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RESEARCH ARTICLE

Fire literacies: reading fire risks and histories in an Anthropocene harmscape

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This article explores how place-based learning and the development of socio-material place-literacies unfold in an urban settlement that regularly experiences runaway fires. We present a selection of verbal texts and photographs produced by community-based co-researchers in an informal settlement on the outskirts of the South African city of Cape Town. The assemblage of these multimodal texts reveals a harmscape in which fire is one of a complex set of intersecting and interoperating risks resulting from environmental, socio-historical, political and socio-economic factors. It also shows how those living within this harmscape have learned to read the traces of both future and past fires that are inscribed upon it. We suggest that attempts to reduce the harms caused by fire in such a space must recognise that it is not a simple problem of either the material or social environment, and that both its causes and consequences are multidimensional and extended. The development of such fire literacies is a powerful illustration of the pedagogical affect of repeated, ordinary, quotidian experience of place, where place has become an Anthropocene harmscape.

Keywords fire • place-pedagogies • place-literacies • assemblage analysis • harmscape

Key messages

- As the planet heats, runaway fires in urban environments are increasingly common, particularly in marginal and informal settlements.
- Photographs and texts generated by residents in a township in the Cape Flats region of South Africa show how they experience destructive fire as entangled with other social challenges.
- They also reveal how residents develop socio-material 'fire literacies', demonstrating the pedagogical power of an Anthropocene harmscape.

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Introduction

Destructive and deadly fire has become part of the landscape of marginalised settlements in South Africa's Cape Flats (Pharoah, 2009; Pooley, 2014; Sorensen, 2017). Fires in the region arise through the intersection of complex dynamics operating in multiple domains, including environmental, infrastructural and social (Pharoah, 2025), that coalesce in a moment of ignition. Their spread, containment and destructive impact are similarly dependent on multifaceted and often contingent factors, making them as unpredictable in their impact as they are in their outbreak (Gibson et al, 2022; Pharoah, 2025). The frequency of fire events in some parts of the Cape Flats has grown to such an extent that fire has now become quotidian – part of everyday, ordinary experience – and one of several factors that render the area into what can best be described as an Anthropocene harmscape (Berg and Shearing, 2018; Wilson et al, 2023; 2025). Such conditions are likely to become increasingly prevalent across the world as global temperatures rise and the number of people living in urbanised and informal settlements grows.

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The behaviours and knowledges of people living within these spaces are key factors in the emergence and evolution of fires (Pharoah, 2025), as these influence precautions and preparations, actions during fires and post-fire repair and remediation. A significant body of research has investigated the causes and potential mitigation of fires in the Cape Flats (see, for example, Walls and Zweig, 2017; Walls et al, 2019; Gibson et al, 2022; Pharoah, 2025), identifying dry and windy conditions, close-packed housing built from inflammable materials, and cooking and lighting practices as significant contributing factors. We complement this by focusing on fire literacies. Where fire outbreak is an ever-present possibility, inhabitants learn to live with it and minimise its impacts, but as noted by Pharoah (2025: 1), 'there is limited research on how people respond to fires in informal environments [and] their risk reduction capabilities', and the ways in which they learn from repeated experiences of fire.

Here, we start to develop an approach to fire literacies that draws on socio-material conceptualisations of landscape and water literacies (Somerville, 2007; 2013; Wilson et al, 2023; 2025). We use images and texts generated by community-based co-researchers living in a marginalised Cape Town settlement to illustrate how both potentialities and histories of fire are transcribed upon the environment and how those living within this harmscape have developed the place-based literacies that allow them to read and learn from them. We extend the methods of assemblage analysis (Feely, 2020; Wilson, 2021) that we have previously applied to photovoice data describing Cape Flats residents' experiences of flooding (Wilson et al, 2023) and water scarcity (Wilson et al, 2025) by synthesising photovoice data with excerpts from walking interviews conducted during a community mapping process. The resulting assemblage of photographs and words reveals the complex ways in which pre-existing dynamics of climate change, poor housing, xenophobia, poverty and crime entangle with infrastructural, political and social marginalisation to create the conditions of fire. They show both how fire both entrenches these configurations and dynamics; and, in its aftermath, creates short-lived openings in which space, materials and obligations are redistributed. They also show how inhabitants have learned to prepare for fire and to read the landscape for the causes, consequences and traces left by fire.

In so doing, we continue to develop the concept of harmscapes and the associated notion that place-pedagogies are not inherently beneficial, as the place-knowledges they cultivate and promote are always a reflection of the characteristics of the place they operate within (Wilson et al, 2023; 2025).

Urban fires in Anthropocene harmscapes

Weather conditions in which fires are likely to ignite and spread are growing more common as global temperatures rise. The risks posed by such conditions are enhanced in the marginalised and informal settlements that increasingly surround major cities of the Global South (Satterthwaite et al, 2020; Carrilho and Trindade, 2022). Informal settlements are those that have arisen outside the formal planning process. Typically, access to basic, formal public services – such as water and sanitation, electricity, waste removal and policing – are absent or at best limited, as in the site for this research, where municipal water is provided through communal standpipes and street lighting is sparse. The potential vulnerability of informal settlements to fire risk may be due to a range of reasons, including poor infrastructure and unsafe electrical connections, use of candles and open fires in the absence of electricity, and close-packed dwellings

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(Pharoah, 2025). This last factor is made worse by population growth, which is itself caused by a combination of rural-to-urban migration from other provinces and other African countries, alongside intra-urban and formal-to-informal population movement resulting from increasingly widespread precarity.

