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RETHINKING THE IMPACT OF WAR ON THE ENVIRONMENT IN IR: A RELATIONAL ECOLOGICAL EXPLORATION OF ECOCIDE IN GAZA

by

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A research report submitted to the Faculty of Humanities, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of

Master of Arts (International Relations)

Supervised by Dr Michelle Small

Johannesburg, 2025

Declaration

I, Rahul Gandhi, declare that this Research Report is my own, unaided work. It is being submitted for the Degree of Master of Arts in International Relations at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.



27th day of March 2025 at Johannesburg

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Finally, I would like to acknowledge my family and friends who have supported me in this journey, maintaining understanding and lending a helping hand. Notably, Rheyna Pattni has been a steadfast support and patiently heard my ideas as I developed them.

Abstract

Rethinking the impact of war on the environment in IR may be possible by advancing a relational ecological approach. To do so, this study evaluates how coloniality in thinking IR limits understandings of the impact of war on the environment which can be broadened by rethinking IR through the case study of Gaza. To do this rethinking, this study provides an overview of the literatures which aid in developing a critical appraisal of IR in terms of its thinking, its treatment of war and security, the impact of war on the environment, and the Gaza Strip. These critical viewpoints evaluate the colonial foundations of IR which operate through logics such as linearity, occlusion, and abstraction which marginalise the environment and subalterns as securitised objects. Based on this critique, a framework which understands the world as an ecology of relationality between all things can be advanced as an alternative. This could be strengthened by enquiries into history and grappling with the challenges of linearity and positionality. Rethinking IR in this relational way can platform marginalised subjects, promote new methods, and deconstruct the dualist boundaries enforced by IR which occlude a relational understanding of war and the environment. In discussing the case study of Gaza where war is currently unfolding, this study explores a discussion of Palestinian history and identity to appraise the roles of coloniality and relationality in shaping a complex reality of Palestinian being. This informs an understanding of how the environment, as a part of this being, can experience violence. Hence, the impact of war on the environment can be explored as co-constituted processes of ecocide and genocide. To discuss this in terms of the decolonial framework of relationality, the humanitarian impact of war in Gaza since October 7, 2023, is explicated. Furthermore, the impact on the environment is explored in terms of categories such as water, waste, energy infrastructure, marine environment, terrestrial environment, and air. This engages mixed-method research to source descriptions of the impact and quantify the loss of vegetation. Together, the impact on humans and the environment can be understood as ecocide and genocide in which the targeting of people has collateral damage in nature either directly from war or indirectly as a result of displacement and disruption of water and sanitation services. Furthermore, the environment may also experience destruction directly in severing the relations forming Palestinian being. Ecocide is thus resulting from a war of genocide in which life forms become dispensable to coloniality. Thinking relationally is thus able to grasp such complexities of war and violence and possibly imagine ways in which this could be disrupted to advance peace and respect for all forms of life.

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List of Abbreviations or Acronyms

FAO	Food and Agriculture Organisation of the United Nations
GIS	Geographic information system
IASC	Inter-Agency Standing Committee
ICRC	International Committee of the Red Cross
IHL	International humanitarian law
IPC	Integrated Food Security Phase Classification
NDVI	Normalised difference vegetation index
OCHA	United Nations Office for Coordination of Humanitarian Affairs
OHCHR	Office of the United Nations High Commissioner for Human Rights
UNEP	United Nations Environment Programme
UNITAR	United Nations Institute for Training and Research
UNOSAT	United Nations Satellite Centre
UNRWA	UN Relief and Works Agency for Palestine Refugees in the Near East
WASH	Water, sanitation, and hygiene

Chapter 1: Introduction

The year 2024 saw an unprecedented acceleration of climate change such that the planet experienced its hottest year on record and numerous extreme weather events (Otto et al. 2024, 3). These included heatwaves, droughts, wildfires, storms, and floods, which have accelerated biodiversity loss in habitats such as the Amazon (Otto et al. 2024, 3). This has resulted in the death of thousands and displacement of millions (Otto et al. 2024, 3). The year 2024 also saw the acceleration of what the UN Special Rapporteur on the situation of human rights in the Palestinian territories occupied since 1967, has described as history's most well-documented genocide in Gaza (Albanese 2024). By 11 November 2024, the number of confirmed fatalities was 43 391 (UNRWA 2024). However, per a 2024 Lancet study this could be nearly 186 000 if indirect deaths are also accounted for (Khatib, McKee, and Yusuf 2024). In addition, some studies have attempted to estimate the CO_2 emissions resulting from this. They have found, consistent with other studies of military emissions, that emissions are staggeringly large, though often go unreported (Neimark et al. 2024; Crawford 2019).

Contemplating these ongoing exigencies may posit several questions. For instance, are these crises – one largely environmental, and the other largely social – linked? This may be so in light of the studies on military emissions. Consequently, does one crisis contribute to the other? Is their simultaneous occurrence coincidental, or can causality between them be established through quantitative research? Deeper than a possible unidirectional linear relation of causality between the two, is there a structural element underlying them both which may explain a link between them as well as their exacerbation? If so, can a contention with this structure aid the resistance against both crises?

At the core of these preliminary questions is a question of relationality. As crises pertaining to the planet and its inhabitants, it may seem that the discipline of International Relations (IR) would be best situated to provide answers. This is because of IR's position as a study of how humanity shares this planetary space (Simangan 2020, 212). Yet, there are suggestions that IR as a discipline is too focused on humans (anthropocentric) or derives from a Western foundation (Simangan 2020). This makes it inadequate in contending with these crises, and may even entrench a contemporary global order which furthers them (Simangan 2020). Indeed, human activities such as mineral extraction, oil drilling, deforestation, agriculture, and urbanisation have been linked to global warming (Dunlap and Brock 2022). They have also been linked to its impacts on extreme weather events, the loss of biodiversity and habitats, and an extinction

of species not seen since the fifth mass extinction 66 million years ago (Dunlap and Brock 2022, 2-3; Harrington 2016, 493). If these practices are embedded in the global order sustained by IR, it is pertinent to grapple with the substance of critiques of IR. This is so that these critiques may aid in a possible rethinking of IR which is better able to grasp the relational nature of these crises, their causes, and the impact on all beings constituting Earth's planetary existence.

Apart from the specific contentions with IR which need exploration, there have been concepts advanced which may advance understandings of human-nature relationality. One such approach has been a terming of the climate crisis as an Anthropocene in which humans have become a geological force in their own right (Steffen et al. 2011). It is argued that this may offer insights into the active role humans have had in shaping the world and how they may take an active role in further shaping it to mitigate the climate crisis (Simpson 2020). However, critiques of this have been advanced which highlight its role in maintaining humans as central as well as espousing the same assumptions and methodologies for which IR has similarly been critiqued (Simpson 2020). Moreover, it may occlude the greater role of specific groups or processes such as the Global North or capital, which if persisting, may not realistically address the crisis (Simangan 2020). Like the critique of IR, this is explored in detail later.

Another approach has come from Marxist understandings of capital's role in structuring class relations. It is argued that this has created the conditions advancing climate change. Furthermore, this exacerbates the vulnerability of those marginalised on the base of class, including racial and gendered dimensions. The process of capital accumulation has used processes such as industrialisation which contribute to climate change. At the same time, it has created socio-economic conditions which marginalise certain classes of people and hamper their capabilities to adapt to or survive the threats which climate change poses (Perry and Sealey-Huggins 2023).

This seems more promising than the Anthropocene because it shows an awareness of critical inequalities between people. However, this has also been critiqued for its Western foundation, occlusion of non-Western perspectives, and privileging of economic relations over social ones (Grosfoguel 2007, 215). It is also premised on an understanding of history derived from Europe and emphasising the progressive development of humanity (Simpson 2020, 62). Even in the absence of capitalism, there may be conditions persisting which continue climate change and privilege some actors over others (Simpson 2020, 66). Once more, these critiques are explored

further below especially as they derive from decolonial theories which also critique IR and the Anthropocene.

There is yet another approach which emerges which is less centrally concerned with humans or capital and asserts a biopolitical power of the state over life and death. Originating in the writings of Michel Foucault, this entails a post-medieval governance strategy regulating populations and life by "making live and letting die" through immeasurable modern modes of control (Quinan and Thiele 2020, 2-3). This may entail interventions to control birth rates, mortality rates, disabilities, and the environment through means technological or economic, themselves derived from political power (Puar 2015, 7). Accounting for the diverse modes and underlying political structure which inform the crisis of climate change and its relation to life, this may offer more insight than Marxist theories or the Anthropocene. This is especially in its consideration of a fundamental of life itself – death. Still, this has been critiqued for similarly having Eurocentric roots which only accounts for race, perhaps similar to Marx, in describing the European states' encounters outside Europe (Puar 2015, 6). As a related element, European populations' relations to the state were defined by their human subjectivity while non-Europeans were arguably seen as less than human (Mignolo 2009, 174). In addition, there may even be structures which do not simply make live or let die, but make death, suggesting a necropolitics in which death is privileged (Quinan and Thiele 2020, 3). The maxim could thus change to describe who "gets to live and who must die". This may account for the impacts of weapons on life, as well as the different forms of life, some understood to be human, and others not (the environment and even humans) (Quinan and Thiele 2020, 3). These feature in an order which can decide and effect who dies (Quinan and Thiele 2020, 3). Could this be the structure underlying an order which decides both if the environment can be degraded and if some humans can die (in the mode of genocide)? Body-politics as a specific theory considering who may die based on who is considered human, may be a more specific structure of this power, or body-power (Mignolo 2009, 174).

These thoughts all guide considerations which aid in a critique of IR's insufficiencies. They also go beyond simply considering the environment in an anthropocentric, economic, or political power calculus, to encompass a conception in which life itself is rethought. This is such that anthropocentric, economic, or political elements may be understood as modes and not universal determinants of crises. Harrington (2016, 481) envisions that this may reflect a reality in which humans and non-humans, things, and materials all co-exist in complex relations of life and non-life. In this conception, nature itself may not be some pure object separate from

humans, but a fluid ecology of being encompassing humans, animals, plants, and non-living beings (anthropogenically occurring or otherwise) (Harrington 2016, 487-488; Grove 2019). With there being no clear distinction between "self" and "other" in this conception, it becomes possible to see climate change as natural without ascribing to this a moral judgement. Instead judgement is reserved for relations existing in nature (neither solely human nor poised against a static imaginary of a pure nature) which destroy life. In the case of climate change and genocide in Gaza, it could be possible that the traditional designations of ecocide and genocide may be a perpetuation of this. This is perpetuated in an order which is violent and fundamentally concerned with destroying nature (human and non-human alike). Rethinking IR may thus propose that in understanding the impact of war on the environment, humans are present as an inextricable constituent of a broader ecology of nature. This would have implications for answering the questions posed above so that in understanding complexity, the causes of crises may be better understood. This perhaps then opens avenues by which these crises may be addressed.

To explore these possibilities, this study discusses the background of Gaza specifically to contextualise the imagination of what rethinking may look like. This is then followed by a discussion of the structure this study follows. This will highlight how a rigorous critique of IR and other theories which goes further than that offered above can yield insights into the modes allowing relational crises to persist. Furthermore, this may offer possible avenues of alternative ways of thinking, which applied to the case study in Gaza, rethinks the impact of war on the environment to reveal the complex relations between the beings constituting its nature. This study proposes alternative ways of thinking by discussing Gaza in a way that may challenge the conventions of IR. It also highlights the central need for Palestinian agency in addressing crises affecting Gaza's nature (amongst them, genocide, ecocide, climate change). These relational and complex forms may not hold the precise answers. However, they open the door to the possibilities of better understanding this crises and others. They also emphasise the primacy and agency of beings faced by those crises – in this case the Palestinians and Palestine's environment. Hence, it may be more radical to look at crises from the perspective of sites like Gaza, than to look at Gaza from the perspective of crises like climate change (Mignolo 2007b, 159). Or, it may be more radical to think IR as a Palestinian in Gaza than to study Gaza by thinking IR (Mignolo 2009, 171).

Case Study Background

Israel's war on Gaza is understood to have begun on October 7, 2023, when Hamas, the group possessing nominal control of the Gaza Strip, launched the *Tufan al-Aqsa* offensive which has commonly been called a terrorist attack on Israel (Malm 2024). This offensive, as an attack by Hamas fighters with technologically inferior weaponry, nevertheless overcame Israel's military and technological superiority (Malm 2024). Hamas thus attacked various sites in Israel including settlements and a music festival, killing people and capturing hostages (Malm 2024).

While the specific impacts and arguments of this event will be discussed below, it has been asserted that this cannot be seen as an event in isolation of Israel's occupation of Palestine and blockade of Gaza. Rather, this was a form of resistance to an ongoing war which began as early as 1917 (Malm 2024; Albanese 2024; Khalidi 2020). While a later chapter contends with this in detail, the basic dimensions are discussed here.

The settlement of European Jews in Ottoman Palestine accelerated in the late 19th and early-20th centuries (Mock, Obeidi, and Zeleznikow 2014, 1251). The Ottoman Empire was later defeated in World War I (Mock et al. 2014, 1251). The diverse population of Palestine and uncertainty as to what would emerge from the Ottoman Empire's remains, led to the establishment of British administrative control of Palestine (Mock et al. 2014, 1251). This was made possible through a League of Nations Mandate in 1922 (Mock et al. 2014, 1251). The British Mandate of Palestine continued until 1948, when a State of Israel was declared and admitted to the UN (Mock et al. 2014, 1253). This had followed the 1947 proposal of a UN Special Committee on Palestine of two states – one Arab and one Jewish – with the city of Jerusalem under international trusteeship (Mock et al. 2014, 1253). While Israel accepted this, the Arab League did not, and intervened in Palestine until their defeat by Israel in 1949 (Mock et al. 2014, 1253). At this time, many Palestinians were displaced, and precluded from returning by Israel's absentee laws denying them their property or citizenship (Mock et al. 2014, 1253). At the same time, Gaza came to be populated with many of the people experiencing this displacement (Nijim 2023, 166). While Gaza was under Egypt's control at this time, it was occupied by Israel in 1967 when the Six-Day War between Israel and Egypt, Jordan, and Syria saw Israel make an unexpected victory and vast territorial gains (Mock et al. 2014). These territories were not incorporated into Israel formally (Mock et al. 2014, 1255). This was so as not to disrupt a Jewish majority and its government, as well as to not counter the narrative of Israel as democratic by denying Palestinians in these territories political rights (Mock et al. 2014, 1255). They thus remained occupied.

Palestinian resistance began emerging in response to this. In Gaza, Palestinians could no longer benefit from the progresses advanced by the Egyptian government in terms of trade and education, and became increasingly dependent on Israel, where many Palestinians in Gaza were exploited for cheap labour (Nijim 2023, 167). In 1968, the Palestinian Liberation Organisation (PLO) was formed and would later come to be acknowledged as the sole legitimate representative of the Palestinian people (Mock et al. 2014). The First Intifada was nevertheless spontaneously launched in 1987 as a resistance of civil disobedience and violence to Israeli occupation (Mock et al. 2014). About 1400 Palestinians died as a result of this, while many more were injured (Nijim 2023, 167). This continued until 1993 when the Oslo Accords were signed between Israel and the PLO, also forming the Palestinian National Authority (PNA) which would ostensibly govern Gaza and the West Bank (Mock et al. 2014, 1258). Still, Israeli settlements continued, as well as its military occupation of Gaza (Mock et al. 2014). Between 2000 and 2005, this saw resistance take form in the Second Intifada (Mock et al. 2014, 1259). This was after Israeli Prime Minister Ariel Sharon had visited the Al-Aqsa Mosque, an Islamic holy site, and the supposed location of the demolished Jewish Second Temple (Mock et al. 2014, 1259; Weizman 2023, 127). In 2005, Israel did withdraw its forces and settlers from Gaza, but maintained a wall around the Gaza Strip, with six checkpoints allowing entry and departure – five controlled by Israel and one by Egypt (Mock et al. 2014; Nijim 2023, 168).

