

Emergent Participation in DIY Designed Bike Trails

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ABSTRACT

This paper details early findings from our exploratory research on bike trails and the people who build, care for, and use them. The paper contributes to understandings of participation in punk and DIY cultures by engaging with a context outside the traditional realms of PD to learn about existing forms of (non-)participation. We outline three themes from the initial field work: First, the kinds of participation involved in designing and building the trails, including non-participation of those outside the community. We engage with the problems of participation in a DIY (un)commons that is often illegal and therefore fragile. Second, we look to grassroots moves to increase participation in these spaces and the reasons for doing so. Finally, we speculate on an aim to develop a symmetry, whereby academic attention to these spaces and practices may contribute to the community rather than only extract information.

CCS CONCEPTS

• **Human-centered computing** → Interaction design; Interaction design process and methods; Participatory design; • **Social and professional topics** → User characteristics; Gender; Women.

KEYWORDS

DIY design, commons, emergent participation, bike trails, spatial agency

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1 INTRODUCTION: WHAT HAS THIS GOT TO DO WITH PARTICIPATORY DESIGN ANYWAY?

Trails for BMX and mountain bikes (following local parlance what we refer to as ‘spots’) are dirt tracks and jumps painstakingly designed, built, shaped and maintained by hand using shovels and

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wheelbarrows by small communities of trail builders. The practice is relatively accessible, requiring little money, typically utilising small suburban plots of land. They exist all over the world and are often connected by their builders and users physically travelling to visit each other’s spots, and via social media.¹ Many are built in secret often on private land without prior permission from landowners, meaning they can be precarious, fragile, and are often removed, bulldozed, and illegalised (much to the distress of the local builders).²

Ezio Manzini (among others) has previously questioned and problematised what designers do when ‘everybody designs’ [33], and this research takes the provocation seriously to provide a situated account of a specific group of trail builders to analyse how they design their spots, and the kinds of participation they are the upshot of. These spots represent a fruitful space for studying participation for (at least) three key reasons. The first is that we have found that the ‘end users’ (bike riders) of the ‘technology’ (jumps and trails) *already have* a direct influence on its implementation and use offering an interesting and novel setting for PD to learn from.³ We do this by thinking through trails spots in relation to the commons, to unpack the ways a group of people work together outside capitalist patterns of consumption or exchange to design, build and use space together. Second, that often in doing so *some* forms of participation are severely constrained due to the spot’s illegal and fragile status, reminding us that participation (or the *wrong* kinds of participation) can also be a threat to certain communities. Third, that as some spots change in legal and political status, locals have begun to develop ways of increasing participation by adjusting the architecture of the space and their associated practices (like training). We argue that in doing so these builders shift to becoming emergent participatory designers by re-designing and reconstructing aspects of their spots. In this short paper we build on a tradition of viewing participation (and perhaps also participatory design) as a matter of concern [3] and seek to unpack these three themes by analysing the ways trail building practitioners describe their practices in interviews.

¹In recent years these have migrated to Instagram, YouTube and Facebook, but in the earlier years of the internet took place on specific forums set up by the builders and users themselves. These media spaces also provide a rich source of material (e.g. interviews, photography archives) that could be drawn on in future studies, but is not something we discuss further here.

²We have found that trails are often built in spaces left over after planning [37], and in post-industrial landscapes or ruins [42]. An exploration of these spaces represents further space for research that we hope to continue.

³Of course, we recognise that the technologies and concerns from the early days of PD are very different to the technologies of BMX bikes and piles of dirt! The point is that we find approaching these spaces with the conceptual tools of PD helps our thinking. Therefore, we take a Stengerian [39] approach to think through a specific becoming together of participatory design and trail building.

The project is in an exploratory stage where we have conducted semi-structured interviews in late 2021 with builders and users at Holmen Dirt in Copenhagen, Denmark (which has been threatened with imminent removal), and two spots known as Posh and Catty in Pennsylvania, USA (both of which have now been legitimised after existing illegally for around two decades).⁴ The first author also has several years of experience with these spaces, having both built and ridden bike trails for around twenty years, hence there is a certain amount of reflexivity built into some of the findings and analysis of the project. This has also provided important points of access to a practice that often takes place in secret and among a small and tightly knit subculture.