We suggest these socio-material landscapes can be usefully conceptualised as Anthropocene harmscapes (Berg and Shearing, 2018; Wilson et al, 2023; 2024) – that is, places in which 'a proliferation of both old and new harms that disregard fixed boundaries – temporal, spatial, and conceptual' (Berg and Shearing, 2018: 75) operate. This description applies to many parts of the Cape Flats region of South Africa, which is characterised by a set of hazards (especially flooding and fires) associated with the local topology, geography and climate that are exacerbated by the climate crisis (Ziervogel et al, 2014; Cinnamon and Noth, 2023). These environmental hazards intersect with factors arising from South Africa's complex sociopolitical history. These include profound spatial and land inequalities that are legacies of both colonialism and the racist apartheid regime; an intensely competitive economy of land that is the consequence of these legacies together with tribal and ethnic hierarchies; and the effects of weak post-apartheid governance (see, for example, Galvao Ferreira and Signe, 2014; Koelble and Siddle, 2018; Haque et al, 2021). Together, these combine to produce increasing levels of informality in the form of both informal settlements and 'backyard' dwellings, an increasingly common type of informal densification that occurs across the Cape Town city region (Jana, 2026) in both formal and informal settlements. Jana (2026) estimates that almost one third of a total of 1.45 million households live in one or other kind of informality, with 17.6 per cent in informal settlements and an additional 14.7 per cent live in backyard dwellings.

In the following, we explore the ways that frequent outbreaks of fire shape residents' experiences of living within one informal Cape Flats settlement. We analyse a multimodal assemblage of texts created by community-based co-researchers as they carried out community mapping and photovoice activities alongside institution-based (academic and third sector) researchers (Black et al, 2025). Building on an analytical framework informed by Deleuzian assemblage thinking, we draw out repetition and difference in these visual and verbal texts, to identify key dynamics operating in the space. We trace how they twist, braid and knot together (de Freitas, 2012; Wilson, 2020; forthcoming a) to produce the potentialities and consequences of fire. We show how these potentialities and consequences are inscribed on the landscape and read and interpreted by residents such as our community-based research partners.

Overcome Heights

The visual and verbal texts analysed later were created by a group of community-based co-researchers living in the informal settlement, Overcome Heights. The aerial photograph in Figure 1 shows the location of Overcome Heights on the edge of the Cape Flats.

The Cape Flats is a large, sandy plain that stretches over 50 km south and east of Cape Town's city centre. Its natural wetland landscape has been gradually infilled in the 20th and 21st centuries to create space for human settlements. Some of these were created through the racially segregating actions of the former apartheid government, which included the forced removal of subaltern groups from the heart of the city. Others arose through informal land occupation and construction, resulting in a

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Figure 1: Overcome Heights location



Source: Satellite image created by the European Space Agency – Cape fires, CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=119296890.

dense, urban sprawl. A City of Cape Town report estimated the population of the Cape Flats region in 2018 at 662,120 (City of Cape Town, 2022). It is a place of both significant social deprivation and energy, with poor local service delivery, high unemployment, addiction and crime (Lamb, 2018) but also innovation and enterprise (see, for example, Charman and Petersen, 2014; Kanosvamhira and Tevera, 2022).

In 2013, Overcome Heights was recorded as being home to 18,498 residents in approximately 5,235 households (Huegel, 2013). The population has undoubtedly grown further and now tens of thousands of people live there in densely packed shacks, mostly constructed from zinc sheets and timber, which can become both extremely hot in summer and very cold in winter. Infrastructure in the settlement is also poor, and there is a high rate of unemployment that results in hunger and poverty, gang-related conflict and xenophobic violence (Jensen et al, 2011). Add to this the frequent outbreaks of destructive fire and it is not hard to see why the Overcome Heights environment might be described as an Anthropocene harmscape. Documented causes of fire include illegal electricity connections and use of candles and paraffin stoves (Harte et al, 2009; Strydom and Savage, 2016), all three of which are likely even in those areas where formal domestic electricity connections are available when tariffs are unaffordable. The large population pressure has resulted in almost all available space being infilled with informal residential construction, facilitating the spread of fire from building to building and at the same time inhibiting access for emergency response vehicles. The spread of fire can also be accelerated by the strong winds that Overcome Heights is often exposed to, making it more likely that fires affect

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multiple dwellings and very large numbers of people. In October 2018 (three years before the field-based research described later), a single fire event left more than 800 people homeless (Chiguvare, 2018).

Assemblage-based understandings of place and data

To explore the fire-related learnings of residents in Overcome Heights, we adopt a framework that allows for an integrated understanding of both place/place-based learning, and of the data generated within the research site. The framework draws on the philosophy of Deleuze and Guattari (1988), especially in relation to assemblages as described and operationalised by Feely (2020) and Wilson (2021). It is based on the political concept of assemblage as arrangements of heterogeneous components through which knowledge, desire and energy may flow and on the idea that experience of difference and repetition are central to learning (Deleuze, 1994). It also draws on qualitative, ecological complexity, in particular in understanding 'learning in place' as an emergent product of both physical and social interactions (Wilson, forthcoming b).

We conceptualise both the settlement itself and the set of visual and verbal texts created in the research as assemblages. They are shaped by the dynamics of power and difference that operate within them, which in turn have been shaped by the history of the assemblage. An assemblage can be understood as a 'confluence of elements in affective relationship to each other which changes their states, and their ability to act' (Fox, 2015: 306). Such confluences may come together only fleetingly; they may persist but with changing internal relationships or dynamics; or they may achieve significant degrees of stability and longevity.