In the 2006 elections, Hamas, which had been established at the beginning of the First Intifada, won more support than Fateh who controlled the Palestinian Authority (Mock et al. 2014; Agha et al. 2024, 4). Fateh and Hamas were then unable to form a coalition and Israel, the US, and other international actors boycotted Hamas unless they abandoned armed resistance (Nijim 2023, 168). A civil war ensued in which Hamas retained full control of Gaza which Israel further besieged, restricting entry and reducing goods supplied to a minimum (Nijim 2023, 168). This has been accompanied by a humanitarian crisis, an ailing economy, and declining provisions of utilities such as water and electricity (Nijim 2023, 168). Gaza is now one of the most densely occupied places in the world, with a population of above 2 million in an area of about 360 square kilometres (Nijim 2023, 175). In addition to the decline in living conditions, it has since seen major bombardment in 2008-2009, 2014, and today (Agha et al. 2024, 4). It is within this context that the fighters of October 7, the humanitarian situation in Gaza, and Gaza's being itself should be understood. Beyond these political developments, the very identity of Gaza shall be looked at more closely later.

Conclusion

What follows is an attempt to rethink IR for understanding the impact of the war on the environment in terms of Gaza's context. In doing so, critiques of IR and Western theories may yield insights into which structures perpetuate relations of violence on life and non-life forms which encompass more than humans in a broader conception of nature. This may also yield insights into alternatives which go beyond this.

To do so, the second chapter conducts a literature review which attempts to critically situate the foundations of IR, conflict and security, war and its impacts, the environment and the Anthropocene, and Gaza. This maps the terrain upon which the research design, discussed in the third chapter, is premised. Specifically, this goes beyond the questions above to discuss the rationale of this study as well as its aims. In addition, it discusses a methodology which emphasises a mixed-method approach while discussing its merits and limitations. The fourth chapter develops the critical insights from the literature review to develop a conceptual framework which more expansively considers the relations which exist between beings. This also takes note of key considerations in thinking this way. These include how the "self" and "other" are constructed, how time and history are usually approached, and how the knowledge-producer's position is vital to consider. The fifth chapter develops this in Gaza's context by thinking through the complexity of Gaza's history and relations and how its identity is thus formed. The sixth chapter applies this discussion to understand how the impact of war on the environment in Gaza manifests as ecocide. It further considers how the humanitarian situation could be understood as co-constituting this through genocide. Through both chapters discussing the case study, it is carefully considered what is meant by life and how its indeterminant and relational constitution can allow for agency or violence. The final chapter reflects on the broad themes and evidence presented throughout this study such that the relations between ecocide and genocide are highlighted as implicated in a deeper ecology. This necessitates broader thinking for understanding phenomena such as the impact of war on the environment or genocide which is possible through novel methods. A mixed-methods study is one such method, but this study overall yields other methods which can lead to richer and more diverse forms of knowledge. Thinking about nature and life more expansively could be advanced by thinking not just with data or history, but the marginalised, the dead, animals, plants, and even the non-human.

Chapter 2: Literature Review

To analyse the impact of war on the environment in Gaza towards rethinking war and the environment more expansively, it is important to contextualise this analysis. This could be done within the literatures of thinking international relations, security studies, sociology, and environmental science. In this way, it is possible to benefit from a range of perspectives and methods of other theories or studies. To this end, this review first explores the issues with the way IR is thought. It furthermore explores how conflict and security are thought. With this broad establishment of the contours of IR and security, and a critique of them, it is explored how the impact of war is understood. It is furthermore explored how the impact of war on the environment is being studied. Contextualising war and the environment are then done by reviewing the literature around the Anthropocene and some of the ways in which they reproduce the issues with thinking IR or challenging them. This discussion is further contextualised in terms of the war on Gaza. This review ultimately scaffolds the issues surrounding understanding the impact of war on the environment in Gaza by starting at the most general level of theory. It then highlights specific matters to consider in order to inform a conceptual framework that rethinks IR, security, and the environment.

Thinking International Relations

To understand how IR is thought, it is worth considering how and from which historical processes the discipline came to be, and how these shape the way it is thought today. The discipline was arguably founded with the development of theories to manage imperialism or contend with war after World War I (Satgar 2022; Thakur and Vale 2020, 2). It has been argued that this developed to describe the European experience of imperialism and war (Satgar 2022; Thakur and Vale 2020, 2). After World War II, this included the American experience, thereby becoming a Euro-American social science focused on the establishment of peace (Satgar 2022; Thakur and Vale 2020, 2). Scholars have contended that this has resulted in a coloniality of IR which entails the reproduction of patterns of domination and marginalisation in a colonial matrix of power (Tucker 2018, 215).

If this is where IR began, it is important to interrogate how IR was used so that insights can be gained into the discipline's coloniality and how its thinking is constrained today. Krishna (2001) usefully describes some of the elements of the education and thinking of IR which form part of this coloniality and which have historical roots. Importantly, he contends that one such element is the valorisation of abstraction and theory-building, such that historical description

of violent colonial encounters such as slavery and genocide may be effaced (Krishna 2001, 401). Sabaratnam (2020) similarly identifies these strategies as an epistemic mechanism of ignorance. Ignorance separates how Whiteness shaped IR and its organisation of society today (Sabaratnam 2020, 12). Said, in his discussion of the oriental mode of understanding knowledge, discusses how the philosophies of classical thinkers such as Locke and Hume are not seen as connected to their racial theories, but abstracted (Said 2003, 13). In fact, recognising their views of race recognises their philosophies more broadly as justifications of colonialism and slavery (Said 2003, 13). Acharya (2022) discusses how racism has been implicated in the founding of the liberal international order through the ideas of thinkers such as Locke or Mill. Similar to Said or Krishna, he recognises that these should not be abstracted from their thoughts or investments in slavery and colonialism (Acharya 2022).

Another element of thinking IR, Krishna (2001, 402) argues, advances ideals to which the international system may aspire, but which defer engagement with coloniality, establishing a state of deferred redemption. Sabaratnam (2020, 13-14) similarly identifies the epistemic mechanism of innocence which asserts racism as accidental, unintentional, or well-intentioned, or located in a historical past so as to minimise responsibility.

These approaches are notable because in critiquing abstraction, contrapuntally analysing different histories offers nuanced insights into a more accurate history of international affairs. This represents an effective method of conducting a study to describe competing aspects of the same story such as a nuanced description of the impacts of war on the environment. For Krishna, there are several histories which inform this analysis. One is a broader history of understanding war and statehood, such that the abstraction of sovereignty elides certain histories (Krishna 2001). These include those of wars with non-state actors such as tribes in colonies, and even more, the histories of non-white people or the importance of race (Krishna 2001). Grove (2019, 6) further distinguishes how European wars were wars of exhaustion while settler colonial wars annihilated people and environments. This suggests that more violence, indeed annihilation, could be revealed by challenging thinking in IR.

Within these critiques, there are several noteworthy aspects. These include Eurocentrism, authors' loci of enunciation, and duality in Western philosophy. Grosfoguel (2007) critiques the Eurocentric foundations in many theories. Sabaratnam identifies this as a mechanism of immanence by which modernity is seen as endogenous to the West, with universal appeal for the rest of the world (Sabaratnam 2020, 13). Acharya and Buzan (2007, 288) discuss how

Western history and perceptions which inform IR are presumed to be universally valid for understanding the world. This view is also reflected in theories critical of Europe and its power by radical authors such as Gramsci and Foucault (Grosfoguel 2007, 212). Similarly, Marxism is located in a history of Europe where difference was not based on race, but on class, informing the structural point of departure (Mignolo 2007b, 164). Moreover, Marx assumed a universal validity and abstract objectivity to his thought by suggesting that peasants could not represent themselves but needed to be represented (Ziai 2018, 119).

There is an epistemic as well as social location at play here – the social positioning of the author and their position within Eurocentric knowledge (Grosfoguel 2007, 213-214). This acknowledges that everyone speaks from a specific position which is not objective or innocent of coloniality, be it on lines of class, race, or gender (Grosfoguel 2007, 213). This position is vital to contend with. Like Krishna or Acharya, Grosfoguel (2007, 215) asserts that knowledge claiming to be universal through abstraction helps occlude the power of the knowledge-producer and the violence it embodies. In its modern sense, while this may not be as overt as owning slaves, it may persist when scholars from the non-West are only allowed to describe their own experience while scholars from the West can describe all experiences (Mignolo 2009, 160). However, the very lack of experience of the colonial wound may limit the expansive capabilities of those thinking within coloniality (Mignolo 2009, 170). In addition, this may be embodied by actors and institutions creating, pronouncing, and transforming universal ideals related to a standard of modernity (Mignolo 2018, 98). This reflects the above decolonial discussion of universal knowledge. Seen as built from Castro-Gomez's point zero – a position of knowledge contended to have no position except a radical objectivity and universal validity – it is beyond reproach (Grosfoguel 2007, 214; Mignolo 2007b, 162; Quijano 2007).

Mignolo (2007a) further articulates the matter of location as doubly constituted by a geo-political and body-political vantage point. The geo-political location is the historically located locus of enunciation often defined as an objective point of reason by powers in imperial centres to deny the reason of those in the peripheries and thereby engage them in waiting for "imperial emancipations" (Mignolo 2007a, 462-463). This ability to produce valid knowledge has long been denied to subaltern voices and geo-politics of knowledge is thus an important perspective to break the imperial illusion (Mignolo 2007a, 460-462). Body-politics of knowledge enhances this. Similarly ascribing objectivity to often white, male subjects in colonial epistemology, coloniality is disrupted by body-politics which reinscribes the racialised, gendered, and sexualised body of the knower and exposes this false neutrality (Mignolo 2007a, 484, 507).

Together, the geo- and body-political perspectives problematise the elision of the locus of enunciation of knowledge producers which is premised on a claim to objectivity to support universality. They reveal who the knower is and where they are located, in ways which vitally implicates their knowledge.

Contrary to colonial epistemologies, position does matter when this is viewed in light of coloniality and its duality. This duality establishes the objective position of knowledge-producers. The Eurocentric preoccupation and its encounters with the rest of the world are not in fact premised on timeless qualities of sovereignty, international law, or property. Instead, they are based on the differentiation between the self and the other in order to valorise these "timeless' qualities (Krishna 2001, 408). Krishna provides a few examples of this dualistic view. For instance, the work of Grotius may be contrapuntally seen to empower the Dutch in their trade relations, and privilege the Dutch in disputes against other European powers (Krishna 2001, 409). Moreover, this established a Europe pitted against Orientalist others, propertyless Native Americans, or enslaved Africans (Krishna 2001, 409). The same way in which abstraction of the law was used, so too was the valorisation of a standard of communication, liberal principles of economic and administrative organisation, and a simplification of local experiences (Krishna 2001). Under universalised conceptions of what was useful in Spanish America and British India, for instance, the "other" was reduced to the "same" (Krishna 2001).

In terms of this contrapuntal narrative, the issue with thinking IR may thus be rooted in the key dualistic differentiation between the self and the other. Accompanied by power, this has privileged certain groups in the production of knowledge while occluding the imperial conditions that have supported this. IR privileges certain groups with power and pits them against dualistic "others". For instance, the universalism discussed above is based on the claimed objectivity of the mind, dualistically separated from both the body and nature (Grosfoguel 2007, 214). The objects of this universal knowledge are often outside of the Global North while the theory is often located within it (Grosfoguel 2007, 211). And, while these subjects possess reason, objects without reason, or those outside Europe, are necessarily a part of nature itself (Quijano 2007, 173). Harrington (2016, 481) asserts that this has led to a failure to imagine the complexity, interactivity, and variety of the world.

These discussions of abstract and Eurocentrically-derived universalism, objective positionality, and duality are also discussions of race or whiteness. However, an author's skin colour or place

of origin does not necessarily make their contribution racist or in the vein of colonial IR. This is the opposite extreme of completely abstracting an author's work from their identity or locus of enunciation. Hence, Sabaratnam (2020, 5) suggests that it may be useful to contextualise race not in the identity of the thinker but in a set of epistemological tropes and assumptions rooted in structural power which sets up hierarchies of the human. In addition to the above critiques, rethinking IR could thus contend with the disciplinary structures which privilege Europe through these tropes (Sabaratnam 2020, 8-9).

Sabaratnam (2020, 10) contends that understanding this requires contention not only with Eurocentrism or race as a consideration of who is racially white or geographically in Europe or the West. This must contend with Whiteness as a subject-positioned entitlement to property, privileged political recognition, inherited belonging, and an affinity with the West as "progressive, endogenously developed, meritocratic, individualist, and liberal" (Sabaratnam 2020, 10). The features of this conception are not a skin colour or location, but critical recognitions of structural power which would even disadvantage those "belonging" to the West – Indigenous peoples in settler colonies (Sabaratnam 2020, 10). This resonates with the core of Grosfoguel's consideration of not simply a white body producing knowledge about the other, but a dualistically separate one for this dualism is constructed by the power Sabaratnam identifies.

These treatments can show how thinking IR has been shaped by thinkers privileged by subject-positioned Whiteness, for specific objectives, in a dualistic logic that valorises abstraction to elide difference. It can also show how this persists today. Equipped with this perspective, and perspectives of how knowledge in IR came to be and the mechanisms of how IR is thought, it is worth considering insights into the contours of dominant IR theories today. Neorealism, Sabaratnam (2020, 27) argues, as articulated in Waltz's seminal work, *Theory of International Politics*, may overlook what constitutes power and how Great Powers were constituted by the racial hierarchies of modern imperialism. Neoliberalism, as discussed in Koehane's *After Hegemony*, may similarly not recognise that Western unity was advanced to mitigate effects of loss of resources in former colonies and manage decolonisation (Sabaratnam 2020, 27). This could perhaps maintain dependence on the former metropole, not serving only abstractly functional purposes (Sabaratnam 2020, 27). From Wendt's *Social Theory of International Politics*, insights into constructivism may also reveal that there is an occlusion of the violence in the encounter between the West as self and the other in abstracting socialisation from its imperial history (Sabaratnam 2020, 27).

Jahn (2018) further considers, for instance, how a distinction between the self and other in liberalism and liberal internationalism is a key feature that has managed liberalism's internal contradictions. Jahn (2018, 49) contends that one of these contradictions was that from its inception, liberalism was premised on principles such as private property, individual freedom, and government by consent which could not be realised in the societies of thinkers like Locke. To manage this, the international realm was turned to, where it was contended that unproductive land could be seized and granted to individuals in the colonial metropole (Jahn 2018, 50). Hence the distinction between self and other, or domestic and international, where the domestic practice of liberalism required illiberal practices abroad, is a key feature of liberal internationalism (Jahn 2018).

