Greening Vvanderfell.
An Ecocritical Retrospective on
The Elder Scrolls III: Morrowind

Andrea Piano

Università "Sapienza" di Roma

andrea.piano@uniroma1.it

ABSTRACT

This paper analyzes the popular video game *The Elder Scrolls III: Morrowind* (Bethesda Game Studios, 2002), from an ecocritical retrospective. While it cannot be properly considered an ecogame, nor was it made with explicit ecocritical goals, Morrowind offers insights relevant to the current conversation about game design and sustainability. The study examines the ways in which the game's narrative, gameplay and design choices make relevant points on environmental issues, such as depiction of flora, human-nature relationship, and landscape relevance. Drawing on the most recent ecocritical theories, this paper argues that Morrowind represents a virtuous example for more sustainable game design. The analysis highlights the potential of commercial and massively distributed video games as a medium for environmental education and awareness-raising, while proposing strategies for integrating ecocritical approaches into game design and development.

Keywords

ecogames, ecocritical, Morrowind, sustainability, analysis, retrospective

INTRODUCTION

Academic interest around the ecological impact of video games has been steadily growing during the last decade. Many scholars have addressed the topic, often proposing optimistic solutions, methods to evaluate the outcomes of persuasive play or simply giving drastic warnings. Although the subject is undoubtedly relevant and is entering the political agenda of various institutions, it still needs to be explored further.

Researchers and institutions within this domain have so far focused their efforts on the impact of the production chain and consumption of video games (Abraham 2022; Bridgen et al. 2008), the educational potential of play (Eisenack et al. 2013; Fizek et al. 2023; Owen 2013; Whittaker et al. 2021), and behavioral change resulting from media exposure (Chang 2012; Raessens 2019). Some also focused on the importance of seeing games as additional means of addressing pressing environmental challenges (Chang 2019; Friedman 2010).

A unifying thread of these research is the focus on the reception of ecogames, which are understood in this context as games intentionally created to promote awareness of environmental issues. Considerable attention is directed towards players' knowledge acquisition pertaining to sustainability and exploring how gameplay can inspire behavioral change or motivate individuals to act. However, it is essential to recognize that players encompass a diverse range of individuals who cannot be conceptualized as a homogenous entity. Several factors necessitate consideration, including the availability of resources, access to knowledge, and access to games themselves, which may be perceived as a privilege not universally accessible. Furthermore, players may possess personal beliefs, social constraints, and ideologies that may diverge significantly from the intended message of an ecogame, potentially impeding the efficacy of the game itself.

The analysis of commercially successful and popular video games and their indirect engagement with environmental issues holds considerable potential in this regard. Not every game that contributes to ecological contemplation is explicitly labeled as an ecogame or a "game for change." Many games inadvertently address environmental concerns without explicit intent, utilizing narrative elements, procedural rhetoric, or other means. These games possess the capacity to reach a vast audience simultaneously, thereby raising awareness on a broader scale and introducing an alternative value system, even among those who may exhibit prejudice against an explicitly labeled ecogame.

An initial attempt has been made to define a sustainable design framework for video games: the Climate Special Interest Group organized within the International Game Developers Association (IGDA) recently published a collaboratively written document by practitioners, designers, and researchers. Titled "*The Environmental Game Design Playbook*," (Whittle et al. 2022) the framework focuses primarily on awareness strategies related to the climate crisis but offers very interesting insights into other environmental issues as well.

The purpose of this study is to examine how even a game as old as twenty years, *The Elder Scrolls III: Morrowind* (Bethesda Game Studios 2002), can actively contribute to the conversation about sustainability in games. Three relevant aspects will be analyzed in the following sections. Firstly, it will observe the importance attributed to the environment in terms of its navigability and representation. Secondly, it will underline the design approach to flora, recognizing its role as more than a mere background, but as an integral game component deserving attention. Lastly, it will address the treatment to fauna, acknowledging the predominant use of violence while also emphasizing specific mechanisms that engage the player within a dynamic and playful ecosystem.

