

Indigenous science (fiction) for the Anthropocene: Ancestral dystopias and fantasies of climate change crises

Kyle P. Whyte

Michigan State University, USA

Environment and Planning E: Nature and Space

2018, Vol. 1(1–2) 224–242

© The Author(s) 2018

Reprints and permissions:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/2514848618777621

journals.sagepub.com/home/ene



Abstract

Portrayals of the Anthropocene period are often dystopian or post-apocalyptic narratives of climate crises that will leave humans in horrific science-fiction scenarios. Such narratives can erase certain populations, such as Indigenous peoples, who approach climate change having already been through transformations of their societies induced by colonial violence. This essay discusses how some Indigenous perspectives on climate change can situate the present time as already dystopian. Instead of dread of an impending crisis, Indigenous approaches to climate change are motivated through dialogic narratives with descendants and ancestors. In some cases, these narratives are like science fiction in which Indigenous peoples work to empower their own protagonists to address contemporary challenges. Yet within literature on climate change and the Anthropocene, Indigenous peoples often get placed in historical categories designed by non-Indigenous persons, such as the Holocene. In some cases, these categories serve as the backdrop for allies' narratives that privilege themselves as the protagonists who will save Indigenous peoples from colonial violence and the climate crisis. I speculate that this tendency among allies could possibly be related to their sometimes denying that they are living in times their ancestors would have likely fantasized about. I will show how this denial threatens allies' capacities to build coalitions with Indigenous peoples.

Inuit culture is based on the ice, the snow and the cold. . . . It is the speed and intensity in which change has occurred and continues to occur that is a big factor why we are having trouble with adapting to certain situations. Climate change is yet another rapid assault on our way of life. It cannot be separated from the first waves of changes and assaults at the very core of the human spirit that have come our way. Just as we are recognizing and understanding the first waves of change . . . our environment and climate now gets threatened. Sheila Watt-Cloutier, interviewed by the Ottawa Citizen. (Robb, 2015)

In North America many Indigenous traditions tell us that reality is more than just facts and figures collected so that humankind might widely use resources. Rather, to know “it”—reality—requires respect for the relationships and relatives that constitute the

Corresponding author:

Kyle P. Whyte, Michigan State University, East Lansing, MI, USA.

Email: kwhyte@msu.edu

complex web of life. I call this Indigenous realism, and it entails that we, members of humankind, accept our inalienable responsibilities as members of the planet's complex life system, as well as our inalienable rights. (Wildcat, 2009, xi)

Within Māori ontological and cosmological paradigms it is impossible to conceive of the present and the future as separate and distinct from the past, for the past is constitutive of the present and, as such, is inherently reconstituted within the future. (Stewart-Harawira, 2005, 42)

In fact, incorporating time travel, alternate realities, parallel universes and multiverses, and alternative histories is a hallmark of Native storytelling tradition, while viewing time as pasts, presents, and futures that flow together like currents in a navigable stream is central to Native epistemologies. (Dillon, 2016a, 345)

Keywords

Climate justice, anthropocene, decolonization, science fiction, resurgence, Indigenous knowledge, Indigenous philosophy

Introduction

I write this essay to express an issue I have with how the Anthropocene period is sometimes described through dystopian or postapocalyptic narratives of climate crises that will leave humans in horrific science-fiction scenarios. Such narratives can erase Indigenous peoples' perspectives on the connections between climate change and colonial violence. In addressing this issue here, I will cover topics including climate justice, Indigenous philosophy, and allyship. The essay unfolds in three independent sections without a conclusion section. Though independent, the sections overlap with and refer to one another.

The first section, "Ancestral Dystopias and Climate Change Crises," shows some of the ways in which Indigenous peoples challenge linear narratives of dreadful futures of climate destabilization with their own accounts of history that highlight the reality of constant change and emphasize colonialism's role in environmental change. The second section, "Indigenous Science (Fiction)," develops an account of Indigenous narrative-making using a conception of spiraling time that can be seen as living science fiction, and helps to explain certain aspects of Indigenous artistic production and Indigenous environmental conservation and environmental justice work. The third section, "Allies and Ancestral Fantasies," is a critique of some of the ways in which scholars and advocates (i.e. allies) who seek to empower Indigenous peoples do so by denying their connections to the worlds many of their ancestors established today—worlds their ancestors would have fantasized about.

This essay is a speculative account that seeks to engage philosophical and aesthetic places that honor Indigenous histories, perspectives and projects (i.e., activism, work, research, etc.) and that support constructive and critical conversations of allyship.

Ancestral dystopias and climate change crises

Some people see *the Anthropocene* as a coming period of irreversible destabilization of the global climate system—an impending climate crisis. Academics, journalists, and artists have conjured apocalyptic and dystopian portrayals of perilous futures of mass species extinctions, ecosystem degradation and social upheaval (Cafaro and Primack, 2014; Methmann and Rothe, 2012; Mitchell, 2016; Skrimshire, 2010). In fiction portrayals,

ranging from *The Bone Clocks* to *Carbon Diaries 2017*, climate futures are dystopian times of rationing, government assistance, major extinctions, social unrest, drastic measures, and defaced landscapes (Ignatius, 2014; Lloyd, 2011; Mitchell, 2014). Joni Adamson cites a trend for speculative fiction to be written and used by academics to address dreaded futures tied to “climate change” and “global ecological transformations” (Adamson, 2016: 216). In the United Nations’ deliberations on climate change, logics of apocalypse are present through discourses of climate change as “catastrophic” and akin to “two world wars” (Methmann and Rothe, 2012). Audra Mitchell observes growing references to the thought that climate change could be a factor leading to the extinction of all humans (Mitchell, 2016: 27). Scholar, writer, and artist Leanne Simpson, who recently authored the book *As We Have Always Done*, observes how “.. focusing on imminent ecological collapse is motivating Canadians to change if you look at the spectrum of climate change denial across society. It is spawning a lot of apocalypse movies...” (Klein, 2013; Simpson, 2017).¹ Janet Fiskio’s (2012) study confirms Simpson’s observations, showing that in literature, activism and the media “the narratives employed to describe climate change are familiar: apocalyptic visions inflected by utopian, dystopian, and millenarian imaginaries drawn from speculative fiction, disaster films, and biblical texts” (Fiskio, 2012: 13). In an article titled, “Climate Change is So Dire We Need a New Kind of Science Fiction to Make Sense of It,” Claire Evans writes that “we need an Anthropocene fiction. Since sci-fi mirrors the present, ecological collapse requires a new dystopian fiction... a form of science fiction that tackles the radical changes of our pressing and strange reality...” (Evans, 2015).

As a Potawatomi scholar and activist, I feel that Indigenous peoples do not always share quite the same science fiction imaginaries of dystopian or apocalyptic futures when they confront the possibility of a climate crisis (Whyte, 2017b). Candis Callison, relating to Arctic Indigenous peoples, writes that we need to recognize what “climate change portends for those who have endured a century of immense cultural, political and environmental changes” (Callison, 2014: 42). Callison’s work recognizes that the hardships many nonIndigenous people dread most of the climate crisis are ones that Indigenous peoples have endured already due to different forms of colonialism: ecosystem collapse, species loss, economic crash, drastic relocation, and cultural disintegration.

In my many conversations in the last several years with Preston Hardison, a policy analyst for the Tulip Tribes and advocate of the protection of Indigenous knowledge, we often discuss how for many Indigenous peoples, the loss of local access to a culturally or economically significant plant or animal due to colonial domination is comparable to that species becoming extinct (Hardison, 2017). Different forms of colonialism, of course, whether through environmental destruction, land dispossession or forced relocation, have ended Indigenous peoples’ local relationships to thousands of plants, animals, insects, and entire ecosystems. While these relationships often continue to be enacted through Indigenous peoples’ living memories, heritage, “felt knowledges” (Million, 2013), social identities (e.g., clans), and philosophies, they have stopped as relationships involving direct ecological interaction. As Audra Mitchell’s research shows, today’s global discourses of extinction are often so focused on “species” that they cannot come to grips with Indigenous peoples’ experiences of having their relationships with nonhumans greatly disrupted by colonialism (Mitchell, 2016).