We developed the assemblage analysis approach employed here in previous analyses of photovoice data exploring floods and water scarcity in other Cape Flats settlements (Wilson et al, 2023; 2025). It involves the researcher spending time with the assembled visual and verbal texts generated during the research and allowing three modes of engagement to unfold: becoming sensitive, becoming affected and becoming analytical (Wilson, 2021). In the first mode, the researcher cultivates a sensitivity to repetitions of colour, form and content in visual images, repetitions of language and narrative form in verbal texts, and the patterns of physical elements and practices that these reveal. The mode of becoming affected allows for attunement to affective flows, in this case including the affective agency of fire. In the final mode, becoming analytical, the researcher aims to understand the dynamics operating in the place-assemblage. We build on the analytic developed by de Freitas (2012) and elaborated by Wilson (2020) to recognise and understand how different dynamics twist, braid and knot together. Twists describe loose, short-lived configurations that may be fleeting and easily undone. Braids are more stable configurations that may change conditions within the assemblage on a more long-term basis. Knots are more tangled configurations that may enclose and even hide aspects of the lived reality within the assemblage.

Creating an assemblage of visual and verbal texts

The texts included in this analysis were produced during a larger project that explored local experiences of and responses to climate change–exacerbated environmental risks in the Cape Flats. Ethical approval for project activities was obtained in advance from

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the Universities of Stirling and Cape Town, two of the partners in this international project. The larger project enrolled local participants as community-based co-researchers working with the institution-based researchers. Local community-based research was led by a third sector organisation with strong existing community links and its own well-established ethics and consent processes. Those enrolled as community-based researchers participated in half-day ethics and consent workshops before undertaking any research activities. The institution-based researchers worked with the community-based researchers to conduct a household survey (Ncube et al, 2023) and implement a series of participatory visual methods (Mpofu-Mketwa et al, 2023; Black et al, 2025). These different methods were used to mobilise local knowledges and facilitate subsequent community-driven identification and articulation of best bets for 'resilience actions' that were presented by community-based researchers and other community representatives to City officials and others as potential local priorities.

The results from these parts of the project are presented elsewhere (Petersen et al, 2025; Piper et al, 2025). The present work uses images and texts produced in the knowledge mobilisation activities to explore the development of place-based fire literacies. We use excerpts from walking interviews during a community mapping process (Grasseni, 2012) alongside photographs and captions generated in a photovoice activity (Wang and Burris, 1997; Wang, 1999). Both processes took place in 2021. The details of the methodology followed for the community mapping and photovoice activities are described elsewhere, including processes of deliberation and decision-making among the community-based co-researchers (Black et al, 2025). Briefly, the community mapping process included what we will refer to as 'mapping/walking interviews'. Working in pairs, 16 community-based co-researchers guided two or three institution-based researchers along routes and to places they selected based on their experiences of fire. The analysis includes transcripts of conversations during these visits. Following this, eight community researchers – comprising one person from each pair – took part in a photovoice activity. Each photovoice participant was provided with a camera and asked to take photographs and create captions that documented their knowledge of fire risks and responses. The community-based researchers worked individually in this activity and could take photographs of anything they thought was relevant, guided by written prompts to think about what increases or decreases the risk of a fire starting; what actions are helpful, and what are the biggest challenges, during a fire; and what support they receive or lack following a fire. After a week with their cameras, these eight community-based co-researchers came together for a workshop facilitated by institution-based researchers in which they each selected up to 30 of their photographs to assemble into an album along with titles and captions. Reflecting on each other's albums, they identified images and texts that they felt communicated important messages. The images and texts in the eight albums are also used in the analysis. Six of the eight community-based researchers who participated in the photovoice had earlier been involved in the production of digital stories and all were subsequently part of the community-based sessions that developed the best bets. Because of this, and because the photovoice activity generated more carefully considered accompanying texts, these eight voices inevitably feature most often in the analysis. The community-based co-researchers were given the choice of being identified by their names or pseudonyms in future publications; we do not distinguish between these.

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Learning about fire from the assemblage of visual and verbal texts

In the following, we present a selection of texts produced during the research to show how residents have come to read both fire risk and fire history in their local landscape. Together, the texts show both the ubiquitousness of fire and the memories of fire that circulate within the space and its residents.

Reading risk in spatial arrangements

The assemblages of photographs included in the community-based co-researchers' albums are largely coloured by the browns and reds of earth and fire-damaged zinc sheets (a common building material) and the contrasting blue of clear skies, with occasional patches of green from vegetation. There are two dominant, contrasting visual motifs: narrow, enclosed spaces on the one hand and open, empty spaces on the other.

Figure 2 shows some of the repeated series of images of narrow passageways, paths and alleys running through the settlement.

In contrast, images such as those in Figure 3 emphasised open space, whether in the form of wider roads or well-spaced shacks.

The captions to these images and conversations during the mapping/walking interviews demonstrated the community-based co-researchers' awareness that the density of occupation within the settlement was a significant fire danger. For example,

Figure 2: Narrow passages and paths



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Figure 3: Parts of Overcome Heights where the roads are wide enough for a vehicle to enter, or a newly settled area within the conservation park adjacent to Overcome Heights



Jacques explained how, during one fire, the close-packed buildings facilitated the spread of fire and simultaneously posed a challenge for firefighters trying to navigate the narrow passages with hosepipes. Marlene described how strong winds could twist together with the constricted space to create additional panic. In the instance she described, this was a fleeting configuration, and the fire 'only' destroyed two properties.

Reading fire potentials

As well as recognising that the confined or open nature of the spaces in Overcome Heights were important factors in both the spread of and potential responses to fire, the photographs taken by the community-based co-researchers and the mapping/walking interviews also demonstrated how continued exposure to fire events had taught them to read the landscape for possible sources of fire, fuels and firefighting materials.

Many potential sources of fire

Possible sources of fire were identified almost everywhere and associated with basic human needs including cooking, lighting and heating, and even children playing. Through their entanglement with other dynamics, these were transformed into dangerous, risky elements of life in Overcome Heights.

One series of images, illustrated in Figure 4, showed the risks of fires lit outside, whether for warmth or for 'braaiing' (barbecuing).