The research methodology employed in this work combines a social science perspective in interpreting the media text with the utilization of contemporary

sustainability theories in the context of video games Reference will be made to the dynamics of formulating and reconstructing collective imaginaries, the importance of the shared values they convey, and the ways in which the text can be interpreted by the user (Calabrese et al. 2016; Ilardi 2010; Tarzia 2009).

In this analysis, particular attention is given to the hermeneutic framework proposed by Kłosiński (2022), which integrates diverse humanistic perspectives within game studies. Great emphasis is paid to *procedural rhetoric* (Bogost 2008; 2010) and its interplay with other aspects of the game, including narrative and social interactions.

WELCOME TO VVANDERFELL

Morrowind represents a major turning point in the history of Bethesda and *The Elder Scrolls* series (1994 -). Todd Howard, lead designer of the game since, reportedly described it as "the modern genesis of Bethesda" (Sierra 2020, 21–22). In fact, this was the first major roleplaying game that Bethesda brought to consoles, namely to Microsoft Xbox, and thus was a game aimed at a radically different audience than the studio had until then.

However, it is noteworthy that *Morrowind* achieved remarkable commercial success, maintaining its position among the top 10 Xbox sales for a significant period even a year after its initial release ("Bethesda Softworks" 2004). Notably, it is estimated to have sold approximately 4 million copies globally ("The Elder Scrolls" 2005), thereby reaching a substantial player base. This widespread accessibility implies that a vast number of individuals had exposure to the same set of represented values, narratives, and dynamics, fostering a collective foundation for shared knowledge.

The Elder Scrolls is a series of roleplaying games all situated within the fictional medieval-fantasy realm of Tamriel, a world characterized by distinct regions, each possessing its unique ecosystem and cultural heritage, and an intricate social equilibrium. The third installment of the main series, *Morrowind,* takes place in Vvardenfell, an island-continent predominantly inhabited by hunter-gatherers' communities and which displays all the features of a peripheral province within a larger imperium.

In *Morrowind*, players assume the role of an Outlander, a character whose unique attributes and features can be customized during the initial phase of character creation. However, regardless of these personalized details, the player consistently assumes the role of the Nerevarine, an individual bestowed with prophetic significance, tasked with the mission of uniting the various peoples of Vvardenfell and liberating them from an encroaching evil. This narrative premise incorporates intriguing elements of Puritan imagery, as explored by Ilardi (2010). As the gameplay unfolds, players must contact the diverse tribes inhabiting the island, familiarizing themselves with their customs, traditions, and values. Through this process, players progressively integrate themselves into the local society, fostering a deeper understanding and connection with the island's inhabitants and their heritage.

Throughout the gameplay experience, players are afforded a considerable degree of freedom to explore the game world, venturing through diverse biomes and ecosystems. This open-ended exploration presents a noteworthy illustration of designed human-nature interactions within the realm of video games. As Raessens (2019, 239–41) highlights, ecogames are characterized by specific objectives that aim

to promote sustainable actions, both at the individual and organizational levels. They seek to redefine social norms and influence the political agenda. However, it is arguable that these features are not exclusive to ecogames alone. It can be contended that every game, in its own way, has the potential to pursue similar goals and effect meaningful impacts on players' perspectives and behaviors.

The case of *Morrowind* is intriguing in this context. Despite being a commercially developed game without explicit ecological intentions, it reflects a value system that espouses respect for nature, encompassing the environment, fauna, and flora. These elements align, to some extent, with the characteristics emphasized by researchers studying ecogames. Consequently, they present significant factors that warrant further investigation and can serve as virtuous examples for future game designs. The exploration of *Morrowind*'s representation of nature and its underlying value system offers valuable insights for the development of environmentally conscious and socially impactful games in the future.

A LONG WALK IN THE WOODS

One of the most remarkable aspects of *Morrowind*'s design is arguably its world building. Lead designer Todd Howard has emphasized the meticulous attention to detail and the underlying philosophy that guided the creation of the entire realm of Tamriel (*Todd Howard DICE 2012 Keynote* 2012). The focus was on constructing a digital world that engenders a sense of believability and coherence for players. Additionally, scholars (Sierra 2020)have observed how the design of Vvardenfell aligns with the principles that level designers should consider when crafting virtual cities and their surrounding environments (Burgess 2017; Dimopoulos 2020). This encompasses factors like the natural environment and climate, which play crucial roles in creating immersive and authentic virtual spaces. By incorporating considerations of the natural environment and climate into its design, Vvardenfell contributes to the rich tapestry of features that are integral to crafting compelling virtual cities.

