



The Impact of Climate Change on Nature in *Life As We Knew It* by Susan Beth Pfeffer

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ARTICLE INFORMATION

DOI : <https://doi.org/10.25077/lingolitera.v2.i1.2026.29-33>
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SUBMISSION TRACK

Submission : December 23, 2025
Final Review : January 10, 2026
Accepted : January 31, 2026
Available online : February 28, 2026

KEYWORDS

Climate Change, Ecocriticism, Moon Crush, Nature

ABSTRACT

This thesis examines what are the impacts of climate change on nature as portrayed in the young adult novel *Life As We Knew It* by Susan Beth Pfeffer. The focus of this research is to find out the impact of sudden climate change caused by the “Moon Crush” incident. Ecocriticism is applied as the primary theoretical framework, particularly Greg Garrard’s ecocriticism concept of “Apocalypse”. A qualitative method is applied, using the novel as the main data source and other relevant sources as the secondary data. As a result of the research, the writers found that *Life As We Knew It* effectively illustrates the potential real-life outcomes of a “Moon Crush,” showing a strong connection to scientific data. This research concludes that the moon has a significant influence on the Earth; if the moon were to leave its orbit, the Earth would experience disasters such as massive tsunamis and extreme climate changes. The impacts of climate change depicted in this novel include drastic temperature drops, crop failures, and resource scarcity. The writers emphasize that humans and nature are mutually dependent. Humans rely on nature for their survival, while nature is affected by human activities, which can either harm or help maintain the balance of the ecosystem.

INTRODUCTION

Climate change is a global phenomenon characterized by long-term shifts in temperature and weather patterns, significantly impacting both human societies and natural ecosystems (Dunbar, 2014). These environmental changes, whether caused by human activity or natural processes such as earthquakes, floods, and volcanic eruptions, underscore the interconnectedness between humans and nature (Hopkins, 2008). Literature has long served as a medium to explore this relationship, allowing authors to reflect on ecological concerns through narrative and imagination (Young, 1999).

In contemporary literature, issues such as environmental degradation and climate change are increasingly represented in the sub-genre of Climate Fiction (Cli-Fi), a branch of science fiction that foregrounds the impact of ecological crises on human and non-human life (Milner, 2015; Nandi, 2023). Closely related is the dystopian genre, which depicts societies disrupted by catastrophic events, often reflecting contemporary anxieties and prompting critical reflection (Booker, 1994; Cuddon, 1999). Unlike futuristic dystopias, some works, such as Susan Beth Pfeffer’s *Life As We Knew It* (2006), situate catastrophic events in a near-present setting, highlighting the fragility of contemporary society in the face

of sudden ecological disaster.

The novel portrays the aftermath of a massive asteroid collision with the moon, resulting in environmental catastrophes that disrupt everyday life, including extreme climate, tsunamis, and resource scarcity. The protagonist, Miranda Evans, must navigate the collapse of social order and adapt to survive, illustrating the profound interdependence between humans and their environment. The novel exemplifies young adult (YA) fiction, which targets readers aged 12–18 and often portrays adolescent growth through emotional, social, and moral challenges (Donelson & Nilsen, 1980; McCallum & Zipes, 2012). Through Miranda's transformation from a self-focused teenager to a responsible and resilient individual the narrative explores how environmental crises shape human behavior and ethical responsibility.

This research applies ecocriticism, specifically Greg Garrard's concept of "apocalypse," to analyze the reciprocal relationship between humans and nature in *Life As We Knew It* (Garrard, 2004). While prior research on Young Adult (YA) dystopian novels has largely emphasized anthropocentric perspectives, focusing on human responses to environmental threats (Dror, 2014; Longobardi, 2022; Jacobson, 2020), this research expands the analysis by considering non-human perspectives, demonstrating how both humans and nature are affected by ecological disaster. By examining the novel through this lens, the research highlights how literature can engage readers with contemporary environmental issues, fostering ecological awareness and ethical reflection.

METHOD

In conducting this research, the writers use a library research method to collect the data. The primary data are collected to analyze the novel *Life As We Knew It* by Susan Beth Pfeffer. Furthermore, the secondary data are obtained from literary theory books, journals, articles, and other sources related to the topic of this study on the internet. In analyzing the data, the writers read the novel to understand the storyline and the content of *Life As We Knew It*. In addition, the writers take notes to identify problems related to climate change and its impacts on nature and humans. Then, the writers analyze how the author represents natural disasters caused by climate change, the impacts of climate change on nature and humans, and how humans respond to and adapt to these situations in the novel. In presenting the results of the research, the writers use a descriptive method and qualitative research

RESULTS AND DISCUSSION

In *Life As We Knew It* by Susan Beth Pfeffer, the impacts on nature and humans after the Earth experiences a lunar collision known as the "Moon Crush" are represented. This research examines how natural disasters trigger climate change by identifying environmental changes such as tsunamis, tidal waves, and erupting volcanoes, as well as the impacts of climate change on nature, including significant decreases in temperature and the loss of wildlife. In addition, this study analyzes the impacts on humans, such as crop failure, resource scarcity, and also how they survive. It also investigates scientifically whether the "Moon Crush" event and its impacts could occur in real life.