The paper is structured as follows: In part I we unpack the empirical material through notions of ‘commoning’ and ‘un-commoning’ to discuss the forms of participation that have taken place in the construction and use of the spots, and how the emerging architecture of them enforces particular kinds of participation. In part II, we then point to more recent developments, and what we term a ‘change of the guard’ that is re-ordering and challenging existing practices. We speculate that this points to their user/builders becoming participatory designers by accident. There is a not an assigned section on related work; this is instead referenced in alignment with each specific argument in the paper. Finally, in the spirit of exploratory work we resist concluding or summing up the paper, and instead point out prosperous/promising research outsets and avenues for continued discussion.

2 PART I: (NON-)PARTICIPATION IN THE (UN-)COMMONS

As alluded to in the introduction, the notion of the commons helps us to think of these spaces, and the ways they emerge from DIY, self-determined communities using appropriated land [32]. But as Brian from Posh woods (Pennsylvania, USA) sets out below, participation in the commons of trails spots has often been highly policed:

‘You didn’t go down there unless you knew somebody, or you got the OK from somebody. So, there are a lot of stories about kids coming down and getting their bikes thrown over the fence, or into the creek [...] or just screaming and yelling, “get out of here”, “you got to dig!”’

The design and construction of the trails at Posh has in the past sought to exclude users from outside the core local group by way of some of the intimidation and exclusion tactics described above. However, Carley (who we will later find was one of those excluded by these practices) offered some nuance to this and could sympathise with the protectionism and exclusion enacted:

‘when trails get ploughed, people’s lives stop for a long time. Something died, [they] lost something that [they] invested so much into. People don’t get that unless you have a spot ploughed. You have no idea

what that feels like. [...] when people are so protective of trails and people coming in, it’s because of that experience of loss.’

The problem that Carley describes is that too much participation (or perhaps Too Much Democracy in all the Wrong Places [28]) could potentially bring unwanted attention and jeopardise the future of the spot. These practices of exclusion then begin to echo Hardin’s [25] *Tragedy of the Commons* (often cited as a precursor to neo-liberal politics), who argues that the protection of private property and the enclosure of commons is in the best interests of the population. Of course, the notion of the ‘population’ here is the small number of builders and users of the spot, that seek to some degree to enclose the land by way of reputation, so that it can be kept secret and avoid unwanted attention. Digging deeper into the commons literature Linebaugh [32] argues that Hardin’s reading of the commons is a misrepresentation, and that commons almost always involved some sort of governance (see also Ostrom [36]), such as fines for grazing too many animals; though the commons were technically open, there were certain rules to be adhered to so that the land would not be overwhelmed.

We find that trails spots begin to thicken discourses on participation in the commons, whereby the spirit of building on or reclaiming land for a ‘publics’ use (which in the past may have come from a politically motivated group concerned with subsistence, e.g. the Diggers [26]) is simultaneously one of appropriation and enclosure for a public concerned with play and fun.⁵ In which case, these spaces represent a conceptual thorn in that they are not ‘enclosed’ or made private by the construction of walls or fences, but they are not quite the opposite – a commons that is open to and equally accessible to everyone. Instead, they exist on appropriated, or squatted land for the use of a group of participant/users who put in place relatively strict rules around who can use them and when. Therefore, these spaces provide a lens to reflect on when participation might be damaging and (perhaps provocatively) force us to consider the merits of exclusion and restriction. Though it is beyond the scope of this paper there are arguably several instances whereby exclusion is necessary in order to protect sacred or natural spaces, to re-wild damaged land, or to prevent damaging practices related to access (which might also include building illegal trails).⁶

This problem also relates to the labour that is required to keep a spot running. As Brian alluded to above, the phrase ‘No Dig, No Ride’ is common parlance in the community, meaning that one must *earn* their fun (but not in capitalist or monetary exchange) and those who show up in the summer to ride their bikes without contributing to the spot’s maintenance (known colloquially as ‘dry guys’) are often asked to leave. Seen in this light, commoning should be thought of (and is far more useful to us) as a verb rather than a noun [31], whereby it is the community’s practices of digging and building, excluding and inviting, that create the commons rather than a space or set of resources that is set out a priori. Instead, the commons is continually made and unmade, adjusted and maintained in dialogue (and sometimes exclusion) with various actors in the

⁴None of the participants cited in this paper have asked to be anonymised (which we have respected). We attribute this partly to these particular spots now being legitimised and made legal (meaning it is less important for them to remain secret), and partly because we want to give credit to the builders for the work that they put into their communities.

⁵See also Tom Critchley’s excellent discussion of skateboarding ‘commoning a post-capitalist future’ [16].

⁶An excellent example that one reviewer of this paper suggested is in the building of illegal motor bike and 4WD trails in the country where they are situated, which have a disastrously negative impact on native wildlife.

community. This is especially pertinent because these spots require a constant maintenance and care to function, meaning they are always changing and being re-designed.