In her photovoice album, Tasneem described how 'People who are jobless and struggling make use of fire to cook their food and warm water to wash … when a fire breaks out these people run to help others and forget about their own fire … [which] can cause their own house to burn down as well'.

Inattention was a repeated theme, with images showing unattended cigarettes and unsupervised children with matches. Vanessa described in her photovoice album how lack of attention can combine with chance conditions such as gusts of wind or

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Figure 4: Outdoor fires in Overcome Heights



children playing to turn a controlled fire into an uncontrolled outbreak. It seemed the transformation of children playing into fire hazard had become a stable knot in the assemblage, to the extent that Marlene said of one fire, 'the kids were not even playing with matches, so I really don't know how it started'.

The transformation from controlled to uncontrolled fires was often connected to drugs and alcohol. Chantal described a fire that started because 'the father was left with the child, he got drunk, and while the father was sleeping, the child played with matches'. Both father and child died in this blaze.

Riyaad narrated the story of a fire: 'they were making fire and smoking drugs and things. These guys have built their smaller houses just like back yarding … There were also rumours that they were gangsters', thus suggesting that crime was also entangled with fire.

Figure 5 illustrates risks associated with outdoor electrical infrastructure such as light poles or substations.

The community-based co-researchers demonstrated a good understanding of the dangers posed by electrical infrastructure. As Riyaad described in the caption to one image, 'the light poles outside … have been cut and this could cause a fire as these wires have massive amounts of electricity flowing through them'. Lukhanyo also explained that 'you need to protect the electric box all the time from getting water because it will explode and … you can't use water to put [the fire] out'. They also saw how decisions that were beyond their control could make matters worse. Riyaad questioned the locations of some outdoor infrastructure, noting in the caption of the image on the right-hand side of Figure 5, '[i]f this electricity box was on a different place away from the houses it would have been easier to kill the fire'. The consequences of damage to infrastructure could also be long-lasting – Chantal's caption to one image of a light pole also revealed it as an image of power lost and not restored since a fire two years previously.

The community-based co-researchers also read the risk of fire in the lines traced by electrical cables inside their homes. Figure 6 illustrates the dangers of indoor electrical cabling and appliances.

These images of tangled cables, frayed connections and precariously balanced appliances are also intimate glimpses inside the homes of the community-based researchers, their families and neighbours, who appeared to be resigned to living with the dangers they posed despite understanding them. Tasneem's caption described the image on the lower left as: 'a battery is kept on top of a fridge to generate power to listen to the radio. A battery contains acid and it is very close to the power cable', indicating that she understood the dangers – however, the image was also described as being taken in her mother-in-law's house. Vanessa described a fire that was started by a stove left switched on while someone went to work. It seemed that the safest thing to do was usually to keep everything turned off and unplugged.

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Figure 5: Left: illegal connections to the electricity supply; middle: an open maintenance box exposes the supply to a street light; right: a transformer behind a locked fence



During the mapping/walking interviews, Noluthando told another story that demonstrated literacies around both causes of fire and (in)appropriate ways of fighting it: 'Yes, that lady was cooking and she cooked under the electricity box … Then she noticed that the pot is burning and the mistake she did was to throw water and the moment she threw water the fire started to go up'. What started as a story of negligence and error then expanded to include other negative dynamics: 'Other thing was, they were plugging the stove directly on the electric box. As she was running the spaza shop and her house is so small so everything spread so quick because everything is here they are cooking and selling here'.

Noluthando recognises that the fire was made worse because of makeshift wiring and the packed space of a combined home and shop. The story ends – as many told by the community-based co-researchers did – with the woman running away: 'she had to run away because she knew what was going to happen and she's a foreigner

Figure 6: Electrical safety hazards inside people's homes



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Figure 7: The dangers of lighting



that's why she got so scared … I've never saw her again … with her husband, so they all ran away because she was afraid that people will beat her'. Here, fire braids together with currents of xenophobia and intercultural tension.

Figure 7 shows some of a series of images showing lighting as a potential source of fire.

In the top-left image, an electric light bulb is pictured too close to some fabric, with a dark scorched patch showing the risk of fire. The top-right image shows a paraffin lamp, while the three images on the bottom row show lighted candles. Several of the community-based co-researchers described how candles and paraffin lamps were dangerous but sometimes unavoidable, as no other source of light was available during South Africa's frequent load-shedding.

Figure 8 shows some of the repeated series of images relating to cooking – another basic need that created fire risks.

Figure 8: Cooking in Overcome Heights: left: electric hob; middle: spatula and frying pan on a gas hob; right: paraffin stove



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The co-researchers indicated how the dangers of cooking interacted with other challenging dynamics producing complex braids and knots. For example, during the mapping/walking interviews, Noluthando described a particular cooking-related fire:

> [a] lady … was warming up the food … when her friend called her to come with to the clinic … instead of switching the stove to zero she left it on one or two and she went … I received a call saying, 'Noluthando your house is on fire' … and I was running, you know when your house is on fire your mind doesn't settle well … the fire started here and it was easy for it to spread to my house … by the time I got here everything was already burnt down … [The lady who caused the fire] ran away and never came back … they are still running even now … Because that day people were furious it reaches the houses of other people, like other sister, she came here to help me taking out my stuff. While she was still here helping me the fire went on to burn her house.

In this story, the intentional or accidental act of leaving food warming on a low heat while out on an errand combines with the close-packed dwellings to produce a rapidly spreading, destructive fire. For the woman who made this decision, the consequences went beyond the shared loss of a shack that might be rebuilt and knotted together to result in what Cooper-Knock and Super (2022) call civic banishment.

