THE EVOLUTION OF ECOLOGICAL LITERACY THROUGH FICTION: AN ANALYSIS OF THE CLI-FI GENRE IN ECOLOGICAL LITERATURE

Abstract

Classical and ancient literature worldwide incorporated ecological themes, whether nature writing or romantic poetry, portraying a time when humans and nature coexisted harmoniously and man's impact on the environment was limited. However, modern society's destructive actions towards the environment have led to a new wave of ecological narrative in literature, including fiction, poetry, and criticism. Additionally, the paper discusses climate fiction (clifi), a subgenre of eco-literature (eco-lit) that addresses climate change and global warming. Both eco-literature and climate fiction can play significant roles in eco-literacy by engaging children, students and readers of all ages in meaningful discussions and reflections on environmental and climate issues. Implementing eco-literacy in education is crucial for fostering environmental awareness and responsible citizenship.

Keywords: fiction, ecological literature (eco-lit), climate fiction (cli-fi), eco-literacy

Introduction

As the concern for environmental matters increases, numerous fiction writers have adopted themes that explore the relationships between humans and the natural environment. This fiction revolves around ecological topics, from deep philosophical reflections to thrilling and engaging narratives.

Eco-fiction, also known as ecological fiction or eco-literature, is a genre of literature that focuses on environmental themes and issues, often emphasizing the natural world and the relationships between humans and nature. It includes fiction, such as novels, short stories, and poetry, that address ecological concerns and explore environmental issues, such as climate change, deforestation, pollution, and biodiversity loss. The genre often features characters impacted by these issues and those who take action to address them.

According to The Cambridge History of the American Novel's chapter titled Contemporary ecofiction, "Ecofiction is an elastic term, capacious enough to accommodate a variety of fictional works that address the relationship between natural settings and the human communities that dwell within them. The term emerged soon after ecology took hold as a popular scientific paradigm and a broad cultural attitude in the 1960s and 1970s." Dwyer (2010) stresses that "there is not even consensus on spelling. It is usually spelled as one word, but sometimes hyphenated or split into two words: "ecofiction" and "eco fiction." [...] The terms "environmental fiction," "green fiction," and "nature-oriented fiction" are sometimes used interchangeably with "ecofiction," but might better be considered as categories of ecofiction."

In a hypothetical scenario, what causes individuals to be drawn more to either fiction or non-fiction when it comes to reading for enjoyment? Morrison (2002) quotes Buell's observation that acts of "the environmental imagination potentially register and energize at least four types of engagement with the world. "Dwyer (2010) explains that they can connect people with the experience and suffering of other beings, including animals, with places they have been or may never go, with alternative futures, and with a sense of caring for the planetary environment. Imaginative literature is best suited to engaging people intellectually and emotionally, providing them with a more significant personal stake in the text, and making them care. Fiction is frequently less didactic and more nuanced than nonfiction, delivering its messages by implication.

The concept of eco-fiction or environmental literature can be traced back to ancient times, with some early works containing environmental themes or ecological messages. However, the modern eco-fiction movement emerged in the 1960s and 1970s, with the publication of several key works that helped to define the genre. As an illustration, Jim Dwyer researched hundreds of books for Where the Wild Books Are: A Field Guide to Ecofiction (2010) and stated that his criteria in choosing whether or not a book was eco-fiction was closely related to Lawrence Buell's:

- The nonhuman environment is present not merely as a framing device but as a presence that begins to suggest that human history is implicated in natural history.
- The human history is not understood to be the only legitimate interest.
- Human accountability to the environment is part of the text's ethical orientation.
- Some sense of the environment as a process rather than as a constant or a given is at least implicit in the text. (1995, 6)

Raglon (2011), in her book review of Dwyers's "field guide", points out that "there is a paradox in the growth of ecofictional works". Whereas the great "greening of literature" in the United States began in the 1970s [...], it is sobering [...] to consider that the growing strength of a genre like ecofiction emerges from continuing ravages to the environment. Finally, Subramanian's thoughts (2017) on eco-lit:

"Eco-literature is not nature writing. It is not romantic poetry. It is not about how humans live in forests or in mountains. In such cases, the writing would be only a realistic portrayal, just like in other human environments. Eco-lit needs to delve deeper into portrayals of how environmental degradation leads to human agony, suffering and displacements; how citizens turn into refugees within their own country; how economic and political exploitation turn human life upside down and jeopardize the environment, thereby making it unsuitable for life in future. But it needs to be done as literature, as human stories of subtlety, not just the sterile badgering of activism".

The Milestone in the Development of Eco-fiction: The Non-fictional Work by Rachel Carson

The history books say that the American environmental movement began on 16 June 1962, the date of the New Yorker magazine that contained the first of three excerpts from Rachel Carson's new book, "Silent Spring" (Stoll, 2020). It is also often cited as one of the earliest examples of ecofiction. Rachel Carson (1907 – 1964) was a noted American marine biologist and environmental trailblazer. According to Carson's biographer Linda Lear (2000), she is "remembered more today as the woman who challenged the notion that humans could obtain mastery over nature by chemicals, bombs, and space travel than for her studies of ocean life." "Silent Spring" is a gracefully written indictment of the pesticide industry that arose in the late 1950s. This nonfiction work presents a piercing look at the damage these chemicals cause to birds, bees, wildlife, and plant life. The book warned of the environmental dangers of indiscriminate pesticide use, particularly the widespread use of DDT (Figures 1 and 2), and its impact on wildlife.



Figure 1. "DDT is good for me." An advertisement for widespread farm, home, and food-processing use of Pennsalt's DDT from Time magazine's June 30, 1947 issue.

Source: Epstein, L. (2014). Fifty Years Since Silent Spring

Even before it was published as a book in September 1962, a chain of negative reactions was published. Not only was the book attacked, but also Carson personally. According to Stoll (2020), they accused her of being radical, disloyal, unscientific, and hysterical. As she had no institutional affiliation, she was dismissed as an amateur who did not understand the subject like a professional scientist would or who distorted or misread the science. To her critics, Carson's frequent use of terms like "nature," "natural," and "balance of nature" identified her as a mere sentimental nature lover or a pantheist like Ralph Waldo Emerson or Henry David

Thoreau. Pesticide advocates claimed that without chemicals, agriculture would collapse. Besides the fact that pesticide manufacturing companies tried to sue the publisher to stop the book's publication, they spent some \$250,000 on a campaign trying to discredit Carson, according to Cyn Felthousen-Post (2020).



Figure 2. Cover article of April 1945, *Nebraska Farmer* extolling the virtues of DDT. Source: https://livinghistoryfarm.org/farminginthe40s/pests_02.html "DDT"

In 1963, Monsanto published "The Desolate Year," a parody of "A Fable for Tomorrow," Silent Spring's opening chapter described a starving world without chemical pest control. On April 30, 1999, The New York Times released a list of the 100 best non-fiction books of the century, compiled by the editorial board of Modern Library. Whenever possible, book titles have been linked to either the original New York Times review or a later article discussing the book. Rachel Carson's book claimed the top spot, ranking fifth on the list. In a linked review titled 'There's Poison All Around Us Now' by Lorus and Margery Milne, published on September 23, 1962, readers are presented with a profound yet straightforward sentence: 'Her

book is a call to the reading public to help restrain private and public programs that, through the use of poisons, may ultimately threaten life on Earth.'

In 1999, The National Review magazine and website's editors also included 'Silent Spring' in their list of the best non-fictional works, known as 'The Non-Fiction 100.' They employed a methodology that they described as approaching the scientific. Silent Spring was accompanied by a quote from Lind: 'For all the excesses of the environmental movement, the recognition that human technology can permanently harm the Earth's environment marked a significant advancement in civilization. Carson's book, more than any other, brought attention to this message.' These examples are just a couple of instances among many similar lists.