The design of *Morrowind* sets the stage for a diverse and believable world, where each area and biome in Vvardenfell possesses a distinct geographical identity that is reflected in the socio-cultural habits of its non-playing characters (NPC) inhabitants. The island itself is characterized as a rugged, impervious, and barren land, dominated by the dormant volcano known as the Red Mountain at its center. Inner areas of the island are plagued by ash and sandstorms, making transportation scarce.

In *Morrowind*, players primarily navigate the game world on foot, as the design of Vvardenfell suggests that certain areas are not suitable for horses or other means of transportation, with a few exceptions. Walking becomes imperative and serves as the initial way for players to interact with the environment, highlighting the importance of this design choice and non-stereotypical biomes in enhancing our understanding of real-world environments (Chang 2019, 23).

In some ways, *Morrowind* represents a transitional phase from point-and-click adventures like *Myst* (Cyan Worlds 1993) and *Riven: The Sequel to Myst* (Cyan 1997) to the emergence of the "walking simulator" or "first-person walkers" genre (Penabella 2015). The tools provided to players for traversing space in *Morrowind* bear resemblance to those in games like *Dear Esther* (The Chinese Room 2012), *The Stanley Parable* (Galactic Cafe 2013), and *Everybody's Gone to the Rapture* (The

Chinese Room 2015), offering a sense of continuous movement and freedom. As Chang noted, this feature is crucial:

> *"Perversely, I suggest that the very qualities of walking simulators that upset conservative gamers – their slowness, their lack of action, the absence of people, their spatial storytelling – indirectly indicate a path forward (pun intended) for more environmentally sophisticated game design."* (2019, 43)

The emphasis on observation of the surroundings is a consequence of this design approach. In more recent games such as *Ghost of Tsushima* (Sucker Punch Productions 2020) this feature is emphasized by a widespread taste for the sublime that was not technologically achievable at the time of *Morrowind*'s release. While the visual representation of Vvardenfell may appear angular and crude by today's standards, the island's design is deliberately stark and bare. Nevertheless, observation of the virtual world is relevant in video games even when it does not meet aesthetic standards of remarkable beauty: it has been argued (Chang 2019, 43) that walking, even within virtual environments, has always been integral to human cognition and thinking processes.

This design philosophy is also reflected in *Morrowind*'s absence of a map or quest markers, a departure from modern design trends. Players must rely on street signs, textual directions from NPCs, and their own cognitive efforts to navigate the world. This reliance on textual directives has been recognized as a powerful tool for wayfinding in games (Fuchs 2019, 220), as it reconnects players with analog relationships with space and fosters cognitive and emotional connections with the digital environment (Capaldi et al. 2016; Vella 2019). The environment in *Morrowind* transcends its role as mere background scenery, becoming an interactive space that players must familiarize themselves with to navigate and build orientation. This gives the environment a role of active and constant interaction with the player, constructing a dynamic correlation (Watsuji 2014).

Another significant aspect of the player-environment relationship in *Morrowind* is the limitation of fast travel. While modern games, including *The Elder Scrolls* series starting with *Oblivion* (Bethesda Game Studios 2006), often feature extensive fast travel options, in Vvardenfell, fast travel is only possible from specific waypoints that align with the game's geography and socio-cultural world-building. This design choice enhances the sense of framing and place attachment (Altinay 2017; Scannell et al. 2013), emphasizing the need for players to develop familiarity and connections with specific locations within the game world. For instance, the city of Ald'ruhn gains significance and prominence in the game due to its strategic position as a crossroads between other notable settlements in Vvardenfell. Players must frequently visit and learn the paths leading from one fast travel waypoint to another, to reach places that otherwise would require many minutes of walking.