Although Noluthando asserted that 'if you caused the fire, you must run away', the community could sometimes provide a bit more latitude. As Marlene told in another story of fire started by cooking,

> The guy was already asleep because he had too much [alcohol] … So the lady was making food to eat [with a paraffin stove] and also fell asleep, when she wake up the fire was already burning and she ran away. The firefighters took a long time … and on their arrival the guy was already burnt up [dead] … The community was already very very angry … because she left and how she can do that, drinking and cooking and leaving the stove unattended? And they wanted her out of the place and they were threatening her … because she going to do it again. Because she has children, they had to consider that and they have to forgive her. She still staying here and she is still drinking … to just leave the house in flames and not call someone for help that shocked me. To not even go to a neighbour for help, she just disappeared and come back the next morning …

In this story, cooking, drinking alcohol and the slow response of the emergency services braid together for long enough for the fire to become fatal, but the presence of children in this configuration prevents them knotting together to end in civic banishment.

Abundant fuels

The texts produced by the community-based co-researchers also show that they have become attuned to the presence of materials that could feed fire. They describe how fuels, like sources of fire, combine with other dynamics at play in the Overcome Heights assemblage

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Figure 9: Gas bottles inside and outside homes



For example, Tasneem's caption for the image on the right of Figure 9 links gas use to poverty: 'my mother in-law uses gas because she is a pensioner and cannot afford to purchase electricity for the whole month … if there is a gas leak, or a fire breaks out by her house then it can cause the house to explode'.

The materials from which the shacks and boundaries of Overcome Heights are constructed were also read as potential fuels, as illustrated by the image shown in Figure 10 and its caption, which explained that 'having too many planks around spread the fire quickly'.

Another, perhaps more surprising potential fuel for runaway fires was dumped rubbish, illustrated in images such as those in Figure 11.

Figure 10: *The challenge of too many planks*, by Lukhanyo



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Figure 11: Dumped rubbish



Chantal's caption to the central image in Figure 11 revealed how accumulating rubbish could combine with addiction to increase the danger of fire: 'Rubbish heap that has not been collected in a while. We got druggies in our area that smoke anywhere and if a cigarette or any other burning thing falls on the rubbish heap, it can cause a fire'. Tasneem described rubbish as a trip hazard when trying to save belongings from fire. Noluthando used the mapping/walking interviews to express her frustration in attempting to keep one place free of rubbish and therefore safe:

> As you see … we've been writing boards says 'don't dump here, don't throw dirty stuff here' [but] people don't listen … it's like all of Overcome they just dump here … then they will tell me, 'Hey, who're you to tell me not to dump here? This is not your space.

To make matters worse, the City does not help, despite requests to install a waste container or send a clean-up team. So in the end, Noluthando acts on her own: 'when we see that this is too much we try to burn it … maybe once a month or twice a month … either you use a paraffin on [the rubbish or] you just [set fire to] the plastics', thus fighting anticipated fire with pre-emptive fire.

Firefighting materials and their absence

The community-based co-researchers also demonstrated the development of fire literacies about materials in the environment to fight fires, such as sand, as shown in Figure 12.

The top two images illustrate Overcome Heights' sandy foundations, visible both on the edge of the settlement and in the streets. The community-based co-researchers described using sand to 'bliss' (put out or douse) fires. Chantal captioned the top-right image, 'This image shows a sand dune in C-Block, it acts as a fire guard and a resource for putting out fires since Overcome Heights does not have a lot of taps to access water during fire outbreaks'. The two lower images show discernment between good and bad sand. Vanessa used the image on the left to explain that wet sand cannot be used to put out fires. The image on the right is next door to Chantal's home and is the site where the father and child described earlier died. She recalled how the sand around the house could not be used to douse the fire because it was hard-packed from 'over-stamping'.

The community-based co-researchers had also learned not to rely on the presence of water in parts of the settlement – a lack illustrated through a series of images of taps, as shown in Figure 13.

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Figure 12: Top row: good sand that can help put out fires; bottom row: bad sand that cannot be used



The captions and stories told during the mapping/walking interviews illustrate other ways fire braids and knots together with other dynamics within the Overcome Heights assemblage to worsen the risk to those living in this harmscape. Noluthando recalled how:

> It was in the morning around five o'clock and people were fighting fire in a different way learned from the previous fire … this time around they first fight the fire rather than rushing to their own places and take the stuff out. Because last time everyone was screaming about their stuff and no one was trying to fight the fire and then it ended up all burned down … we using sand and it's better than water because our water from our taps has been weak …

According to Chantal, 'most [taps] are stolen by gangsters and druggies who sell them to feed their habits'. Thus, fire entangles with inadequate infrastructure, crime and

Figure 13: Left and middle: outdoor, communal taps; right: a kitchen tap



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Figure 14: Buckets and a fish tank



addiction in complex knots that result in the unreliability of water sources. Because of this, residents have learned to be prepared, rely on themselves and create their own solutions. Many images featured buckets and other containers storing water. Figure 14 shows two of these.

The image on the left shows buckets of water kept permanently ready at the entrance to a narrow alley, where fire trucks would be unable to reach and no water supply is available. Tasneem's caption explains the image on the right: 'during the last fire the fish died. We keep the fish tank filled with water because we do not know, when next there will be a fire'. Several other images featured hosepipes, neatly coiled or looped around hooks, ready to be 'connected to the closest water point [to] help reduce spread of fire while people wait for the fire truck to arrive' (Chantal). Repeated experience had taught residents that waiting was likely. Other solutions to the lack of water involved 'informal' connections to the mains supply.

Fire histories inscribed in the landscape

In addition to the capacity to read the landscape for potential fire, response and loss, several series of images revealed how the physical environment of Overcome Heights is inscribed with the histories of past fire events, creating a constant psychogeographical background of traumatic memories.

Images such as those in Figure 15 highlight the presence of burned metal panels throughout the settlement.

The distinctive, rich, reddish brown of the already-burned panels serves as an ubiquitous reminder of past fires. The image on the right shows the ceiling of Thabisa's kitchen, which along with her living area showed signs of burning. Thabisa and others live with constant reminders of fire.