Some Indigenous peoples, then, offer the idea that we confront climate change having already passed through environmental and climate crises arising from the impacts of colonialism. Robin Kimmerer often tells the story of one of the Potawatomi relocation processes from the Great Lakes region to Kansas and Oklahoma in the 19th century. The relocation process was literally a drastic change in climate regions and the ending of many ancient relationships with the species and ecosystems of Potawatomi homelands. Reflecting

on today's climate crisis as the experience of *déjà vu*, Kimmerer says "Once again, we are in a situation of forced climate change adaptation" (Kimmerer, 2014). Dan Wildcat claims that Indigenous vulnerability to climate change today is part of previous removals occurring as part of U.S. colonial expansion: "geographic" (displacement, e.g., Trail of Tears and the forced occupation of reservations); "social" and "psychocultural" (such as through removal of children to boarding schools) (Wildcat, 2009: 4). Leanne Simpson discusses how "Indigenous peoples have always been able to adapt, and we've had a resilience. But the speed of this—our stories and our culture and our oral tradition doesn't keep up, can't keep up... Colonial thought brought us climate change" (Klein, 2013). In the epigraph, Sheila Watt-Cloutier, a former chair of the Inuit Circumpolar Council and recent author of the *Right to Be Cold*, discusses in an interview how "Climate change is yet another rapid assault on our way of life. It cannot be separated from the first waves of changes and assaults at the very core of the human spirit that have come our way" (Robb, 2015; Watt-Cloutier, 2015).

In light of what was said in the previous paragraph, it should not be surprising that Indigenous persons see our current situation as already having been through a crisis that is ongoing. Lee Sprague, known most recently for his organizing the Michigan Cold Water Canoe Rescue at Standing Rock, says that we already inhabit what our ancestors would have understood as a dystopian future (Sprague, 2017; Whyte, 2017b). Larry Gross writes that "Native Americans have seen the end of their respective worlds... Indians survived the apocalypse" (Gross, 2014, 33). Sprague's and Gross' framing of today's times comes out in Indigenous science fiction expression. Grace Dillon interprets Indigenous futurisms in literature and the arts as expressing how Indigenous peoples are currently living in a "post-Native Apocalypse" (Dillon, 2012: 10). Building on Dillon's research, Conrad Scott's recent study discusses how "Indigenous literature, following the culturally destructive process of colonial European advancement and absorption of what is now called the Americas, tends to narrate a sense of ongoing crisis rather than an upcoming one" (Scott, 2016: 77).

Indigenous peoples then do not always approach the climate crisis as an impending future to be dreaded. Heather Davis and Zoe Todd see an insidious irony in the different ways Indigenous and nonIndigenous persons approach the Anthropocene and climate crisis. They describe colonialism as a seismic shockwave that "kept rolling like a slinky [as it worked] to compact and speed up time, laying waste to legal orders, languages, place-story in quick succession. The fleshy, violent loss of 50 million Indigenous peoples in the Americas is something we read as a 'quicken' of space-time in a seismic sense" (Davis and Todd, 2017: 771–772). They then point out that "the Anthropocene or at least all of the anxiety produced around these realities for those in Euro-Western contexts—is really the arrival of the reverberations of that seismic shockwave into the nations who introduced colonial, capitalist processes across the globe in the first half-millennium in the first place" (Davis and Todd, 2017: 774).²

The perspectives referenced in the last few paragraphs point to the idea that Indigenous peoples have already endured harmful and rapid environmental transformations due to colonialism and other forms of domination. As Davis and Todd articulate so clearly, these environmental transformations—"the fleshy violent [losses]"—seem actually a lot like what many other people in the world fear will happen with climate destabilization when these same people portray apocalyptic and dystopian science fiction futures.³ Given Indigenous experiences of, scholarly work on and testimonies about colonialism, it should not be hard to imagine why many Indigenous persons I know do not accept historical narratives that privilege the idea that climate change and the Anthropocene raise the issue of how to understand and stop a dreaded future movement from stability to crisis. Consider a brief history of Anishinaabe/Neshnabé peoples, who include diverse Ojibwe, Odawa,

Potawatomi, Mississauga and other peoples whose homelands are in the Great Lakes region but also, through relocation, in places such as Oklahoma, Kansas, and North Dakota.

Anishinaabe/Neshnabé peoples often relate their histories through concepts of constant migration and motion occurring at different scales. Historically, Anishinaabe peoples root themselves in a complex migration story through which their societies changed homelands repeatedly as they moved from what is now called the Eastern U.S./Canada region to the Great Lakes region. Within Anishinaabe heritage, Anishinaabe societies governed themselves using a seasonal round system. Part of the political philosophy guiding this system is that government institutions and social identities should be organized to change and shift throughout the year to adjust to the dynamics of ecosystems. So at different times during the year, different institutions and identities of political authority are active, which range from clans, lodges, families, networks, bands, villages, among others. In these traditions, gender and sexuality are more fluid than the binary gender system in many cultures in the U.S. Regarding gender, Anishinaabe heritage has more gender options, greater gender fluidity, and a culture of respecting diverse leadership capacities and roles across different genders. Identity fluidity has an important role in these traditions, where historical accounts show that people constantly transformed their identities in relation to other humans and nonhumans to form new strategic kin connections and to take up the projects of ancestors who had walked on (Blaeser, 1999; Doerfler et al., 2013; Lyons, 2010; Noodin, 2014; Sinclair, 2016; Sleeper-Smith, 2001; White, 1991; Witgen, 2011).

I interpret speculatively the diverse work of historians Michael Witgen, Susan Sleeper-Smith, and Michael McDonnell as showing that our Anishinaabe ancestors were likely to have been surprised when the U.S. settlers confronted them with the assumption that they had title to Indigenous lands, made laws and took actions that sought to end Anishinaabe seasonal round systems, did not need to engage in the transformational exercise of forging of kinship relationships and dismissed the leadership of women, for example, using sexist slurs and assumptions (McDonnell, 2015; Sleeper-Smith, 2005; Witgen, 2011). As Indigenous peoples, some of us awaken to a situation that those ancestors who were surprised by U.S. arrogance and domineering would have seen as a dystopian science fiction scenario. Our collective agency is dominated by the U.S. Some Anishinaabe communities forcibly left the Great Lakes region entirely, setting up their own nations in places like what is currently Oklahoma or Kansas or finding asylum with other Anishinaabe peoples on the Canada side. The majority of U.S. citizens and arrivants have not even heard of Anishinaabe, nor do our histories show up fairly or at all in state educational systems in the Great Lakes region. We have lower health and wealth statistics compared to other people who live here and have less capacities for protecting the environment around us, starting businesses and trade relationships and having meaningful political representation through our own governing bodies and those of the U.S. and its states. Like dystopian narratives, we find ourselves in a time our ancestors would have interpreted as a portrayal of our societies with dramatically curtailed collective agency. They would have been surprised and horrified to know in such a short period of time so much would have changed.