This perspective offers a reading into how liberalism existed alongside colonialism and may even erode as liberal principles of free trade blur this distinction (Jahn 2018). From this, it is possible to see how theories lauded as progressive in the immanent fashion of thinking IR, were premised on a racialised dualism, that upon inspection, reveals the thinking of coloniality. Such thinking includes how land may be viewed as productive for certain actors and how this may drive its exploitation, often at the expense of the environment. Coloniality thus becomes a way of understanding environmental degradation. In addition, as Quijano (2007, 173) discusses, both knowledge and property are intersubjective relations whereby they exist only in relation to something else. Hence, a dualism is needed to maintain property rights in liberalism and the value of knowledge in coloniality in general. This is the same duality which sees nature as separate from the reasonable subject (Quijano 2007, 173). Hence, the views of nature as separate from humanity, the view of property as productive, and the knowledge deemed to be valid informing these all derive from coloniality.

Anghie (2004) analyses this colonial persistence in the links between decolonisation after World War I and the League of Nations Mandate System used to manage newly independent states. This traces the nascence of the international system as the expansion of the colonial European system of international law to encompass the globe (Anghie 2004, 115). It furthermore considers how decolonisation began occurring at the same time as the establishment of international institutions like the League of Nations which were statist (Anghie 2004, 115). It is possible that this made it a foregone conclusion that the process of decolonisation and international integration meant former colonies would need to embrace the system of state sovereignty as they came under the tutelage of existing states (Anghie 2004). For Anghie (2004, 117), this may reflect a "contrast" to the conquest and exploitation of 19th-

century positivist international law, as this integration included tutelage and protection. Nevertheless, this may instead reveal the endurance of a coloniality even in decolonisation and international institutions (Anghie 2004, 117). Similar to Sabaratnam's critical reading of Koehane, Anghie (2004) sees the Mandate System as a flawed understanding of the real inequality in race and economics between European states and Third World states. It is furthermore an attempt to manage the coloniality of this inequality (Anghie 2004).

Instead of rejecting the coloniality of formalism, the pragmatism of the Mandate System gave institutions a new way of perpetuating colonial relations (Anghie 2004). One way of envisioning this is by tracing how the Mandate System sought to valorise labour and productivity and extinguish native customs by extolling the humanitarianism of universal values such as liberty (Anghie 2004, 166-168). Furthermore, the judgement of "backwardness" became less cultural and more economic, but inequality persists (Anghie 2004, 172). At the same time, there was a material interest in the management of mandate territories, such as in the redefinition of mandates in the Middle East or the mandate of Nauru for the value of their oil and phosphate deposits (Anghie 2004, 144). Thakur and Vale (2020) arrive at similar findings analysing the trusteeship system proposed by Lionel Curtis, an imperial servant in South Africa. They argue that this paternalistically tried to create "good order" in the liberalist fashion by passing civilisational judgements on groups such as the Herero and Namaqua people, and envisioning universal applicability (Thakur and Vale 2020, 25-26, 157).

Hence, the Mandate System and international institutions perhaps reflect a lot of coloniality of thinking IR. It does so by valorising abstract universal values, having a prescriptive force in the interests of exploitation, and maintaining unequal relations. It also ignores the existence of this inequality in the first instance. Elsewhere in the same text, Anghie (2004) contrapuntally explores how the War on Terror operates by the same logics as the US occupation of the Philippines or the violent settler-colonial conquests of the Americas. It did so by seeking legal validity in international law and utilising the unequal benefits granted by international institutions such as the UN, pursuing a project of remaking the "other" in the image of the "civilised self" (Anghie 2004). Jahn (2007) identifies these dynamics more firmly with liberalism. Here, it is contended that the modernisation and democracy promotion strategies from the Cold War era until the present, espouse liberal assumptions which when illiberally perpetuated on unwilling recipients, generate resistance (Jahn 2007). In addition to reflecting another key contradiction in liberalism, Jahn (2007, 225) contends that this reflects the same dynamic as historical imperialism. Grove (2019, 10) supports this assertion by highlighting the

ways in which universalist prescriptions, from their imperial origins, justify intervention. As Stoler (2016, 52) puts it, the "interior frontiers of liberal democracy and empire were woven from the same well-armed and exclusionary cloth."

Thakur and Vale (2020) explore a re-orientation of South Africa as the location from which thinking and making IR was vitally shaped. Their work represents a reading of South Africa's experience of British imperialism which serves as a critique of IR and displays how a perhaps contrapuntal viewpoint, not dissimilar to Krishna's, can reveal importance moments in the nascence and development of theories like IR. It may even have insight into issues like environmental degradation and the climate crisis. For them, the Boer War in which the British used strategies of internment in concentration camps and scorched earth policies, represented a moment which disillusioned the liberals who had extolled the benefits of empire (Thakur and Vale 2020, 4-6, 107; Tucker and McNeill 2025, 322). This led to anxieties and innovations for what the end of empire could mean (Thakur and Vale 2020, 4-6). In addition to possible insights into environmental concerns from demonstrating the reading of history contrapuntally, the authors see South Africa as uniquely encapsulating the nexus of multiple racial questions. Race was either treated as a category denoting how imperialism would eliminate people (such as in Tasmania) or Darwinianly "uplift" them (Thakur and Vale 2020, 7-8). South Africa was home to both - groups who had been eliminated and groups to whom religion and civilisation were brought (Thakur and Vale 2020, 7-8). But South Africa also featured unequal relations between groups of white people (the English and Afrikaners) and non-white people (Black people and South Asians) (Thakur and Vale 2020, 7-8). Statehood in South Africa thus had to contend with race, the state, empire, and the international system, and IR developed a disciplinary vocabulary to manage this (Thakur and Vale 2020, 13, 155). In terms of what Sabaratnam calls Whiteness, the subject-positions of Afrikaners and Indians are complicated and demand an analysis of history, class, and power. Hence, in analysing this history, it can be seen how empire and thinking IR were implicated, and how sovereignty or features like mandates were shaped by questions of race and maintaining economic benefits, as Sabaratnam and Anghie have also considered.

The legacies of these origins and ways of thinking IR shape not only theories, or what Thakur and Vale calls its vocabulary, but its contemporary practice and practical implications. Grove (2019, 20-21) for instance contends that the formation of the discipline as research in the interests of influencing clients and practising statecraft by other means has shaped the global order. This places the United States at its core where interests such as racism and climate

change are ignored and decisions are serviceably made in the interests of the order, not the people or environments constituting the world (Grove 2019, 20-21). Grove (2019, 22) argues that this denial of complexity in the service of order limits the methods of the field. If this is so, alternative methods, such as historiography, may help appreciate complexity, but so may methods from other disciplines such as geography.

Practically, Grove (2019, 39) asserts that this dominance of the global order has led to unprecedented control with the Global North benefitting from the status quo. This is such that even the climate crisis is dealt with like other issues in IR – with universalist abstractions and empiricism (Grove 2019, 39). Like other authors, Grove (2019, 10, 40) identifies that this dominance has been driven by the integrative and homogenising strategies of settlement, conquest, extraction, exploitation, and the extolling of rational thought. Grove (2019, 10, 40) draws the link from this order's capabilities for world ordering and denial of complexity, to its failure to address the issues faced by this order, especially by erasing responsibilities. This failure, he suggests, also encompasses the active annihilation delivered by violence which persists from the era of crusades, conquests, and colonialism (Grove 2019, 80). Historically, he discusses how the invasion of the Americas killed about 20 million people, destroyed their cultures and environments, impacting animals, ecosystems, and the climate itself, all in the process of knowing, conquering, and ordering the world (Grove 2019, 42). This is the importance of the complexity authors such as Anghie and Krishna embrace but find missing in IR, especially in recognising histories of violence. Furthermore, because the discipline is curtailed by definitions, vocabularies, and interests which define events like wars, rethinking IR may be important to contend with the manifestations of IR's persistent coloniality. For instance, it may be insufficient to study the Anthropocene as IR does – in terms of security, politics, conflict, geopolitics, law, and governance (Simangan 2020, 214).

In addition to these discussions of coloniality in thinking IR through discussing IR's history, it is important to consider how the ways IR treats history may reflect coloniality so that a historical analysis in rethinking IR does not replicate that coloniality. Apart from the themes of power, abstraction, and universalism as some of the features of colonial thinking, there is a theme of linearity which may also be in operation. This entails a view of time which flows forward in a straight line, delineating separations between past, present, and future (Hunfeld 2022). Contending with this in dealing with history is relevant in avoiding coloniality's replication.

The linear view of history and time and its part in coloniality has been explored by various scholars, surveyed in Hunfeld's (2022) work discussing their implication for global justice. Hunfeld identifies several aspects of this temporal theme of coloniality which are worth noting. First, time being seen as linear establishes valorised temporal commitments of progress and development which are used as judgements to form and marginalise "others" as culturally and racially inferior (Hunfeld 2022, 101-102). This is consistent with Said's assertion that origins are important in the encounter between the "self" and "other" (Maphosa and Makama 2024, 2). In the construction of the "other", it is considered how far they are on the path to progress when the discoverer encounters them (Maphosa and Makama 2024, 2). This linear mode is used to universally valorise a Western trajectory of time, upon which the West is further than the non-West, establishing their superiority (Hunfeld 2022; Maphosa and Makama 2024). Being used to establish the non-West as further back in time, and thus not only normatively "barbaric" but temporally "primitive", their colonial subjugation is justified (Hunfeld 2022, 105). This is to remedy their prehistoric, ahistoric, immature, uncivilised, and premodern condition in terms of development (Hunfeld 2022, 105). Bringing them to modernity becomes the European's burden (Quijano 2007, 176). Development, operating through time to prescribe a colonial view of the world, further culturally represses non-Western cultures and ways of being by seducing those in the non-West with the supposed benefits of development, thus beginning to take an internal form of domination (Quijano 2007, 169).

In addition to linearity serving a judgemental and justificatory role in the colonial marginalisation of the non-Western "other", it plays an occluding role (Hunfeld 2022, 106). It does so by placing the present as universally important in determining what is real, what is valuable, and what is not (Hunfeld 2022, 106). The past is occluded by asserting that it is primitive, static, and beyond the realm of what is real (Hunfeld 2022, 106-107). At the same time, the past may occupy a role of importance but only if it is productive in aiding discourse establishing the primitiveness of the "other" or justifying coloniality as in the case of national myths used to support statehood (Hunfeld 2022, 107). Similarly, the future is seen as a realm of possibility or uncertainty rather than reality, disrupting the responsibility of people in the present to shape the future (Hunfeld 2022).

Hunfeld (2022) asserts that linearity acts similar to other modes of coloniality such as abstraction or universalism by occluding the relational entanglements of people to their pasts and futures. It also occludes the entanglements between the changing and co-constituting realms of the past, present, and future (Hunfeld 2022). For instance, Fanon has written of how

black people are placed in a "zone of nonbeing" through linear temporal assertions of their lack of culture, civilisation, and history (Hunfeld 2022, 107). This may contribute to their internal domination by valorising a standard of development which they are absent from and, alongside their epistemic silencing in the ways described above, by denying their social totality (Quijano 2007). Furthermore, in terms of Sabaratnam's discussion of Whiteness, this may be thought of as a temporal dimension of the epistemic mechanisms of ignorance, immanence, and innocence. An ignorance of the past occludes its dynamism which would deny the progressive judgements of linearity, as well as the violence experienced by those marginalised as the "other" (Hunfeld 2022). Linearity also constructs an immanent standard of progress, justifying colonial practices to achieve it. Finally, in occluding responsibilities in the past and to the future, and making abstract claims of universal standards of progress, an innocence is maintained.

The implication of this is that time is used to enact other forms of coloniality. For instance, a selective reading of the past for national myths may be used to justify settlement and statehood. The histories of "others" are occluded to deny their being and ignore the violence they have faced. This may justify violent settler colonialism and genocide. As discussed below, in terms of war, it is periodised as asserted by Barkawi (2016), such that if a ceasefire is reached, the violence it perpetuates may considered to be over as it belongs to the past. This could occlude the violence and suffering which continues outside of what is considered war. Furthermore, responsibility to the environment may be undermined by disrupting the relational continuity between the present and the future, suggesting that those in the present have no responsibility to beings such as the environment in the future. In terms of coloniality, this also uses the construct of the state to assert that once a colony achieves independence, it is in the postcolonial era and coloniality is left behind (Grosfoguel 2007, 219). However, disrupting this linearity, highlighting continuities, and grappling with coloniality (not colonialism), can challenge occlusion.

Overall, whatever theory may be used to explain international dynamics, institutions, and laws, scholars trace a pervasion and what is nevertheless an arguably persistent adherence to the tenets of thinking IR across the globe. These tenets are vitally located in coloniality and indeed in what has been described as a colonial matrix of power (CMP) which manifests as an ecology of diverse and interrelated modes – an entanglement (Grosfoguel 2007, 217). These modes include modernity, coloniality, capitalism, and patriarchy (Grosfoguel 2007, 217). From this, it can be seen how the assertion that IR maintains coloniality is credible. As a structure of forms

of domination beyond state borders or periodised moments, and in premising the privileging of certain knowledges by marginalising others through strategies described above, coloniality persists (Grosfoguel 2007, 219-220). Colonialism may be over but coloniality continues. This is through the epistemic structuring of knowledge and mechanisms of Whiteness and positionality. They manifest in global structures and their underlying ideologies. These include discourses of development or the fundamental dualism which sets up ways of occluding power and continuities by promoting universal homogeneity. Beyond IR, and especially in the latter half of the twentieth century, this may also manifest in other social sciences such as Anthropology which are premised on the same coloniality distinguishing between the Western subject and the non-Western object (Quijano 2007, 174). Moreover, knowledge becoming specialised in separate domains precludes highlighting the links between those domains, thus perpetuating the narrow conceptions of coloniality, seen within segmented disciplines as universal (Mignolo 2018, 100).

The value of this perspective is that rethinking the conventions of IR in interdisciplinary ways can assist in revealing logics, linearities, and inequalities which may be entrenched in the prevailing international order. It also highlights the perpetuation of relations which may be exploitative, extractive, and destructive to plants, animals (human and non-human), and the environment. Understanding the relations of power between groups, insights into which can be gained from thorough historical studies, helps create a nuanced narrative. This, in rethinking IR, can reveal more complex determinants of international and socio-economic relations in terms of race, class, gender, and species. It is arguably the dualist logic of IR and Western philosophy broadly, for instance, which privileges humans as masters of nature (Harrington 2016, 487-488). This may also lead to more effective policies which have cognisance of these relations and the issues they manifest. Grove (2019, 11) suggests that such policy may even recognise the unequal relations between "genres" of humans to appropriately assign responsibility. Indeed, these matters of how IR is thought can have practical impacts even today, whether in causing problems or finding their solutions. Having surveyed the critiques of thinking IR, insights into the broad disciplinary issues can be specifically thought of in terms of conflict and security which is considered next.

Conflict and Security

Four conflicts currently dominate news headlines, namely Sudan, Tigray, Ukraine and Gaza – representing the conflicts with the largest battle-related deaths (Rustad 2024, 7). Rustad (2024, 7) finds that while battle-related deaths decreased in 2023, the previous three years are among

the three most violent years on record since 1989. This reality reflects the importance of considering conflict in terms of the coloniality of thinking IR. In terms of these contemporary conflicts, however, they have had greater civilian impacts due to urbanisation and the urbanisation of conflict, and the use of indiscriminate weapons (ICRC 2019). The use of heavy explosive weapons in populated areas is not prohibited and has indiscriminate effects which presents challenges for international humanitarian law (IHL) in terms of civilian protection (Splojaric 2024). In Ukraine for example, Ukrainian use of cluster munitions unintentionally harmed Ukrainian civilians (Human Rights Watch 2023). However, this goes beyond the civilian impact. The ICRC's (2019, 66) report on IHL found that "over 80% of all major armed conflicts between 1950 and 2000" occurred in locations which sustain around half the world's plants and rare species of animals as biodiversity hotspots. This highlights that while there is increasing alarm over the effect of war and conflict on civilian populations, there is less focus on the environment. Indeed, the natural environment is not precisely defined nor adequately addressed under IHL (ICRC 2019, 67). Though there are provisions addressing avoiding harming the natural environment and provisions prohibiting the use of chemical and biological weapons, these are limited and not well enforced (ICRC 2019, 67-68). Hence, a stronger emphasis is needed on reforming IR and its principles such as international law so as to embrace the full extent of conflict. Furthermore, Dunlap and Brock (2022, 3) argue that ecocide as the targeting of the environment may constitute a method of genocide but this link is not considered by international law, representing another gap.