Figure 15: Burned zincs provide a constant reminder of fire



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Figure 16: The burned remnants left after fires



Figure 16 shows other reminders of past fires: charred and abandoned belongings left in the street.

Vanessa's caption to the image on the left reveals the connection to memories of fire and loss: 'when it's burnt … you have to start all over again. The money you spend on the things it's just heartbreaking to see it burn like that'. Her caption to the image on the right recalled that 'after a fire has been put out you have no shoes to wear … your stress about the kids, it's another thing'. Riyaad wrote in his photovoice album that 'people have lost valuable goods … there are some documents that have also been burnt out. People will struggle to get their things back'.

Burned zinc sheets and charred remnants are not the only traces left by past fires. Figure 17 shows examples of a series of images focusing on toilets.

Chantal's caption explains the image on the left: 'a broken toilet that was burnt due to fire and has not been repaired since then … [people] now have to use buckets to relieve themselves. There are no drains to empty the buckets in. It is also unhygienic'. The bucket toilets shown in the central image represent another way fire degrades life in the settlement. Bucket toilets are themselves indicators of poor quality of life and reminders of past and continuing repressions and marginalisations. A legacy of colonial and apartheid planning and politics, sanitation planning served the white people and segregated the Black people (Mukiga, 2024: 9). Sanitation infrastructure and toilets have become a focus for an expression of dissatisfaction with progress post-apartheid (Robins, 2014; Storey, 2020). But as shown on the right, even these can be destroyed by fire.

The consequences of the lack of toilets go beyond hygiene, as Noluthando explained: 'It's like twenty [households] are sharing one toilet and that's what makes other people to use the forest to relieve themselves … but now there's no more forest because people are building their houses there. And it's not even safe because the guy was getting robbed there'. Such explanations demonstrate again how fire twists and braids together with other elements of the harmscape – in this case, remnants of

Figure 17: Toilets



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Figure 18: Empty, unfinished shacks that serve as emergency shelter



apartheid-era dehumanisation, spatial pressure and crime – to exacerbate the harms to residents.

A further reminder of past fire comes in the form of abandoned and empty shacks, as illustrated in Figure 18.

The image on the left shows a house that Riyaad described as having itself burned, but 'there is a bed where people can sleep … after their [own] house has burned down'. These are what Lukhanyo referred to as 'unfinished places', 'open and abandoned shelters' that people who have lost homes and belongings to fire can live in while they wait for new building materials to be provided by the City's Disaster Management team.

The Disaster Management team figured strongly in the stories about rebuilding after fire events, some of which were told through images such as those in Figure 19.

The image on the left shows how dangerous spatial configurations are sometimes recreated after fires, evidenced by the clean, shiny material of the walls on the left of the same narrow, unsafe spaces as before. The images in the middle and on the right highlight the inadequacy of materials provided by the Disaster Management team. Chantal's caption for the central image explains that 'this shack was bigger than what it is now because the Disaster Management team only gave little material enough for a small shack. The shack still doesn't have electricity'. Both Vanessa and Riyaad explained how the shortfall had to be made up with old, damaged materials.

The repeated undersupply led to suspicions that the Disaster Management team were deliberately holding back: as Noluthando said, 'the stories we heard were that City of Cape Town wants to stop giving people building material because that material makes people to be more careless'. Thus, the sense that residents must fend for themselves that was evident in relation to actions during fire was repeated in its aftermath.

The danger of losing *land* in the aftermath of fire was also frequently highlighted. Jacques described how people try to stake a claim to their land by putting up 'four

Figure 19: Rebuilding following fires



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poles and a few zincs … to secure their old spaces' until they have materials to rebuild. Space in Overcome Heights is highly prized, and a fire event creates an opportunity for boundaries to shift, as Noluthando explained:

> [I]f I take two metres extra and the other people do the same, you will end up not having your space.… I'm your neighbour and I take two to three metres of your space now you gonna be having a small hokkie [informal dwelling] even though you had a four-room hokkie …

In fact, Noluthando had lost both materials and space: 'I say four o'clock husband let's go I don't want my neighbours to take my space and when I get there, there's no more space, there's no more my burnt zincs they already take them'. This led her to predict that Overcome Heights would soon lose its remaining open spaces, as spatial pressure builds. She also described the conflicts that arose:

> [P]ople are like animals shouting each other, they know that this is your space but will say also my neighbour took my space so I'm gonna take [yours] … When you don't have the material to build and I do have, I'll just build and then … you have no choice but to use the space I left for you. We end up having enemies. Because there's no way I'll be happy knowing that you took my space.

Other stories revealed how rebuilding was also made more challenging by theft and criminality. Noluthando and Noxolo described how people sometimes fraudulently claim building materials intended for someone else, as the Disaster Management team gave out materials based on identity information that could be forged. This could lead to fights and 'if you report someone [they] can end up doing something bad to you. That is why people just keep quiet' (Noluthando).

Some of the histories of fire read from their environment by the community-based co-researchers were of traumatic events and/or extended, damaging consequences. Chantal told how the surviving family of the father and child who had died in the fire described earlier moved away because they could not stand the sad memories. Marlene described another fire that resulted in civic banishment:

> The African people were chasing the mother … they were very angry and say, 'How can you leave a baby alone in a shack and stand on the road while your kids are playing with matches?' … even my husband was very traumatised by it and they went for counselling and that's why I'm very scared and won't allow my kids to play with other kids in my house if there's no adults because that's where the naughty starts. They play with matches and then the place is on fire.

Fires did not need to be fatal to be traumatic. Victims of fire were described as 'stressed because they don't know where they are going to stay and what they are going eat, and there is no counselling for them' (Lukhanyo).