Indigenous science (fiction)

Grandmother and knowledge-keeper Sherry Copenace and Dylan Miner have discussed with me the *Anishinaabemowin* (*Neshnabémwen*) expression *aanikoobijigan* (*yankobjegen*). The expression means ancestor and descendent at the same time (Copenace, 2017; Miner, 2017). This meaning suggests an Anishinaabe perspective on intergenerational time—a perspective embedded in a spiraling temporality (sense of time) in which it makes sense to consider

ourselves as living alongside future and past relatives simultaneously as we walk through life. Spiraling time, for me in this essay, actually refers to the varied experiences of time that we have as participants within living narratives involving our ancestors and descendants. Experiences of spiraling time, then, may be lived through narratives of cyclicity, reversal, dream-like scenarios, simultaneity, counter-factuality, irregular rhythms, ironic un-cyclicity, slipstream, parodies of linear pragmatism, eternity, among many others.⁴ The spiraling narratives unfold through our interacting with, responding to and reflecting on the actual or potential actions and viewpoints of our ancestors and descendants. They unfold as continuous dialogues. The narratives also involve the dramas related to our own transformations as we move from being descendants to ancestors through our own lives.

Spiraling time is an important topic of discussion when Indigenous persons compare their conceptions of temporality across different cultures. In the epigraph, Makere Stewart-Harawira writes that “Within Māori ontological and cosmological paradigms it is impossible to conceive of the present and the future as separate and distinct from the past, for the past is constitutive of the present and, as such, is inherently reconstituted within the future” (Stewart-Harawira, 2005: 42). Simon Ortiz, in his poem “Time as Memory as Story,” writes “Last summer near Prescott that boy fifty vast years later. Found carved images on stone walls that fit his hands. Carved in time. Eternal as stone. Past and present. Ever” (Ortiz, 2002: 154). Spiraling time does not foreclose linear, future thinking. Spiraling time is a dialogical unfolding that also has, in a sense, forward motion that can be both predictable and irregular. Scott Lyons, for example, describes the Anishinaabe migration story as always “[speaking] of home. There was always a destination in view...but... it kept changing! One moment the Great Migration had come to an end; the next moment people were telling stories about the last two, three, four stopping points they encountered. Home is a stopping point, for there is no sense in the migration story that there will be only one home for only one people forever” (Lyons, 2010: 4). In the epigraph, Grace Dillon writes that “In fact, incorporating time travel, alternate realities, parallel universes and multiverses, and alternative histories is a hallmark of Native storytelling tradition, while viewing time as pasts, presents, and futures that flow together like currents in a navigable stream is central to Native epistemologies” (Dillon, 2016a: 345).

I interpret the dialogical unfolding of spiraling time as sometimes involving a certain form of philosophizing about what actions we or our communities ought to take to respond to the issues and problems that characterize our current situations. The form of philosophizing starts with questions about how ancestral and future generations would interpret the situations that we find ourselves in today. For example, just in everyday conversations that Indigenous persons have with one another or in Indigenous studies literatures, we sometimes hear people ask the following questions: “How do we return the gifts from our ancestors?” (Kimmerer, 2013) “How do we become a good ancestors ourselves?” The first question opens dialogue with our ancestors. The question asks for critical reflection on what our ancestors would believe their gifts or insights to us would be if they would be able to have a chance to analyze our current situations. The second question opens dialogue with the coming generations. The question asks us to reflect critically on those actions we can do, that may not be immediately apparent to us, that coming generations would appreciate in the future.

The form of philosophizing that is promoted by these questions, I claim, is counterfactual dialogue. It is a dialogue in which—without full information—we speculate on how our ancestors and our future generations would interpret today’s situations and what recommendations they would make for us as guidance for our individual and collective actions. What we determine to be right or wrong actions in our lives stems importantly from the results of these dialogues that involve currently living persons, memories and stories

of past persons and the anticipated interpretations of future persons. The philosophical places of counterfactual dialogue are endless, given many dialogues are possible depending on which generations of ancestors or descendants we choose to begin with. If we engage in this counterfactual dialogue in relation to climate change and the idea of our ancestors' dystopia, some important possible ideas emerge. Consider the same ancestors discussed in the previous section, the Anishinaabe living toward the beginning of the establishment of U.S. nationalism in North America.

If some of these ancestors would have analyzed today's situation that we face in the context of their times, what would they have picked out as the features that we need to address most today? It is tempting to point out that they would have commented on the loss of plants, animals, insects and ecosystems and the loss of traditional practices in the precise ways they were performed during their times. But I do not think that is actually what would stick out to our ancestors most. Instead, they would be quite surprised to see the disempowerment of women and the adoption of heteropatriarchy in Native communities, the lack of consent and trust within and across peoples and nations, and the absence and triviality of nonhuman agency in human affairs. They would have asked us what use words such as "human" and "nonhuman" even have for helping us address pressing issues. It is tempting to also interpret future generations as seeking for us to retain as many of the traditions in their exact performance as we can. But, again, I do not think that is actually what would stick out to future generations. They instead are looking to their lives and wanting qualities such as a chance to have spiritual lives, to have consensual and trusting relationships and political leadership, and the capacity to interact with nonhumans meaningfully. These are not qualities that are tied to any one practice—whether that practice is traditional, in some sense, or newly adopted. So our dialogue moves into issues of how *both* traditional and newer practices can foster these qualities today in our current situations.

Notice that this counterfactual form of philosophizing does not require some ideal of causal accuracy. Our ancestors had many flaws. Consider gender. When we interpret our ancestors as calling out today's hetero-patriarchy, for example, we are not at the same time making the claim that no hetero-patriarchy existed in their times and within their cultural and social systems. What we are doing, though, is calling out two things. First, we are pointing out that, from what we know through limited (and often biased) empirical and narrative sources (e.g. stories, memories, etc.), our ancestors did not have certain hetero-patriarchal problems that are taken for granted in the U.S. as timeless norms and forms of oppression. Second, we are *conditionally* claiming that, if the system our ancestors lived within, the seasonal round (e.g., for Anishinaabe), were fully flourishing to its highest levels of attainment, it could not have been a system in which women were disrespected as knowers, leaders, skilled practitioners, and decision makers. It could not have been a system in which somebody was barred from pursuing a course of life that they had a natural talent for because they were not fitting of European manhood or binary gender formations.

Philosophizing counterfactually through narratives of spiral time has a connection to what I will refer to here as living Indigenous science fiction. Indigenous persons everywhere often describe our current situation in science fiction narratives. Reading Davis and Todd, they pointed me to an essay by Cutcha Risling Baldy that describes Indigenous histories and experiences of colonialism as suffering through the television zombie series *The Walking Dead* (Risling Baldy, 2014). It is not hard to see why historic and contemporary persons and institutions who participate in settler colonialism are not different from a zombie apocalypse. Like in dystopian science fiction, our ancestors would have seen us living in a situation in which the conditions of our individual and collective

agency are almost entirely curtailed. But our ancestors and future generations are rooting for us to find those secret sources of agency that will allow us to empower protagonists that can help us survive the dystopia or post-apocalypse. And there is quite a bit of creativity involved in figuring out who the protagonists will be. The literature on Indigenous science fiction discusses the range of protagonists that Indigenous authors introduce in their narratives, from nonhumans to spirits to women to youth (Dillon, 2012; Lempert, 2014; Monani, 2016). Consider the work of Salma Monani in her analysis of Danis Goulet's science fiction movie *Wakening*.

The sci-fi/horror movie is set in a dystopian time in which a colonizing group, the occupiers, have destroyed the environment and make it illegal for anyone else to possess the land. Several protagonists emerge in this dystopia, the first being *Weesageechak*, a longstanding Cree trickster portrayed as a contemporary warrior woman in the film armed with archery equipment and protective medicine. She enters a theatre in which people who once were captivated by the images on the stage or screen are now gone, with the few remaining asking to be saved from death. The initial reason for this dystopia is the violent actions of the other protagonist, *Weetigo*, a legendary Cree monster, who is portrayed as a forest/elk hybrid creature who lives in the theatre, and is initially seen as the cause of the suffering. Yet *Weesageechak*, in seeking *Weetigo* in the theatre, says that the occupiers have tricked *Weetigo* into being so destructive, and that it is the occupiers who are more powerful, *Weetigo* now being forgotten. *Weetigo* eventually turns away from ensnaring and killing *Weesageechak* and kills two occupiers who are about to kill a person. The film ends with both protagonists staring into each other with the noise of the occupiers in the background, as *Weetigo* disappears and *Weesageechak* stares into a brighter horizon with a wistful look.