2.1 Exclusion by architecture

Blaser and de la Cadena [8] have also pointed out that the commons is made up of and relies upon non-human actors — the features and jumps that make up the trails participate in the cosmopolitics of the place. They argue that the concepts of commoning and uncommoning are helpful for attuning towards forms of more-than-human life [43] that these spots share; an ‘ecology of divergent practices, becoming together’ [14]. Paying attention to the non-human actors in the commons also points to the ways that the architecture of these spots structure the forms of participation that are (com-)possible [17]. For example, the jumps and features of the trails dictate that a certain expertise, skill, or daringness is required to make use of them.

We might understand this as more of a side effect of the skill of the builders/riders rather than an explicit exclusionary tactic, but what is clear is that many features can only be used by the most skilled. As Brian outlines describing how Posh has historically been perceived:

It was just big jumps, so it was intimidating for the random person to stumble down there. (Brian)

Indeed, the architecture of the space itself is supposed to be intimidating and scary — this is part of the fun, and what gives the users a thrill or enjoyment. Having said this, in the interviews conducted so far there have also been some movements to redesign the space and take account of different people and abilities through the built environment that we will get to in part II.

2.2 Separationism and gender

It’s a really male dominated — white, suburban, young dudes in the woods — and there’s a huge demographic missing (Brian)

In addition to the architecture and the explicit exclusion of outsiders we have found some implicit and perhaps wider reaching forms of separation and exclusion, for example by gender. An example that has emerged from the initial interviews relates to the highly asymmetric gender relations, whereby trails spaces are often dominated by white CIS gender men, echoing previous work on feminism and lifestyle sports [41].

Carley describes an encounter she had at Posh:

I went with my brother. . . I had no intentions of riding, but I brought my bike because we were on a trip and [the locals] all looked at me like, “Why is she here?” I was like, “Whoa, Oh. Where do you want me to go? You want me to go sit in the car?!”

A number of accounts of extreme sports and feminism have taken up a separationist perspective, for which there are several overlaps with the punk, DIY aspects of trail building. The problem of punk and DIY is that it often maintains a position of white hetero control, or as Dani Abulhawa has explained in relation to skateboarding’s resistance to ‘corporate involvement on the basis of maintaining “core” skateboarding values’ has largely been ‘about

ensuring that legitimate skateboarders (and typically this refers to a predominantly White, male positionality) are able to maintain control over skateboarding culture’ [2]. When seen in this way one could argue that the practices involved in building trails also resembles an uncommoning by virtue of who they exclude through not only the implicit structures like the concrete (or rather dirt) reality of the space itself and explicit practices, but that there is some deeper or underlying separationism set out around gender.

We have not been able to uncover what this *is* at this early stage of the research, but tentatively suggest that this comes ‘baked-in’ through the specific kinds of macho punk culture that many extreme sports emerged from (see for example Iain Borden’s discussion of misogyny in skateboarding [10]). Having said this there are now growing efforts that are mainly spearheaded by womxn and gender non-binary people to involve a more diverse public in trails spots, for example by arranging specific events to invite and include new users, and those previously excluded. This move is relatively recent, and somewhat lacking when seen in comparison to other lifestyle sports, for example feminist discourses in skateboarding [1, 2, 4, 6, 7], surfing [35], and snowboarding [40]. This means that we see potentially fruitful collaborations, and spaces for developing discourses in the ways that fragile, precarious, and secret practices can involve and invite previously excluded participants.

Drawing on the (un-)commons and its ongoing enactments provides us with a view of trails spots that is continually made and unmade, maintained and cared for by a core community. By taking this viewpoint into part II we will outline the ways certain practices are opening to new publics, and as we will argue, that by virtue of their *practices* many of those that were trail builders are becoming participatory designers.

3 PART II: CHANGE OF THE GUARD: EMERGENT PARTICIPATION

There’s this fear that there’s going to be a disconnect that when this group of legendary trail builders are all done [. . .] who’s going to come up and take over the trails?! (Carley)

In the interviews we have found that these spots are slowly shifting from what in the past have been hyper-masculine, often closed off and exclusive spaces, and are carefully developing ways to be inclusive and welcoming to a broader range of users (riders), diggers, and others. As Brian puts it:

‘I think you’ve got to put the beacon out there, and we’ve been trying to do that and been making it more accessible and more inviting to younger people, to women, to girls.’

