"Beavers don't walk on roads": Beaver-play for more-than-human cartographies

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Abstract

In this paper, we introduce the notion of beaver-play to understand play that challenges spatial conventions, transgresses boundaries, and redraws territories. Tracing how beavers are imagined in various contexts such as nature conservation, experimental rewilding practices, and performance art, we highlight the role of the beaver in stories of ecosystem management, collapse, and restoration. We investigate beaver imaginaries through the perspective of play and games, taking the popular city-building video game *Timberborn* as our case study. We employ sketching as a method to annotate and analyse play practices in the digital spaces of *Timberborn*, drawing out three modes of beaver-play: *concerns, crossings,* and *flows*. Highlighting the role of play in territorial and organisational fluidity, we draw attention to the way that beaver-play scaffolds moving in and out of spatial arrangements, territories and environmental systems. Discussing how the practices of playing and drawing intertwined into a process of more-than-human cartography, we extend our investigation to consider the broader implications of using video games as cartographic, performative spaces for more-than-human meaning-making.

Keywords

Games, play, more-than-human, cartography, sketching, ecology, spatiality, beavers

1. Introduction

Tom Tyler's book *Game: Animals, Video Games, and Humanity* [1] collects a whole menagerie of beasts between its pages, from boar to fish and from dogs to lamas. Tyler demonstrates that when we encounter animals in games and play, we do so in ways that are culturally and contextually rich with meaning. Second only, perhaps, to primates, beavers are among the creatures we can most easily identify with: nimble-fingered master-builders, ecosystem engineers, and tireless workers; it's a flattering comparison. And yet, for centuries beavers have also been received as pests, creatures whose dam(n) projects have conflicted with our own attempts to harness rivers for water and power. In fiction, beavers repeatedly appear as agents of environmental change, causing floods and engaging in other disruptive terraforming practices (e.g. [2, 3]). As such, beavers often stand in for humans, who, in the age of climate change have also become dubiously responsible for the environment.

For many artists and ecologists, however, beavers are to be celebrated for their ability to traverse boundaries, relax rigid borders, and reshape landscapes [4, 5]. Consequently, the beaver has become a figure through which to imagine new practices that challenge spatial conventions and reconfigure territories [6]. "When beavers inhabit a body of water, they cut channels into the adjoining land, transgressing natural boundaries (...). Their damming and gnawing practices can radically alter farmland, redrawing boundaries and redirecting waterways" [7]. While the animal's ability to transgress boundaries has been studied from perspectives as wide-ranging as ecology to performance art [8, 6, 9, 10], our contribution lies in the investigation of the beaver from the perspective of games and play. More specifically, we develop a notion of beaver-play that can move through ecological boundaries, organising and re-organising spaces. Video games provide an interesting context to study this type of play because spatial exploration and territorial expansion are considered to be core aspects of digital gameplay [11, 12].

We start by tracing instances of play with and as beavers in rewilding practices, theatre and the arts in

order to build an overview of the roles that beavers play in stories of ecological management and restoration. Next, we shift our focus to study the way humans pick up these roles in a closer analysis of the videogame *Timberborn* by employing the method of sketching. Sketching is well-known as a generative activity for ideation and concept creation [13, 14], but it has also seen recent uptake as an analytic tool for meaning-making [15, 16]. By sketching on top of screenshots from *Timberborn*, we develop the notion of beaver-play, describing the extent to which videogames provide cartographic, performative spaces for more-than-human meaning-making

The phrase more-than-human was used by the ecologist and philosopher David Abram to emphasise the embedded nature of human culture within a larger web of life, which is filled with animacies that complement and rival human designs [17]. Agriculture, for example, exists because of the collaboration between humans and soil, bacteria, minerals, and countless other creatures feeding the earth. When we invoke the term more-than-human in this article, we use it to describe approaches that keep this multispecies world in mind.

2. Playing beaver

In this section, we list some examples of playing beaver in rewilding and conservation practices, in theatre, and in video games, teasing out how beavers are figured in stories of ecological management and restoration.