Monani discusses, based on her interviews with Goulet, that the struggle of the protagonists arises from Cree storytelling (Monani, 2016). Goulet sets this story in the dystopian times of the occupiers. In the film, the protagonists are women and nonhumans who have to figure out how to relate to each other again to resist the genocide and environmental destruction of the occupiers who are the true force of destruction and injustice. Both protagonists occupy social identities that are disrespected or villainized in Canadian or U.S. settler colonialism, whether owing to gender, Indigeneity or being nonhuman. The film emphasizes and honors the positive agencies of *Weesageechak* and *Weetigo*. In this sense, *Weetigo* is not entirely anthropomorphized and acts according to an agency that humans cannot fully comprehend or control, but must respect. The film expresses *Weesageechak*'s responsibility to respect and confront *Weetigo* and *Weetigo*'s responsibility not to be fooled by the occupiers. Of course, the solution to surviving the dystopia lies in the reciprocal responsibility of both protagonists to work together in ways that honor each other. One way of interpreting *Wakening* is as such an unfolding narrative of dialogue with ancestors and descendants, where what becomes apparent is the importance of reestablishing a relationship of reciprocal responsibility between the two protagonists, and emphasizing diverse gendered and nonhuman agencies (see also Nelson, 2013, for another example of this type of narrative relating to climate change).

What the protagonists are *not* are the ones similar to what we see in the movie *Avatar*. For example, the movie *Avatar* is a powerful story of environmental injustice against the *Na'vi* people, who live under the dystopia of alien invasion from a more powerful military force. Yet the protagonist who emerges is an alien, non-*Na'vi* white male who is able to pass for *Na'vi* and have a sexual relationship with a *Na'vi* gendered female character who becomes defined in terms of this romantic relationship. Yet, following conventions in Indigenous science fiction, we are not in that position of being able to depend on a non-Indigenous

person. In fact, if we think counterfactually about our ancestors' perspectives, they would have warned us about would-be allies. In our ancestors time, they experienced how would-be allies exploited Indigenous peoples as an effort to boost their own senses of righteousness. Consider our ancestors who experienced the supposed "friends of the Indian" in the 19th century. These would-be allies saw it as their high moral obligation to support U.S. policies and actions to liquidate Indigenous territories into private property and break up Indigenous kinship systems.

Danika Medak-Saltzman writes, in her analysis of Indigenous science fiction, gender and futurism, that "Indigenous futurist work can and does also explore a variety of dystopian possibilities, which allows for critical contemplation about the dangerous 'what ifs' we might face and, more pragmatically, can aid us in our efforts to imagine our way out of our present dystopic moment to call forth better futures" (Medak-Saltzman, 2017: 143). Medak-Saltzman focuses on how Indigenous science fiction works empower women and nonhuman protagonists. Looking at Nanobah Becker's *The 6th World*, a futuristic film about the Navajo Nation working with the Omnicorn Corporation to create a colony on Mars, Saltzman-Medak claims that "it is women who are endowed with the ability to usher forth our collective futures, but it does so in a manner that complicates this notion and delinks it from being understood only through the lens of biological reproduction...[expanding] women's roles and value beyond the limits imposed by patriarchy, colonization, and heteronormativity" (163). The film also brings out the protagonist agency of Navajo traditional corn, which plays multiple roles in the film through its spirituality, place in Navajo cultural heritage, association with sound scientific knowledge and motivational value for imagining better futures (Medak-Saltzman, 2017).

Grace Dillon, writing about Indigenous science fiction imaginations in a new volume on Two-Spirit sci-fi, says that these stories are about "persistence, adaptation, and flourishing in the future, in sometimes subtle but always important contrast to mere survival" (Dillon, 2016b: 9). Joni Adamson interprets Indigenous science fiction as "[promoting] deeper understandings of biodiversity, cultural diversity, and refugia..." (Adamson, 2016: 219). I want to show, then, that for Indigenous peoples, the practical version of spiraling time—counterfactual philosophizing and science fiction—is *in a way* what we sometimes refer to as Indigenous science or knowledge that supports and guides our plans and future-oriented actions. Here I want to call it living Indigenous science (fiction) just to highlight the connection between Indigenous knowledge (the science) and the counterfactual philosophizing (the fiction). In North America, I understand much of the conservation and environmental justice work that Indigenous peoples do as a type of science (fiction) that seeks to "waken" protagonists and particular qualities of relationships. One example I will share here involves what I have personally taken away from my ongoing collaboration with the Sustainable Development Institute of the College of Menominee Nation (Whyte et al., 2017).

Menominee people once exercised a highly adaptable seasonal round with complex diplomatic relationships across a 10 million acre region in the Great Lakes. U.S. settler colonialism reduced the Menominee to a box-like reservation 50 times smaller. In the 20th century, the U.S. even terminated its government-to-government relationship with the Tribe. Yet through this ordeal, the Menominee created adaptive strategies to negotiate life under vicious domination, including the design of a sustainable timber supply enterprise in 1856 that could thrive within the smaller reservation area (Beck, 2005; Hosmer, 1999). The Menominee sustained yield forest provides an abundant and diverse array of plant and animal communities. Different from monocrop commercial forests, the Menominee Tribal Enterprise seeks to pay respect to the agency of the forest itself as a living ecosystem that has cultural and spiritual significance for Menominee people (Whyte et al., 2017). Jeff Grignon

and Robin Kimmerer describe the Menominee forest as a “carefully nurtured web of reciprocity between people and land. It’s a home” (Grignon and Kimmerer, 2017: 68). Grignon, an enrolled member of the Menominee Tribe, describes himself in his biography in the volume as having “accepted the honor and responsibility of aiding in the regeneration or giving back of what the Menominee forest has offered.” He discusses how “in order to save what was left of our nations, the Menominee people had to realize that the forest had not only spiritual and cultural value but an economic value as well that would help us survive. The forest taught us how we could harvest the trees in a fashion so that it will always be here” (69).

The forest ecosystem is understood in terms of kinship relationships, where “elder plants,” such as maples, have rich knowledge to share with humans who show respect. Elder maples are considered to be looking out for humans! People *learn from* the forest, not the other way around. The elder plants philosophy is ecological, emphasizing the collective agency of multiple plants and animals in the forest in which different species (or nations, including the Menominee people) are morally responsible for one another, interdependent and involved in mutual learning (Grignon and Kimmerer, 2017). Many Menominee Tribal members retain close spiritual and cultural connections to the forest, using the forest as a place for ceremonies, family recreation, and planting and harvesting, as well as a point of pride that Tribal members enjoy showing to respectful and appreciative visitors. The forest is like a collective agent with spiritual and economic powers. In my personal recollections from the Indigenous Planning Summer Institute at Menominee that I have been part of, younger Menominee, when they talk about the forest, often touch on their spiritual connection to the forest ecosystem. While like all youngsters they participate in diverse activities in their lives, they always come back to the importance of the forest socially, culturally, spiritually and economically (Caldwell, 2016; Whyte et al., 2017).

The forest is an unlikely protagonist that supports the Menominee’s capacity to address colonialism. There are many more protagonists in the Menominee story. The Menominee have a sturgeon restoration program. The sturgeon and ceremonies surrounding sturgeon are part of deep Menominee history, yet U.S. settler colonialism destroyed sturgeon habitat. Tribal members advocated to bring sturgeon back, creating that historic role for the sturgeon in bringing people together despite the hardships they face (Beck, 1995). Major 20th-century Menominee leaders include women, Ada Deer (politician, activist) and Verna Fowler (founder of the College of Menominee Nation). Deer and Fowler worked to restore Menominee sovereignty in the eyes of the U.S. and build major institutions for the Tribe, including the college, that resist settler colonial domination (Beck, 2002). Regarding climate change, the Menominee are among the most active communities in the world in taking action and creating awareness on climate change. The Menominee Sustainable Development Institute, for example, which is part of the College of Menominee Nation, regularly hosts international conferences on climate change, facilitates climate change research, designs educational curricula, and works with other Tribes (Caldwell, 2016).