Natural Disasters Cause Climate Change in Novel *Life As We Knew It* by Susan Beth Pfeffer

The novel begins with a catastrophic event on May 18th, when an asteroid strikes the Moon, dislodging it slightly from its orbit. This Moon Crush causes widespread environmental disruption and triggers a series of disasters. The narrative emphasizes human helplessness in the face of natural forces, portraying nature as an antagonist rather than a consequence of human failure. Garrard (2004) notes that apocalyptic narratives often incorporate "a necessary nihilism" because the imagined catastrophes have not yet occurred, yet they reflect plausible existential threats (quoted in Dror, 2014, p. 60). In *Life As We Knew It*, the "Moon Crush" event sets the stage for extreme climate changes, societal collapse, and new environmental crisis, mirroring the anxieties surrounding contemporary climate change.

In the novel, the Moon's shift disrupts Earth's gravitational balance, producing massive tidal waves along coastal regions (P. 14-15). Scientifically, a collision between the Moon and an object of comparable size would result in the Moon's complete destruction, ejecting massive debris toward Earth, disrupting Earth's axial tilt, and causing catastrophic effects on Earth's climate and ocean tides (Melosh, 1989). Furthermore, these tidal effects would devastate coastal regions, flooding lowlands and displacing populations. The role of lunar and solar gravitational forces in generating tides is well supported scientifically (Vogel, n.d.).

These findings indicate that the Moon plays a crucial role in maintaining Earth's stability; any major shift in its position could trigger extreme tidal events, climate changes, geological disturbances, and widespread global social disruption. Although the impacts depicted in the "Moon Crush" scenario are grounded in scientific principles, no asteroid of lunar size has ever been observed, and even the largest known asteroids have only produced impact craters on the Moon (Melosh, 1989).

The novel also depicts climate change facilitating the spread of mosquito-borne illnesses. Warmer temperatures accelerate mosquito reproduction, amplifying the transmission of viruses like West Nile (P. 47). Miranda and her family confront both common seasonal illnesses and an unnamed disease, illustrating the human consequences of environmental upheaval. Scientifically, mosquito-borne viruses are seasonal and vector-driven, and while climate change can expand vector ranges and outbreak timing, the sudden emergence of lethal new diseases without additional ecological or evolutionary factors is improbable (Cleveland Clinic, 2023).

Volcanic eruptions further illustrate cascading environmental impacts. Pfeffer describes the Moon's gravitational pull as activating dormant volcanoes (P. 71-73). These eruptions release ash that reduces sunlight, lowers temperatures, and disrupts ecosystems, contributing to extended winters and food scarcity. In reality, volcanic activity is driven by internal geologic pressures, magma viscosity, gas content, and interactions with groundwater not external gravitational forces (Super Admin, 2024). Nevertheless, the novel effectively illustrates the cascading consequences of natural disasters and the fragility of human society in the face of environmental crises.

Pfeffer emphasizes that humans are largely powerless to prevent these disasters. High tides destroy coastal cities, earthquakes and volcanic eruptions claim lives, and new diseases threaten survival. Miranda's family struggles to maintain health and find resources, highlighting both resilience and vulnerability in post-apocalyptic conditions. By combining apocalyptic triggers with dystopian consequences, *Life As We Knew It* dramatizes the profound impact of natural disasters on climate, ecosystems, and human society, blending imaginative narrative with realistic environmental science.

The Impacts of Climate Change on Nature and Human in Novel *Life As We Knew It* by Susan Beth Pfeffer, How Humans Respond and Adapt To This Situation

The moon crush incident in the novel, triggers catastrophic impacts on both nature and human life. Humans rely on nature for survival, and any disruption in natural systems inevitably affects human communities. In the novel, the moon's collision causes extreme climate change, which in turn reshapes human behavior, survival strategies, and social structures. The consequences of this climate crisis unfold in multiple dimensions: significant in temperature, wildlife loss, and crop failure leading to resource scarcity.