Climate Fiction

Climate change now occupies a primary position on political and scientific agendas and in the broader cultural imagination. It was in the 1970s that the history of climate change fiction began in earnest, according to Trexler & Johns-Putra (2011). Milner & Burgmann (2018) argue that "contemporary climate fiction is a subgenre of sf rather than a distinct and separate genre for two main reasons: first, because its texts and practitioners relate primarily to the sf "selective tradition"; and second, because its texts and practitioners articulate a "structure of feeling" that accords centrality to science and technology, in this case normally climate science." According to the Merriam-Webster Dictionary, the word *cli-fi* is credited to Dan Bloom, an English teacher and former journalist, who coined it in 2007. Alarmed by what he felt was a deficiency of attention to climate science in the popular consciousness, Bloom sought a way to promote stories that brought the subject to the forefront.

Treatments of catastrophic climate change in *SF* have tended to be organized around three main tropes: **the drowned world, the freezing world**, and **the warming or burning world**. Of these, only the first has a deep history in the Western mythos, dating back to the Genesis story of Noah and arguably, before it, to the story of Ūta-napišti in the Epic of Gilgamesh, so Andrew Milner and J. R. Burgmann (2018). They find that "in the twenty-first century real-world scientific anxieties about the prospect of global warming do finally give rise to the burgeoning contemporary subgenre Bloom describes as cli-fi." These two authors have been deeply involved in the subject of cli-fi. In their book *Science Fiction and Climate Change*, published in 2020, they seek to explain how a genre defined concerning science is obliged to produce fictional responses to the problems thrown up by contemporary scientific research.

Many journalists, literary critics, and scholars have speculated about climate fiction's potential influence on its readers' beliefs. Scholarly Community Encyclopedia mentions Schneider-

Mayerson (2018), who found that readers of climate fiction "are younger, more liberal, and more concerned about climate change than nonreaders" and that climate fiction "reminds concerned readers of the severity of climate change while impelling them to imagine environmental futures and consider the impact of climate change on human and nonhuman life. However, the actions that resulted from readers' heightened consciousness reveal that awareness is only as valuable as the cultural messages about possible actions to take that are in circulation. Moreover, the responses of some readers suggest that works of climate fiction might lead some people to associate climate change with intensely negative emotions, which could prove counterproductive to efforts at environmental engagement or persuasion."

Eco-lit vs. cli-fi

While there can be an overlap between eco-literature (eco-lit) and climate fiction (cli-fi), distinct characteristics often differentiate writers in these two genres. Eco-lit writers tend to have a broader focus on environmental and ecological themes. While exploring timeless or time-fluid narratives, eco-lit writers frequently delve into the intricacies of ecosystems, biodiversity, and the broader ecological web. Eventually, many eco-lit authors incorporate ethical and philosophical reflections on humanity's role in the environment.

Here are a few of the most prominent eco-fiction authors: Ursula K. Le Guin (*The Word for World is Forest*), Barbara Kingsolver (*Prodigal Summer*), Richard Powers (*The Overstory*, which won the Pulitzer Prize), and others.

On the other hand, cli-fi writers have a more specific focus on climate change and its effects on society and the environment. Their works often revolve around the consequences of global warming, extreme weather events, and the climate crisis. Cli-fi narratives are frequently set in contemporary or near-future settings, where the impacts of climate change are closer in time and pressing. Hence, cli-fi often explores climate change's social, political, and cultural dimensions. Finally, cli-fi authors may incorporate scientific and technological elements into their narratives, reflecting the scientific realities and potential solutions related to climate change.

Some of the most famous authors that have contributed significantly to this genre, exploring a wide range of climate-related themes in their works, are Margaret Atwood (*The MaddAddam Trilogy*), J.G. Ballard (*The Drowned World*), Ian McEwan (*Solar*), and many others.