2.1. Rewilding with beavers

Due to hunting and habitat destruction, the Eurasian beaver almost went extinct at the turn of the twentieth century. Currently, there are many efforts underway to reintroduce them to regions where they used to be endemic and many of these initiatives have been largely successful [18]. There are good reasons for wanting to reintroduce beavers in rewilding practices. They have become a flagstone species for rewilding efforts as 'ecosystem engineers', restoring degraded landscapes, creating new wetland areas, and providing precious habitats for endangered wildlife, such as amphibians and river fish [19]. By damming rivers, beavers regulate water flow, slow water movement, improve stream health and quality, reduce flooding and restore natural landscapes [20, 8]. Moreover, the kind of ecosystem engineering that beavers engage in causes cascading 'feral effects,' which have a beneficial impact on other species and environments, but which involve processes that exceed what we can perceive or monitor [21]. In short, beavers provide humans with "cost-effective 'nature-based' solutions to flood protection" and drought resilience [22]. Already in the 1930s, wildlife agencies such as the *California Department of Fish and Game* were introducing beavers into desiccated, dry landscapes to combat erosion and raise water levels [23]. When rewilding inaccessible areas such as the mountains or deep forests without roads, as shown in figure 1, airplanes were used to drop parachuting beavers.

Using beavers as pawns in the game of nature conservation and environmental restoration requires thinking of them in instrumental terms, however, rewilding circles have been re-examining such approaches by drawing on more-than-human perspectives, investigating collaborative ways of knowing and meaning-making instead [25, 26]. A model of such creative, non-instrumental play is provided by David Overend [6], who oversaw a series of research-driven, site-specific, collaborative, arts-based explorations that engaged a population of beavers in the Tay Valley in Scotland. Inspired by performance artist Christy Gast's 2014 film, *Castorera (A Love Story),* Overend and his collaborators played as beavers by engaging in a series of *crossings*, following beaver trails over land, through the mud, and into the water. In performing such *crossings*, Overend "sensed the world, if not quite as a beaver, at least as more-than-human," demonstrating that playing beaver created its own kinds of feral effects for the performing researchers [6].

Figure 1: A poster for parachuting beavers by the *California Department of Fish and Game* (1950s) [24]

Figure 2: Gnawing as a beaver. A scene from the video *Our Strange Plan to Fully Rewild This River* (2023) [27]

The temptation to play at being a beaver has lured more ostensibly pragmatic minds into performing *crossings* as well. Because beavers are still lacking on the Scottish Glassie river, the rewilding network *Mossy Earth*—comprising mostly ecologists—is experimenting with human-made beaver-like dams to restore the river's barren banks [27]. In their video

update on the project (figure 2), the rewilders got fully into character, donning neoprene suits for complete immersion.

2.2. Acting as beavers

Rather than invite humans to become beaver-like, other instances of beaver-play feature uses of anthropomorphisation, such as when the perceived characteristics of beavers, like their industriousness, are used to scaffold a deeply human story. For example, in the 1937 play *The Revolt of the Beavers* (figure 3), two children are spirited away to 'Beaverland' where they meet a band of oppressed and exploited beavers who operate 'the wheel of industry' for the sole profit of the chief and his cronies [28]. The play recounts how the workers come together to overthrow the chief, thus claiming the means of production for themselves, and sharing the benefits equally. At the time of its release, the play was reviled for being too political. In an updated 2018 staging by *Kit Bix*, the final act of the play nods just as overtly to more contemporary politics [28]. Bix takes beaver anthropomorphism even further, casting them not just as subjects under capitalism, but as potentially enthusiastic proponents of it (figure 3).

Figure 3: Humans acting as beavers. A scene from the play *The Revolt of the Beavers* (1937) [29]

Rather than cast beavers as industrialists, some games imagine beavers as saboteurs acting to disrupt or undermine environmentally exploitative ventures like logging enterprises. For example, the local co-op game *Beavers Be Dammed* [30] stages a beaver-operated heist on a sawmill. The challenge involves manoeuvring stolen logs through difficult parcours full of crazy obstacles. While lacking the striking visual design and sharp critical brunt of a game like *Thunderbird Strike* [31] by Indigenous designer Elizabeth LaPensée, in which you play a mythical bird taking out machines used to extract oil from the Athabasca tar sands, *Beavers Be Dammed* stages a similar struggle between extractive industry and nonhuman resistance. *Beavers Be Dammed* can also be understood as a game of 'animal mayhem', which is the name Marco Caracciolo gives to several recent games in which non-human protagonists create comical situations by meddling in human affairs and wreaking havoc in human-dominated spaces [32]. Such examples make use of animal play as an activity that transgresses and disturbs boundaries between human and animal spaces, making room for investigations on the way we share our world with others.