Fast travel, a prevalent feature in modern open-world games with expansive digital landscapes, is not an innovation exclusive to the gaming realm. As Bogost observes, it shares similarities with the transformative impact of the railway on the physical world, erasing the spatial gaps between destinations (Bogost 2011). This remediation of space through transportation has long been ingrained in our collective experiences and imaginary. Whether it is the contrasting perspectives gained from hiking, train rides, or plane flights, modes of locomotion shape our perception of the environment.

Moreover, the velocity at which we traverse these spaces influences our ability to absorb information, retain details, and discern significant landmarks.

The significance of fast travel in *Morrowind* lies in the choices it offers rather than the availability of technology. Although fast travel locations exist within the game, the team led by Todd Howard opted for a different approach, placing importance on the player's establishment of connections with the game's space and deliberately avoiding the fragmentation of space that accompanies fast travel.

This is evident in the main questline, where players are compelled to explore the remote regions of Vvanderfell, particularly the Ashlands. These desolate, rocky lands are distant from many fast travel points, necessitating repeated journeys on foot. The Urshilaku Camp, serving as the home of the Urshilaku Tribe, holds crucial significance within the main narrative, as players must follow in the footsteps of Nerevar and become a hero to the local communities. Throughout multiple playthroughs, frequent visits to Urshilaku Camp are required to complete trials and acclimate to the tribe's traditions.

Moreover, fast travel in *Morrowind* is not easily accessible, as Silt Strider caravans (see Figure 1), teleporters from the Mages Guild, and magic scrolls each have distinct prices in the game's currency. Particularly at the outset of the adventure, the main character often faces financial hardships, having recently been released from captivity as a former prisoner. Setting aside the economic and class-related considerations, which merit independent analysis, this design choice underscores the necessity of traversing the game space gradually, allowing players to familiarize themselves with it in the process.

Figure 1: Silt Strider in Balmora

This emphasis is further highlighted by the skill system of the game. In *Morrowind*, and throughout *The Elder Scrolls* series, characters can improve their proficiency in a particular skill by actively using it and gaining experience. For instance, to become

proficient in swordsmanship, players must frequently wield swords. This principle also applies to abilities related to movement and traversal, which prove useful in various situations within the game. As a result, this game mechanic encourages players to actively train and develop these movement-related skills, often simply by exploring the game world on foot.

However, it is important to note that not all skills in *Morrowind* carry equal weight. Each character possesses a set of abilities, which players select during the character creation phase, that impact the level-based progression typical of the role-playing genre. On the other hand, the majority of other skills in the game do not directly affect this progression. As a consequence of this system, characters often become highly specialized individuals with varying levels of interest and proficiency in the realm of fauna and flora, as we will delve into in the subsequent sections.

MORE THAN A BACKGROUND SCENERY

As mentioned before, flora, and ecosystems in general, are often treated as mere background elements in digital games. Furthermore, even when digital ecosystems are depicted in detail and consistency, they are often portrayed as a singular entity that can be generalized as "Nature." This tendency to downplay the importance of flora in media reflects a prevalent plant-blind approach, as also highlighted in recent transmedia studies (Malvestio 2021). However, in the realm of video games, this approach can be challenged and subverted through thoughtful design choices.

Bethesda's approach to the design of Vvanderfell in *The Elder Scrolls* series is particularly intriguing in this regard, aligning with Todd Howard's aforementioned philosophy of worldbuilding. Rather than relying on procedural generation of terrain and plants, a handcrafted world was chosen, as evident in *Morrowind*. This strategy contributes to the creation of a more believable, distinctive, and memorable world, in line with the design principles identified by the IGDA Climate SIG project (Whittle et al. 2022, 6).

It should be noted that this approach to crafting a believable 3D world presents technical and practical challenges. An example can be found in the direct sequel to *Morrowind*, *Oblivion* (Berry 2007). Utilizing a large number of 3D models for trees and plants requires significant efforts from both hardware and software perspectives. This poses limitations on the visualization and perception of virtual worlds. Moreover, it raises a paradox: in order to improve the representation and visualization of digital plants, greater computational resources are needed, resulting in a larger carbon footprint (Chang 2019, 115).