Eco-lit and cli-fi in Eco-literacy

Therefore, university literature and environmental issues courses may include cli-fi and ecolit in their syllabi. They can significantly engage students and readers in meaningful discussions and reflections on environmental and climate issues. Implementing eco-literacy in education is crucial for fostering environmental awareness and responsible citizenship. **Eco-literacy** refers to the understanding of ecological principles and the ability to apply this knowledge to address environmental challenges and make sustainable choices. It encompasses a broad range of skills and knowledge related to ecosystems, biodiversity, environmental issues, and the interconnectedness of all living organisms on Earth.

These genres could contribute to eco-literacy in many ways. They can help raise awareness, develop critical thinking, and learn to empathize and connect with others. It may inspire action and explore solutions for potential future scenarios. Furthermore, eco-lit and cli-fi are not limited to science classes. They can be integrated into various subjects, including literature, social studies, and ethics. This interdisciplinary approach reinforces the idea that environmental issues are multifaceted and require interdisciplinary collaboration. Finally, eco-lit and cli-fi can introduce readers to diverse cultural perspectives on environmental issues, helping to broaden their understanding of global challenges and solutions.

While six universities and colleges in the United States have taken up the call and are part of the new trend in higher education in 2015, the genre is reaching out worldwide to writers (and readers) across the globe. Cli-fi is not an American or British genre; it has become a global genre (Bloom, 2015).

Eco-Literature for Children

Children's eco-literature plays a vital role in shaping young minds towards environmental awareness and responsibility. Through engaging stories, vivid illustrations, and compelling characters, these books not only entertain but also educate children about the importance of caring for the planet. By fostering a love for nature and instilling eco-consciousness from an early age, these stories empower children to become stewards of the environment. Let's explore this genre with some notable examples.

One iconic example of children's eco-literature is Dr. Seuss's "The Lorax." Through colorful illustrations and whimsical rhymes, the book tells the story of the Lorax, who speaks for the trees against the greedy Once-ler, who destroys the environment for profit. This timeless tale teaches children about the consequences of environmental destruction and the importance of conservation. Another notable work is "The Wild Robot" by Peter Brown. This novel follows

the journey of Roz, a robot who finds herself on a wild island inhabited by animals. As Roz learns to adapt to her surroundings, she forms meaningful connections with the wildlife and discovers the beauty of the natural world. Through Roz's adventures, children learn about biodiversity, empathy for animals, and the interconnectedness of all living things. "Last Stop on Market Street" by Matt de la Peña is a picture book that subtly incorporates environmental themes. The story follows a young boy named CJ and his grandmother as they take a bus ride through their city. Along the way, CJ learns to appreciate the beauty in his urban surroundings, despite their imperfections. Through CJ's eyes, children learn to see the value in their communities and the importance of finding beauty in unexpected places.

These examples illustrate how children's eco-literature can inspire young readers to become environmentally conscious. By weaving important messages about conservation, empathy, and appreciation for nature into engaging narratives, these books empower children to make a positive impact on the world around them. As educators, parents, and storytellers continue to prioritize environmental education, children's eco-literature will remain a powerful tool for shaping future generations of environmental stewards. The growing significance given to environmental literature day by day is evidenced by the fact that In France, for the fifth consecutive time, the environmental novel of the year is being selected (Alerić, 2022).

Therefore, it is of great importance to include and implement ecological literature in the curricula of early, primary, and secondary education. Equally important is the education of future early childhood educators and teachers. Through these literary contents, children not only learn about the importance of environmental conservation but also develop empathy towards nature and a sense of responsibility towards the planet. Furthermore, this type of literature fosters creativity, enhances language skills, and promotes critical thinking in children. Furthermore, we cannot neglect the importance of educating future early childhood educators and teachers. They play a key role in imparting knowledge and values about environmental preservation to younger generations. Therefore, future educators and teachers must be equipped to integrate ecological themes effectively into their work in order to inspire and motivate children toward active environmental care.

