectedness by exploring relationships in a natural setting around them.

To begin, ask your students to conduct online research to learn more about an ecosystem in their local community or region. While researching in the field, they should take note of the organisms they encounter and document the connections these species have with others in the area; as Ohlson does in *Sweet in Tooth and Claw*, students should consider species both large and small. Next, ask your students to create a concept map to present a visual web of connectivity. The free resources below could be used for this purpose:

- Canva: <https://www.canva.com/graphs/concept-maps/>
- Lucidchart: <https://www.lucidchart.com/pages/examples/concept-map-maker>

To push your students' thinking, ask them to consider how removing one species from their concept map would affect others in the ecosystem. You might also ask them to compare and contrast the connectedness of their ecosystem with one described in Ohlson's text. Give students an opportunity to present their work to the class.

- **Let the Microbes In!**

“The average human in industrial societies spends around 90 percent of their time indoors, which further impoverishes their microbial community. We may fill up rooms with plumes of our own microbiota, but modern buildings have been designed and engineered to keep the rest of nature out” (p. 136).

Like most humans in industrial societies, your students likely spend the majority of their time indoors, cut off from nature and its beneficial microbes. To address this problem, ask your students to consider ways to break down barriers between the indoor and outdoor worlds.

To begin, ask your students to select a space to transform; some possibilities include their home, a classroom, or even a community setting cut off from nature. Next, have them plan ways to transform the space into a more

natural setting. Some ideas for this transformation include installing a window garden box, planting a rooftop garden (with a focus on mutualism through companion planting), or bringing in a range of indoor plants. More substantial transformations include increasing natural airflow within an indoor space. Push your students to use their creativity to establish multiple connections to nature in their selected space. Note that for students who live in urban environments, implementing these changes might be more challenging. Ask these students to re-read chapters three and eight to generate ideas; you can also recommend the following two resources:

- <https://www.gardeningknowhow.com/special/urban/urban-gardening-ultimate-guide.htm>
- <https://www.plt.org/educator-tips/urban-green-spaces/>

After students implement these changes, ask them to reflect as a class on the process and how these changes impact their relationship with the living world.

- Kropotkin and Darwin Meet: Create a Dialogue

“...Kropotkin had always been leery that Darwin’s writings might be misconstrued by his followers and encourage an overly harsh view of life. He didn’t believe Darwin actually intended that view. In fact, he writes, Darwin intimated that ‘the fittest are not the physically strongest, nor the cunningest, but those who learn to combine so as mutually to support each other, strong and weak alike, for the welfare of the community’” (p. 83).

Ask your students to re-read chapter two in *Sweet in Tooth and Claw* and take detailed notes on Darwin’s and Kropotkin’s philosophies regarding competition and collaboration in nature. Additionally, ask them to conduct online research to learn more. Next, ask students to craft a fictional dialogue between the two men. What areas of agreement and disagreement would the two men find? How would Kropotkin comment on what he perceived to be the misinterpretation of Darwin’s work? Also, would Kropotkin share his thoughts on the philosophy of “Social Darwinism”? If so, what would he say? How would Darwin respond to Kropotkin’s notion of mutual aid? After students finish writing, ask them to pair up and act out their dialogue. You might follow this with a whole-group reflection to explore students’ reactions to the activity.

Theme-Related Research Topics

- 1.) “Cities swathed in greenery also keep citizens healthier. Research keeps showing what most of us instinctively know: that proximity to nature bolsters and heals us” (p. 345). As Ohlson mentions in chapter eight, researchers have identified the many benefits that proximity to nature offers human beings. Have students conduct their own research to learn more about this phenomenon. What are these specific benefits? How long do humans have to be in contact with nature to experience them? What are the emotional and psychological effects of establishing a connection with nature? Have students address these questions and others that interest them through their research.
- 2.) “We are not individuals but ecosystems, each of us hosting a whirl of organisms busily interacting with us and with each other in a complex web of connection” (p. 117). Perhaps one of the most powerful illustrations of natural connectedness, there are numerous smaller species that call the human body home. Have your students conduct research to learn more about these species. To begin, direct them to choose three to five microorganisms to focus on. Where are they located in the human body? What are their functions? In what

ways do they occupy a symbiotic relationship with the human organism? Are there even smaller organisms within these microscopic organisms? Then guide them in exploring these questions to learn more about the many forms of life that cooperate within the human body.

- 3.) Encourage students to deepen their knowledge of mutualisms by identifying and exploring a symbiotic relationship other than those mentioned in *Sweet in Tooth and Claw*. Have them choose a region and identify two species within that area that have a mutualistic relationship (one starting point for the research might be <https://www.nhm.ac.uk/discover/mutualism-examples-of-species-that-work-together.htm>). What are these species? In what ways do they benefit each other? After students locate some basic information to address these questions, ask them, to choose one of the mutualisms mentioned in Ohlson's book and compare and contrast it with the symbiotic relationship they researched.



Beekeeping at Blue Dasher Farm, South Dakota. JULIA STUEVEN

Theme: The Human Potential to Both Disrupt and Restore Nature

- **Raise Awareness through an Online Campaign**

“When we help them do their job—and often, that just means stopping our damage and getting out of their way—nature rebounds more quickly and bountifully than we imagine. We can trust nature to do this work” (p. 381).