Lastly, beavers can also act as worldbuilders in a more expanded sense, upholding cosmic time and

space. In collaboration with human geographer Kathryn Yussof, the electronica/glitch-folk duo *Oblique Curiosities* created a song called *Cosmic Beavers in* which they playfully relate a queer, anti-colonial counter-mythology about "giant, trans-dimensional beavers who maintain the Time-Dam" [33]. This example, as well as the others listed above, demonstrates the extent to which beavers have emerged as generative figures in stories of world collapse and restoration. As we can make out from the brief overview of media provided here, playing beaver generates moments of both identification, as well as estrangement. It allows us to recognize ourselves as planetary terraformers and world-builders, while also pushing us to explore alternatives to a rapacious, earth-moving industrial logic that is driving the climate crisis. Specifically, beaver-play allows us to adopt the playful, boundary-crossing, place-making spirit of the beaver.

3. *Timberborn* or, welcome to the '*Castorocene*'

Castorocene means 'era of the beaver.' It is the title of George Finlay-Ramsay's film-poem [34] which imagines a far future in which humans have defiled the Earth and beavers are there to clean it up. It was filmed in Bamff, an area in Scotland known for experimental ecosystem management, the same place where Overend and his collaborators performed their experimental *crossings* [6]. The work's title is a play on the term *Anthropocene* (*anthropos* meaning human). Introduced in the early 2000s, the Anthropocene denotes the most recent geological epoch, in which humans have become the main drivers of planetary, environmental change [35].

Figure 4: Beavers acting as humans. The retail cover of *Timberborn* (2021) [36]

Our case study *Timberborn* [36] is a popular city-building game involving beavers that is also set long after the demise of human civilization. It too posits a speculative post-Anthropocene era that still carries the scars of humans civilization: the ruined remains of buildings, a recurring drought, and (after the game's latest update) sources of 'bad water'. In the game, players manage a colony of beavers surviving in this desiccated landscape, setting up chains of production to house, and feed them, while having to weather the recurring drought. Damming enough water to make it through these gradually lengthening dry seasons is the game's primary challenge. By simulating drought, *Timberborn* joins a number of other recent games like *Frostpunk* [37] and *Against the Storm* [38] that evoke

'dark seasonalities' [39] by simulating dangerous, unpredictable weather and climate systems. New trends like these demonstrate that the theme of climate change is pushing game developers to reconsider design conventions, especially those belonging to the genre of the city-builder. Take for example *Terra Nil* [40], a game about rewilding, or *Lichenia* [41], a game about ecological restoration, both of which explore alternative ways of relating to video game environments. To study games like these, scholars have developed different concepts and frameworks, focused on climate change engagement [42], ecology [43], anthropocentrism [44] or ecological monstrosity [45]. For our part, we look at *Timberborn* using the concept of beaver-play since the game's dynamic environment invites questions about territory, boundary crossing, and place-making, especially as the player's terraforming and engineering practices are patterned according to the game's seasonal rhythms.

3.1. Spatiality in *Timberborn*

The digital spaces found in video games are rarely passive backdrops. Rather, video game spaces constitute frameworks in which meaning is created and situated [46]. Such processes of meaning-making often rely on spatial exploration and expansion, which, as Kühne suggests, result in significant alterations to game environments. Thus, play in video games often reflects the transformative power of player actions over the digital environment. This is especially true for city-builders where players are often cast as surveyors or (military) cartographers, carving up the land and assigning it productive functions [47]. For example, in games such as the *Civilization* series [48], digital spaces reflect traces of the player's spatial mastery over the environment [49]; and *Tropico* [50], employs mechanics reminiscent of 'colonial techniques of domination', which in video game spaces are expressed through spatial behaviours such as exploration, trading, or map-making [51, 52]. Games of empire and extractivist play revolve around the acquisition of geographical space [53] through activities such as environmental exploration, spatial maneuvering, trading, establishing mines and outposts [47]. All such in-game actions and behaviours warrant critique and scrutiny given that players may carelessly adopt the logic encoded in the game, whether rooted in extractivism, imperialism, or colonialism [54, 55, 56].

In these previously mentioned city-building games, the map is static and players exert their influence over it. In *Timberborn* the map is dynamic and players are put on the back-foot, having to respond to, and build with the river in mind. In other words, the river system is encountered as an entity with its own rhythms and moods that you have to share the map with. Over the course of play, there emerges a more-than-human partnership between player and river. In the coming sections, we introduce sketching as a method for recording and analysing this relationship.

4. Sketching as method

In this section, we introduce the practice of sketching as an analytical tool. We explain our rationale of sketching on video game screenshots to investigate video game environments and to unpack beaver-play.