When I think about my experiences learning from Menominee people, I reflect on this idea of living Indigenous science (fiction) that I have been sharing in this section. I see similarities with the many Indigenous peoples I have worked with too. Living Indigenous science (fiction) is a philosophical place of intergenerational dialogue that unfolds through finding and empowering those protagonists who can inspire and guide us through the ancestral dystopias we continue to endure. It is also true that the Menominee generation of the 19th century that had to choose whether to treat with the U.S. in exchange for the sawmill perhaps thought very carefully about what the forest should mean for future generations. When faced with dilemmas in settler colonial contexts, people are often motivated to see future economic advantages as the primary benefit of negotiating with

powerful parties. Yet the Menominee ancestors, in a counterfactual sense, also realized some of the hidden values future generations would want, such as the spiritual and cultural values of the forest.

Allies and ancestral fantasies

Important emerging scholarship discusses how concepts and narratives of crises, dystopia, and apocalypse obscure and erase ongoing oppression against Indigenous peoples and other groups. April Anson shows how there are common themes of “settler apocalypticism” in U.S. politics and environmental literature. She discusses in her study how “apocalypse” and other narrative types (like states of emergency) “veil” settler colonialism and its histories of “racial and environmental extraction” (Anson, 2017: 9). Mabel Gergan, Sara Smith, and Pavithra Vasudevan refer to certain apocalyptic and catastrophic deployments of the Anthropocene and climate crisis as “temporal sleight of hand” (2). In their study examining “scientific debates and cultural representations,” they claim that many “imaginings of apocalypse” work to “escape specific culpability (for instance, in processes of settler colonialism, capitalism, or imperialism) and instead center a universal human frailty that ends with triumph, a clear moral, and a clean slate” (Gergan et al., 2018: 2). In my orbit of scholarship, I certainly see what these scholars are studying. Indeed, the narratives I have shared so far in the previous section could not be more different from how some of our allies narrate and portray Indigenous peoples in relation to the Anthropocene and climate crisis.

I use the term “allies” to mean nonIndigenous-identifying persons who do not share personally (or regarding their group membership) in precisely the same oppressions; yet they are deeply concerned for Indigenous well-being for diverse reasons, from justice to guilt. They seek to do what they understand as being in their power to support us in our struggles. When I recently reviewed some literature about approaches for human societies to best come to grips with the implications of the Anthropocene and address the climate crisis, I was reminded of some concerns I have about how Indigenous peoples are being referenced. To me, it seems like that just as the Anthropocene is emerging as a concept and climate change is taken seriously as an issue, Indigenous peoples are already categorized into narratives and conceptions of time that we did not and would not choose. And, as Anson, Gergen, Smith, and Vasudevan show clearly, these narratives and conceptions have implications for how colonialism is understood, remembered and highlighted/disappeared. Consider some examples that I interpret as raising or referencing these concerns.

At a 2014 colloquium in Brazil, “The Thousand Names of Gaia: From the Anthropocene to the Age of the Earth,” Heather Swanson, Nils Bubandt, and Anna Tsing discuss, in a summary reporting on the event, how many of the organizers and participants called for greater inclusivity of perspectives (Swanson et al., 2015). In a published presentation, some of the colloquium’s organizers claim that the event “takes place at the moment when the autochthonous peoples of the Americas seem to confront what appears to be the final offensive in the war that ‘Humans’ have waged against them for five centuries” (Danowski et al., 2014). The organizers’ reference to ‘Humans’ refers to diverse scholarship challenging certain concepts of the human. Sylvia Wynter, for example, argues that “human” often refers to a particular “ethnoclass (i.e., Western bourgeois)” that “overrepresents itself as if it were the human itself,” and hence seeks to secure its ethnoclass own well-being at the expense of other humans, living and nonliving beings (plants, animals, microbiota), and collectives (Wynter, 2003: 260).

Some of the organizers, in the same essay, argue that “It is high time to make room for the perspective of others, of other ‘we,’ of those humans who live in worlds in which ‘human’

and ‘world’ are distributed in radically different ways.” They commit to the “essential” work of “[finding] out whether ‘we ourselves’ are really capable of recognizing the absolute legitimacy of the presence of these other ‘we’s,’ i.e. the Indigenous peoples, in a discussion about the fate of a common planet” (Danowski et al., 2014). Following up on this commitment, Swanson, Bubandt, and Tsing mention that “The organizers were alert to the possibilities of incorporating the voices, perspectives and life world of Amerindian peoples to challenge hegemonic academic theories of the Anthropocene” (Swanson et al., 2015: 156). At the event, they claim that “Equally significant was the presence of several Brazilian activists (José Augusto Pádua and Marcio Santili) and Indigenous leaders, such as Silvia Rivera Cusicanqui and Ailton Krenak” (Swanson et al., 2015: 156).

Moving on to other literature, Paul Havemann defines the Holocene as “a stable interglacial geological epoch... during which the human species evolved.” He discusses how 5% of the population “mostly made up of Indigenous and place-based peoples, continue to live in harmony with nature as all our ancestors once did. The rest have had their links with nature severed” (Havemann, 2015: 182). Indigenous peoples are the “stewards” of “biodiverse ecosystems” and are “lethally threatened by climate change and biodiversity destruction, which are symptoms of how far the Earth’s operating systems are tipping out of balance” (183). As many Indigenous peoples have an “effective whole-of-Earth system of governance and values that have sustained and protected safe operating spaces on Earth for millennia. It is now time to learn from Indigenous peoples” (183). For Havemann, the role of Indigenous peoples extends beyond imparting Holocene wisdom, as they also “alert us over and over again to the current loss of biodiversity and the “strange effects of climate change on ecosystems and their lives” (183).

Douglas Bardsley and Nathanael Wiseman see the Anthropocene as an epoch “defined by new relationships between people and the planet, where humanity is seen to be transforming and degrading global environmental systems” (Bardsley and Wiseman, 2016: 58). They call for the urgency of “planetary stewardship” to face risks such as climate change. One solution is to learn “about stewardship from Indigenous communities living in the semi-arid rangelands of Central Australia” (Bardsley and Wiseman, 2016: 58). They describe their collaborators, the Anangu people, as having a history of “cultural adaptation to extreme local environments in Central Australia throughout at least the Holocene epoch...” This history “provides important messages for a globe struggling to manage environmental change.” Indeed, for Bardsley and Wiseman, the Anangu, and Indigenous peoples more broadly, “have needed to learn and adapt to complex and extreme climatic and ecological change during that period...” (59) (see also Thornton and Thornton (2015) for a similar view).

Jan Salick and Nanci Ross describe the “Anthropocene’ hypothesis” as involving 8000 years of human-caused CO₂ and CH₄ increases; however, “the climate change driven by recent (200 years) fossil-fuel and deforestation carbon emissions... is far greater than anything previously known in the Holocene” (137). Indigenous peoples, in particular, are “fighting loss of biodiversity and adapting to climate change” in numerous ways, from “migration” to “changing when, where, and at what elevation plants are cultivated...” Yet, “as climate change threatens biodiversity, it simultaneously removes the major defense that Indigenous peoples have against variation and change... as conditions worsen... social and political relations become more important for providing resources for basic survival” (137) (Salick and Ross, 2009: 139). Indigenous peoples are losing the “capacity to recognize and implement sustainable environmental practices in the changing milieu of climate change...” For Salick and Ross, this creates an important incentive to protect such Indigenous involvement in ecosystems. “In the developed world, loss of traditional cultures and perspectives has led to a disconnect between peoples and nature... When these cultures are

lost, their traditional ecological system is also lost taking with it the storehouse of long-term phenological data that we so desperately need” (138).