While each plant type in *Morrowind* has a limited number of 3D models and polygons, consistent with the technological and temporal context in which the game was released, each element of the flora is distinct and contextualized within the ecosystem of Vvanderfell. Identifying characteristics such as color, shape, and size aid in the process of recognition and assimilation, contributing to the construction of shared notions and the formation of a collective imagination in the mythopoetic realm of video games.

The recognition of individual 3D models and plants is further incentivized by the game mechanics, as each plant serves a distinct practical, cultural, and sometimes even religious purpose. Understanding and internalizing their roles within the ecosystem is

crucial for navigating the game world, but it also highlights the non-colonialist approach to flora and environment embraced by *Morrowind*, where the player is not tasked with 'discovering' and shaping the world according to their own desires (Mukherjee 2017). Each plant is already assigned a name, and in some cases, multiple names based on local dialects, along with a cultural significance that players have the opportunity to learn and appreciate over the course of their journey. This emphasis on the cultural value of plants highlights the game's commitment to creating a rich and immersive world that encourages players to engage with and understand the intricacies of the virtual environment.

Despite the player's primary engagement with the game world revolving around acts of violence and resource exploitation, there exists a notable emphasis on the significance and reverence for flora. It is intriguing to observe that while there are certain tree species, such as pines, firs, willows, and beeches, which bear direct counterparts in the real world, they are deliberately inaccessible for interaction within the game. While this limitation may contribute minimally to the acquisition of factual knowledge regarding the natural world, it effectively imparts a sense of familiarity that assists players in acclimating to the eerie (Fisher 2016) ambiance that characterizes Vvardenfell.

The learning process associated with understanding the peculiar plants of *Morrowind* follows a gradual and speculative approach. Experimentation becomes paramount as players engage with the game's flora. Each harvestable or gatherable plant in the game possesses up to four distinct effects, ranging from restorative properties to providing temporary invisibility. These effects remain unknown to players until their characters reach a certain level of proficiency in the Alchemy skill, as they are concealed within the game's interface. To unveil these effects, players must engage in speculative actions such as ingesting or combining plants to create potions. Given that some effects may have adverse consequences, resulting in conditions that are challenging to remedy, the process necessitates cautiousness, study, and thorough research.

Moreover, the value and appeal of certain plant resources in *Morrowind* diminish as characters grow stronger, rendering their effects increasingly unremarkable and feeble. As players progress to higher levels, they increasingly rely on unique and potent equipment, rendering certain resources obsolete. This, coupled with the distinct needs of each character, often renders gathering and harvesting activities nonessential in most playthroughs. Another noteworthy mechanic is the weight limit imposed on the inventory, requiring players to make judicious choices regarding which nonessential items to carry, as exceeding the weight limit severely hampers character mobility. It is intriguing to observe how this approach set an example from many following role-playing or open-world games, such as *Zelda: Breath of the Wild* (Nintendo EPD 2017), *Horizon Zero Dawn* (Guerrilla Games 2016), and others.

VIOLENCE IS NOT ALWAYS THE ANSWER

The design philosophy that emphasizes the importance of flora in *Morrowind* is also extended to the fauna within the game. It presents a world where violence is not always the primary means of interacting with animals or the sole solution to threats. Vvardenfell is a rural landscape where inhabitants purportedly coexist harmoniously with nature, evoking a nostalgic longing for idealized past eras that is not uncommon in media depictions of the environment. Within this context, certain design choices

display a procedural rhetoric of peaceful cohabitation with the environment, encouraging players to adopt more sustainable behaviors.

While the interaction schemes in *Morrowind* primarily revolve around violence and combat when encountering most animals, the game offers alternative approaches. Engaging in combat is presented as just one option, and often not the recommended one. In numerous instances, players are encouraged to flee from hostile fauna or simply leave creatures undisturbed, as attacking them would prove to be a futile and unrewarding endeavor in the game's mechanics.

As noted earlier, the resources obtained from animals, such as meat and eggs, gradually diminish in their usefulness as the game progresses. The value of fauna to the player also diminishes over time, even in terms of skill development, as engaging in combat with low-level enemies does not yield significant experience points if the character is already proficient in that particular skill. This intriguing aspect of the game was subsequently lost in later installments of *The Elder Scrolls* series, where the game world seemingly scales in accordance with the main character's progression.