Climate change typically results from human activities, such as greenhouse gas emissions or excessive fossil fuel consumption, which damage the ozone layer and pollute the atmosphere. However, Pfeffer reverses this dynamic: the extreme cooling in the novel arises from a natural disaster the moon's partial destruction rather than human-induced climate change. Winters become prolonged and lethal, with the phenomenon of "killing frost" emerging during what should be summer months. For example, on August 7th, summer temperatures in Howell, Michigan, failed to reach 60°F (p. 94). By September, temperatures drop to 23°F, October sees temperatures falling below freezing that hard to survive (p. 127). By December, snow accumulates up to five feet in some areas, while temperatures reach 12°F below zero (p. 158–163), demonstrating extreme and dangerous cold that threatens human survival. To adapt to extreme cold, the novel suggests survival strategies aligned with scientific recommendations for maintaining core body temperature. Wiseman (2014) emphasizes "zoning" techniques to conserve heat, such as creating smaller insulated areas with blankets or carpets, and using heated stones wrapped in cloth to sustain warmth.

The moon crush intensifies these climatic effects by altering gravitational forces, which trigger natural disasters such as earthquakes, tsunamis, and volcanic eruptions. Camuffo (1999) notes that while the Moon's gravitational pull does influence Earth's climate through tidal effects, such as orbital changes normally occur gradually over thousands of years. Pfeffer's fictional scenario compresses these effects, creating abrupt and deadly climate shifts, and the possibility of them happening suddenly is impossible.

Climate change also results in significant biodiversity loss. Miranda observes the absence of birds,

insects, and other wildlife (p. 134). Such ecological collapse affects humans, who rely on animals for food, pollination, and ecosystem balance. Jonny reports stressed livestock and reduced productivity following gray skies and volcanic ash (p. 87). This illustrates humans' dependence on natural cycles and the cascading effects of ecological imbalance.

Crop failure becomes widespread as plants fail to grow due to blocked sunlight and freezing temperatures. Laura's family adopts adaptive strategies, including reducing meal frequency and rationing supplies. Skipping meals emerges as a survival tactic (p. 68-69). To increase food supplies, it is recommended to plant indoor microgreens. These plants are grown indoors using media such as soil, coconut fiber, or hydroponic systems, allowing optimal growth control without depending on outdoor weather conditions (Kyriacou et al., 2016).

As winter progresses, wells dry up, and humans are forced to use volcanic ash contaminated snow as a water source (p. 157). In this situation, rather than immediately boiling snow water contaminated with volcanic ash, it suggests making simple water filter to filter melted snow water mixed with volcanic ash with simple items, such as gravel, cloak, and clean sand. (Water.org, n.d.; EPA, 2020).

Despite extreme environmental stress, the characters in *Life As We Knew It* demonstrate human resilience. Miranda evolves from a typical teenager into a resourceful individual capable of prioritizing family survival, rationing supplies, and collaborating with neighbors. These adaptive strategies, rooted in basic scientific and survival principles, underscore the importance of preparedness, problem-solving, and psychological resilience in the face of ecological crises.

CONCLUSION

After analyzing novel *Life As We Knew It* by Susan Beth Pfeffer, pfeffer emphasizes that humans emphasizes the interdependence between humans and nature, especially in times of crisis such as widespread food scarcity. Scientifically, a collision between the Moon and an object of comparable size would result in the Moon's complete destruction. Theoretically, an asteroid could impact the Moon, and this has happened many times in the past, which is why the Moon's surface is so cratered. However, no known asteroid is large enough to significantly alter the Moon's orbit. To shift the Moon's orbit closer to Earth, as depicted in the novel, would require an immense amount of energy equivalent to an asteroid hundreds of kilometers in diameter traveling tens of kilometers per second. If such a massive event occurred, the Moon would likely be largely destroyed rather than merely shifted. Therefore, some of the effects in the novel remain scientifically plausible, but the cause a shift in orbit due to an asteroid is highly improbable. Nevertheless, if a "Moon Crush" were to occur, the impacts described in the novel, such as high tides destroying coastlines, gravitational changes disrupting Earth's rotation and orbital stability, geological disturbances like earthquakes and volcanic eruptions, and drastic climate changes, would still be scientifically possible and potentially even worse than portrayed in the story.

For further research related to this novel as the object of analysis, the writers proposes some suggestions for future researchers related to this novel as the object. Since this research only focuses on the effect of climate change in the world and the how the main character can survive from this situation in general, future researchers can study related to more impact of "Moon Crush" in this novel, like research about tsunامي, earth quarry, erupting, etc., or focusing on the impact of the "moon crush", or focusing on the effect of climate change on human, or can be researched using other theoretical approaches in researching the novel *Life As We Knew It*, written by Susan Beth Pfeffer.

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