In this research we have found that our interlocutors describe something of a ‘change of the guard’, whereby they are actively organising and re-designing spots, jumps, and lines so that they might become more open to new publics. Based on this observation, we will argue that many of the locals have found that they need to involve different (and more) of the community so that they can be made sustainable, and in doing so have become proto-participatory designers. However, this is not necessarily universally accepted.

Behroz at Holmen Dirt (a spot that has been just outside the Anarchist commune Freetown Christiania in Denmark since the late 1990's) explained that after much internal debate they decided to form a union (similar to a charity or non-profit company) to not only maintain their spot, but to expand it by applying for resources from the municipality:

From the start we didn't want to get picked up by the commune too much... But then, you know, if we do it like that, you don't get to grow, you don't get to get really good facilities. [. . .] It was hard for the community to resolve because you get different factions, you get a faction that want to keep it low and then you have the faction with me where we wanted to go for the stars.

This also points to tensions within the community whereby the punk and DIY roots are somewhat replaced with a practice of administration and organisation. Behroz explained to me that this process of legitimisation also lost him a lot of friends, and in the immediate aftermath many members of the community began to drop out (though numbers have now increased from forty before the spot was legitimised, to 300).

Brian went onto to describe how Posh and Catty trails (Pennsylvania USA) becoming legitimised and legal means that the locals now have certain obligations to their on-going sustainability. For example, a key to trails spots becoming legitimised in the US is that they must take out liability insurance on the land so that if anyone is hurt the landowner is not liable. Brian explained that the local's labour has recently shifted from the countless hours using a shovel and wheelbarrow building and maintaining the trails, and now includes navigating legal agreements relating to the land and the spot's non-profit status, as well as organising events to raise money to pay for insurance. Brian re-counts when they first applied to have the trails legitimised:

I mean, we had a whole PowerPoint presentation [. . .] and presented [the landowners] with all that stuff and they were like, 'Wow, we're we weren't expecting that, we thought we were just dealing with kids in the woods. This is great!'

Now they are legitimised, the insurance bill for Posh and Catty is roughly US\$10,000 /year — an amount that would be easier to raise with more regular users and contributors. Echoing Carley above, he went on to explain the problem that trail builders are largely an aging population, that many of the original riders are retiring or injured, and that younger riders have not come through to replace them. This has been exacerbated he explained, because there is now a concrete skatepark nearby that didn't exist when the trails first started (Posh is 27 years old this year) which is often more attractive to younger riders because they can ride when they like without having to put labour into building and maintaining a DIY spot.⁷

As we described in part I, over the years some less experienced riders were intimidated and avoided Posh, and though this has changed recently, it has taken some time to shift the reputation in such a niche community. Historically new riders could only ride or

dig at the trails if they had been invited, and while nowadays one of the locals needs to be present to unlock the trails and supervise new riders (this is now a safety concern, and condition of the insurance scheme), they are actively open to new users and new builders who they encourage to participate. However, the above combines to mean that the younger generation that we might expect to get into the sport in the ways that previous generations did out of necessity aren't coming. Instead, locals have talked about coming up with strategies for opening the trails up and providing accessible routes into the scene.

3.1 Architecturing

Behroz at Holmen Dirt provided several examples of activities that the locals developed to increase participation. For example, they recently built an all-weather pump track that they deliberately positioned so it is visible from a path running alongside the trails, in the hope that young people, parents (and so on) will see the accessible track and be attracted to join in with the local scene. Behroz also described other initiatives, like womxn and non-binary only sessions, a summer camp, and the non-profit they setup has won grants from the city to buy rental bikes that can be borrowed for free by those who want to try out the sport.

Carley sees these architectural initiatives as an important step to making the space more inviting and accessible:

If you make a spot that's public, I think the first thing you should see when you come in is a pump track because you'll see parents riding with kids on striders on the same obstacle, and that is very comforting to anybody. Think of a dog walker that's walking by and sees a toddler on a pump track — there's no way they can hate the pump track!

Similar to the ways that Holmen have adapted the trails to involve new riders, at Posh and Catty, Brian explained that they have recently built a small and safe beginners line, and another local Taryn recently built a line called 'The Secret Garden' in an area of the trails where newer riders can practice without feeling that they are on show to avoid the intimidating feeling of being watched or judged by experienced users (Figure 1). Similarly, Catty Woods also has a pump track where young riders can practice and grow confidence (even on balance bikes), and a set of lines that progress in difficulty from tabletops up to small doubles for those getting started.