In *Morrowind*, however, even seemingly insignificant creatures like the kwama Scribs (see Figure 2) insectoids can pose a threat or, at the very least, prove to be a nuisance until the very end of the game. Their ability to paralyze enemies can be particularly dangerous, especially when more fearsome creatures are present in their vicinity. Furthermore, paralysis is a debilitating condition that requires costly potions or specialized equipment to cure, and even more valuable and rare items to prevent. Considering the time and effort required to defeat these small creatures, the risk-reward ratio becomes unfavorable. This is further exacerbated by *Morrowind*'s combat mechanics, where successfully landing sword strikes can be challenging until the character becomes proficient in their use.

Figure 2: a kwarma Scrib

The challenges posed by combat against fauna become particularly evident when dealing with Cliff Racers. These avian creatures, found throughout Vvardenfell but more prominently near Red Mountain, compel players to engage in combat with their eyes turned to the sky (see Figure 3). While this may appear inconsequential, in *Morrowind* it holds significant importance in terms of combat efficacy and defensive capabilities against other potentially nearby menaces. The design of these animals encourages players to either avoid or flee from them, a course of action facilitated by their distinct shrill cries that can be heard from considerable distances.

Figure 3: hostile Cliff Racer

Engaging in acts of aggression against fauna in *Morrowind* is ill-advised for yet another reason: the risk of contracting infections. Blight Disease and Corpse Disease are just two examples of the numerous afflictions that circulate throughout the island of Vvardenfell. These diseases play a significant role in the main questline, and although the main character can eventually develop immunity to both, they pose a genuine threat before that point. Wildlife primarily carries these ailments, and the player can easily become infected through close combat with contaminated fauna. The difficulty in finding curative potions and their associated cost, coupled with the potential impact on interactions with other characters, such as hindering trade and impeding the gathering of crucial information, further underscore the importance of avoiding such encounters.

In addition to this, the absence of achievements, which were not yet a common feature in games at the time of *Morrowind*'s release, plays a significant role in promoting a peaceful approach towards wildlife. Unlike many modern games that incentivize violence for its own sake, *Morrowind* originally lacks explicit rewards or recognition for hunting or exploiting resources. This design choice discourages a mindset of treating wildlife as a mere sport or pursuing technological advancements (and techno-fixing) through excessive extraction. As a result, the game offers a less mediated experience, where players have the freedom to choose their approach and where wanton violence is not glorified or celebrated.

DISCUSSION AND CONCLUSIONS

The representation of the environment in video games has often been criticized for some common mistakes often made by game designers: relegating the environment to mere background scenery, relying on stereotypical landscapes, and basing player success on the extraction and use of natural resources (Chang 2019, 21). However, this paper has demonstrated that *Morrowind*, despite being released over twenty years ago, offers a different and more progressive approach to the topic. It aligns with the design approaches recommended by recent research (Whittle et al. 2022) and can serve as a valuable resource for the advancement of game design frameworks that promote a more sustainable and responsible representation of the environment.

Morrowind can be considered a precursor to significant trends in both commercial and non-commercial game design that emerged in subsequent years. From an ecocritical perspective, the game's environmental sustainability features demonstrate how a game can incorporate important ecological elements into its gameplay, even though it was not originally conceived as an ecogame and predates the heightened awareness of climate change and sustainability applied to digital games. This highlights the game's forward-thinking design choices and its ability to provide players with an immersive and engaging experience that promotes thoughtful interactions with the virtual environment.

While video games and the media sphere as a whole may not have the power to single-handedly save the world, they have the capacity to offer valuable insights into our way of life and shape our collective imagination by conveying certain values and ideologies. *Morrowind*, in particular, can serve as a remarkable source of inspiration for game designers who aspire to promote environmental sustainability without creating greenwashing products or explicitly ecocritical works. The design decisions implemented by Todd Howard's team exemplify the construction of a dynamic model that somehow deviates from the norms established by modern AAA games. *Morrowind* demonstrates alternative approaches that challenge conventional game design paradigms and offer a blueprint for integrating environmental sustainability goals into interactive experiences without compromising the enjoyment or engagement of players.