These gaps should be contextualised within Grovogui's discussion of the colonial origins of humanitarianism which establishes a Eurocentric conception of what is deemed human as a moral judgement of humanity (Grovogui 2013, 81-82). This then ascribes to those outside of the West less-than-human objecthood to justify intervention by the actors and structures established by the West to enforce humanity through intervention (Grovogui 2013, 86-87). What IHL accounts for or not should be considered in light of this. For instance, with the environment being considered non-human, it may be occluded from IHL.

The military industrial complex remains a core challenge to conflict and peace, and environmental security (ICRC 2019, 66). In fact, Grove (2019, 21) argues that the world order itself is centrally invested in a martial intellect prioritising war and security. As a symptom of the coloniality of IR, this involves the close collaboration between the military and industry to their mutual benefit, even during peacetime (Harigel 2019, loc. 27 of 233). It furthermore involves close political involvement under the guise of maintaining a strong army to protect

national security (Harigel 2019, loc. 28 of 233). However, in this, there are few considerations of the impacts of weapons, either in production, testing, or deployment, on humans or the environment (Harigel 2019, locs. 44, 46 of 233). The military industrial complex commands substantial financial and human resources in the development of weapons which destroy the environment, leave behind waste, or are rendered obsolete (Harigel 2019, loc. 42-43 of 233). Stemming from this, rapidly emerging military and defence technologies are not envisaged or covered under international law or IHL (ICRC 2019, 50). These exigencies all highlight the importance of considering conflict more holistically, from an environmental, civilian, technological, and non-state-centric viewpoint. Moreover, considering what is human more decolonially is also necessary. Rethinking IR is pertinent for this. For instance, it is argued that IR developed to manage war and decolonisation for European states in the 20th century (Thakur and Vale 2020, 4-6). If the limits of the discipline as explored above in this way were challenged, ecocide and its relation to genocide could more closely be examined.

This becomes more pertinent in light of the aforementioned conflicts and the recent increase in battle-related deaths which has made conflict a significant feature and occurrence of international relations since 2021 (Obermeier and Rustad 2023, 9). Considering the argument that "war made the state, and the state made war" (Tilly 1975, 42) and states make IR, conflict could be considered more enduring than this trend. As Grove (2019, 84-85) contends, the state and war have been mutually supportive in providing the centralisation of resources. Or, as Barkawi (2016, 207-208) argues, war in terms of the state mobilises the leadership, army, and people, in defining what constitutes legitimate force. Furthermore, war has philosophically been seen as a reciprocal exchange of the equal right to kill (Chamayou 2015, 160-161). What are the implications if alternative understandings are offered? Conflict may be even more enduring if the boundaries of IR are challenged to reconceptualise what is considered noteworthy and if complex histories are excavated to reveal encounters highlighted by Krishna and Grove, for instance. It is noteworthy that in IR thought, Sabaratnam (2020, 5) argues that war is seen as separate from violence, thus erasing histories, power, and race in the interactions, not just between states, but between all related beings. Specifically, wars are thought of in nationalist terms of the nation-state, erasing non-state actors (Grove 2019, 80). For instance, imperial use of force is often occluded (Barkawi 2016, 208). These certainly fall out of the bounds of the limits of a reciprocal equal right to kill. Hence, in addition to recognising this essential nature of conflict and security in International Relations, it must be evaluated how

conflict and security are central to the study of IR. From this evaluation, it is then possible to broaden how they are studied.

It is worth noting that war is seen as integral to the discipline. This is in its shaping of states and the impacts it has from a state perspective on the nature of the international order, its governance, and all the actors encompassed by it, including the environment (Prorok and Huth 2019; Thompson 1993). Moreover power and security are emphasised as paramount for state actors as espoused by Morgenthau and Carr (Quinn 2018, 71-73). Consequently, anarchy as the natural state of the international system necessarily sets up a security dilemma by which actors have to maximise their security against the threat of others, as espoused by Waltz (Quinn 2018, 71-73). Hence, states, as primary actors shaping international relations, and to maintain their security in an anarchical world, must militarily maximise their position in relation to others (Dyer 2001, 442). Deeply entrenched in this prevailing view of security are anthropocentric elements as the referent objects of security, like territories, humans, or states (Dyer 2001, 442). These have no way of considering the environment as the referent object of security in an ecocentric manner (Dyer 2001, 442). Moreover, conceptions like human security may be based on colonial understandings of what is human, thus allowing violence and insecurity to be enforced on those deemed as non-human (Grovogui 2013). These are often people who may not meet the colonial requirements of humanity (civilisation), or the environment (Grovogui 2013). Security is thus traditionally understood in terms of relative power and the maintenance of anthropocentric objects of security such as humans or states. While holding a place of importance, this means that conflict and security are constrained in their expansive capabilities by how IR is thought. They are thought of in terms of strategy, states, actors, casualties, and a singular preoccupation with violence (Grove 2019, 59-60). Moreover, because war is seen as exceptional and cataclysmic, in terms of IR's adherence to definitions, conflicts may be underrepresented, not only in how they affect the environment, but completely (Grove 2019, 59-60). In fact, the war peace binary that assumes war only during wartime and the peacefulness of peace is arguably insufficient for conceiving of violence outside of war (Barkawi 2016, 201). This is in relation to weapons development and testing and possible impacts on humans and the environment. Indeed, during the inter-war years, the environment was being considered for its centrality to the success and failure of wars (Harrington 2016, 485).

In addition, nuclear arms races had impacts long after the end of World War II, with testing destroying the environment central to Pacific Island Bikinian culture (Mauldin 2025, 118).

Colonial subjects in American Micronesia, the British Gilbert Islands, and French Polynesia were subject to similar impacts (D'Arcy 2025, 177). For these people and environments, testing of weapons was no test as it left them with incineration, cancer, and their land rendered uninhabitable (Grove 2019, 42). Beyond this, Barkawi (2016, 205) suggests that it may even be that since 1492, there has been a near continual state of warfare and repression, but always dispersed.

These assumptions manifest in both the trends securitising climate explored below, as well as the ways in which conflict in the Middle East is treated. In an emergency Security Council session following Iran's launch of missiles towards Israel following Israel's bombing of the Iranian embassy in Damascus in April 2024, the UN Secretary-General framed the conflict as an issue of peace and security and international law (United Nations 2024b). It was condemned by the United States representative there in terms of Iran's threat to the security of states such as Israel, Jordan, and Iraq, through its arming of Hezbollah in Lebanon, its enabling of attacks by Houthi rebels, its funding and training of Hamas, and the transfer of drones to Russia (United Nations 2024b). To the French representative, this represented the risk of a new war in the Middle East through escalation, with the Chinese representative echoing a similar sentiment (United Nations 2024b). These reflect the strong positions taken by states in international disputes. Here, complex issues, such as Palestine's occupation, may be reduced to an international law framing which tries to maintain peace and security at all costs, protecting the interests of the state. Conflict is seen largely as a security threat to humans or state actors rather than a threat to the environment. This is evident in the briefing following the Security Council's failure to adopt a resolution calling for a ceasefire on 20 November 2024 in which the situation is described in terms of who is responsible, what the humanitarian impact is, and what the failure to adopt on a resolution means for international law (United Nations 2024a). There is no mention of the environment. It is thus worth considering how rethinking IR offers more capabilities for understanding the complex history and present of related actors involved in conflicts, as well as the system in which they operate.

However, this trend can even be observed in the climate change realm, where it is argued that climate change is a threat to security and may exacerbate conflict, especially in regions like the Middle East (Siddiqi 2022). Despite what Siddiqi (2022, 2) calls the unhelpful preoccupation with proving a correlation between climate change and conflict, studies continue to attempt to do so. Siddiqi (2022, 2) thus contends that this stems from a colonial system of knowledge production which can be dismantled through a postcolonial critique. These systems were

attempts by European colonisers to completely dominate colonial subjects by producing knowledge about their colonies (Vijayasree 2013, 148). Siddiqi (2022, 3) argues that studies assessing climate change as a cause of conflict are rationalist and deny complexity, fuelling stereotypes that those in the Global South are prone to violence, as a colonial form of knowledge production. This does not fully appreciate why they may be required to migrate (Siddiqi 2022, 4). Instead, they are judged by Western scholars who have no appreciation of precise contextual detail, relying on quantitative methods and abstraction as the guises of imperial politics of knowledge production where there can be no subjective judgements (Siddiqi 2022, 4). Conflict, Grove (2019, 60-61) argues, could thus instead be read as a history of the Western-led order and more broadly, a history not of declarations, numbers, and treaties, but of politics, colonialism, capitalism, settlement, racism, and ecological destruction.

Siddiqi's argument is important to recognise not only as climate should not be seen as causing conflict in a simplistic model of causality, but to appreciate the environment more in its own right. It would be a shift from scientific Eurocentric positivism creating the dualism of Western philosophy placing man as master and owner of nature, which has utilised science as a means to order the world (Grove 2019, 40; Harrington 2016, 487-488). Knowledge has, from this positivist perspective, had an agenda to order the world (between coloniser and colonised or man and nature) while under the guise of objectivity, an aspect explored from Said's *Orientalism*, and asserted by Grove (Grove 2019, 40, 60-61; Said 2003, 2, 10). This epistemic mechanism deeming what is considered true or useful knowledge has generally been used to deny other knowledges as well as guide both control and action (Said 2003, 10, 32). Siddiqi is thus provocative in the recognition of this relationship as it hints at how the climate is empirically treated in terms of the interest of security while in policy, the environment may go unnoticed in terms of the impacts of war. In this fashion, the environment becomes useful to study because it may pose a security risk, but is not useful to study in terms of how it is impacted by war. Siddiqi's call for qualitative study does not deny the science of quantitative study but should enhance it. This is done by allowing it to be contextually cognisant, thereby aiding an analysis of how conflict exacerbates environmental degradation, instead of the other way around. Siddiqi's work thus reflects a specific indictment of the ways IR is thought, as explored above, while highlighting the effect on the environment of conflict and persistent coloniality. It thus becomes important not only to rethink IR for understanding the world, but understanding the conflict that inhabits it, and more specifically, how this impacts the environment. Similar to the relational ontologies which could be yielded by rethinking IR, Barkawi (2016, 203)

suggests that decolonising war may have insights into its co-constitution with politics, society, economy, and technology. Hence, having discussed how the thinking of IR is reproduced in understandings of war, conflict, and peace, important instances of violence or their impacts may be overlooked. Exploring how the latter aspect is studied is discussed next.

Impacts of War

The impact of war, despite being complex, has been traditionally evaluated in terms of political changes, namely, change in leadership, change in regime type, and involvement of external stakeholders in governance (Prorok and Huth 2019, 19). Prorok and Huth's (2019) review of political impacts of war thus focus on the state. One such impact pertains to endogenous and exogenous leadership change stemming from internal conditions or revolution and foreign-imposed regime change by victors respectively (Prorok and Huth 2019, 19). Another related impact involves what type of regime is imposed, or which regimes are more susceptible to change after war, premised on assumptions of differences between autocracy and democracy (Prorok and Huth 2019, 19). Here, autocracies are easier to change while democracies are not, due to the differing legitimacy with each (Prorok and Huth 2019). Other studies into impact evaluate the prospect of democratisation following war, based on how a war comes to an end, what institutions exist to promote democracy, and whether there has been international intervention (Prorok and Huth 2019, 20).

These impacts consider domestic political conditions in the state after war, focusing on leadership, institutions, and government. However, changes at the state level may also be evident internationally and may be more than political, but still related. This represents a limitation in the understandings gained from such studies which ignores certain impacts. These include economic effects of war through destruction of infrastructure and production capabilities of agricultural land, the reduction of labour through military conscription or death, or even innovation in weapons which could boost the economy (Thompson 1993, 128-130). This reduces vast impacts, amongst them both humanitarian and environmental, to economic variables of either positive or negative net effect on a state's economy. It is hence limited in its capabilities to look beyond the economic and state realms, especially to impacts which may not have tangible economic effects.

Also from an international perspective, wars may lead to the creation or break-up of states and subsequent territorial expansion, in addition to territorial changes from the war itself (Thompson 1993, 131, 136). On this level, impacted also are the positions of states in the world

in terms of position as powers, alliances and subsequent conflict due to territorial loss or weakening of the state (Thompson 1993, 136). Historically, this also impacted the ability to maintain control over colonies (Thompson 1993, 137), which may be applied to contemporary examples of settler colonialism, such as that in the occupied Palestinian territories. Even more than these regional changes in territory, conflict, or control, international impacts of war can be as significant as the reordering of the world order or economy (Thompson 1993, 137). It is arguable, for example, that the World Wars resulted in the entrenchment of the modern liberal international order, including institutions such as the United Nations and Bretton Woods institutions (Acharya 2022). Before this, the Peace of Westphalia symbolised the addition of non-intervention to the norm of state-sovereignty, even if indirectly (Paris 2020, 457). These perspectives are limited in understanding more diverse and non-unitary sets of actors like humans or animals by focusing on the state and what changes may be observable on a global scale. However, it has already been explored how the wars and decolonisation of the early 20th century, such as World War I and the Boer War, evaluated critically, perpetuated colonial relations in systems such as trusteeships (Thakur and Vale 2020; Anghie 2004).

These state-centric approaches to the impact of war have focused on the centrality of the state and its relations in terms of the impact of war. However, other studies have looked at the social and public health ramifications of war (Prorok and Huth 2019, 19). The most obvious of these impacts include battle-related deaths, with civilians considered as well as combatants (Prorok and Huth 2019, 21). Socially, other impacts include displacement and migration (Prorok and Huth 2019, 21). In terms of health, hazardous conditions and movement may exacerbate the risk of disease which would strain already damaged health facilities (Prorok and Huth 2019, 21). Of course, governments would not be able to meaningfully address these public health risks due to focus on war or post-war rebuilding of infrastructure (Prorok and Huth 2019, 21). General trends, apart from deaths and health stressors, include decreased life-expectancy and increased mortality, with the effects being felt stronger by women and children (Prorok and Huth 2019, 21). Prorok and Huth (2019, 21) survey the general trends of social and public health impacts of war, identified above, but nevertheless recognise that more may need to be done to evaluate which conflict types affect these impacts more. This would be to improve access to data for analysis and to disaggregate measures of health impact to identify specific effects which inform the broader complexity of general health impact (Prorok and Huth 2019, 21). This includes considering psychological health impacts of war (Prorok and Huth 2019,

22). Still, these perspectives are limited in their analysis of impacts often only in the immediate term and only on humans, and not the environment.