4.1. Sketching for analysis

Sketches are informal drawings or annotations that allow people to deepen their understanding of an object, a space, or a concept. Drawing sketches is an established technique in generative processes such as ideation and concept creation [13, 14, 57, 58]. In addition, sketching has been gaining attention as an analytic tool within technology-minded research. For example, Sturdee and Lindley outline how the practice can situate us within the 'unknown', and help us make sense of it [15] as sketching becomes a means for simultaneously creating and conveying knowledge [59]. Moreover, as Gansterer explains, sketching is both reflective, promoting contemplation, as well as steeped in observation— involving consciously capturing thought and documenting the processes of its creation [60]. In this way, sketching allows researchers to generate and incorporate situated, qualitative first-person knowledge into their research practice [61, 62, 63].

We draw on a specific approach developed by Gamboa et al. to annotate video game screenshots [64]. They collect screenshots from video games and annotate them for analysis. These annotations draw out how meaning is created in video game spaces and how game mechanics situate the player in imaginary environments. "The collection of screenshots became a place for transdisciplinary discussion" [64]. Similarly, we use the sketches to gather interdisciplinary knowledge. The sketched-on screenshots simultaneously count as player-generated content that documents the intentionality of the player [65, 66], while also reflecting the play practices and the game mechanics that afford them.

4.2. Study procedure

The screenshots were made by the first author over the course of two days. They record moments of challenging gameplay that required planning, or they capture moments of almost-failure [67]. The screenshots were taken with the game paused and the camera positioned to capture the situation. The sketching itself was carried out on a tablet, where a spatial analysis of the video game environment was made, using sketching to document the river territories and bank contours. After documenting the specific spatial arrangements of a situation, sketching was used to plan and reflect on the next steps in gameplay.

Next, the compiled sketched-on screenshots from Timberborn served as a foundation for communication and iterative, reflective discussion among the co-authors. Comparisons were made and parallels were drawn between instances of gameplay and the ecologically rooted more-than-human perspectives recorded at Bamff by Overend and his collaborators during their *crossings* [5, 6], and Finlay-Ramsay in his

film-poem [34]. Lastly, the sketches were grouped based on the three themes that emerged through the comparisons. The findings presented in the following section adopt a first-person perspective to articulate the immersive attention cultivated through the process of sketching during gameplay.

5. Findings: *concerns, crossings* and *flows*

In this section, we describe the kind of beaver-play encountered in Timberborn through three modes of play: *concerns, crossings* and *flows*, highlighting how they invite more-than-human awareness.

5.1. Concerns

Because *Timberborn* is a city-building game, the player does not adopt the perspective of an individual beaver, but rather controls the colony from a bird's eye view. In order to evoke elements that could be part of the nonhuman field of perception, I sketched on top of the screenshots, using textual annotations in combination

with arrows to speculatively identify the concerns that the colony might have (as shown in figure 5). As a response to hunger, the drying berry bushes and trees, beaver-play became a process of extending the reach of my colony to react to the emerging concerns (figure 6).

In a conversation I had with the filmmaker George Finlay-Ramsay, who created the film-poem *Castorocene* [34], what most surprised the artist, was the fact that the beavers of *Timberborn* need roads to get to where they were going— "beavers don't walk on roads". This inspired further discussion on the function of roads in the game. It is precisely through extending roads that, as a player, I impart my agency over the colony. The only way the beavers can move anywhere is via the road network. I thus use the roads to point at and connect concerns in the landscape that the beavers are programmed to respond to. This recalls the biological programming of beavers who listen and instinctively respond to the sound of running water with the irresistible urge to dam [68]. In this way, building roads is a way of listening to the river system and identifying its concerns.

Figure 5: Sketching more-than-human concerns

Figure 6: Sketching more-than-human concerns

5.2. Crossings

Timberborn requires the player to adapt to a changing environment since periodically, whole areas of the map dry up due to a recurring drought. Despite its fluctuations, the river's banks still provided the best location for my settlement, though I found myself having to keep relocating it depending on the water level, shifting closer (figure 7) or further away (figure 8). Sketching *crossings*, I drew contours and zones which would get gradually defined throughout play. In this way, as I responded to the course of the river, I saw beaver-play materialise in the arrows and lines that marked where environments were being drawn and redrawn.