REFERENCES

Abraham, Benjamin J. 2022. *Digital Games After Climate Change*. Springer International Publishing.

Altinay, Zeynep. 2017. "Visual Communication of Climate Change: Local Framing and Place Attachment." *Coastal Management* 45 (4): 293–309. https://doi.org/10.1080/08920753.2017.1327344.

Berry, Noah. 2007. "A Brief History of Cyrodiil." July 12, 2007. https://web.archive.org/web/20070712132601/http://www.elderscrolls.com/codex/team_teamprof_nberry.htm.

Bethesda Game Studios. 2002. "The Elder Scrolls III: Morrowind." Microsoft Windows, Xbox. The Elder Scrolls. United States: Bethesda Softworks.

———. 2006. "The Elder Scrolls IV: Oblivion." Microsoft Windows, Xbox 360, PlayStation 3. The Elder Scrolls. United States: Bethesda Softworks.

"Bethesda Softworks." 2004. December 4, 2004. https://web.archive.org/web/20041204101635/http://www.bethsoft.com/news/pressrelease_111004.htm.

Bogost, Ian. 2008. "The Rhetoric of Video Games." In *The Ecology of Games: Connecting Youth, Games, and Learning*, edited by Katie Salen, 117–40. The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge, MA, USA: MIT Press.

———. 2010. *Persuasive Games: The Expressive Power of Videogames*. MIT Press.

———. 2011. *How to Do Things With Videogames*. Minneapolis: Univ of Minnesota Pr.

Bridgen, Kevin, David Santillo, and Paul Johnston. 2008. "Playing Dirty." Greenpeace International. https://www.greenpeace.org/usa/wp-content/uploads/legacy/Global/usa/report/2008/5/playing-dirty.pdf.

Burgess, Joel. 2017. "Level Design Planning for Open-World Games." In *Level Design: Processes and Experiences*, edited by Christopher W. Totten. A K Peters/CRC Press.

Calabrese, Stefano, and Giovanni Ragone. 2016. *Transluoghi. Storytelling, beni culturali, turismo esperenziale*. Napoli: Liguori editore.

Capaldi, Donatella, and Emiliano Ilardi. 2016. "Lo storytelling dei beni e dei luoghi della cultura: teoria e pratica." In *Transluoghi. Storytelling, beni culturali, turismo esperienziale*, edited by Giovanni Ragone and Stefano Calabrese, 107–63. Napoli: Liguori editore.

Chang, Alenda Y. 2012. "Back to the Virtual Farm: Gleaning the Agriculture-Management Game." *Interdisciplinary Studies in Literature and Environment* 19 (2): 237–52. https://doi.org/10.1093/isle/iss007.

———. 2019. *Playing Nature: Ecology in Video Games*. University of Minnesota Press.

Cyan. 1997. "Riven: The Sequel to Myst." Microsoft Windows. Myst. United States: Red Orb Entertainment.

Cyan Worlds. 1993. "Myst." Microsoft Windows. Myst. United States: Broderbund.

Dimopoulos, Konstantinos. 2020. *Virtual Cities: An Atlas & Exploration of Video Game Cities*. Unbound Publishing.

Eisenack, Klaus, and Diana Reckien. 2013. "Climate Change and Simulation/Gaming." *Simulation & Gaming* 44 (2–3): 245–52. https://doi.org/10.1177/1046878113490568.

Fisher, Mark. 2016. *The Weird and the Eerie*. Third edition. London: Repeater Books.

Fizek, Sonia, Mikhail Fiadotau, Hanna Wirman, and Maria Garda. 2023. "Teaching Environmentally Conscious Game Design: Lessons and Challenges." *Games: Research and Practice* 1 (1): 1–9. https://doi.org/10.1145/3583058.

Friedman, Ted. 2010. "FarmVille: The Garden in the Machine | In Media Res." *In Media Res* (blog). December 8, 2010. http://mediacommons.org/imr/2010/12/07/farmville-garden-machine.

Fuchs, Mathias. 2019. "Itineraria Picta: Itineraria Scripta." In *Ludotopia: Spaces, Places and Territories in Computer Games*, 215–30. Bielefeld: transcript Verlag. https://doi.org/10.1515/9783839447307-012.