Even seemingly ordinary sights could be reminders of loss and difficulty, as evidenced by the series of images of washing hanging on clotheslines. Figure 20 shows some of these reminders of how a family can be left with nothing but the clothes on their backs when they have fled a fire.

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Figure 20: Clotheslines



Such images could be reminders of stress but also of other people's generosity, as Vanessa explained:

> It's very challenging to get the kids' uniform or your work clothes again, where the money come from? That stress the person out, it can be difficult … your neighbour or friend … see how your house has burnt right through the ground and that you don't have shoes or school uniforms for the children, and they give what they have to help.

The consequences of fire went beyond physical loss, as indicated by images showing documents kept ready to grab when the next fire struck, as in Figure 21.

Vanessa explained the image on the left:

> It's a huge challenge to lose your documents in a fire and then start over to renew everything like your identification documents, vaccination cards for children and registration documents for your home. You have to go to the Department of Home Affairs which is expensive because you have to pay for all of those documents to be replaced and it takes a long time, like four weeks. If you don't have an ID and a house registration it stops you from even getting a job.

Noluthando's caption for the image on the right linked to the problem of criminality, as she described how even if documents were saved from fire, people were likely to

Figure 21: Keeping important documents handy



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Figure 22: Theft



steal them in the aftermath. The common experience of additional loss through theft became an explicit focus of some of the images included in the photovoice albums, with people described as 'run[ning] away with your things to support their habits' (Riyaad). Figure 22 shows examples.

The image on the left is one of several that captured or recreated moments of opportunistic theft. Tasneem's caption described it as 'a sly person picking up rubbish from another person's yard. The challenge is that when a fire breaks out sly people come to help, but then end up just helping themselves', either to personal belongings or metal that can be sold for scrap value. The image on the right of Figure 23 was included by Chantal to illustrate another possible consequence of fire: describing the dog as 'protect[ing] houses from break-ins by thugs and gangsters', she explained that such useful, protective pets could also be lost in the 'chaos' of a fire. Theft was also associated with social divisions, with Lukhanyo describing thieves as 'not within us but people from the other side of the community'. These stories show how fire is tightly knotted together with crime, worsening both the likely outcomes and stress associated with recovery and anticipation of future fires, but also reinforcing antagonisms.

Ways of seeing space transformed by fire

There was also strong evidence that the way the community-based co-researchers saw the spaces they were in had been transformed by their experiences of being caught in and continuously anticipating fire. Some of these were relatively simple, such as seeing a sand dune as a place to store furniture while waiting to rebuild.

Figure 23: The deliberate creation of empty spaces



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Others seemed to involve more complex changes in relationships to space and place. For example, despite the powerful economy of space described earlier, some of the images and texts revealed the deliberate removal of fuels and creation of gaps. Figure 23 shows two such images.

Chantal described how 'people break down their shacks on the inside to create a fire break and stop the fire from spreading. They grab partition boards – if they are not damaged – so they can use them to rebuild'.

During the mapping/walking interviews, Lukhanyo explained that

> When the fire outbreaks it compromises everything, no privacy, no nothing. If we want to get to the burning shack on that side, we won't hesitate to break right here and reach the burning shack … if you had a lock on your door, everybody has the right to break it and gain access.

Conversely, some of the images suggested that residents became attuned to even narrow opportunities for room to manoeuvre. While Figure 24 visually echoes the series of images showing cramped conditions and an abundance of fuel, Chantal's caption shows she intended it quite differently: 'this image shows that the risk of fire can decrease if there is enough space to move things around when fire starts. The door is close to the gate; in case of fire, belongings can be moved out easily'.

In contrast, the open spaces that were positioned as places of safety compared to the maze of narrow passageways and congested shacks were also perceived in radically altered ways because of their entanglement with dynamics of criminality and gangsterism. Figure 25, also taken by Chantal, is one of several that show the open space of the sports field as a place of both safety and danger.

Figure 24: *Space to move around*, by Chantal



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Figure 25: *Challenges of fighting fire*, by Chantal



Chantal described this space as:

> both helpful and also a challenge … gangsters and druggies will rob and steal people's belongings … I took this image to show where people must sleep when there is a fire and they have lost everything. This field is very dangerous because two rival groups operate in this space. Two bodies were found there before. It would be a great help if a community hall was made available for people to sleep in for their safety and warmth.

Chantal's description masks the tragic irony of the structure's history: built as a community building, it was stripped of everything of value by the same criminals she refers to.

Discussion

The stories assembled in the analysis confirm many of the findings of previous studies of fire in the informal settlements of the Cape Flats, including the role of 'cheap but hazardous sources of energy and light' (Pharoah, 2009: 112), density of dwellings and poor vehicular access (Walls and Zweig, 2017), the use of spaces between shacks to store items or as rubbish dumps (Pharoah, 2025) and links to alcohol abuse and violence (Pharoah, 2009; 2025; Cooper-Knock and Super, 2022).

They also confirm the environment of Overcome Heights as 'profoundly pedagogical' (Somerville, 2013: 151).

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Gruenewald (2003: 621) claims that 'places teach us about how the world works, and how our lives fit into the spaces we occupy'. The potential of fire suffuses the landscape, which residents read as filled with potential ignitions, fuels, accelerants and potential means of dousing or fighting fire. Gruenewald goes on to say that 'places make us: As occupants of particular places with particular attributes, our identity and our possibilities are shaped' (2003: 621). This certainly seems to be the case in Overcome Heights, which is revealed as a harmscape in which fire entangles with other elements of the socio-material landscape, creating material traps, such as the narrow alleyways and buildings with only one entrance, social traps, such as poverty, alcohol or drug-induced stupor and criminality, and ones in between, such as the scarcity of electricity and inadequate waste management. The stories highlight the pedagogical affect of repeated experience and widespread reminders of potential loss, from belongings to homes to identities to the possibility of remaining, and the range of ways in which loss can occur, from direct action of the fire to theft to civic banishment.