Examining the influence of beaver rewilding, Overend and his collaborators noted how the Bamff area is distinctly different from the rigid, fenced-off farmlands surrounding it [6]. They recounted that, as they followed beaver trails, they had to cross through land, mud and water, physically and imaginatively crossing boundaries between the elements, between biomes, and between species. In performing such crossings, more-than-human perspectives emerged in the muddy spaces where ecosystems converged. In *Timberborn*, the changing state of the river prompts me to reevaluate and cross out my established settlements, crossing over into new territories. In this way, a more-than-human perspective surfaces in the way the river emerges as a dynamic, snaking entity, one that swells and dries according to an unpredictable rhythm. In response to this rhythm, I am habitually deterritorialized, moving in and out of territory.
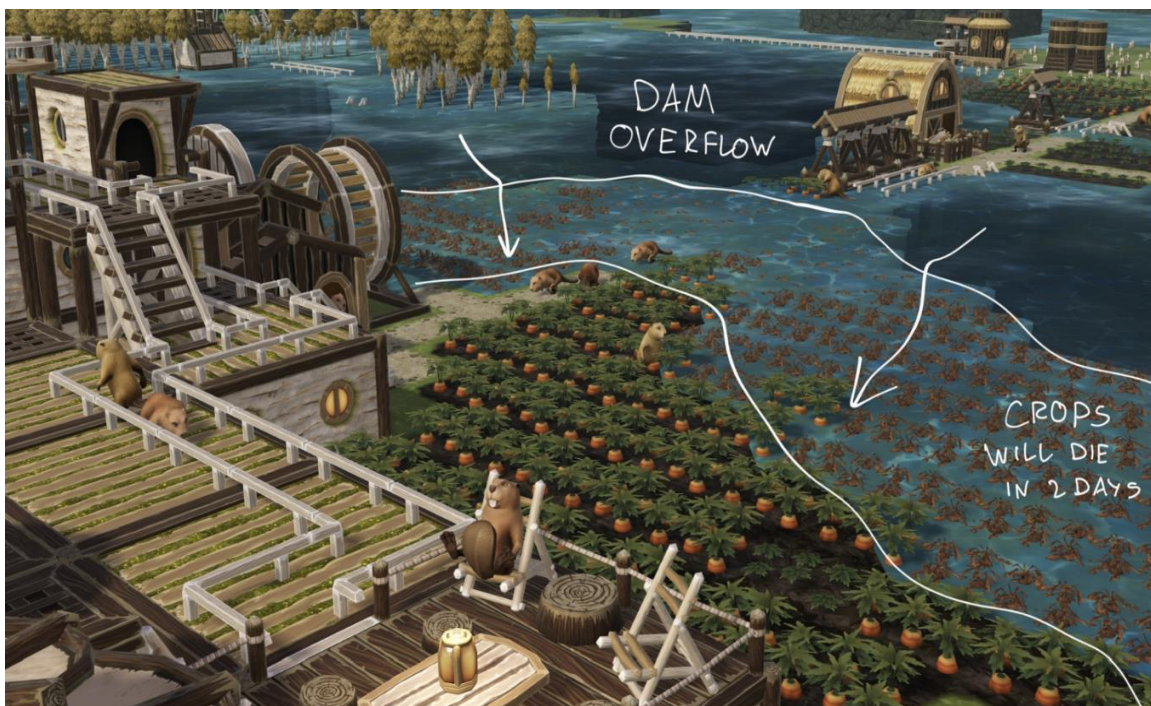

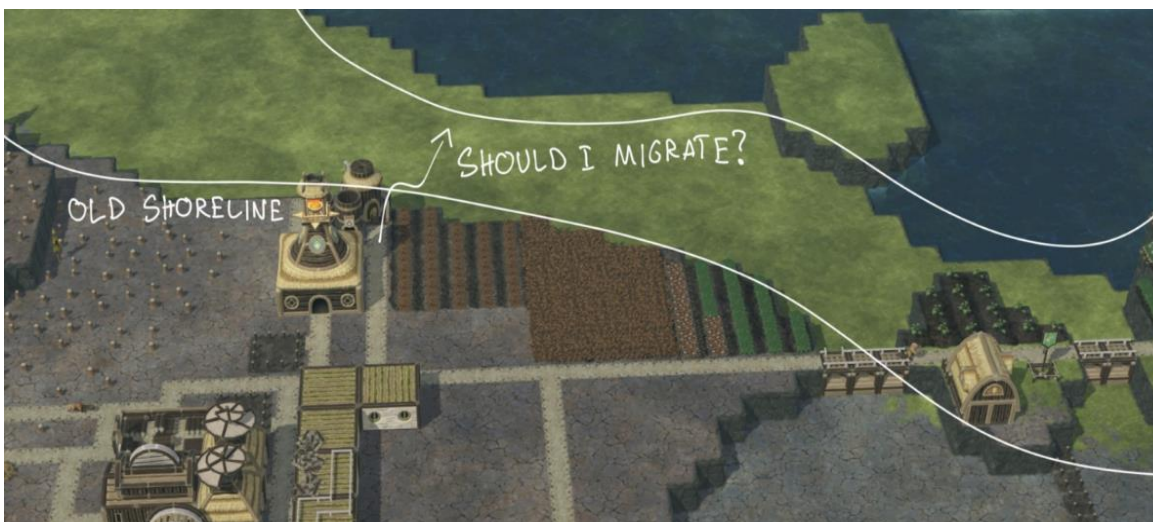**Figure 7**: Sketching more-than-human crossings