We are tentatively calling this practice *architecturing* that we position on a spectrum with infrastructuring in PD [19]. We find this notion useful to understand how the material architectures made by its user/builders structure the kinds of possibilities and 'performances' enacted upon it. Architecturing then, is concerned with building structures that dictate how and by who or what something can be used, and infrastructuring, a democratic strategy to empower those otherwise not included. We find that this spectrum enables us to see the various forms of spatial agency [5] that entail both the forming of the architecture by a 'body', and what it enables a body to do (and not do), or its com-possibility [17]. Importantly we do not argue that these practices are fixed (as one or the other) but that as we described in relation to the commons, they are in process and being made and unmade with various 'hands'. As we

⁷See also Ocean Howell's [27] discussion of the skatepark as 'neoliberal playground' that we could frame in comparison to DIY spots.

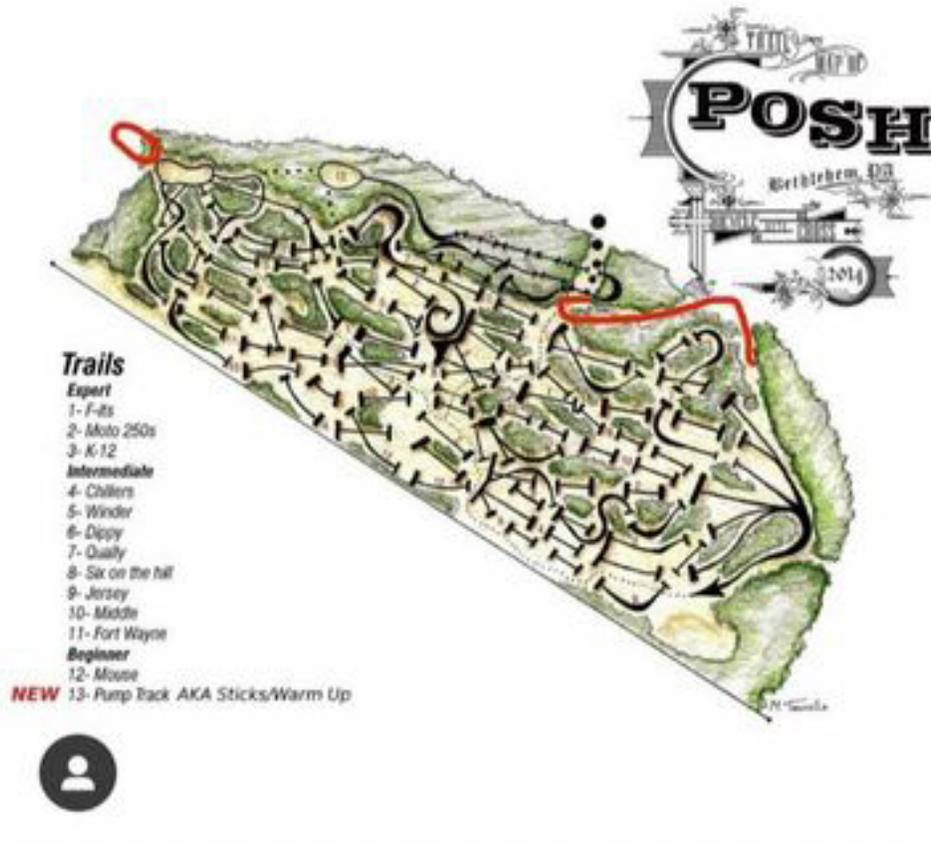


Figure 1: Map of Posh woods showing the secret garden (in red) and new pump track (red circle). Image credit: Matt Tanicello

can see in the above, these spots are moving from architecturing towards infrastructuring by making the trails and the people using it blur and blend with its neighbourhood.

3.2 Learning to become a user

In addition to the architectural changes, we have also found locals organising events and training to introduce those that have been previously excluded. For example, an annual ‘Women’s Weekend’ [30] which involves various activities and competitions centred around encouraging womxn and non-binary riders into the scene. Carley suggests that it is not enough to make a spot public or architecturally inviting and requires more work, for example through education which she has developed with a program she runs: *Ride Like a Girl*.

The problem is, is that unless you teach your girl how to jump, she won’t try, and then she’ll show up to somewhere like Posh and be intimidated.

Carley argues that the embodied knowledge of both riding and building a trail needs to be shared through a concerted effort with

those that are unfamiliar because the practice of using the trails is not ‘natural’.

[We’ve been] doing coaching classes and teaching people how to build jumps so they can see what they could do. I feel like we’re doing a good job of that because the kids that I coach that race BMX now have jumps in their yard.