Galactic Cafe. 2013. "The Stanley Parable." Microsoft Windows, MacOS, Linux. Galactic Cafe.

Guerrilla Games. 2016. "Horizon Zero Dawn." PlayStation 4, Microsoft Windows. Horizon. Netherlands: Sony Interactive Entertainment.

Ilardi, Emiliano. 2010. *La frontiera contro la metropoli. Spazi, media e politica nell'immaginario urbano americano*. Liguori.

Kłosiński, Michał. 2022. "How to Interpret Digital Games? A Hermeneutic Guide in Ten Points, With References and Bibliography." *Game Studies* 22 (2). http://gamestudies.org/2202/articles/gap_klosinski.

Malvestio, Marco. 2021. *Raccontare la fine del mondo. Fantascienza e antropocene*. Milano: Nottetempo.

Mukherjee, Souvik. 2017. "Videogames and Post Colonialism: An Introduction." In *Videogames and Postcolonialism: Empire Plays Back*, edited by Souvik Mukherjee, 1–28. Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-54822-7_1.

Nintendo EPD. 2017. "The Legend of Zelda: Breath of the Wild." Switch. The Legend of Zelda. Japan: Nintendo.

Owen, Paula. 2013. "Can We Play Our Way to a More Sustainable Future? A Report into the Analysis of Eco Action Games Educational Community Events."

Penabella, Miguel. 2015. "Why Are We so Afraid to Walk?" *Kill Screen*, October 27, 2015. https://killscreen.com/previously/articles/why-are-we-so-afraid-walk/.

Raessens, Joost. 2019. "Ecogames: Playing to Save the Planet." In *Cultural Sustainability*. Routledge.

Scannell, Leila, and Robert Gifford. 2013. "Personally Relevant Climate Change: The Role of Place Attachment and Local Versus Global Message Framing in Engagement." *Environment and Behavior* 45 (1): 60–85. https://doi.org/10.1177/0013916511421196.

Sierra, Wendi. 2020. *Todd Howard: Worldbuilding in Tamriel and Beyond*. Bloomsbury Publishing USA.

Sucker Punch Productions. 2020. "Ghost of Tsushima." PlayStation 4, PlayStation 5.

Tarzia, Fabio. 2009. *Mondi minacciati. La letteratura contro gli altri media*. Liguori.

The Chinese Room. 2012. "Dear Eshter." Windows, OS X, PlayStation 4, Xbox One.

———. 2015. "Everybody's Gone To The Rapture." PlayStation 4, Windows.

"The Elder Scrolls." 2005. August 17, 2005. https://web.archive.org/web/20100710090443/http://www.elderscrolls.com/news/press_081705.htm.

Todd Howard DICE 2012 Keynote. 2012. GameSpot. https://www.youtube.com/watch?v=7awkYKbKHik.

Vella, Daniel. 2019. "There's No Place Like Home: Dwelling and Being at Home in Digital Games." In *Ludotopia: Spaces, Places and Territories in Computer Games*, 141–66. Media Studies, volume 63. Bielefeld: transcript Verlag. https://doi.org/10.1515/9783839447307-008.

Watsuji, Tetsuro. 2014. *Vento e terra. Uno studio dell'umano*. Translated by Lorenzo Marinucci. Mimesis.

Whittaker, Lucas, Rebekah Russell-Bennett, and Rory Mulcahy. 2021. "Reward-based or Meaningful Gaming? A Field Study on Game Mechanics and Serious Games for Sustainability." *Psychology & Marketing* 38 (6): 981–1000. https://doi.org/10.1002/mar.21476.

Whittle, Clayton, Trevin York, Paula Angela Escuadra, Grant Shonkwiler, Hugo Bille, Arnaud Fayolle, Benn McGregor, et al. 2022. "The Environmental Game Design Playbook (Presented by the IGDA Climate Special Interest Group)." International Game Developers Association. https://igda-website.s3.us-east-2.amazonaws.com/wp-content/uploads/2022/04/06100719/EnvironmentalGameDesignPlaybook_Alpha_Release_Adj.pdf.