Figure 8: Sketching more-than-human crossings

5.3. Flows

At a certain moment in my playthrough, I reached a point of sufficient food security where I was not threatened by immediate concerns such as hunger, nor was I any longer caught off guard by the droughts that used to force me to cross into new territories for survival. At this point, instead, the gradually lengthening dry seasons required me to be less reactive and to start acting on a new, larger scale. I found myself zoomed out from the beaver settlement, trying to situate myself in the broader flows of the surroundings. My first dam served as the initial field for experimentation, helping me understand how, and where the water was flowing from (figure 9). I then started preparing for the lengthening dry seasons by making more intricate dams, scheduling the pools and ponds that I could build (figure 10). Here, beaver-play became apparent as a specific feeling of scale, which I could express through the spatial activity of flowing. By sketching curved arrows, interruptions of flows, and dammed pools, the sketching activity became a way for situating myself alongside larger-scale environmental processes.

One of Overend's collaborators, Laura Bissel, found herself adopting a more-than-human frame of mind by paying close attention to the water [5]. She was inspired by all the possible ways that beavers build by ear, following the sound of noisy water which elicits in them the urge to dam. Bissel and Overend observed how trees lay in horizontal intersections across the submerged architectures, which beavers use as sanctuaries for safety and access to food. Overend and Bissel listened to the trickle of the water and the flows which beavers harness to float branches downstream [69]. Timberborn affords a similar, heightened sensitivity to the dynamic of water, how it flows, how it pools, and how far it seeps into the ground, as well as, crucially, where it comes from. In the process of sketching, the edges of the map also determined the edges of my canvas, which I could speculatively draw beyond, imagining a broader environmental context for the river's flow.

6. Discussion

In the following section, we first reflect on the performed beaver-play, defining it in the context of
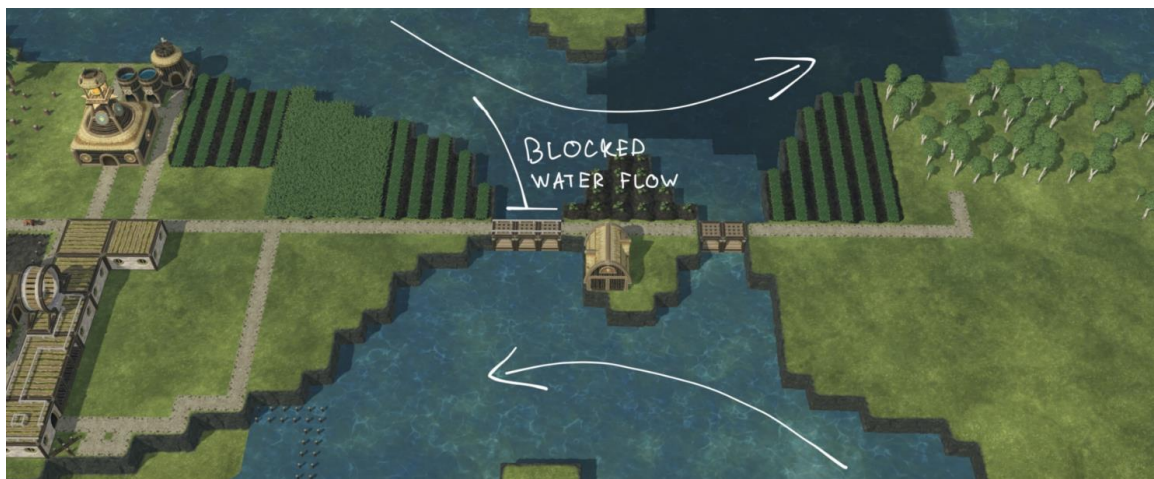