Hence, there are two broad themes dominating the way the impact of war is understood, representing a gap in the way the environment is traditionally considered as an impact of war. The first analyses the state as the unit of analysis, both in terms of internal conditions and changes to the international system. This reflects the state as a central focus of security (Simangan 2020, 214). The second analyses societies as the unit of analysis, encompassing social and health impacts on people. These are valuable in that states and societies are both real aspects of the world, but only represent a part of a greater picture that may be elucidated by evaluating the environment, smaller communities, entire regions or continents, and different time periods. It is even contended that the entanglements between war, the economy, resources, urbanisation, and science result in an annihilative and pervasive impact on people and the environment (Grove 2019, 82). These perspectives can be yielded through approaches critical of the assumptions of IR. They may yield insights into how more complex impacts stem from the complex relations between actors in a war, be they equal sides, or colonial powers eradicating populations or testing weapons. Hence, in one instance, it is worth considering other studies which have looked beyond these traditional themes, to evaluate the impact of war on the environment.

Impacts of War on the Environment

There have been numerous studies aimed at evaluating the impact of conflict on the environment. These pertain to specific instances of conflict such as in Ukraine (Wenning and Tomasi 2022; Rawtani et al. 2022), Gaza (London et al. 2024; Buheji and Muhannadi 2023; Baraquoni et al. 2020), the Gulf War (Gerges 1993), Ethiopia (Hishe et al. 2023), or Rwanda (Ordway 2015). They may also pertain to specific perpetrators of environmental destruction such as Israel (Qumsiyeh 2024) or the United States (Crawford 2019). Other studies are specific to weapon types such as landmines (Torres-Nachón 2004; Gangwar 2003), chemical weapons (Mojabi et al. 2010; Mayer and Johnston 1991), or nuclear weapons (Prăvălie 2014). Apart from these specific enquiries, there are also studies into the general impacts of war on the environment (Reuveny, Mihalache-O'Keef, and Li 2010; Lawrence et al. 2015) or at specific impacts conflicts may have, be it to soil (Certini et al. 2013), land systems (Baumann and Kuemmerle 2016), water (Francis 2011), or wildlife (Dudley et al. 2002). These studies point to the extensive literature on assessing impacts of war and conflict on the environment. They are valuable for their wide coverage of time periods and geographical locations as well as

weapons, which represent methods of analysis which could be used for different conflicts and environments. These can diversify how war is seen as a cataclysmic binary event as well as showing that impacts can follow from occurrences not traditionally considered wars.

A number of patterns are evident. Some studies straddle weapon types and look at specific locations or impacts on specific ecological components such as soil, water, or vegetation.[1] Conversely, other studies may straddle different locations if looking at impacts of specific weapon types that may have been used extensively.[2] Another general observation is that where some studies are directed towards environmental scientists, for example, they may not be as accessible to general readers or those outside the discipline such as in the social sciences.[3] This represents a barrier where social science analyses may be empirically lacking and where scientific analyses may be contextually lacking. At the same time, traditional IR as discussed above, may extoll the virtues of purely empirical work, but it has been seen how this may occlude certain aspects which are worth understanding. Still, that is not to suggest that studies on either side are devoid of any use on the other. However, a stronger interdisciplinary effort is necessary to bridge gaps and lead to a more robust response to the issues raised by these studies (Burke et al. 2016, 505). The rethinking of IR, rooted in the interaction of different disciplines and methods, can rise to meet emerging challenges. Similarly, the new challenges posed by the Anthropocene, and the interface of both social and empirical elements, may be addressed by conceiving of diverse perspectives unbound by rigid disciplinary boundaries (Burke et al. 2016, 506). It is possible to conceive that a more socially oriented study, even if considering the loss of vegetation in a conflict, may envision the impacts on the people and animals dependent on that environment. It may also envision the indirect impacts from their migration. This is similar to Siddiqi's (2022) critical view of empiricism which lacks complexity and a holistic understanding of occurrences such as migration.

To analyse the contributions of some of these studies in how they assist this study, and in terms of what gap exists, they are reviewed specifically by surveying what the impact has been by individual state, in individual cases, and by individual weapons, as well as pertaining to combinations of these when analysing individual environmental components such as soil or water.

[1] London et al. (2024); Qumsiyeh (2024); Buheji and Muhannadi (2023); Hishe et al. (2023); Wenning and Tomasi (2022); Rawtani et al. (2022); Baraquoni et al. (2020); Crawford (2019); Baumann and Kuemmerle (2016); Ordway (2015); Certini, Scalenghe, and Woods (2013); Francis (2011); Dudley et al. (2002); Gerges (1993).
[2] Prăvălie (2014); Mojabi et al. (2010); Torres-Nachón (2004); Gangwar (2003); Mayer and Johnston (1991).
[3] Baraquoni et al. (2020); Prăvălie (2014); Certini et al. (2013).

Impact of individual states

Two studies consider the impact of individual states. In the first, Crawford (2019, 2) finds that the US Department of Defense is the world's largest institutional producer of greenhouse gases through the production, transport, and usage of arms. Between 1975 and 2018, these emissions amounted to 3.685 billion metric tonnes of CO_2 and in 2017 alone, the Pentagon's total greenhouse gas emissions exceeded that of Sweden, Denmark, and Portugal (2019, 2). The Pentagon, coordinating US military activity, thus represents an impact of war on the environment in its production of greenhouse gases. More specifically, since the invasion of Afghanistan in 2001, the United States has emitted 1.267 billion metric tonnes of greenhouse gases (Crawford 2019, 2).

Crawford's analysis, apart from its findings, is useful in identifying from where these emissions are derived, informing a method for studies attempting to analyse military emissions. These sources include emissions for installations and non-war operations such as military bases, war-related emissions in overseas contingency operations, emissions from the production of weapons, emissions through the burning of petroleum such as oil wells and refineries, emissions of other belligerents, emissions through reconstruction of infrastructure, and emissions from other sources such as fire suppression chemicals like Halon, or explosions of non-petroleum targets in warzones (Crawford 2019, 11). Crawford's (2019, 13) study is similarly useful for identifying how specific vehicles may have specific fuel consumption ratings which may, combined with ranges of travel, provide an estimate of carbon dioxide emissions. Hence, apart from the significant findings of this study, it is useful in revealing which areas may contribute to greenhouse gas emissions and how they may be estimated.

While significant in comprehensively analysing greenhouse gas emissions, this study does not engage with deeper impacts from specific weapons in specific locales such as cluster munition use in Afghanistan. Here, 248 056 BLU-97 submunitions were deployed (Handicap International 2006, 29), containing 317.5 grams of cyclotol explosive each (CAT-UXO n.d.), which when unexploded, may leech into soil, with toxic impacts (Geneva International Centre for Humanitarian Demining and Convention on Cluster Munitions 2016, 18-19). Hence, any study of an impact on the environment must analyse such impacts beyond greenhouse gas emissions, representing a limitation of the Crawford study. There is value in thinking of impact in more varied forms, which may be overlooked by studies only concerned with emissions. Still, Crawford's disruption of what constitutes war and its impacts, for instance in analysing

military bases or reconstruction, represents the opportunities for rethinking war in IR, especially in terms of the environment.

The second study considering the impact of a specific state is that analysing Israel's impact on the environment through its total military activity in Palestine since 1948 (Qumsiyeh 2024). This analyses a range of impacts from pre-conflict to post-conflict activities. This is useful less for its methodology, which brings together other studies, but for the areas analysed. This identifies generally what activities Israel engages in to harm the environment in all stages of conflict. In pre-conflict, Israel has a military industrial facility near Tel Aviv which produces pollution including with Trichloroethane and heavy metals (Qumsiyeh 2024, 979). In addition to 210 military bases, Israel also impacts biodiversity by limiting movement of wildlife, similar to humans, through restrictions and zoning supporting settler colonialism, as well as disruption of water resources (Qumsiyeh 2024, 979-980). Israel also possesses a large fleet including 251 US F-class attack jets, 330 support jets, 128 helicopters, and 15 transport planes, all of which emit greenhouse gases (Qumsiyeh 2024, 979). Land vehicles may have a similar impact, numbering 2500 tanks and 5000 armoured personnel carriers (Qumsiyeh 2024, 979). The impact of activities during conflict is identified as significant due to the significant number of explosives being dropped (20 000 tonnes in 2014 and 89 000 in 2023) and the advanced and large bombs being used (Mark 80 aerial bombs) (Qumsiyeh 2024, 981-982). This is such that Israel has destroyed 70% of all buildings in north Gaza in the present conflict (Qumsiyeh 2024, 981-982).

Qumsiyeh (2024, 982) also evaluates specific impacts on soil, air, animals, and water, during conflict. Israel has used explosives with depleted uranium or high impact explosives, incendiary bombs, and white phosphorous which all have impacts on soil, air, and water. Solid waste has resulted from the use of these weapons, sinking boats and creating concrete, steel, and rock debris from the tens of thousands of buildings bombed (Qumsiyeh 2024, 983). The noise pollution from this has meant noise is above double that which is deemed allowed, impacting even marine wildlife such as dolphins (Qumsiyeh 2024, 983). Destruction of water and wastewater services means this impact influences water resources. Sewage is being dumped on the land or in the sea and sea water is being used to flood tunnels in Gaza, polluting the underground water table and influencing biodiversity above (Qumsiyeh 2024, 983-984). Over time, Israel has also left behind a lot of unexploded ordnances such as landmines which remain a post-conflict risk (Qumsiyeh 2024, 984). The value of this study is thus that it analyses a range of impacts Israel has had on the environment in Lebanon and Palestine since 1948,

identifying areas that must be considered in this study. Furthermore, it holistically explores the relations between the people, animals, and environments of the occupied Palestinian territories. Hence, even though the findings are preliminary, they reflect important areas of consideration.

Impact in specific areas

A few studies consider the impact of conflict in specific areas. In some cases, this overlaps with the analysis explored by authors above. For example, an analysis of Israel's current war on Gaza complements Qumsiyeh's analysis, finding that Israel's destruction of wastewater plants has seen the daily dumping of 100 000 cubic meters of wastewater into the sea or on land (London et al. 2024, 3). The same study expects there to be major impacts due to toxic pollution from explosives (London et al. 2024, 3). They also anticipate pollution of soil from white phosphorous in bombs used in 2023, and damage to the land due to flooding of tunnels by Israel (London et al. 2024, 3). This study is, however, more empirical and does not delve into longer-term impacts that may result from disruption to the lives of the people or animals in Gaza.

Buheji and Muhannadi (2023) provide more context for these impacts or expected impacts in Gaza, also focused on the recent conflict, with context provided for previous time periods. As of the time of the writing of their article, 25 000 tonnes of explosives had been used in Gaza, with airstrikes occurring every 15 minutes (Buheji and Muhannadi 2023, 20). More specific impacts pertaining to the effect in Gaza is reviewed below where the literature on Gaza is considered. However, the authors highlight each period of conflict in Gaza, the operations undertaken and weapons used, as well as facilities targeted. This shows patterns of extensive bombing campaigns and the use of depleted uranium and white phosphorous, explored further below. These studies represent that there is consensus on what the impact of Israel's war on the environment in Gaza may entail. However, this may not go into specifics from pre-conflict to post-conflict impacts or represent the data in an aggregated manner. They furthermore do not represent an updated impact on the environment since the conflict has continued past its first anniversary.

Another key site of conflict has been Ukraine, where details of an impact on the environment has also been sought. Rawtani et al. (2022) identify several potential impacts that may result from Russia's invasion of Ukraine. The first pertains to water, where there may be contamination from chemical, biological, or nuclear sources, and where Russia's targeting of industrial regions in Eastern Ukraine may destroy mines, petroleum facilities, or other

industrial units which could release toxic substances (Rawtani et al. 2022, 2). Acid mine drainage may also result from closure of coal mines in that region and the suspension of pumping, leading more toxins to seep into the groundwater aquifer (Rawtani et al. 2022, 2). And, like Gaza, if sites of treatment or storage of waste are targeted, these may pollute the land and water (Rawtani et al. 2022, 2). So, apart from direct impacts of weapons on the environment, activities being affected by war or infrastructure being damaged by war may also lead to environmental degradation.

There is also an impact on the air in Ukraine. Similar to Crawford's findings, Rawtani et al. (2022, 2) find that activities including those related to vehicles and equipment used in war may result in greenhouse gas emissions, including the release of dust and particulate matter, affecting air quality. This effect on climate change will be exacerbated by the negative impact on Ukraine's efforts to reduce greenhouse gas emissions as it redirects its focus from development on renewables to the war effort (Rawtani et al. 2022, 4). Similar to the risk of water pollution, there may be risks to air quality from explosives and weapons that are biological, chemical, or nuclear (Rawtani et al. 2022, 2). Moreover, targeting of industrial facilities such as refineries may also release toxic gas into the air (Rawtani et al. 2022, 2). This risk extends to the destruction of Ukraine's nuclear power plants which could cause radioactive pollution (Rawtani et al. 2022, 3).

Like other authors, Rawtani et al. also find that the impact could be observed not only in the air or water, but in the soil of an impacted area. Crater formation may be a physical impact of shelling and bombing, while pollution may come from hazardous deposits due to damaged infrastructure or weapons, including unexploded ordnances like landmines (Rawtani et al. 2022, 3). Land use pattern change due to damage and landmines, or loss of vegetation, may also impact soil fertility (Rawtani et al. 2022, 3). Finally, ecosystems may be impacted as a result of the physical and chemical impacts of war, with deforestation and wildfires being some observable impacts. In March 2022, this was seen in Chernobyl where 7600 hectares of forests and grasslands were impacted by wildfires (Rawtani et al. 2022, 4). This shows how war may have an ecocidal logic which targets the environment, representing a gap in how war has been studied. This gap has been explored above but the implications for the environment are considered further below. These varieties of impacts thus become opportunities to evaluate how war operates by utilising the environment. It further offers insight into the possibilities of what a holistic understanding of war and the environment may entail by also interrogating the interface between the two.

Rawtani et al. (2022, 4) furthermore find that it is likely that there will be a large impact on the environment as a result of the over 120 000 explosives having been used. This includes the destruction of nearly 85 000 tonnes of petroleum products and the subsequent release of 294 242 tonnes of greenhouse gas emissions (Rawtani et al. 2022, 4). In terms of biodiversity, forest fires have affected 250 484 hectares of forest, releasing over 180 million tonnes of greenhouse gas emissions (Rawtani et al. 2022, 4). Finally, over 14 million square metres of other ignition has occurred, releasing 1.15 million tonnes of greenhouse gas emissions (Rawtani et al. 2022, 4). Overall, Rawtani et al. make some useful findings in line with other studies but do not go into much detail on some of the impacts posited. This study is thereby useful as a reinforcement of some of the areas which should be considered in a holistic environmental impact study.

With numerous conflicts occurring, there are several locations being addressed by various studies. For example, Hishe et al. (2023) study the Tigray region of northern Ethiopia, evaluating the impact of conflict on vegetation cover. Their study, using remote sensing (explored further in the methodology below) to evaluate the changes in vegetation, find that conflict between 2020 and 2022 has decreased vegetation cover, reversing gains made between 2000 and 2020 (Hishe et al. 2023, 647). This represents a useful methodology to consider for this study. It also disrupts some of the preoccupations which IR may have with conflicts meeting traditional definitions of war by analysing a localised area. Similarly useful is Ordway's (2015) analysis of forest cover change in Rwanda due to conflict between 1986 and 2003. This also makes use of remote sensing and satellite imagery to evaluate changes, though finding variable growth and decline in forest cover at different places due to displacement of people (Ordway 2015, 458). This finding may be less relevant for Gaza which is a small and densely populated area. Another study by Gerges (1993, 307-311), looking at the Gulf War, finds generalised impacts from the daily release of 50 000 cubic metres of raw sewage into the Kuwait Bay due to damage to wastewater treatment plants, the pollution of sediments, damage to coral reef organisms, damage to seagrass, and the emission of 300 million metric tonnes of carbon dioxide from fires. This also represents, like subsequent studies, a way of comprehensively analysing impact on the environment. It is also possible to see that because different studies assess different areas with different geographies and weapons used, impacts may vary. This needs to be considered in developing a methodology which determines which measures are common amongst all conflicts (perhaps vegetation loss) and which measures are more specific to certain conflicts. In the latter case this could be radioactivity due to the use of

nuclear weapons, or chemical pollution due to gases. Moreover, some of the methods such as remote sensing represent useful developments in understanding impacts in zones still in conflict or where travel to obtain samples is not possible. However, it is still unable to analyse certain features like water table pollution (which is underground) or impacts on humans and animals, though the latter may be inferred from high resolution satellite imagery.