The images and texts demonstrate how, within this psychogeographical background of past and potential fire and other harms, residents have developed practical fire literacies such as: keeping matches out of reach of children; seeing even controlled fires as risky; a requirement to stay on alert; knowing not to use water or wet sand to put out an electrical fire; keeping water to hand and documents in safe places; knowing to cut the electricity supply and break down shacks to create firebreaks during a fire; and valuing and maintaining open spaces. In addition, they indicate the emergence of other kinds of fire-related learning, including dynamics of blame, with several social divides coming into play, whether along the lines of those that do and do not consume alcohol, those involved in criminality, or immigrants from other places and countries. Residents also appear to have learned not to rely on City authorities for sufficient help in fighting fires or rebuilding afterwards. It is also worth noting that the images and captions from the photovoice process have been curated by the community-based co-researchers to deliberately convey messages to their audience. They highlight how the co-researchers use their socio-material fire literacies to communicate as well as to learn.

The fire literacies revealed in this work thus go substantially beyond those that have been discussed in previous work on public debates about wildfire control actions such as prescribed burning (May, 2020). The literacies described earlier have perhaps more in common with those needed by fire professionals who must read fires and fire-prone landscapes in both emergency and prevention contexts (McGranahan et al, 2022; McGranahan and Kirkman, 2025), but rather than being acquired through professional training and experience, they are instead the product of everyday immersion in a landscape marked by fire.

The findings also suggest that, consistent with previous research (Stewart, 2008), the psychogeographical background of a fire-dominated harmscape is one of tension and trauma. Residents have deep, rich knowledge, acquired through repeated cycles of fire, but the unpredictability and ungovernability of fire means that even having learned so much, their options are highly circumscribed. Fire also results in more dramatic consequences for what might otherwise be private, localised lapses, with responsibility punished through beatings and civic banishment.

Residents stay vigilant and self-reliant, controlling what they can, but always in the knowledge that there is much beyond their control, such as drunkenness,

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criminality and support from the City, and so it is inevitable that fire will come through again.

The twists, braids and knots revealed in the stories highlight how fires are not problems that can be solved by actions that address only one dynamic, as well as aligning with calls to attend carefully to the knowledges that residents have developed over time (Pharoah, 2025). For example, re-blocking or other efforts to widen roads and spaces between homes will always be followed by infill and back-yarding, as long as the value of holding space remains high. Other materially focused, 'technical' solutions such as painting shacks with fire retardant (Petersen et al, 2025) may stop some structures burning but will not stop fires from starting and spreading to some degree as long as there are sources and fuels, the reduction of which requires far-reaching, costly social and infrastructural change. Perhaps recognition that such harmscapes reiterate harms by reminding residents of past experiences might alter the cost–benefit analyses that influence decisions about whether these costs are worthwhile.

Conclusion

We suggest that in harmscapes such as Overcome Heights, understanding the sociopolitical process of place-making requires a sensitivity to emotional, material and social dynamics. The images and stories in this article show that the socio-material landscape has led those residing within it to develop the capacity to read both potentialities of future fires and the traces of past fires. Together, the images reveal local landscape literacies that render the environment as a text that constantly reminds residents of fire, its aftermath and its potential return. They also show that the community-based co-researchers have learned how fire is entangled with other features of the local harmscape – alcohol and drug abuse, poverty, inadequate infrastructure and the economies of space that result in congested shacks and difficult access for emergency services, and that work against their ability to create and maintain open spaces. Our analysis suggests that it is partly the psychogeography of a harmscape that determines its pedagogical affect. In this case, the ubiquitous reminders of fire create a warning-filled environment that might be closer to the triggers of post-traumatic stress disorder than the mild shocks of an electric fence.

These fire literacies follow a similar logic to the water scarcity literacies we explored in the nearby settlement of Delft (Wilson et al, 2025), or the flood and water excess literacies emerging in Sweet Home Farm elsewhere on the Cape Flats (Wilson et al, 2023). Like these, they point to the ways in which people learn from repeated exposure to or immersion in hazardous environments, developing workarounds, mitigating actions and social norms. They point to the pedagogic power or affect of place, and the place-based emergence of socio-environmental literacies in response to such place-pedagogies. They also highlight how 'natural' geography, topology and climate are entangled with past human actions, whether that be actions on the physical such as land use, domestic and infrastructure construction, or actions on the social such as the legacy of apartheid, (failures in) representative democracy more generally, criminality and gang culture or addiction and substance abuse. Finally, they highlight how the local is entangled with the global through past dynamics of coloniality and present influences of climate change.

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Research ethics statement
Ethical research was a central concern for this project. Ethical approval was obtained in both UK (University of Stirling) and SA-based (University of Cape Town) institutions following review by internal Human Research Ethics panels. Community-based co-researchers participated in extended workshop-based processes to understand informed consent and to ensure common ground rules for data (including photographs and texts) that referred to or pictured other residents of the settlement and/or their belongings. Personal choice about what to include in both data analysis and how to be (re)presented was at the heart of this process.

Data availability statement
The authors take responsibility for the integrity of the data and the accuracy of the analysis. The data are available to other researchers on request to the lead author.

Contributor statement
AW wrote the first draft of the manuscript, LP and GB provided early input. All authors commented on later drafts prior to initial submission and following peer review. AW conceptualised and conducted data analysis and interpretation for this article, with input from JD. LP and GB conceptualised the broader project and managed fieldwork and co-research that generated the data used here. TM-M, LD and SN contributed to fieldwork. AA, KC, JD, NH-S, GL and LP contributed to project design and community-based workshops.

Conflict of interest
The authors declare that there is no conflict of interest.

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