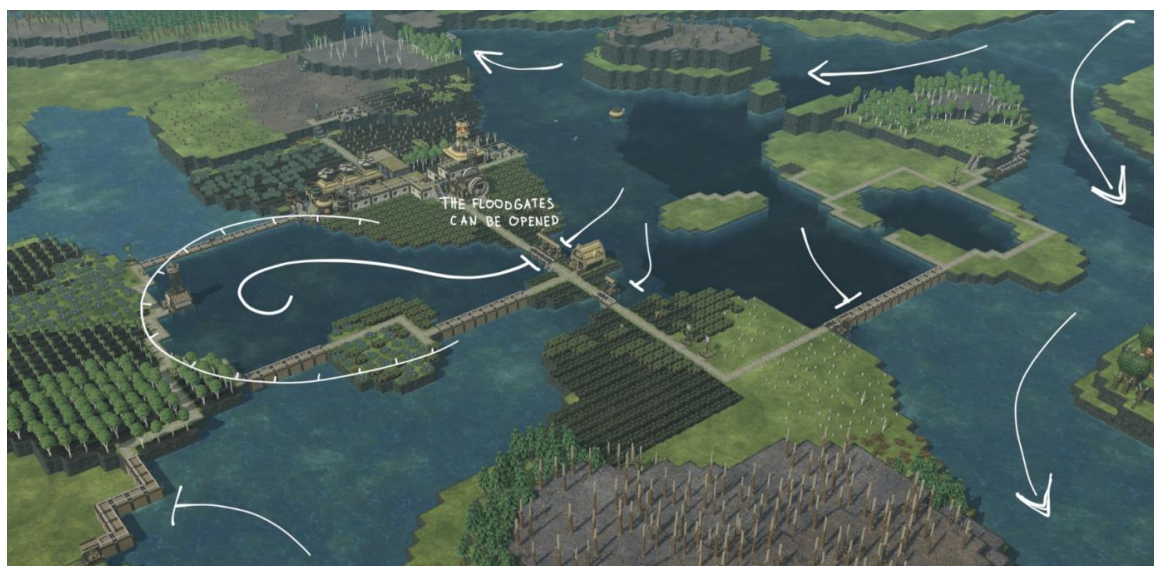**Figure 9**: Sketching more-than-human flows

Figure 10: Sketching more-than-human flows

more-than-human cartography. Then, we extend our investigation to consider the broader implications of using video games as cartographic, performative spaces for more-than-human meaning-making.

6.1. Beaver-play

The kind of beaver-play we engaged in goes beyond the portrayal of beavers as mere industrialist masterbuilders, ecosystem engineers, and tireless workers. In our study, playing as beavers allowed us to perceive the river's emergence as an environmental actant, rhythmically supporting or threatening the colony. Three modes of beaver-play were identified that helped us recognize this emergence: *concerns*, *crossings* and *flows*; three modes of play for spatially organising with the territories of the river. We've captured these modes in figure 11, which illustrates how beaver-play is characterised by spatial movements, like connecting concerns, crossing out and over into new territories, and following large-scale, durational flows. Through these *concerns*, *crossings* and *flows* players are subject to a constant process of territorializing and being deterritorialized, which draws attention to the ways in which lands are claimed and reclaimed throughout play.
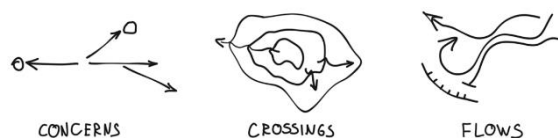

Figure 11: The three modes of beaver-play that give rise to more-than-human cartographies in *Timberborn*

The three modes of beaver-play are inspired by the boundary-crossing, place-making spirit of the beaver, but we are sceptical of the connection between real beaver behavior and beaver-play. The introduction of roads into the game, although misrepresenting real beavers, does not undermine beaver-play, even if, in reality, "beavers don't walk on roads". Additionally, in *Timberborn*, two types of beavers serve as playable factions: *Folktails* – the default beavers, and *Iron Teeth* – who are even more industrious, capable of producing automated bot-beavers. Interestingly, the play-style for each faction differs only minimally as similar *concerns, crossings* and *flows* emerge through play with either faction. Crucially, whatever the choice, play progressively locks you into rigid, immobile spatial arrangements.

As we will explain, in this regard, *Timberborn* is no different from other contemporary map-based games. The study 'On Being Stuck in Sid Meier's *Civilization'* performs an analysis of the way technological advancement locks the player in place [70]. Mol, Politopoulos and Lammes argue that the more you play the game, the less free you become, as technological progress locks you into one specific way of playing with progressively less freedom to experiment with alternatives. This study is built on the anthropologist David Graeber and archaeologist David Wengrow's concept of 'play-farming' which describes the flexible way in which our ancestors switched between farming and hunter-gathering depending on

seasonal, long-term fluctuations in the climate [71]. This type of ecological fluidity allowed our ancestors to switch their modes of production, and with it, their different socio-political structures, when it suited them.