Impact of specific weapons

In addition to location-specific studies, there are weapon-specific studies. Mojabi et al. (2010) are important to review for they explore specifics pertaining to white phosphorous which is seen to have been used by Israel. The authors identify it as a yellow wax-like substance which, when fired from artillery shells, produces a yellow flame and white smoke that burns people, buildings, and materials indiscriminately while in contact with oxygen (Mojabi et al. 2010, 2). It also provides cover for troop movements (Mojabi et al. 2010, 2). The authors, however, stop at analysing the substance in terms of impact on humans, making it necessary to study further the impact on ecosystems or ecological components. They are useful in terms of identifying the mechanism by which white phosphorous acts – as a dual smoke and incendiary effect, the latter of which relies on oxygen.

Landmines being another weapon used by Israel, studies on this impact are important to review. Torres-Nachón (2004, 260) focused on anti-personnel landmines which are exploded by the proximity or contact of a person. His study found that 110 million landmines have been planted around the world (Torres-Nachón 2004, 263). These may corrode to leak heavy metals such as mercury and lead into soil, or they may destroy vegetation or kill animals upon explosion (Torres-Nachón 2004, 265). An indirect impact may be the displacement of people which may impact other locations due to human activity such as deforestation (Torres-Nachón 2004, 265). Being located in rich biodiversity areas such as Southern Africa, Asia, or Central and South America, these represent risks to plant and animal species there (Torres-Nachón 2004, 275-276). However, the precise impact is difficult to assess, especially in terms of precise impact in the extent of soil and water pollution, due to lack of data (Torres-Nachón 2004, 275-276). Hence, this study reveals general trends which may be observable with landmines, though raising a methodological problem of obtaining data. In this case, this may necessitate analysis using remote sensing of chemical composition of soil or changes in vegetation in areas with landmines or estimating the area with landmines as a measure on its own. However, the capabilities of this are still limited and constrained by technical expertise.

Another study into the impact of landmines, by Gangwar (2003), has similar findings. This identifies specific impacts such as landmines covering 2 million acres of land in Vietnam or 125 000 animals being killed in Libya and 264 000 animals being killed in Afghanistan by mines and other unexploded ordnances (Gangwar 2003, 2). However, while extensively covering generalised impacts of war and landmines, Gangwar is unable to identify substantial specifics on the quantitative impact, likely due to the constraints identified by Torres-Nachón. Still, in terms of environmental security, these studies represent the imprecision and variety in analysing impact which may be difficult to assess or be wide-reaching – something not considered in environmental security. In addition, both these studies are over 20 years old and there have not been extensive studies of this kind since, perhaps due to the reduce in use of landmines as more states accede to the 1997 Mine Ban Treaty (International Campaign to Ban Landmines 2024, 1). However, it is worth considering that existing landmines may continue to have an impact long after war has ended or new landmines are used, suggesting the need to consider impact and war on a broader temporal scale. For instance, it is a positive development that more studies are being conducted into the impact of nuclear testing, especially as radioactive effects remain in the environment for decades (D'Arcy 2025).

Impact on specific components

In addition to studies which may identify the impact of various components in one location or by specific weapons, there are studies evaluating specific impacts on components which reveal methodologically useful insights. These pertain to soil and water. Certini et al. (2013) evaluate the impact on soil, identifying physical impacts in terms of cratering, chemical impacts in terms of pollution by heavy metals, explosives, white phosphorous, depleted uranium, chemicals such as defoliants, and biological impacts such as propagation of bacteria with impacts on animals. This is not dissimilar to the findings by other authors which deal with impacts on soil of specific conflicts. It is however a highly scientific approach, inaccessible to those outside chemistry or biological sciences, and not specifically useful for revealing how soil can be analysed in a specific location, though revealing what could be analysed about soil. Thus, it does not offer insight into critically considering the extent of ecocide.

Francis conducts a similar study of generalised impacts but on the component of water. Here, water can be affected by efforts in preparation for war, in its use as a weapon (such as for flooding), by physical and chemical impacts of ordnances, and the pollution of various substances including defoliants or heavy metals (Francis 2011). Like Certini et al. (2013), this is not dissimilar to other findings by authors on specific conflicts, and it is highly scientific,

making it less easily interpreted. However, it does reveal what can be analysed about water, even if not specifically how this could be done. Indeed, the author recognises the need to develop methods to quantify these impacts on comparable scales, representing a gap (Francis 2011, 996). These scientific approaches thus represent an empirical viewpoint which does not say much without context or accessibility, rendering the data obsolete in terms of aiding further thinking (Grove 2019, 15). In fact, these should create the conditions of holistically understanding ecocide, representing a critical epistemology which is missing (Grove 2019, 15). This scientific knowledge thus needs to work together with knowledge of the environment in a broader sense, which includes humans, to inform more expansive thinking of what the impact of war is on the environment.

These studies reviewed all show vastly different impacts on the environment which are not exhaustive. However, this further strengthens the need to evaluate conflicts from an environmental lens and reveals avenues to consider vegetation, carbon emissions, soil, air, water, and land changes, as potential areas of enquiry.

The studies surveyed thus reveal examples of various impacts but concentrate on one location, in some cases. Others evaluate examples of weapons across various locations or of specific impacts on components by all war. In comparison, Machlis and Hanson (2008, 729, 732) attempt to envision a holistic taxonomy of the impact of war on the environment that informs a broader view of the systems (such as biodiversity, soil, or water, etc.) affected by conflict. This involves looking at impacts stemming from preparation for conflict, the occurrence of conflict, and postwar activities, much as some of the studies did so above. It would also involve evaluating impacts on components such as soil, vegetation, wildlife, forests, water, marine life, as well as the larger planetary climate. Qumsiyeh (2024), Rawtani et al. (2022), and Gerges (1993) seem to have been engaging in such an exercise, identifying specific areas to evaluate in each stage of conflict, and on specific components. The studies above could thus inform a thematically segmented study in line with that proposed by Machlis and Hanson (2008) that appreciates the complexity of the impacts of conflict on the environment. This is in line with the themes that have been pointed out (soil, water, etc.), and which may be analysed in the pre- and post-conflict stages as well as during conflict. Of course, without the context that is arguably important to accompany empirical studies, data is arguably obsolete (Grove 2019, 15). Hence, literature pertaining to the importance of the environment is considered next. This vitally builds on the general principles of rethinking IR to conceptualise a framework for rethinking war and the environment itself. Nevertheless, the studies above pose interesting

challenges to IR's disciplinary boundaries, periodisation of wars, and binary logics. These present useful methods for rethinking IR beyond these constraints which occlude violent impacts outside of official wars.

Anthropocene

It is important to consider why the environment matters in understanding the impact of war and in analyses of conflict and security. In a 2002 "Nature" article by Paul Crutzen, he posited that we are experiencing a shift from the Holocene as a geological epoch corresponding with and facilitating human development, to a warmer and human-dominated geological epoch defined by climate change induced by human activity (Steffen et al. 2011, 843; Satgar 2018b, 49-50; Lewis and Maslin 2015, 171). Called the Anthropocene, it is an epoch dominated by human-induced climate change and it considers the relationship humans have with the environment (Lewis and Maslin 2015, 178). This is one which is asymmetrical and which may potentially see humans taking a more active role in managing the environment (Lewis and Maslin 2015, 178). This recognises the undeniable increase in temperatures and atmospheric carbon, extreme weather events, biodiversity loss, and extinction rate since the fifth mass extinction 66 million years ago (Harrington 2016, 493). Since 2016, the International Commission on Stratigraphy and the IPCC (since 2007) have included the notion of "anthropogenic climate change" in their analysis (Satgar 2018b, 51). This places the climate crisis as central to the planet's geological future and positions humans as central to addressing and reversing the change.

The combination of the Anthropocene and the manifold effects on society are vast and transboundary. These are impossible to predict and hence mitigate, constituting a poly-crisis of simultaneous and disparate crises whose impacts exceed the sum of each impact alone (World Economic Forum 2023, 9). Combined and simultaneous environmental, geopolitical, and socio-economic threats are consequential to life, self-determination, food, health, water, and housing, and the planet which sustains all life (World Economic Forum 2023, 9; OHCHR 2015, 2, 6). The root of the Anthropocene places human activity as central to the issue, whereby even action to mitigate effects on humans may exacerbate the crisis. There has already been some discussion of how universalist concepts such as the Anthropocene may be insufficient in highlighting the unequal relations not only between humans, but humans and non-humans. This may also embrace empirical studies or positivist thinking which may occlude the complexity and number of sources contributing to the Anthropocene. One source may be war and some studies highlighting this link have already been discussed. Hence, the Anthropocene has been critiqued for maintaining epistemic coloniality by asserting a Eurocentric progression of

development, maintaining the human-nature dualism, and furthermore positioning humans as stewards of nature (Simpson 2020). This may depoliticise responsibilities towards causing climate change and ascribe blame to relations with nature of indigenous peoples, for example, when they have existed in reciprocal harmony with the environment (Simpson 2020, 65). In fact, these reciprocal relations are occluded by the Anthropocene's Eurocentric adherence (Simpson 2020, 65).

Thinking beyond the Anthropocene is thus essential. This requires a deeper appreciation of the environment in its own right (Satgar 2018a, 18). This is especially because an appreciation of the Anthropocene on its own does not help dismantle the negative impacts humans have on the environment. In some ways, it simply reinforces the human position as central, recognising humans as core to the problem so far but identifying humans as core to the solution. However, this does not decentre the human and repositioning the environment. Still, this recentring could consider the environment, not humans, as the referent object of concern such that the environment is considered first in taking action, not humans. Less than accountability, maintaining human centrality may represent a reinforcement of human control in a way that, as Lewis and Maslin (2015, 178) suggest, may return humans back to the centre of the universe. However, it is perhaps useful not to replicate dominance and replace the central figure of that (human or the environment) but embrace an equal appreciation of the presence of multiple related objects (humans, animals, plants, the environment, the planet). This is explored further below.

Some of the perspectives to manage the environment's position have considered granting nature rights, contemplating the impacts of climate change across borders (thereby challenging state sovereignty), and reframing it as a global feature (the planet) (Simangan 2020, 216-217). Within IR, in rethinking the human position, posthumanist IR has conceived of the human as a "socially and culturally constituted category" as "ambiguous beings" connected to other non-human beings (Harrington 2016, 490). There are thus hybrid ontological forms of relations between the human and non-human (Harrington 2016, 490). This is encouraging because it does not remove the importance of humans or suggest that there should be a hierarchy of concerns which must necessarily have a top. Instead, it proposes a framework of horizontally related actants. This includes non-human agency, the appreciation of complexity, non-linearity and unpredictability, and recognises the hierarchies of power within human systems and between humans and non-humans (Harrington 2016, 490). This vitally challenges the human-nature duality as a key issue in IR (Simangan 2020, 218). It also encompasses objects as diverse

as animals, microbes, devices, materials, and terrain, but emphasises their agency, not their utility (Harrington 2016, 491). Grove (2019, 71) poses a provocative scenario in which an asteroid hitting the Soviet Union with a thirty-megaton blast in 1962 instead of 1908 could have been mistaken for a nuclear attack. This may have led to nuclear war, mutually assured destruction, and perhaps nuclear winter (Grove 2019, 71). Here, a non-human agent has a role to play in ways unconceived by anthropocentric logics of security dilemmas.

Still, because the Anthropocene has been created on the frontlines of modernisation by, often, wealthy European males, even a posthumanist stance should perhaps centrally focus on the decentring of power, not humans (or all humans) (Harrington 2016, 483; Grove 2019, 44). One intervention has been the consideration of a Capitalocene in which nature has been commodified and degraded for capital gain (Simangan 2020, 220). This would highlight the industrialisation of developed states through strategies of destruction and colonialism, which allows them a transition not available to countries on the opposite end of this (Simangan 2020, 220; Grove 2019, 47). Grove even critiques the Anthropocene for being a geo-biopolitical means of maintaining the world order even though that order has precipitated the crisis it describes (Grove 2019, 47). Hence, the Anthropocene is less about humans being central and more about systems of capital, power and knowledge from some portions of humanity as authors such as Grove, Harrington, and Siddiqi explore. So, it is important to understand not only the relations of all things, but the relations of power between them. However, not only does posthumanist IR, according to Grove (2019, 10), fail to prioritise this, but in thinking IR itself, universalist abstractions used to understand reality conceal power relations, erasing responsibility (Krishna 2001, 403). Hence, similar to Sabaratnam's (2020) provocation that the issue is not in the author's skin colour or location but in their adherence to assumptions which privilege structural power, it may be that the issue of the environmental crisis is not humans, but power. At present, Grove (2019, 39) suggests that the Global North beneficiaries of the global order are animated by interests of order which deny these complexities, maintain unequal power relations, and embrace empiricism in dealing with the Anthropocene. Hence, it may be that the Anthropocene is wholly insufficient if it represents the coloniality of IR thinking.

Reading a history of imperialism, and recognising this power, reveals instances where war has impacted the environment. For instance, in looking at the Boer War as Thakur and Vale do, there are implications for the environment that can be seen beyond the traditional concerns of IR or its making. The relations between the British imperialists, Boer farmers, and the land,

provide insight into Lord Kitchener's strategy to burn Boer farms and undermine their ability to feed themselves (Tucker and McNeill 2025, 322). Grove (2019, 6) points out that wars in settler colonies, in seeking to disrupt the people and their relation to the environment, annihilated both. As he discusses, in ordering the Americas, there was a cost to human and animal life, ecosystems, and the climate (Grove 2019, 42). To defeat the Sioux, Kiowa, and Comanches for instance, bison was exterminated (Dunlap and Brock 2022, 4). Rethinking the Anthropocene and IR itself identifies how non-humans have been the target of violence. Relational thinking sees food as one reason justifying violence on the environment, due to its sustenance of enemies (Grove 2019, 87). Furthermore, rethinking IR to see the coloniality of more recent wars, the activities of war, even during peacetime, and seeing beyond the war-peace binary recognises some notable instances of ecocide. In addition to the nuclear testing discussed above, with radioactive fallout and uninhabitability persisting, the United States used "44 million litres of Agent Orange and 28 million litres of other defoliants" to damage the forests, soil, mangrove marshes, and wildlife of Vietnam, as well as defeat the North Vietnamese (Grove 2019, 42; Tucker and McNeill 2025, 325; Dunlap and Brock 2022, 2). In these accounts, it is perhaps possible to see the environment rendered nothing more than a factor of war (Harrington 2016, 485). And, broadly considering war as inclusive of the violence of European conquest, settlement, and extractivism, instances such as the clearing of the US Great Plains to remove humans and animals to make way for agriculture shows how the order Grove (2019, 3, 11) discusses as central to IR, can collapse an entire habitat. Herein, humans are entangled with the environment as perpetrators and co-victims of its destruction. In addition, there are also entanglements of goggles, amphetamines, drones, animals, degraded vegetation (Harrington 2016, 491). These offer insights into how the ecocidal dynamics of more recent wars can be understood. For example, how do wells and tunnels in Gaza have an impact or are impacted.