One of the central themes in *Sweet in Tooth and Claw* is the idea that human behavior has disrupted mutualistic relationships that exist in nature, yet human action is also required to restore them. Given this idea, ask your students to initiate an online campaign to raise awareness about a local environmental issue caused by human involvement. To forge a deeper connection to *Sweet in Tooth and Claw*, ask students to also consider the associated mutualisms that have been disrupted.

- To begin, ask students to form small groups. Next, invite them to identify a local environmental issue they would like to make others aware of. They also need to select an audience to focus on. Will they target people their own age? The general public? Policymakers? Their audience will dictate their communication style.
- The next step is to direct students to research the issue and create media related to it. For example, students might record a video and/or take pictures of an affected location for the purpose of documenting it. The primary goal here is to educate a larger audience about the environmental damage, the mutualisms disrupted, and the problem's central contributors.
- Lastly, have students utilize social media to initiate an awareness and action campaign. They should disseminate their images, videos, texts, etc., by sharing them widely and using hashtags and other online tools to circulate content. This is also where they need to tailor their communication to address their intended audience (for example, the use of TikTok videos to reach a younger audience). Students could also include an action item in the campaign using resources such as <https://resist.bot> or https://www.change.org/start-a-petition?started_flow=true.
- For additional, useful tips on social media campaigns, direct students to https://edtechbooks.org/mediaandciviclearning/environmental_campaign and <https://www.yesmagazine.org/people-power/yes-social-media-can-be-used-for-positive-change-20180423>

- **Become a Partner with the Living World**

“But for me, the most thrilling parts of the book look at how people are acting on new understandings of what the rest of nature needs from us. They are deciding to be partners with the living world, partners with each other in this mission, and showing that bleakness does not have to be our shared fate” (p. 17).

By working to restore the living world, we become its partner. Encourage students to engage in this partnership by having them volunteer with an organization dedicated to restoring nature. Students might begin their search by accessing <https://www.patagonia.com/actionworks/home/choose-location>. The following organizations also offer a variety of opportunities that might interest students:

- <https://www.volunteermatch.org/search/orgs.jsp?l=United+States&submitsearch=Search&cats=13&o=relevance>
- <https://www.volunteerworld.com/en/volunteer-abroad/environment>
- <https://rebellion.global/groups/#countries>
- <https://www.nature.org/en-us/get-involved/how-to-help/volunteer>

Ask students to maintain a journal during their time volunteering so that they can share their experiences with classmates and the school community after their work concludes.

Theme-Related Research Topics

- 1.) “And it’s just one example of how human actions can unwittingly rupture one of the most essential relationships on our planet—that between the land and the water—with tragic repercussions for the living things inhabiting both” (p. 293). Unfortunately, our species has established a pattern of severing essential, natural relationships. Conduct research to learn more about a specific example of destructive human behavior in the natural world. During your research, you should identify the central players, the environmental impacts, and the motivations behind these actions. In other words, who benefits, or profits from these actions at nature’s expense?

- 2.) Despite the many negative impacts of human behavior on the natural world, there have been some positive results of human intervention; Ohlson, for example, highlights forms of regenerative agriculture, the greening of urban spaces, the work of the MidCoast Watersheds Council, and similar efforts. Conduct research to learn more about environmental victories. To begin, identify and research an environmental victory in your state. This could be a form of legislation, a habitat that was restored, a species that was successfully protected, or something else entirely. Identify the principal actors and/or groups involved in the effort and thoroughly explain the outcomes of the positive intervention. Consider ways this victory could be emulated elsewhere.

IV. Resources

These resources relate to themes and subjects from *Sweet in Tooth and Claw*.

Books

- *Mutual Aid: A Factor of Evolution*
Peter Kropotkin

- *Four-Fifths a Grizzly: A New Perspective on Nature that Just Might Save Us All*
Douglas Chadwick

- *The Mermaid’s Tale: Four Billion Years of Cooperation in the Making of Living Things*
Kenneth M. Weiss and Anne V. Buchanan

- *Nature’s Matrix: Linking Agriculture, Biodiversity Conservation, and Food Sovereignty*
Ivette Perfecto, John Vandermeer, and Angus Wright

- *Mutualism*
Edited by Judith Bronstein

Online Resources

- Kristin Ohlson's official website
<https://www.kristinohlson.com>
- Patagonia Stories Podcast: Collaborative Knowledge, featuring Kristin Ohlson
<https://tinyurl.com/53dypphh>
- "Survival of the Friendliest," by Kelly Clancy
<https://nautil.us/survival-of-the-friendliest-236515>
- The official website of the Mother Tree Project
<https://mothertreeproject.org>
- The official website of the Nature of Cities
<https://www.thenatureofcities.com>
- The official website of Movement Generation Justice & Ecology Project
<https://movementgeneration.org>

About the Author of This Guide

Chris Gilbert, EdD, is a former high school English teacher and college instructor who lives in the mountains of North Carolina. He is also an avid writer. His work has appeared in *The Washington Post's* education blog, "The Answer Sheet," NCTE's (National Council of Teachers of English) *English Journal*, Kappa Delta Pi's *The Educational Forum*, *Critical Studies in Education*, and *Educational Action Research*. He has also written a number of educational guides for Penguin Random House and Patagonia.