



Exploring the Interconnections of Zoology and Literature: A Study with Reference to Terry Tempest Williams' Perspective on Wildlife Conservation and Ernst Haeckel's Concept of Ecology

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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Commentary

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ABSTRACT

This paper delves into the interconnectedness of zoology and literature, drawing insights from Terry Tempest Williams' profound reflections on animals and Ernst Haeckel's foundational work on ecology. It examines how literature serves as a medium to explore and understand the animal kingdom, and how zoological knowledge enriches literary narratives. By analyzing Williams'

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perspective on animals and Haeckel's ecological concepts, this paper aims to illustrate the symbiotic relationship between zoology and literature, shedding light on the profound impact of both fields on our understanding of the natural world.

Keywords: Literature; Terry Tempest Williams; Ernst Haeckel; ecology; animals.

1. INTRODUCTION

Zoology and literature, seemingly disparate fields, share a deep-rooted conglomeration in their exploration of the natural world. Through literature, authors have long drawn inspiration from the animal kingdom, weaving tales that reflect humanity's relationship with other species. Conversely, zoology provides a scientific lens through which one can understand animal behavior, physiology, and ecology [1-4]. The objective of this paper is to delve into the intertwined nature of zoology and literature, with a particular focus on the perspectives of Terry Tempest Williams and Ernst Haeckel.

2. ZOOLOGY IN LITERATURE

Literature has served as a platform for exploring and understanding the complexities of the animal kingdom. Authors throughout history have drawn upon zoological knowledge to craft narratives that depict the intricacies of animal behavior, anatomy, and ecosystems. From ancient fables to contemporary novels, animals have been central characters, serving as symbols, metaphors, and allegories for human experiences. Through the lens of literature, readers gain insights into the natural world, fostering empathy and understanding towards non-human species [5-8].

Ancient fables serve as prime examples of how animals are interconnected with literature. One of the most well-known collections of fables is attributed to Aesop, a storyteller believed to have lived in ancient Greece around the 6th century BCE. Aesop's fables feature animals as anthropomorphic characters, endowed with human-like qualities and behaviors, through which moral lessons are conveyed. *Life of Pi* by Yann Martel, Thoreau's *Walden*, *We are all Completely Beside Ourselves* by Karen Joy Fowler, *The Bear* by Andrew Krivak, *Prodigal Summer* by Barbara Kingsolver and *Cornerstones* by Benedict MacDonald are some seminal texts that explicate the contemporary narrative relevance of wildlife to the literary imagination of various authors. *Free Solo*, *Daughters of the Dust*, *Oceans*, *Fire of Love* and

Wild are movies that explore myriad ways in which nature is perceived through art and media.

3. TERRY TEMPEST WILLIAMS' PERSPECTIVE ON ANIMALS

Terry Tempest Williams, an acclaimed writer and naturalist, offers a unique perspective on animals in her works. Central to her philosophy is the idea of kinship with other species, emphasizing the interconnectedness of all life forms. Williams challenges anthropocentric views by advocating for a more empathetic and compassionate relationship with animals. Through her lyrical prose, she invites readers to reconsider their perceptions of non-human beings and acknowledge the intrinsic value of every creature. Williams makes a pressing claim in her works that environmental issues are inextricably linked to social and ethical paradigms [9-11]. The creative non-fictional works of Williams testify her eye for detail in perceiving the intricacies of nature and this claim is evident in her works like *Refuge: An Unnatural History of Time*, that documents that rampages of flood at Bear River Migratory Bird Refuge, *When Women Were Birds* in which she writes about the intricate balance of nature that is dependent on the dignity of each animal and *Finding Beauty in a Broken World* that records the significance of keystone species like Coyotes that help with the maintaining the balance of eco-systems. In *An Unspoken Hunger* Williams explicates through myth and symbol, the archetypal mythic connections women had with the Earth in comparison to the protest of women against nuclear testing [12-14]. In *Red: Passion and Patience in the Desert*, Williams evokes a lyrical reflection on the deserts of Canyon land and ponders on the wonders of the desert, including the marvel of a desert tortoise, that has the power to teach the resilient art of revolutionary patience. In *Erosion: Essays of Undoing*, Williams ponders on the erosion that has made its way into religion, conservation, science, ethics and democracy by throwing limelight on the environmental abatement of Bear Ears National Monument. These snippets from her texts show her geographical, ecological and communal sensibility as a writer.