The history of PD is intertwined with practices for mutual learning [20] and radical pedagogies [23], so while this might be novel for a community that centres the *Yourself* in DIY, we find that this is a key example whereby Carley becomes engaged in a kind of participatory design practice by engaging with (embodied) local knowledge production. In the past this kind of teaching might have been dismissed as being against the particular male, individual spirit that trails grew from in the 1980’s and 90’s. Indeed, we find this in one of the few academic papers written about the design of BMX trails where the authors critique the corporate mainstreaming of trail building by the shoe company Vans by contrasting a local spot to the dirt jumps at one of their skateparks [38]. But here, it is those who participate in organising and sustaining the counterculture of



Figure 2: The debate organised by Holmen dirt featured five politicians from a range of parties.

trail riding and building that are tentatively ‘mainstreaming’ the scene; if we take that to mean broadly increasing participation to become financially sustainable and increase capacity through the practices of re-designing architecture, and coaching.

It strikes us that the male dominated attitudes that historically characterised trail building is misplaced. The history of alternative culture, and punk has been closely linked with dismantling dominant (e.g. patriarchal, misogynistic, homophobic, racist) power structures by providing the structures for participation and mutual learning [18].

At Holmen dirt in Denmark we also find an engagement with more traditional forms of politics. In late 2021 the locals had arranged an event and debate with five potential candidates for local councillors (Figure 2). The trail builders set the theme of the debate around the future of cycling in the city which allowed them to discuss the future of their spot in front of an audience of the users and nearby residents. By the end of the debate all of the local politicians had pledged to support the trails going forward, and our hunch is that without working to involve a broader local community it would have been far more difficult to gain this level of support.⁸

As a final point we want to reiterate that the commons still has to be treated carefully. Reflecting on an earlier draft of this paper, Carley explained some of the tensions that the community feels in inviting participation:

It’s hard because when you start adding things that are accessible [...] you sometimes invite the unwanted [...] there’s always a bad seed that could ruin it for everybody.[...] So it’s really hard to open your heart

This is a reminder, that the commons is complex and made up of many interests. It can also be extremely fragile, and care is required when it comes to inviting new participants — as we found above, the commons will continue to need a certain amount of governance (as well as the energy and care of groups of ‘locals’) to keep them functioning. We also want to stress at this point that we do not adopt a normative position that increasing participation is good, and excluding is bad, but instead seek how the practices of inclusion and exclusion are employed to take care of a spot and its users.

4 EXPLORATORY CONCLUSION

In the spirit of an exploratory paper, we offer a somewhat unconventional conclusion pointing to some ways that this project might develop, and what we plan to do next. The first is that we are interested in developing the ways that PD can engage with trails spots symmetrically, where on the one hand we (architects, designers, planners, and so on) can gain knowledge by looking towards what people *already do* in (sub-)urban spaces, and what might be learned from that. On the other hand, that trail builders might benefit from better understandings and academic discourse in order to convince typical power holders (e.g. planners, land owners) of the value

⁸Having said this, the spot is still sadly under threat, and an ongoing campaign to keep the spot can be found at: <http://change.org/SaveHolmenDirt>

of these sites. We are persuaded of this when looking to fellow travellers' in skateboarding, for example Borden's [10] work on skateboarding and architecture has been taken up theoretically by both architects and skateboard activists to campaign for and instate new and existing skateboarding spaces [11–13].

As well as this, we see the potential for the theory used to conceptualise these spots as potentially helpful in developing some of their ongoing participatory practices. For example, the notion of the uncommons could become a helpful tool because the concept can help us to understand how spaces such as woods and forests can become part of the commons at a time when the world is facing global catastrophe due to climate change. These spaces seem to offer small enclaves for observing how humans (bike riders) and non-humans (trees, plants, animals, and tracks) might live 'well' and co-become together [15].

Additionally, taking a capitalist realist [21] approach to trails spots, whereby an economic argument to re-wilding is foregrounded [34], these spaces also suggest some ways that wild-ness can be supported, and made politically viable over damaging practices such as agriculture or logging. A number of studies point to economic benefits of bike trails [9, 22, 24], finding that on the whole bike trails bring economic benefits, as well as 'non-market goods', e.g. wilderness, health, a clean environment, access to open space and so on [29] which we feel is an avenue of research (and design) that deserves further investigation.

Finally, we have also identified other spaces where forms of emergent DIY participatory design may exist, for example urban and guerrilla gardening, and we are excited to think through the ways the PDC community could (continue to) engage with these other existing sites and practices.