There is a lot to analyze in the previously described examples in this section. For each example, it is certainly true that the work being done has impacts in contexts of which I am totally unaware as it is not possible to glean the contexts entirely by reading the sources themselves. Those contributions should certainly be honored. At the same time, some of the language used reminds me, whether it is intentional or unintentional on the part of the authors, about some concerns I have. I will start with a few superficial observations that relate to some of the ideas I discussed in the other two sections. First, some views of allies trade in narratives of *finality* and *last-ness* that privilege the concept of change as a concept describing movement or transition from stability to crisis—where crisis signals an impending end (see O’Brien, 2010, on the concept of “lasting”). They assume that Indigenous peoples are communities who over time have been gradually deteriorating to the point that today’s climate and environmental crises of the Anthropocene threaten to kill them off permanently. Second, some of the other views trade in narratives that Indigeneity (of a certain kind) primarily resides in the Holocene. This view is particularly troubling since the Holocene is not a historic period which any Indigenous peoples created or consented to (in terms of its hegemony as a concept). So we must wonder what it means for someone to “enclose” Indigenous peoples’ knowledge systems or ways of life into the Holocene framework in the attempt to be inclusive (see Lomawaima and McCarty, 2006; Richardson, 2011, on the concept of “enclosure”) in discussions about the Anthropocene.

I would also like to point out, at a highly speculative level, that allies may come across as desiring to articulate Indigenous peoples as being in a situation that somehow is not yet fully impacted by the colonialism of some of these allies’ ancestors. For example, allies who believe in the finality of Indigenous peoples’ situations are repositioning themselves to be able to act as protagonists that will respect or even save Indigenous peoples—what their ancestors of course failed to do. Invoking ideas from the first section, I invite any readers to discuss how concepts of finality would be received by Indigenous persons who see their societies as already having endured one *or many more* apocalypses—perhaps some of these apocalypses happened before European colonialism. While authors cited earlier, such as Simpson, Watt-Cloutier, Davis, and Todd, have no compunction against describing our current times as highly disruptive and harmful to Indigenous peoples, they also do not invoke what I interpret as narratives of last-ness and finality. Fiskio too, in her work referenced at the very beginning, is at the same time able to articulate today’s climate change ordeal as “unprecedented” while remaining critical of dystopian and apocalyptic narratives (Fiskio, 2012).

Some of the previously cited work also reminds me of how Indigenous peoples are sometimes treated as the last people living in Holocene conditions—what I would call *Holocene survivors*. Indigenous peoples as Holocene survivors assumes the notion that there are Indigenous peoples left who allies’ ancestors have not fully harmed through the colonial, capitalist and industrial drivers of the climate crisis. Hence, so it seems, there is a chance for the right allies to save these remaining Indigenous peoples and to learn from them about how the rest of humanity can save itself. These, again, are actions many allies’ ancestors failed to perform as they colonized and settled diverse places globally. Even regarding historic knowledge embedded in records, it seems—so to speak—that it is precisely the assumption that Indigenous peoples are Holocene peoples that generates the potential for there being lessons in the records.

Invoking some of what I wrote earlier in this essay, all of these examples for this section remind me of my experiences with allies who deny that they are actually living in what their ancestors would have seen as fantasy times. Some of their ancestors at particular times in

history, were they told of today's conditions of Indigenous peoples, would have believed they were hearing fantastic tales. The French, British, and U.S. colonists and settlers who could not dominate the Anishinaabe and allied alliances in the Great Lakes for centuries (Witgen, 2011) would have thought it was sheer fantasy to hear of an age when these Indigenous peoples' political agencies were widely suppressed and greatly limited. These ancestors would have relished the very idea that they could advance whatever business interests they wanted without facing threats of empowered resistance and diplomacy. They would have delighted in the idea that their legal orders would not have had to bend to or accommodate Indigenous legal orders. Many of the ancestors of today's allies designed the worlds we live in today to fulfill their fantasies of the future. Today's worlds, such as those of U.S. settler colonialism in North America, were constructed to provide privileges to their descendants. They were gifts of a troubling sort.

One privilege is exactly that power to dominate and inhabit Indigenous lands and come to believe that it is legally and morally acceptable to do so. This was clearly the case when many advocates of the Dakota Access Pipeline claimed that the resistance of the water protectors violated U.S. "rule of law" because the pipeline does not cross the Standing Rock Sioux Tribe's reservation. This is, of course, a true claim, according to settler legal systems, settler cartography and the terraforming of Indigenous territories that renders contemporary Indigenous features of landscapes invisible. Settler ancestors gifted their descendants the capacity to be able to believe to their very core that Indigenous self-determination is illegal. Another privilege concerns people more to the political left. Their ancestors gifted them worlds in which they could feel themselves to be innocent. They can be saviors of Indigenous peoples—as protagonists who can still be heroes to Indigenous peoples precisely because there is a belief that they can do what their ancestors failed to do (see Lawrence and Dua, 2005; Tuck and Yang, 2012, on "innocence"). Yet, to maintain this belief, these allies must accept that their ancestral fantasies have not yet fully come to pass, leaving an opening for supposedly innocent people to help Indigenous friends whose lives remain sufficiently—but not entirely—unaffected by colonial and other forms of domination. For example, some seem to believe that merely attending an Indigenous ceremony and mobilization, such as the #NoDAPL movement, or making social media postings, or doing academic research as a professor, or romanticizing Indigenous wisdom, actually work to transform the levers of colonial power that maintain anti-Indigenous oppression. To believe this, one must assume that the nexus of colonialism, capitalism, and industrialization is not as entrenched as it is, which creates the illusion that performing supportive but ineffectual actions is enough to merit and justify one's feeling innocent.

The allyship of innocence I have just described refuses to acknowledge at least two issues. First, such allyship is typically not open to the often post-apocalyptic and ancestrally dystopian spaces of Indigenous spiraling time, intergenerational dialogue, and science (fiction). For these spaces do not presuppose an Indigenous remnant unaffected by domination and that can be situated in some time period like the Holocene or Anthropocene. Second, such forms of allyship ignore the reality that some allies' themselves may be unwilling to give up the underlying conditions of domination that disempower Indigenous peoples. For example, some allies of the Standing Rock Sioux Tribe in the resistance against the Dakota Access Pipeline participated vigorously in the Tribe's ceremonial and direct actions. Yet they do not participate on an everyday basis to undermine educational, economic, legal and cultural conditions that made it possible in the first place for the Tribe to even be in the proximity of the Dakota Access and other pipelines. Or, in my work on climate justice, I have documented literatures that show how even the green solutions to climate change commit and risk environmental injustice against Indigenous peoples, no different from the fossil fuel industries to which these solutions

pose as alternatives (Whyte, 2017a). Allies who deny their ancestral fantasies assume that a certain politics, whether the left, green or the right, among others, offer more hope to Indigenous peoples than others. Yet settler and other forms of colonialism are often ambivalent oppressions, enacting violence against Indigenous peoples across the spectrum of political views and leanings. In the case of climate justice, settler colonialism can enact violence against Indigenous peoples through the views and actions of persons who seek to expand fossil fuel extraction or curtail it.