4. ZOOLOGY AND ECOLOGY: ERNST HAECKEL'S CONTRIBUTION

Ernst Haeckel, a pioneering German Zoologist, is renowned for his contributions to the field of ecology. He introduced the concept of ecology and coined this term in 1869, emphasizing the interdependence of organisms within their environments. Haeckel's holistic approach to studying nature laid the foundation for modern ecological principles, highlighting the interconnectedness of all living beings. His work underscores the importance of understanding ecological systems to preserve biodiversity and mitigate environmental degradation. Though his words on ecology was initially disapproved by his peers, now he is lauded as the founder of biogenetics and the popular dictum "ontogeny recapitulates phylogeny" is attributed to Haeckel. His significant studies on the repetition of species' history in an organism's life, resonating his deep understanding of linking individual to mass has risen out of his understanding of thinkers like Marx and Comte. Haeckel's work titled *General Morphology of Organisms* has helped zoologists build an evolutionary understanding of ecology. His research on ecology highlights how organisms have the ability to maintain complex social alliances that influence their number and distribution in an ecological framework. He gauged the carrying capacity of an ecosystem through his extensive study on energy and exchange flow patterns between food and energy and its connection to environmental issues, thus making ecology an interdisciplinary segment of study and applied research.

5. THE INTERPLAY OF ZOOLOGY AND LITERATURE

The perspectives of Terry Tempest Williams and Ernst Haeckel exemplify the symbiotic relationship between zoology and literature. Williams' emotive writings prompt readers to contemplate their ethical responsibilities towards animals, fostering a deeper appreciation for their intrinsic worth. Meanwhile, Haeckel's ecological insights provide a scientific framework for understanding the dynamics of ecosystems, enriching literary narratives with factual accuracy and ecological awareness.

6. ECOLOGY AS A FIELD OF STUDY IN LITERATURE

According to William Rueckert, environmental biologists try to develop an ecological vision that

is rooted on the dictum that everything is connected to everything else, and insist on translating this to action in tangible terms in society, ethics, religion, politics, innovation, science and law. This is a combat against the self –annihilating motive that is prevalent in the paradoxical attitude against nature. The interrelational nature of ecological debilitation, a festering sore calls for a coming together of various disciplines to interrogate the issue. Ecology studies the relationship between species and habitats and ecocriticism, a branch of literary study examines the association between the Earth, the reader and the text. This interdisciplinary interpretation of texts is guided by principles from the fields of ecology, language, criticism and ethics, as noted by William Howarth. Ernst Haeckel's convictions regarding the perception of Earth as a common household instills a paradigm shift in zoological studies that species are co-habitants of a shared domain, and not resources to be exploited. Ecology, a field of science well known for its verbal history and expression was treated within the scientific fields with contempt as being too literary sans precise data. Ecology as a field of study attributes importance to literature as a reminiscent of cultural memory that shapes perceptions and analyses reality from an ethical perspective.

7. ZOOLOGY AND VERBAL EXPRESSION

It should be remembered that vernacular language has never been fully rejected by zoological sciences. Language has played a vital role in the perception, expression and interpretation of the history of the land. Life Sciences and Literature contribute to the understanding of historicity of nature and the ecological depth of how nature has been perceived throughout history. Narratives have played a vital role in deepening the understanding of nature is valued. Lynn White Jr. in his "Historical Roots of our Ecological Crisis" examines how grand narratives of religions like Christianity have led to irreverent attitudes towards nature and a rethinking of these meta-texts from an eco-centric perspective can foster an attitude of care towards the environment. He concludes his essay by stating that science alone cannot be the saviour of the world, but a greening of ethics, narratives and religious perspectives can bring about institute changes and restore planetary health.

The narrative style of Terry Tempest Williams should be noted for her precision in expressing

key details and observations about wildlife. Williams recollects her experiences at Theodore Roosevelt National Park. Her father's attention gravitated towards the ongoing construction activities conducted by a gravel-laying company, specifically focusing on road enhancements and erosion prevention measures. The landscape unfolds with banded hills, swaying grass, varied shades of green and yellow, rust- colour patches, fragrant sweet clover, cottonwood trees, red-tailed hawks, bison, crickets, and sage, creating a unique tapestry typical of North Dakota's badlands.