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REFERENCES

- [1] Dani Abulhawa. 2008. Female skateboarding: re-writing gender. *Platform: Post-graduate eJournal of Theatre and Performing Arts* 3, 1 (2008), 56–72.
- [2] Dani Abulhawa. 2020. *Skateboarding and Femininity: Gender, Space-making and Expressive Movement*. Routledge, London. DOI:https://doi.org/10.4324/9781003025740
- [3] Lars Bo Andersen, Peter Danholt, Kim Halskov, Nicolai Brodersen Hansen, and Peter Lauritsen. 2015. Participation as a Matter of Concern in Participatory Design. *CoDesign* 11, 3–4 (October 2015), 250–261. DOI:https://doi.org/10.1080/15710882.2015.1081246
- [4] Matthew Atencio, Becky Beal, and Charlene Wilson. 2009. The distinction of risk: urban skateboarding, street habitus and the construction of hierarchical gender relations. *Qualitative Research in Sport and Exercise* 1, 1 (March 2009), 3–20. DOI:https://doi.org/10.1080/19398440802567907
- [5] Nishat Awan, Tatjana Schneider, and Jeremy Till. 2011. *Spatial Agency: Other Ways of Doing Architecture*. Routledge, Abingdon, Oxon England; New York, NY.
- [6] Åsa Bäckström. 2013. Gender Manoeuvring in Swedish Skateboarding: Negotiations of Femininities and the Hierarchical Gender Structure. *YOUNG* 21, 1 (February 2013), 29–53. DOI:https://doi.org/10.1177/1103308812467670
- [7] Becky Beal. 1996. Alternative Masculinity and Its Effects on Gender Relations in the Subculture of Skateboarding. *Journal of Sport Behavior* 19, 3 (August 1996), 204–220.
- [8] Mario Blaser and Marisol de la Cadena. 2017. The Uncommons: An Introduction. *Anthropologica* 59, 2 (2017), 185–193.
- [9] Benjamin B Boozer and Mike Self. 2012. An Economic and Impact Analysis of the Coldwater Mountain Bike Trail. (2012), 73.
- [10] Iain Borden. 2001. *Skateboarding, Space and the City: Architecture and the Body* (1st edition ed.). Berg Publishers, Oxford England; New York.
- [11] Iain Borden. 2015. An Interview with Professor Iain Borden on the 'Long Live Southbank' Campaign and Skatepark Design from the 1970s to the Present. (2015). Retrieved December 6, 2021 from https://www.academia.edu/14302448/An_Interview_with_Professor_Iain_Borden_on_the_Long_Live_Southbank_Campaign_and_Skatepark_Design_from_the_1970s_to_the_Present
- [12] Iain Borden. 2018. University of Skate: A History of Skateboarding in Academia. In *Pushing Boarders*. London. Retrieved December 6, 2021 from <https://www.youtube.com/watch?v=1bFUqkXanbk>
- [13] Iain Borden. 2019. Skatepark Worlds: Constructing Communities and Building Lives. In *Skateboarding Between Subculture and the Olympics: a Youth Culture under Pressure from Commercialization and Sportification*, Jürgen Schwiwer and Veith Kilberth (eds.). transcript, Bielefeld, 79–96.
- [14] Marisol de la Cadena. 2018. Cosmopolitical zoo: a response to Tironi and Hermansen. *Journal of Cultural Economy* (April 2018), 1–3. DOI:https://doi.org/10.1080/17530350.2018.1456953
- [15] Jim Cherrington. 2021. The Ontopolitics of Mountain Bike Trail Building: Addressing Issues of Access and Conflict in the More-than Human English Countryside. *Somatechnics* 11, 3 (December 2021), 322–339. DOI:https://doi.org/10.3366/soma.2021.0363
- [16] Tom Critchley. 2022. Skateboarding in Jamaica: Commoning a Postcapitalist Future. In *Sport and Physical Activity in Catastrophic Environments*, Jim Cherrington and Jack Black (eds.). Routledge, Oxford.
- [17] Gilles Deleuze. 1988. *Spinoza: Practical Philosophy*. City Lights Publishers, San Francisco.
- [18] Stephen Duncombe. 2009. *Notes From Underground: Zines and the Politics of Alternative Culture*. Microcosm Publishing, Bloomington.
- [19] Pelle Ehn. 2008. Participation in Design Things. In *Proceedings of the Tenth Anniversary Conference on Participatory Design*, 92–101.
- [20] Pelle Ehn. 2017. Learning in Participatory Design as I Found it (1970–2015). *Participatory Design for Learning: Perspectives from Practice and Research* (2017), 7.