Recognising this destruction and going beyond the Anthropocene, ecocide is important to define as a feature of relations defining war and the environment. Defined as the destruction of the environmental ecosystem, with war, deforestation, mining, pollution, emissions, and any other deliberate destruction (Satgar 2018b, 55; Dunlap and Brock 2022, 2), it is therefore important to interrogate what role war and conflict play, not only in terms of the impact on humans. This is especially as ecocide features the transformation of the environment into a space of war (Grove 2019, 82). Thus, moving beyond the Anthropocene assists in going beyond traditional notions of security which hold states, people, or society as referent objects, and

instead towards a form of security that sees ecosystems themselves as referent objects of security (McDonald 2018, 163). McDonald (2018, 165) argues that this should preclude the word environment for its implication with human society. This is important so that the environment, the planet, or nature, is not given importance only for its impact on state or human security but because its own security may be impacted (Dyer 2001, 443-445). Thus, the environment becomes more than a variable to be managed in waging a war for conquest, providing food to belligerents, or testing weapons to augment military capabilities as in the instances discussed above. So, the environment should not be securitised only to maintain anthropocentric concerns or as the maintenance of the interests of actors waging war, albeit enlightened (Dyer 2001, 447). Instead, it should perhaps avoid security discourse altogether to avoid the pitfalls of thinking in terms of security, in terms of IR, or even anthropocentrically.

In terms of identifying broader ways of thinking IR, and recognising that adding the environment to a security calculus may simply reproduce old ways of thinking, it is proposed that relations between objects may be a useful way of thinking. Perhaps there remains room for humans here, not ignoring humanitarian concerns in favour of ecology, but seeing the deep entanglement between humans and nature. This is not a co-existence or relationship of convenience but a significant relationship in which being is inextricable from nature (Harrington 2016, 489). This is where humans ultimately do depend on the planet for life (Dyer 2001, 448). It may also be conceived that animals also rely on the planet for life, and as the planet is shaped by beings dependent on it, the planet is even dependent on them, constituting a being. This recognises the risk of appending the environment to the list of human security concerns as Dyer warns (where human remains central and environment is decentred). It hence realises that humans are still a part of the environment which sustains them (where the environment is central and humans are decentred) as a heuristic as other non-statist perspectives grow. It may be particularly useful to avoid centrality altogether, as posthumanist IR may suggest, or more radically, in terms of lending importance to relations. Grove (2019, 10) calls this ecological, referring to relations which are inhuman, across scales of space and time, and not discrete, causal, or human.

The alternative is that the environment will be securitised or defined as a threat in relation to state security (Harrington 2016, 485). For example, the environment will be treated as a threat to security by exacerbating migration (Dyer 2001, 445). Or, the environment will be used as a unit of analysis by which some states criticise others for damaging “their” environment, while ultimately maintaining the statist perspective, notwithstanding that climate change transcends

boundaries (Dyer 2001, 446). There could also be concerns over resources or societal breakdowns (Harrington 2016, 486). Causevic and Marashi (2023), in their study of how NATO can adopt a strategy to address the security threats of climate change, display the dangers of such an approach. For example, climate change may exacerbate existing socio-economic tensions, especially placing a stress on food and water access, and coastal habitation whereby migration or conflict may result (Causevic and Marashi 2023, 69). This may stress fragile states, creating the risk of public disorder, civil unrest, or riots (Causevic and Marashi 2023, 69). Causevic and Marashi (2023, 70) identify the difficulties that traditional statist security has with climate change, much like Dyer, because it transcends borders for example, with potential for it being treated as a threat-multiplier variable at most. NATO reports identifying this as a security threat that requires a coordinated strategy, including things like defence planning (Causevic and Marashi 2023, 76). This does not actually remove the environment from the security realm, and even places it as a task under military control. The authors suggest a more sustainable approach (Causevic and Marashi 2023, 78), though this seems more in line with the heuristic Dyer suggests than a meaningfully alternative strategy.

Considering the limits of understanding the environment's position in terms of IR, security, and the Anthropocene more broadly, authors propose relational ecologies between broad classes of posthuman actors which together constitute an environment. This holds promise for avoiding the pitfalls of universalism or abstraction in IR. These pitfalls erase diverse experiences, consider the environment in terms of humans and humans privileged by Whiteness largely, and ultimately reproduce the conditions which have precipitated the "Anthropocene". Moving beyond this, it is possible to construct a framework for understanding these relations. Before exploring this, however, a literature of the case study of Gaza is discussed.

Gaza

To assist the conception of a framework which rethinks the impact of war on the environment, the case study of Gaza could be used. As mentioned above, this represents one of the prominent zones of conflict at the moment. It also presents varied insights into an area which has experienced forms of colonialism and whose sovereignty is contested within the system of international law. Like Thakur and Vale's consideration of South Africa, considering Gaza may offer insight into the relations underpinned by the coloniality of thinking IR. As a zone experiencing a war, it may also elucidate ways of understanding the impact of war on the environment.

In addition to the background provided above and the explorations of history and impact on the environment to follow, the literature on Gaza could broadly be considered. First, this could contend with the coloniality in how Gaza is understood, and then identify which authors have contributed to scholarship on Gaza, its history, and the experience of its environment with war.

Following the October 7, 2023, attack by Hamas on Israel, the State of Israel responded with a large-scale incursion on Gaza involving air raids and a ground invasion. This has entailed a large-scale loss of life, displacement, and a significant and mounting impact on the environment (Agha et al. 2024, 1; Neimark et al. 2024; Buheji and Muhannadi 2023). As of July 11, 2025, it has resulted in the direct and indirect deaths of at least 57 680 people (UNRWA 2025). Conservative estimates however, accounting for unidentified or missing persons, at a rate of 4 indirect deaths per 1 direct death (Khatib et al. 2024), could put this number at as many as 288 400, or 12% of the population. Gaza has thus been recognised by some as the location of the most well-documented genocide in history (Albanese 2024).

However, Gaza has for longer, been an enduring presence central to the Palestinian struggle for self-determination, while receiving the harshest treatment through its occupation and blockade by Israel (Agha et al. 2024, 4). As such, it is contended that Gaza has experienced the entangled difficulties of self-determination, political oppression, and environmental decimation (Stoler 2016, 60). Despite this, it has been argued that Gaza's story has been told not in a way that reveals these entanglements, but which ignores pre-modern Palestine (Doumani 1992, 6). This erases the experience of Palestinians, and tells a history which begins with the arrival of "modernity" with Napoleon, or through events describing political transformations (Doumani 1992, 6). These include the rule of Egyptian King Muhammad Ali, the arrival of Jewish settlers in 1882, Ottoman reform due to British efforts, and a fascination with the area's biblical history (Doumani 1992). This historiography appears to resemble IR thinking by privileging histories which feature prominent imperial powers, eliding the experiences of Palestinians themselves, and promoting the importance of principles such as modernity and its arrival in Palestine. It is conceivable that this may shape how Palestine and Gaza are seen, which histories of theirs is deemed important, and how coloniality shapes Gaza today. The insight which could be gained by this is that an analysis of this area's history and present needs to carefully be undertaken with cognisance of the coloniality in thinking informing dominant narratives. This is such that attention is given more equally to facets of its history both political and local. This may include how locals have experienced Gaza as well as the relations between Gaza and Palestine and their people, environment, and the world more generally. Importantly, the work on orientalism

by prominent Palestinian academic, Edward Said, may be effective for understanding Palestine and Gaza's experience of coloniality. The framework and definition for this is discussed below.

Studies evaluating the impact of war on Gaza are numerous. In addition to those providing historical context (Agha et al. 2024), there are studies and reports exploring facets of the events in Gaza and reporting on the humanitarian and environmental situations. As a territory for which there is a UN Special Rapporteur, Gaza has been covered by Francesca Albanese, UN Special Rapporteur on the situation of human rights in the Palestinian territories occupied since 1967. While the October 1 report stemming from this is primarily concerned with human rights, key findings include that Israel's occupation has been ruled as unlawful by the International Court of Justice (ICJ) in July 2024, that this has been through force, racial segregation, and apartheid, that Israel now displays genocidal intent in Gaza, and that this has been made evident through evidence of humanitarian impact and the targeting of the ways of life of Palestinians in Gaza (Albanese 2024). While this is framed in terms of the violations of international law, Albanese (2024) does also consider the ongoing colonial erasure she asserts is constituted by genocide, as well as the possibility of ecocide being practised as well. Owing to its purpose as a report, it is thus framed in terms of a legal opinion and relates the situation through the use of statistics. As an analysis of an ongoing war, this poses limitations but the report is effective in bringing together multiple pieces of information and attempting to depict the colonial erasure unfolding (Albanese 2024). This does mean it features less history and considerations of the international relations enabling the war. However, it is a useful collation of information on the war and provides insight into the legal question of genocide, which may be nuanced in this study by a framework for rethinking IR and the impact of war on the environment.

Similarly, the periodic reports describing the humanitarian situation synthesised by institutions such as the UN Relief and Works Agency for Palestine Refugees in the Near East (UNRWA 2024), the Food and Agriculture Organisation (FAO 2024a; FAO 2024b), and the United Nations Environment Programme (UNEP 2024a; UNEP 2024b) all empirically describe the humanitarian and environmental situation in Gaza. They provide up to date information on the unfolding situation, synthesising various elements, but as reports, avoid broader explorations of the colonial international relations enabling the war. However, like the empirical studies of the impacts of war on the environment discussed above, these provide useful sources for developing deeper understandings. The UNEP (2024a) report is a comprehensive preliminary analysis released in early 2024 which analyses the environmental situation in Gaza before the war, and during the war. This is done in terms of categories of water, solid waste, energy, the

marine environment, the terrestrial environment, and the air. In each category, with whatever information has been available, it attempts to envision the change due to the war and the impact this could have on the people and environment. It also anticipates what indirect impacts may follow from the displacement of people, for example (UNEP 2024a). This is useful as it provides categories which may inform a methodology of an impact analysis, explores means of determining impact, and envisions the relations between people and the environment holistically. In terms of the humanitarian situation, this can be supplemented with later information provided in FAO and UNRWA situation reports. The UNRWA (2024) report frames impacts in terms of death, injury, and displacement. This latter aspect provides insight into the effects of Israeli strategies as well as potentially what guides them – the colonial erasure as contended by the Special Rapporteur.

Of importance is that the massive humanitarian concern of over 10% of the population being killed is in addition to a significant carbon footprint in the first 60 days as an incomplete measure of direct emissions from vehicles (including aircraft and tanks) and munitions used in Gaza (Neimark et al. 2024, 4). These are from Israeli F-16 and F-35 flights, US supply flights, Israeli artillery to the amount of 8000 tonnes of steel and explosives, 10 000 Israeli bombs to the amount of 2300 tonnes, and 500 Israeli vehicles (Neimark et al. 2024, 6-7). And, over half of these emissions derive from US cargo planes carrying military supplies to Israel (Neimark et al. 2024, 10). This study reveals pertinent international dynamics such as the US support of Israel which are worth considering in terms of the war. However, its methodology is unclear in certain cases (such as estimating flight hours from tonnes of bombs dropped), making it less replicable as a method.

Some of the studies analysing the impact of war on the environment in Gaza specifically, and by Israel in Palestine more generally, have been reviewed above.[4] Of these, Buheji and Muhannadi (2023), provide the most comprehensive study. The 2002 war is identified as being composed of airstrikes with lethal gas being used, the destruction of many houses, and the pollution of the air with lethal gas (Buheji and Muhannadi 2023, 22). The 2008-2009 war included airstrikes and bombing with munitions containing white phosphorous and depleted uranium (Buheji and Muhannadi 2023, 23). In addition, 1 000 tonnes of explosives were dropped and residential areas and sewage and water treatment systems were targeted (Buheji and Muhannadi 2023, 23). This resulted in chemical and nuclear pollution, and the destruction

[4] Qumsiyeh (2024); London et al. (2024); Buheji and Muhannadi (2023); Mojabi et al. (2010).

of infrastructure (Buheji and Muhannadi 2023, 23). In addition to identifying precise numbers of buildings destroyed, by type, nearly 450 000 trees were uprooted (Buheji and Muhannadi 2023, 23). An 8-day offensive in 2012 saw the intense bombing of Gaza, destroying infrastructure (Buheji and Muhannadi 2023, 23). The 2014 campaign included airstrikes and a ground invasion, targeting a power station, infrastructure and sewage pumps, residential areas, and civilian buildings (Buheji and Muhannadi 2023, 24). The 2019 attack included air raids and the 2021 attack included 1500 declared airstrikes and the use of white phosphorous bombs (Buheji and Muhannadi 2023, 24). Another attack in 2021 included more bombing of infrastructure and residential areas, followed by a smaller attack in 2022 (Buheji and Muhannadi 2023, 25). Since 2023, there have been air strikes and bombing, a ground invasion, the use of white phosphorous and lethal gas, and as of 27 November, 25 000 tonnes of explosives dropped (Buheji and Muhannadi 2023, 25-26). There has also been the indiscriminate targeting of all buildings including religious buildings and hospitals (Buheji and Muhannadi 2023, 25-26). This study shows how extensive the bombardment of Gaza has been, identifying many key areas to investigate further, but not providing precise detail on sources or number of bombs and types, for example. This could thus be expanded upon.

Qumsiyeh (2024), meanwhile provides a perspective which envisions an impact on the environment by considering Israeli military capabilities and activities. This considers potential, though unquantified, impacts in terms of land, air, and water pollution due to the use of white phosphorous and explosives with depleted uranium (Qumsiyeh 2024). It also considers the impact of the destruction of WASH (water, sanitation, and hygiene) infrastructure and buildings (Qumsiyeh 2024). This is useful like the UNEP report in envisioning the types of impacts which may be felt, as well as identifying weapons used (such as white phosphorous), ultimately considering impacts outside the bounds of the current situation, more expansively. For instance, it is important to think about what the impact has been previously in Gaza, how that has changed at present, and what may follow when the war is over.

London et al. (2024) conduct a similar analysis to Qumsiyeh but only briefly consider the quantity of the impacts in terms of toxic pollution due to explosives or wastewater dumping. This represents a succinct compilation of data on impact which is again useful in terms of categories considered, not dissimilar to the UNEP report. Finally, Mojabi et al. (2010) explore the impacts of white phosphorous, which has previously been used by Israel, on people and the environment. Providing troops with cover, this yellow wax-like substance burns

indiscriminately in the presence of oxygen making it a potent and toxic weapon. This study is useful in providing information on the use of white phosphorous and its impacts.