The education of future educators should involve an approach that promotes interdisciplinary learning and practical application of ecological topics in daily interactions with children. Through practical examples, workshops, and field activities, future educators can develop the skills necessary for successfully leading ecologically conscious activities in preschools and schools.

One of the examples originates from Croatia: a picture story for preschool and early elementary school children "Marko's Seagull Diary" and the edition of "Green Stories" by Martin Marinov. Seagull Marko describes what he saw and who he met during his visit to protected areas (Telašćica, Vransko Lake, Krka, Biokovo, Mljet, Lastovo Archipelago, Paklenica, Northern Velebit, Učka, and Brijuni)¹. Marinov successfully conveys the richness of marine, animal and plant life through vivid descriptions and dynamic characters. Readers will be captivated by the world of Marko's adventures as he faces storms, helps friends, and uncovers the secrets of the ocean depths. These are not just a story about one seagull; it is also a reminder of the importance of respecting and caring for the nature that surrounds us. Marinov's book invites us to reflect on our relationship with the environment and encourages us to preserve the beauty and diversity of the natural world.

Conclusion

In summary, fiction, exemplified by Rachel Carson's work, has played a crucial role in shaping eco-literature (eco-lit) and climate fiction (cli-fi). Through compelling stories, authors have brought environmental and climate issues to the forefront, enriching eco-literacy. Fiction helps people understand and act on ecological principles. It inspires readers to become informed stewards of our planet. On the other hand, eco-literacy involves understanding ecological concepts and applying them to make informed decisions and take actions that promote environmental sustainability. Incorporating eco-literature and cli-fi into educational curricula can enhance eco-literacy by offering engaging and thought-provoking materials that resonate with students and readers of all ages. These genres provide valuable tools for exploring and addressing environmental and climate-related topics holistically and impactfully. It is a crucial environmental education component and essential for addressing contemporary environmental challenges. As we address environmental concerns, the fusion of eco-fi, cli-fi, and eco-literacy can guide us toward a more sustainable coexistence with the natural world. Children and youth should be aware of ecological issues from an early age. Competencies in ecological literacy can be achieved through reading ecological literature and discussing it. Ultimately, only through the collective efforts of educational institutions, teachers, educators,

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¹ The national parks and nature parks of the Republic of Croatia are the subject of ecological picture books printed in Croatian, English, and German, revealing the beauty of protected areas to the youngest readers (Marinov et al., 2022).

parents, and the broader community can we ensure that children gain a deep understanding and respect for nature and become active participants in preserving the environment for future generations.

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EVOLUCIJA EKOLOŠKE PISMENOSTI KROZ FIKCIJU: ANALIZA CLI-FI ŽANRA U EKOLOŠKOJ KNJIŽEVNOSTI

Sažetak

Klasična i drevna literatura širom svijeta uključivala je ekološke teme, bilo da je riječ o pisanju o prirodi ili romantičnoj poeziji, prikazujući vrijeme kada su ljudi i priroda suživjeli harmonično, a utjecaj čovjeka na okoliš bio je ograničen. Međutim, destruktivna djelovanja modernog društva prema okolišu dovela su do nove vala ekološke naracije u književnosti, uključujući fikciju, poeziju i kritiku. U radu se raspravlja o klimatskoj fikciji (cli-fi), podžanru ekološke književnosti (eco-lit) koji se bavi klimatskim promjenama i globalnim zagrijavanjem. Sama ekološka književnost i klimatska fikcija mogu odigrati značajne uloge u ekološkoj pismenosti u angažiranju djece, studenta i svih čitatelja različite dobi u značajne rasprave i refleksije o ekološkim i klimatskim pitanjima. Implementacija ekološke pismenosti u obrazovanje ključna je za poticanje svijesti o okolišu i odgovornog građanstva.

Ključne riječi: fikcija, ekološka književnost (eco-lit), klimatska fikcija (cli-fi), ekološka pismenost