Unlike the barren hills of South Dakota, these badlands surprise with their forested areas of junipers and occasionally pines. Birdlife abounds with harriers, field sparrows, meadowlarks, crows, lazuli buntings, and darting doves. Magpies flit around, hoping for leftovers, indifferent to their nature. As evening approaches, a rosy hue envelops the surroundings, prompting the father to remark its disappearance. Almost instantly, the sky transforms into a deepening periwinkle blue, accentuated by the silhouettes of deer on the ridges, reinforcing their shared presence in the moment. As the temperature drops, they retreat to their car. Driving through the park, passing prairie dog towns and the meandering Little Missouri River in Peaceful Valley, they encounter a solitary, unmoving bison, resembling a fortress in the darkness. Eventually, they reach Medora, where the sparkling lights beckon like a lure in deep waters. This passage is a testament to the narrative prowess of Williams who has the uncanny ability to transport readers to the world of the wild and subsequently integrate an ethical outlook towards the Earth.

8. ONTOLOGY RECAPITULATES PHYLOGENY

This maxim of Ernst Haeckel pertaining to the correlation between an individual and common good can be explicated through the works of Williams. His claim that an organism's life gets repeated in a species' history can be understood in her reflections on the Big Bend National Park. The lilt of desert water becomes the morning vespers for her and her husband Brooke. Longspur Columbine, cardinal blooms and maidenhair ferns join the choir, followed by band-tailed pigeons that coo from the shade of tall oaks. Green-tailed towhee, quails, blue-gray gnat-catchers, Mexican and scrub jays, lazuli buntings flock this place that makes their

summer home. Light falls on the myriad hues of the desert, evoking a magical glint on the sky that is circled by a pair of two golden eagles. This canyon is describes as "sky-islands" that have a precipitous rise of 4,500 – foot elevation from the valley floor as it cuts deep into the geologic veins of the Chisos Mountains.

The ecosystem represented here is indicative of a vertical natural history, an ecotone zone where one zone bleeds its life into the other, reflecting the deep-knit connection between life and life-zones. Javelinas, the primary herbivores in the lowlands are replaced by deers in foothills. This Black bears, bobcats and peregrine falcons populate this national park during the crepuscular hours and nest in peace. This is a description of a well-balanced ecosystem and species here thrive because the well-being of an individual species gets reflected in the health of the entire biome. In her documentation of Theodore Roosevelt National Park, Williams writes how ecological systems get disturbed when even one species is destroyed as it is labeled as 'varmints'.

9. KEYSTONE SPECIES – INDICATORS OF A HEALTHY ECOSYSTEM

Many colonies of prairie dogs were shot down since these communal rodents were seen as varmints by the industrial populace of the American West. Williams records the fascinating behavior of Prairie dogs that support a whopping community of more than 243 different species of plants and animals including rattlesnakes, pronghorns, harriers, coyotes, foxes, killdeers, burrowing owls and red-tailed hawks. Williams observed that Prairie dogs followed bison herds and aerated the soil after their stampeding hooves. Following this, Prairie dogs dug burrows within their colonies providing boundless openings for spiders and snakes to make their homes thereby loosening tamped soil to nurture an *oikos* – an interdependent community of hundreds of plants, animals and other forms of life unseen. What was declared as a varmint by former conservatory commissions that set up on the ruthless massacre of prairie dogs, failed to see that this was in fact a keystone species that supported the balance of the system. Studies on conservation and wildlife should be propelled by ethics that assert the interdependence of all life forms. This will ensure that wildlife conservation don't blow with the political winds from one rule to the other.

10. CONCLUSION

In conclusion, the interconnection of zoology and literature is evident in the profound insights offered by writers like Terry Tempest Williams and scientists like Ernst Haeckel. Through their respective lenses, we gain a deeper understanding of the natural world and our place within it. By bridging the realms of science and art, zoology and literature collectively enrich our appreciation for the diversity and interconnectedness of life on Earth. This interdisciplinary approach is crucial for fostering empathy, promoting conservation efforts, and cultivating a harmonious relationship between humanity and the animal kingdom. Further scope of research for this study would be the exploration of ecology as an absorption of Linnaean taxonomy, quantification of Darwinian evolution and revolution of Mendel's idea of genetics from the context of literary expression and scientific inquiry.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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