For Graeber and Wengrow, play is the underlying mechanism behind the cultural practices and creative freedoms that keep us from getting stuck in unsustainable modes of production and organisation. Beaver-play can be understood as a kind of spatialized model of this type of play. It can be defined by its experimentation with spatial arrangements and territorial fluidity, manifesting in the ability to cross through, in and out of ecosystems, across and within planetary flows. However, evidently beaver-play too can cease to be play when it becomes stuck, and loses its experimental quality. This happens in *Timberborn* when player settlements—now beaver-cities—become cemented, and it becomes too costly or laborious to move in sync with the river.

6.2. More-than-human cartographies

Timberborn is a game designed for entertainment, not a teaching tool. Nevertheless, as our experience demonstrates, it has valuable lessons to teach us about the use of maps as performative spaces. By adding to the map, both in gameplay and through sketching, we were able to draw out the more-than-human relationship between the beaver colony and the river. This is important, as video games have been criticised for fostering an impersonal, detached, instrumentalizing gaze [72]. Such modes of visuality, perpetuate the logic of domination over nature. The designation of protected areas, the enclosure of territories and the delimitation of animal movement have become common responses to human-induced ecosystem collapse [73]. Such designation of territory and space further entrenches dominant power dynamics and existing institutional extractivist interests [74]. In response, geographers have been re-evaluating their cartographic practices, seeking instead to use maps as performative spaces where nonhuman influences and more-than-human commitments emerge [75, 76]. The sketched-on screenshots from *Timberborn*, give evidence to the potential of such performative spaces for reflection. Sketching, as a process that documents its own creation [61], resulted in snapshots of specific spatial arrangements, while documenting the mechanics that allow such spatial arrangements to exist.

In considering video game spaces as performative spaces for more-than-human meaning-making, we follow in the line of thought of Ralph Waldo Emerson, who describes poetry as having the ability to "magnify the small" and "micrify the great" [77]. Alenda Chang continues by referring to video games as having the ability to model both microscopic and galactic scales of sustainable action [78]. To scaffold the players taking such perspectives, video games use maps, interfaces, or HUDs (heads-up displays) to evoke a non-human field of perception, which might include scent-vision to represent the sense-world of a dog [1], or other tricks to evoke animal subjectivities [79]. Distinct from such

perspective-taking game mechanics, beaver-play scaffolds the territorial, the cartographic acts for more-than-human engagements.

7. Future work

Potential future work includes the use of beaver-play in the spatial analysis of video games. As more contemporary games introduce climate change as an environmental factor in gameplay, beaver-play may be used to evaluate how such environmental factors facilitate dynamic player relationships to the environment, how play consciously positions us in more-than-human worlds, and the fluid processes of creating and losing territory. In such analysis, beaver-play could be considered within the realm of mods (moddable additions to games), drawing inspiration from studies where modding was used to disrupt colonial gameplay [80]. As modded intrusions into existing video games, beaver-play could serve to disrupt spatial arrangements. The development of a mod could be accompanied by a more in-depth autobiographic methodology. While our current approach utilises cartographic sketching as an analytical tool to unpack game mechanics in the manner of a close reading, future investigations could employ more autoethnographic perspectives [81] to validate the characteristics of beaver-play and the more-than-human sensitivities that they evoke.

Secondly, we see potential future work in exploring beaver-play as a cartographic practice in disciplines other than games. For example, in the processes through which performance artists are engaging with earthly agencies [82, 83] or, in parallel to the literary efforts that situate the living present within the deep past and planetary future [84]. Moreover, the fields of design and Human-Computer Interaction (HCI), have similarly reevaluated their anthropocentrist perspectives by exploring more-than-human approaches [85]. Recent design methods engage elements such as solar energy [86], wind [87], soil [88] or the forest [89], where beaver-play can be performed to critically evaluate how practices redraw and redraw territory. As cultures arise in and out of play, we encourage further investigations into the role of play and games in the creation of worlds that go beyond the human.

8. Conclusion

In this paper we developed the notion of beaver-play as a mode of playful territorial fluidity with experimental spatial arrangements. We highlight how beaver-play can afford more-than-human engagements such as the intersections of ecosystems and territories of a river system. By intertwining playing and sketching, more-than-human cartographies emerge as a performative practice capable of situating the player as acting within and alongside larger-scale environmental processes. As we discuss the broader implications of using video games as cartographic, performative spaces, we uncover disciplinary tensions between game studies, performance art, cartography and design.

Acknowledgments

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