Perhaps it is all part of allies' ancestral fantasies that their descendants would have the privilege of unlimited individual and collective agency to exploit Indigenous peoples *and* the privilege of claiming moral high ground as saviors. Detaching one's self from one's ancestral fantasies is a problematic activity because we cease to acknowledge the counterfactual space of unfolding dialogue with our ancestors and descendants from particular generations. Detachment erases the fact that Indigenous peoples everywhere have been through repeated apocalypses. It treats Indigenous peoples, as resources that can be used for better or worse purposes for the advancement of humanity. It allows allies to claim themselves as the protagonists for Indigenous peoples, no different from the protagonists in *Avatar*. Of course, Indigenous peoples must grapple with these issues as well. My own Tribal community has been violent in the past, a reality I cannot and should not erase—even though a number of nonIndigenous persons seek to strategically misrepresent problems in our own histories as a morally opprobrious attempt to blunt the violence of U.S. and other forms of colonialism.

Yet when we engage in dialogic narratives through counterfactual space, we can connect ourselves to the errors of our ancestors and work to change how we do things today so as to learn needed lessons to pass on to future generations. We are always in dialogue with our ancestors as dystopianists and fantasizers. Would the hidden interests of our descendants really involve their finding out that our current generation tried to cover up the errors of our ancestors? I will leave this question as a topic to engage for another time.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. I cite several persons in this essay from published interviews or our personal discussions. For most of those cases, I added additional information about who they are and their work in the text since the readers cannot trace my citations of them to particular publications of their work. Some personal discussions are also cited with dates more recent than when some of the original personal discussions actually happened. Those dates correspond to my checking in with each person to confirm the quotes and citations in this particular essay.
2. Todd and Davis' concept of seismic dialogues importantly with Christina Sharpe's concept of "in the wake," pertaining to the "disaster" of slavery (Sharpe, 2016).
3. For a significant paper on colonialism, violence and "flesh," see (Watts, 2013).

4. I have benefited greatly from engagement with the work of Grace Dillon, Janet Fiskio, Joni Adamson, Conrad Scott, Joanne Rappaport, Ted Jojola, Salma Monani, Audra Mitchell, Julie Libarkin, and Sherry Copenace on understanding the varied senses of time relevant to the topic of this essay (Adamson 2016; Dillon, 2012; Fiskio 2016; Jojola 2008; Mitchell, 2016, 2015; Monani, 2016; Rappaport, 2005; Scott, 2016). This engagement includes unpublished presentations and question and answer sessions that Copenace, Mitchell, and Libarkin gave and participated in at Michigan State University on 18 October 2017. Copenace's presentation was titled "Ayaangwaamiziwin"; Mitchell's, "Survivance, Resurgence and Refusal Against Extinction: An/ti/thropocene Agencies"; Libarkin provided a commentary on presentations. It also includes a presentation I gave at Georgetown University on 31 January titled "Indigenous Peoples and Climate Justice." Rappaport gave an insightful commentary that engaged differences between time as a cycle or as a spiral.

References

- Adamson J (2016) Collected things with names like mother corn: Native North American speculative fiction and film. In: Heise UK, Christensen J and Neiman M (eds) *Routledge Companion to the Environmental Humanities*. New York, NY: Routledge, pp. 2016–2225.
- Anson A (2017) American apocalypse: The whitewashing genre of settler colonialism. *Academia.edu* 1–10.
- Bardsley DK and Wiseman ND (2016) Socio-ecological lessons for the anthropocene: Learning from the remote indigenous communities of Central Australia. *Anthropocene* 14(5): 58–70.
- Beck D (2002) *Seige and Survival: History of the Menominee Indians, 1634–1856*. Lincoln, NE: University of Nebraska.
- Beck D (2005) *The Struggle for Self-Determination: History of the Menominee Indians Since 1854*. Lincoln, NE: University of Nebraska Press.
- Beck DRM (1995) Return to Namä'o Uskiwämít: The importance of Sturgeon in Menominee Indian history. *The Wisconsin Magazine of History* 32–48.
- Blaeser K (ed.) (1999) *Stories Migrating Home*. Bemidji, MN: Loonfeather Press.
- Cafaro P and Primack R (2014) Species extinction is a great moral wrong. *Biological Conservation* 170: 1–2.
- Caldwell CM (2016) *College of Menominee Nation's Sustainable Development Institute Builds Capacity for Tribal Climate Change Adaptation*. U.S. Climate Resilience Toolkit 2015. Available at: <https://toolkit.climate.gov/case-studies/college-menominee-nations-sustainable-development-institute-builds-capacity-tribal> (accessed 11 September 2016).
- Callison C (2014) *How Climate Change Comes to Matter: The Communal Life of Facts*. Raleigh-Durham, NC: Duke University Press.
- Copenace S (2017) Personal discussion, 7 July 2017.
- Danowski D, Viveiros de Castro E and Latour B (2014) Position paper: The thousand names of Gaia. From the anthropocene to the age of the earth. Available at: <https://thethousandnamesofgaia.wordpress.com/about/> (accessed January 3 2018).
- Davis H and Todd Z (2017) On the importance of a date, or, decolonizing the anthropocene. *ACME: An International Journal for Critical Geographies* 16(4): 761–780.
- Dillon G (2016a) Native slipstream. In: Stratton B (ed.) *The Fictions of Stephen Graham: A Critical Companion*. Albuquerque, NM: University of New Mexico Press.
- Dillon G (2016b) Beyond the grim dust of what was. In: Nicholson H (ed.) *Love Beyond the Body, Space & Time: An Indigenous LGBT Sci-Fi Anthology*. Winnipeg, Canada: Bedside Press, pp. 9–11.
- Dillon GL (2012) *Walking the Clouds: An Anthology of Indigenous Science Fiction*. Tucson, Arizona, USA: University of Arizona Press.
- Doerfler J, Sinclair NJ and Kiiwetinepinesiik Stark H (2013) *Centering Anishinaabeg Studies: Understanding the World through Stories*. East Lansing, Michigan, USA: MSU Press.
- Evans CJ (2015) Climate change is so dire we need a new kind of science fiction to make sense of it. *The Guardian* 20. Available at: <https://www.theguardian.com/commentisfree/2015/aug/20/climate-change-science-fiction> (accessed May 17 2018).