- [21] Mark Fisher. 2009. *Capitalist Realism: Is There No Alternative?* Zero Books, Winchester.
- [22] Peter Fix and John Loomis. 1997. The Economic Benefits of Mountain Biking at One of Its Meccas: An Application of the Travel Cost Method to Mountain Biking in Moab, Utah. *Journal of Leisure Research* 29, 3 (September 1997), 342–352. DOI:https://doi.org/10.1080/00222216.1997.11949800
- [23] Paulo Freire. 1996. *Pedagogy of the Oppressed* (2nd edition ed.). Penguin, London.
- [24] Nigel Hardiman and Shelley Burgin. 2013. Mountain biking: downhill for the environment or chance to up a gear? *International Journal of Environmental Studies* 70, 6 (December 2013), 976–986. DOI:https://doi.org/10.1080/00207233.2013.848531
- [25] Garrett Hardin. 1968. The tragedy of the commons: the population problem has no technical solution; it requires a fundamental extension in morality. *Science* 162, 3859 (1968), 1243–1248.
- [26] Ariel Hessayon. 2009. Early Modern Communism: The Diggers and Community of Goods. *Journal for the Study of Radicalism* 3, 2 (2009), 1–49.
- [27] Ocean Howell. 2008. Skatepark as neoliberal playground: Urban governance, recreation space, and the cultivation of personal responsibility. *Space and culture* 11, 4 (2008), 475–496.
- [28] Christopher M. Kely. 2017. Too Much Democracy in All the Wrong Places: Toward a Grammar of Participation. *Current Anthropology* 58, S15 (February 2017), S77–S90. DOI:https://doi.org/10.1086/688705
- [29] Kevin J. Krizec. 2007. Estimating the Economic Benefits of Bicycling and Bicycle Facilities: an Interpretive Review and Proposed Methods. In *Essays on Transport Economics*, Pablo Coto-Millán and Vicente Inglada (eds.). Physica-Verlag HD, Heidelberg, 219–248. DOI:https://doi.org/10.1007/978-3-7908-1765-2_14
- [30] Tasha Lindemann. 2021. SNAPSHOTS: Women's Weekend in the Woods - DIG BMX. Retrieved January 28, 2022 from <https://digbmx.com/photo-ops/snapshots-womens-weekend-in-the-woods>
- [31] Peter Linebaugh. 2008. *The Magna Carta Manifesto: Liberties and Commons for All*. University of California Press. DOI:https://doi.org/10.1525/9780520932708
- [32] Peter Linebaugh. 2010. Enclosures from the bottom up. *Radical History Review* 2010, 108 (2010), 11–27.
- [33] Ezio Manzini. 2015. *Design, When Everybody Designs: An Introduction to Design for Social Innovation*. MIT Press, Cambridge, MA, USA.
- [34] George Monbiot. 2017. *Feral: Rewilding the Land, the Sea, and Human Life* (Reprint edition ed.). University of Chicago Press.
- [35] Rebecca Olive and Holly Thorpe. 2011. Negotiating the "F-Word" in the Field: Doing Feminist Ethnography in Action Sport Cultures. *Sociology of Sport Journal* 28, (December 2011), 421–440. DOI:https://doi.org/10.1123/ssj.28.4.421
- [36] Elinor Ostrom. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action* (1st edition ed.). Cambridge University Press.
- [37] E. C. Relph. 1976. *Place and Placelessness*. Pion.
- [38] Robert Rinehart and Chris Grenfell. 2002. BMX Spaces: Children's Grass Roots' Courses and Corporate-Sponsored Tracks. *Sociology of Sport Journal* 19, 3 (September 2002), 302–314. DOI:https://doi.org/10.1123/ssj.19.3.302

- [39] Isabelle Stengers. 2013. Introductory Notes on an Ecology of Practices. *Cultural Studies Review* 11, 1 (August 2013), 183–196. DOI:<https://doi.org/10.5130/csr.v11i1.3459>
- [40] Holly Thorpe. 2011. *Snowboarding Bodies in Theory and Practice*. Springer.
- [41] Holly Thorpe and Rebecca Olive. 2016. *Women in Action Sport Cultures: Identity, Politics and Experience*. Springer.
- [42] Anna Lowenhaupt Tsing. 2015. *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton University Press, Princeton.
- [43] Sarah Whatmore. 2006. Materialist returns: practising cultural geography in and for a more-than-human world. *cultural geographies* 13, 4 (October 2006), 600–609. DOI:<https://doi.org/10.1191/1474474006cgj377oa>