- Fiskio J (2012) Apocalypse and Ecotopia: Narratives in global climate change discourse. *Race Gender and Class* 19(1): 12–36.
- Fiskio J (2016) Dancing at the end of the world: The poetics of the body in Indigenous protest. In: Monani S and Adamson J (eds) *Ecocriticism and Indigenous Studies: Conversations from Earth to Cosmos*. New York, NY: Routledge, pp. 101–118.
- Gergan M, Smith S and Vasudevan P (2018) Earth beyond repair: Race and apocalypse in collective imagination. *Environment and Planning D: Society and Space* 0263775818756079. pp. 1–20.
- Grignon J and Kimmerer RW (2017) Listening to the forest. *Wildness: Relations of People and Place*. Chicago Illinois, USA: University of Chicago Press. pp. 67–74.
- Gross LW (2014) *Anishinaabe Ways of Knowing and Being*. New York, NY: Routledge.
- Hardison P (2017) Personal discussion, 27 August 2017.
- Havemann P (2015) Mother Earth, Indigenous peoples and neo-liberal climate change governance. In: Lennox C and Short D (eds) *Handbook of Indigenous Peoples' Rights*. New York, NY: Routledge, pp. 181–200.
- Hosmer BC (1999) *American Indians in the Marketplace: Persistence and Innovation among the Menominees and Metlakatlans, 1870–1920*. Lawrence, Kansas, USA: University Press of Kansas.
- Ignatius D (2014) The moral issue of climate change. *Washington Post*, November 18.
- Jojoba T (2008) Indigenous planning—An emerging context. *Canadian Journal of Urban Research* 17(1): 37–47.
- Kimmerer R (2013) Returning the gift. *What Does Earth Ask of Us?* Center for Humans and Nature. Available at: <https://www.humansandnature.org/earth-ethic-robin-kimmerer> (accessed May 17, 2018).
- Kimmerer R (2014) Climate change and Indigenous knowledge. *Center for Aboriginal Initiatives*. University of Toronto.
- Klein N (2013) Dancing the world into being: A conversation with Idle No More's Leanne Simpson. *Yes! Magazine*, 5 March 2013. Available at: <http://www.yesmagazine.org/peace-justice/dancing-the-world-into-being-a-conversation-with-idle-no-more-leanne-simpson> (accessed May 17, 2018).
- Lawrence B and Dua E (2005) Decolonizing antiracism. *Social Justice* 32(4): 120–143.
- Lempert W (2014) Decolonizing encounters of the third kind: Alternative futuring in native science fiction film. *Visual Anthropology Review* 30(2): 164–176.
- Lloyd S (2011) *The Carbon Diaries 2017*. New York, USA: Holiday House.
- Lomawaima KT and McCarty TL (2006) *To Remain an Indian: Lessons in Democracy from a Century of Native American Education*. New York, USA: Teachers College Press.
- Lyns SR (2010) *X-Marks: Native Signatures of Assent*. Minneapolis, Minnesota, USA: University of Minnesota Press.
- McDonnell M (2015) *Masters of Empire: Great Lakes Indians and the Making of America*. New York, USA: Hill and Wang.
- Medak-Saltzman D (2017) Coming to you from the Indigenous future: Native women, speculative film shorts, and the art of the possible. *Studies in American Indian Literatures* 29(1): 139–171.
- Methmann C and Rothe D (2012) Politics for the day after tomorrow: The logic of apocalypse in global climate politics. *Security Dialogue* 43(4): 323–344.
- Million D (2013) *Therapeutic Nations: Healing in an Age of Indigenous Human Rights*. Tucson, Arizona, USA: University of Arizona Press.
- Miner D (2017) *Aanikoobijigan*. Peterborough, England: Artspace.
- Mitchell A (2015) Decolonising the anthropocene. Available at: <https://worldlyir.wordpress.com/2015/03/17/decolonising-the-anthropocene/> (accessed May 17, 2018).
- Mitchell A (2016) Beyond biodiversity and species: Problematizing extinction. *Theory, Culture & Society* 33(5): 23–42.
- Mitchell D (2014) *The Bone Clocks*. New York, USA: Random House.
- Monani S (2016) Feeling and healing eco-social catastrophe. In: Canavan G and Hageman A (eds) *Global Weiriding*. Vashon Island, WA: Paradoxa, pp. 193–213.

- Nelson M (2013) The hydromythology of the Anishinaabeg. In: Doerfler J, Sinclair NJ and Stark HK (eds) *Centering Anishinaabeg Studies: Understanding the World through Stories*. East Lansing, MI: MSU Press, p. 236.
- Noodin M (2014) *Bawaajimo: A Dialect of Dreams in Anishinaabe Language and Literature*. East Lansing, Michigan, USA: Michigan State University Press.
- O'Brien JM (2010) *Firsting and Lasting: Writing Indians out of Existence in New England*. Minneapolis, Minnesota, USA: University of Minnesota Press.
- Ortiz S (2002) *Out There Somewhere*. Tucson, AZ: University of Arizona Press.
- Rappaport J (2005) *Intercultural Utopias: Public Intellectuals, Cultural Experimentation, and Ethnic Pluralism in Colombia*. Durham, North Carolina, USA: Duke University Press.
- Richardson T (2011) Navigating the problem of inclusion as enclosure in native culture-based education: Theorizing shadow curriculum. *Curriculum Inquiry* 41(3): 332–349.
- Risling Baldy C (2014) *On Telling Native People to Just Get over It, or Why I Teach About the Walking Dead in My Native Studies Classes*. Available at: <https://www.cutcharislingbaldy.com/blog/on-telling-native-people-to-just-get-over-it-or-why-i-teach-about-the-walking-dead-in-my-native-studies-classes-spoiler-alert> (accessed May 17, 2018).
- Robb P (2015) Q and A: Sheila Watt-Cloutier seeks some cold comfort. *Ottawa Citizen*. Available at: <http://ottawacitizen.com/entertainment/books/q-and-a-sheila-watt-cloutier-seeks-some-cold-comfort> (accessed May 17, 2018).
- Salick J and Ross N (2009) Traditional peoples and climate change. *Global Environmental Change* 19(2): 137–139.
- Scott C (2016) (Indigenous) place and time as formal strategy: Healing Immanent Crisis in the dystopias of Eden Robinson and Richard Van Camp. *Extrapolation* 57(1–2): 73–93.
- Sharpe C (2016) *In the Wake: On Blackness and Being*. Durham, NC: Duke University Press.
- Simpson LB (2017) *As We Have Always Done: Indigenous Freedom through Radical Resistance*. Minneapolis, Minnesota, USA: University of Minnesota Press.
- Sinclair N (2016) Returning to ourselves: Two-spirit futures and the now. In: Nicholson H (ed.) *Love Beyond the Body, Space & Time: An Indigenous LGBT Sci-Fi Anthology*. Winnipeg, Canada: Bedside Press, pp. 12–19.
- Skrimshire S (2010) *Future Ethics: Climate Change and Apocalyptic Imagination*. New York, USA: Bloomsbury Publishing.
- Sleeper-Smith S (2001) *Indian Women and French Men: Rethinking Cultural Encounter in the Western Great Lakes*. Amherst, Massachusetts, USA: University of Massachusetts Press.
- Sleeper-Smith S (2005) Unpleasant transaction on this frontier: Challenging female autonomy and authority at Michilimackinac. *Journal of the Early Republic* 25(3): 417–443.
- Sprague L (2017) Personal Discussion, 6 August 2017.
- Stewart-Harawira M (2005) *The New Imperial Order: Indigenous Responses to Globalization*. London, UK: Zed Books.
- Swanson HA, Bubandt N and Tsing A (2015) Less than one but more than many: Anthropocene as science fiction and scholarship-in-the-making. *Environment and Society: Advances in Research* 6(1): 149–166.
- Thornton TF and Thornton PM (2015) The mutable, the mythical, and the managerial: Raven narratives and the anthropocene. *Environment and Society: Advances in Research* 6(1): 66–86.
- Tuck E and Yang WK (2012) Decolonization is not a metaphor. *Decolonization: Indigeneity, Education & Society* 1(1): 1–40.
- Watt-Cloutier S (2015) *The Right to Be Cold: One Woman's Story of Protecting Her Culture, the Arctic and the Whole Planet*. Toronto, Canada: Penguin.
- Watts V (2013) Indigenous place-thought and agency amongst humans and non-humans (first woman and sky woman go on a European World Tour!). *Decolonization: Indigeneity, Education & Society* 2(1): 20–34.
- White R (1991) *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650–1815*. Cambridge, UK: Cambridge University Press.

- Whyte KP (2017a) The Dakota Access Pipeline, Environmental Injustice and U.S. Colonialism. *Red Ink—An International Journal of Indigenous Literature, Arts and Humanities* 19(1): 154–169.
- Whyte KP (2017b) Our ancestors' dystopia now. Indigenous conservation and the anthropocene. In: Heise U, Christensen J and Niemann M (eds) *Routledge Companion to the Environmental Humanities*. New York, NY: Routledge, pp. 206–215.
- Whyte KP, Caldwell C and Schaefer M (2018) Indigenous lessons about sustainability are not just for “All Humanity”. In: Sze J (ed) *Sustainability: Approaches to Environmental Justice and Social Power*. New York: New York University Press. pp.149–179.
- Wildcat DR (2009) *Red Alert! Saving the Planet with Indigenous Knowledge*. Golden, CO: Fulcrum.
- Witgen M (2011) *An Infinity of Nations: How the Native New World Shaped Early North America*. State College, Pennsylvania, USA: University of Pennsylvania Press.
- Wynter S (2003) Unsettling the coloniality of being/power/truth/freedom: Towards the human, after man, its overrepresentation—An argument. *CR: The New Centennial Review* 3(3): 257–337.