Finally, it has been argued that this long-term conflict is reflective of a strong concern with territoriality and security by both Israel and Palestine, at the expense of climate security (Mason 2013, 305). While climate security may be a flawed anthropocentric framing, this does reveal a problematic approach which is informed by thinking IR, that could benefit from insights into coloniality, settler-colonialism, relations between humans and the environment, and the environment itself. Indeed, the studies above, while all useful for depicting the impacts of war on Gaza, are aimed at reporting the information on impact. This is such that many statistics are used but the relations between people and the environment are not always thought of, and the vital structure of unequal power underpinning these relations are left undiscussed. It may be that this occludes a true understanding of coloniality at work. In terms of thinking IR, Gaza is seen as a territory and not a state with the same rights as Israel, which informs discourses of impact, displacement, and arguments of Israeli self-defence. Israel is also able to be represented at the UN. The self-determination of Gaza, though considered by authors such as Albanese, must contend with the well-established legal force of statehood. This may obscure the coloniality of Gaza's occupation and leave its fate in the hands of international law, which authors such as Anghie (2004, 144) have contended simply reproduce colonial relations. Palestine was already discussed as a desirable mandate for its oil reserves. It may be possible that strategic interests guiding the occupation of Gaza are also now present, but left undiscussed in an IR framing. Hence, as Krishna discusses, abstraction of principles such as state sovereignty leads to the elision of coloniality.

In terms of the impact on the environment, while reports such as that by UNEP contend with humans and the environment, they are led by an anthropocentric interest that supplements the humanitarian and international law framing of the war. This is also the focus of the humanitarian reports. So, in addition to considerations of Gaza as an occupied territory in international law, it is also seen as the location of a humanitarian catastrophe. While this is true, the environment is often seen in anthropocentric, not ecocentric terms. This represents a gap that follows from the conventions established by all the literature surveyed – the impact of a war on the environment is understood in terms of its implication for the state and humans. This makes it vital to situate this case study in terms of rethinking IR beyond statehood and international law, and in terms of rethinking the environment beyond security, humans, or the state. Herein is an opportunity to gain insight into the relations between all agents, human and

non-human, in Gaza by proposing a framework of a relational ecology for understanding the history, the present, the people, and the environment there. This is made more pertinent by the need to mainstream such knowledge, the sustenance of this war, and the simultaneous humanitarian and environmental crises perpetuated by it.

Conclusion

This review has surveyed the literature considering how IR is thought, how conflict and security are thus thought, and how the general impacts of war, as well as the impacts of war on the environment are considered. It has been seen how the coloniality of knowledge and practice in IR operates by universalising and abstracting values, and ignoring critical elements like race and power relations. These may have enduring impacts on IR today. This operates through structural modes such as dualism and linearity which afford agency to some and not to others, in a discourse of progress premised on what is considered to be universally valid. Furthermore, this has shaped how conflict and security are seen, where they are understood in terms of definitions of war that privilege an understanding of wars as cataclysmic, exceptional, and consequential for states and humans. Hence, similar to the coloniality of IR, there is a coloniality of war which occludes various instances of violence and limits enquiries into the impact of war. Still, there are numerous studies which evaluate the impact of war on the environment. These provide insights into what methods could diversify an understanding of the impact of war on the environment in IR. At the same time, these studies have epistemic limitations by extolling empiricism or ignoring facets not seen as positivist or rational. In a way, both IR and the evidence-based sciences of the environment are constrained by a valorisation of positivist or abstract features, be they of the chemistry of the environment or the principles of war. However, together, the methods of these studies can add details to the insights of IR which reveal complex relations. Similarly, IR can assist these studies in making sense of the data. However, this would need to consider both the addition of new methods to IR, and the shifting of its thinking. Still, in light of the scale of the growing climate crisis, this has perhaps never been more pertinent.

While IR may contend with the environment in terms of the coloniality it uses to understand humans, states, and war, this may relegate the environment to a categorical position in a calculus of security threats to the state or humans. However, shifting thinking to appreciate the environment needs to go beyond avoiding this. While this would replicate the same relations which have arguably led to what is called the Anthropocene, so too perhaps would a centring of the environment. This is because it nevertheless fails to contend with the underlying

inequality in relations between beings inhabiting this planet – humans, animals, plants, objects, and the environment. Posthumanism may suggest the need for dismantling hierarchies but needs to also grapple with existing hierarchies which have been constitutive of Anthropocene conditions. Interestingly, the ontology of understanding relations to dismantle Whiteness, as Sabaratnam proposes to reform IR, represents a useful perspective. So, there should be no clear-cut judgements of what constitutes Whiteness without evaluating subject-positions of power. Similarly, there should be no judgements of which species as a whole has precipitated the climate crisis and environmental degradation, without evaluating the subject-positions of members of that species relative to each other and the environment. This should be cognisant of the epistemic mechanisms of ignorance, immanence, and innocence. For instance, certain actors may choose to occlude their contributions to climate change but extoll their progress in achieving a transition. They may do so while denying responsibility for precipitating it and claim that their progress can be achieved by less powerful actors whose exploitation contributed to the growth of wealth, power, and climate change. Grove (2019) would argue that this reflects the order dominated by Europe and America (the Eurocene), which privileges Eurocene powers, and disadvantages the rest.

Furthermore, just as Blackness should not replace Whiteness as a hegemonic ordering presence, the environment should not simply replace humans as the centre of IR, security, or the world. Because subject-positions of humans are different, it is not simple to define whether humans as a whole have been central to causing the "Anthropocene". Hence, a more useful understanding of the dynamics causing this could be gained by giving presence to all subjects, their agency, and their relations to each other. This may be beneficial for developing knowledge and practices which disrupt the destructive capabilities of coloniality and interrogate their persistence in order to develop new ways of knowing and being. As a humanitarian and environmental crisis unfolds with the war on Gaza, these perspectives may help broaden understandings of it. Particularly, empirical studies can be aided by discourse critiquing the operation of the international system. Furthermore, anthropocentric preoccupations which place the environment as secondary could be challenged by understanding the horizontal relations between people in Gaza and its environment. What follows is a research design situated around this, followed by a framework for developing these perspectives.

Chapter 3: Research Design

To envision how the dynamics in IR, and with regards to war and the environment, may be reformed, it is first considered what the implications of the literature as it is reveal. This then offers a research question which is set up as the focal point of this study. From this, aims towards rethinking IR in light of issues faced globally are set out. Finally, a mixed-method methodology to conduct this study is discussed. In the following chapter, a possible conceptual framework for this is explored.

Statement of Problem

The review of the literature reveals a critical stance which several authors have taken in analysing what they identify as flaws in features of IR such as dominant theories, international law, statehood, and international institutions. Tracing the genealogy of IR witnesses its colonial origins and development to embrace ignorance, the immanence of abstraction and universalism, and innocence in engaging with the persistence of coloniality. Through these epistemic mechanisms, thinking IR is thus constrained by the unequal subject-positions, often around race or class, of knowledge-producing actors and subjects.

Rooted in coloniality, the discipline has acquired a vocabulary and method that bound what is important. This is while undermining the histories, narratives, and perspectives of subjects not belonging to the class of actors privileged by the hierarchy of Whiteness. The linearity with which history is treated in IR supports this. The very entrenchment of IR thus leads to its continued coloniality. In terms of war, this means that specific definitions of what constitutes war are adhered to, to the exclusion of other forms of violence which defy periodisation. These forms of violence often occur dispersed across the globe and negatively impact those outside of Whiteness.

Wars, mostly understood in terms of impacts on the state or humans, thus occupy a security focus which offers a subsidiary role to the environment. This is despite the fact that the environment not only sustains life but can find itself on the receiving end of violence in an ecocidal fashion. A decolonial approach to war should broaden its conception and necessarily consider the environment. While many empirical studies do this, they often lack in either accessibility or an understanding of the socio-political conditions, or inequalities, which lead to war and determine its impacts.

The issue of thinking IR and analysing the impact of war on the environment could perhaps be dealt with by rethinking IR to historically and socially appreciate its coloniality. Further contending with its reliance on unequal power relations enhances an understanding of these relations through methods from both positivist and social sciences. In this way, the pertinent subject of the environment, itself in what is contended to be an Anthropocentric crisis, could become present. This is such that uneven power relations are highlighted and not perpetuated. This may offer insight into solutions to deal with issues of war, climate change, and migration, just as some examples. Specifically, the environment should be seen in its relation to other beings, living and non-living, recognising that even humans have unequally contributed to its destruction. Moreover, this should contend with linearity informing how this history is seen.

To address this issue of thinking IR and anthropocentric conceptions of the environment, the war on Gaza may provide insight as the area suffers from violence, marginalisation, and occlusions as consequences of IR. Its environment is also in crisis as a consequence of the violence in thinking about IR, war, and the environment conventionally. This case study thus reflects on the importance of this study in contending with the persistence of issues in thinking IR. This is because the discipline remains one that defines the world as we know it, but is faced by an existential threat which it contributes to – ecocide and its threat not only to people and states but the world. While this may not entail extinction in the catastrophist sense, it may threaten the extinction of IR if it is not ready to adapt to a new world in which the old assumptions to which it clings are dismantled.

As an area studied more in other disciplines than IR, the impact of war on the environment should find a home in a transformed IR which is able to grapple with history and the present. It should also grapple with the relations between different beings – the environment and planet itself being some of them. As a network of beings, an ecology of relations should be appraised by IR. Shifting the epistemology of IR can assist in shifting the practice of it, and perhaps in this way, new relations can be forged amongst the beings sharing this planet.

Research Question

How can rethinking relationality in IR create a new lens for understanding the impact of war on the environment?

Sub-Question

How has war led to ecocide in Gaza?

Research Aims

In order to challenge the epistemic limits posed by the way IR is thought in relation to the environment, a relational ecology is explored to understand the impact of war on the environment. This attempts to develop a framework that disestablishes a hierarchy of rigidly bound actors in IR and replaces it with a conception of beings, living and non-living, which are shaped by their relations to each other. In doing so, this can challenge IR and yield insights into how war impacts on the environment. Vitally, this aims to neither reaffirm the centrality of humans or anthropogenic creations like states, nor establish anything else like the planet or environment as central. Instead, to challenge the hierarchical nature of IR, it is contended that understanding the co-constitutive relations between beings such as humans and the environment can reveal insights into relationships of power, respect, destruction, and opportunity. In establishing the importance of recognising relations, it is aimed to display that IR is capable of the evolution necessary to contend with a changing world – something it is presently not in a position to do. It is further aimed to use a mixed-methods case study that attempts to highlight these relations using insights from other disciplines such as social and natural sciences. Selecting Gaza, the aim is to explore the history constituting Gaza as a location as well as the relations of its people, neighbours, environment, and world. This is done with an appreciation of the linearity with which coloniality treats history and an attempt to challenge this. Further insight into these relations is sought through a quantitative study of the impact war has had on the environment in Gaza.

Rationale

This study is of importance because it attempts to practice the rethinking of IR to understand the impact of war on the environment. Two papers released on the 10th of February 2025 have suggested that in exceeding global average temperatures by 1.5°C in 2024, the planet has crossed the threshold of 1.5°C which the 2015 Paris Agreement had sought to prevent (King and Cassidy 2025). Conducted independently by scientists in Europe and Canada, the studies revealed that historical trends and month-to-month data respectively indicated that the 1.5°C overshoot experienced in 2024 indicates that the threshold will be crossed in the long-term (King and Cassidy 2025). This was despite the collective warning of 15 364 scientists in 2017 of the catastrophic and unforeseeable effects of global warming (Grove 2019, 2). Considering that in the first 60 days of the war on Gaza, projected emissions produced from the conflict

were estimated at greater than the annual total of 20 individual countries and territories, and that the carbon cost of rebuilding Gaza will be greater than over 130 countries, war represents a significant, though unreported, contribution to global warming (Neimark et al. 2024, 1). As the war has surpassed one year at the time of this writing, this suggests that emissions may have exceeded those of 20 individual countries and territories for 6 years. It is likely that the cost of rebuilding has also increased in this time.

In addition, with the aforementioned studies suggesting that the Paris Agreement has failed, the Agreement has likely definitively failed not only to curtail emissions, but to mobilise the world's collective action. As a landmark agreement, the Paris Agreement had 195 parties, of which only 13 have met the UN deadline to submit new nationally determined contributions as an adjustable target to keep emissions below the threshold by the year 2100 (Dunne 2025). This means that the Paris Agreement has possibly failed within 10 years of its inception, and 75 years before its target (Dunne 2025). Similarly concerning is that the US, one of the world's largest polluters, and yet one of the 13 to meet the UN deadline, has since promised to withdraw from the Agreement under President Trump (Dunne 2025).

Read together, climate change, and the exploitation of the environment more generally, has reached levels that may be irreversible and have unforeseeable effects. This has likely been augmented by war, not only in the present, but historically. Yet, IR as the discipline governing the relations of the world, has failed to stop wars or report on their effects on the climate and environment. The presumption that states as effective actors in a multilateral system could work together to resolve issues has failed to materialise. Some argue that this is reflective of IR's persistent coloniality and the primacy it offers states, at the expense of the environment, such that states like the US, which embrace a martial logic, may evade responsibility (Grove 2019; Simangan 2020). In addition, linearity in thought precludes considerations of past injustices or present failings to consider responsibilities towards the environment of the future.

What this presents is a need to grapple with the realities of a changing world, as well as the nexus of war and the environment driven by states, in an order governed by IR. Indeed, nothing short of removing emissions from the atmosphere may reverse the progression of climate change (King and Cassidy 2025). However, a changing world, while potentially catastrophic, may not mean the extinction of everything (beings both human and non-human), and what survives may depend on a clear understanding of the current condition (Grove 2019, 11). Hence, this study is premised on the urgency of the climate crisis and the deeper disregard for

the environment and even ecocide entangled with it. It is furthermore premised on the contributions of IR and war to this crisis, further rooted in colonial epistemologies. Finally, while the current condition may be irreversible, it is important to reveal the destructive relations which helped it come to be, so that whether in the same world or a new one, these relations are not perpetuated. In understanding the capabilities of IR, its capacity to adapt to this understanding for the formation of effective policy may offer promise. As perhaps one of the greatest wars contributing to climate change and ecocide, but also as the scene of IR's continued coloniality, Israel's war on Gaza presents a lens through which to engage in rethinking IR for understanding the impact of war on the environment.

Methodology

This study uses a mixed-methods analysis of a case study, through desktop research. There are a few advantages to this. Quantitative methods on their own can be generalisable which means methods from different case studies can be replicated (George and Bennett 2005, 5). Replicating quantitative methods and arriving at similar results for the same study also bolsters the validity of causal interpretations derived from data (George and Bennett 2005, 191). In addition, case studies may lead to new insights and hypotheses from specific understandings (George and Bennett 2005, 20). However, supplementing quantitative data, for example in analysing the impact of war on the environment, with contextual information from a case study discussed qualitatively, may account for changes in observations not reflected by numbers themselves, enhancing these insights (George and Bennett 2005, 19; Grove 2019, 15). This is further aided by the ability of qualitative data to account for a larger number of variables, appreciating complexity and multiple causal mechanisms (George and Bennett 2005, 21, 34). For instance, if there are outliers in data, or unexplained observations, these can be understood through qualitative understandings of case studies, such as understanding why the environment may be different in Gaza versus Israel (George and Bennett 2005, 34). In addition to contextualising findings to understand causality, and enhancing complex views, mixed-methods assist in triangulating qualitative and quantitative descriptions of the same case study to verify findings (George and Bennett 2005, 35, 315).

Hence, a mixed-method study enables the researcher to replicate quantitative methods and generate new insights from qualitative understandings of case studies. Together, these contextualise the data and deepen an understanding of results, add levels of complexity in variables not easily captured in data, explain unexpected findings, and assist in verifying findings. These all lead to a richer analysis in line with this study's approach to challenging the

lack of complexity espoused by coloniality. The specific approach to pursuing this method to rethink IR by understanding Gaza's context and analysing the impact of war on the environment at present is discussed below.

Data

The case study analysed is the Gaza Strip. In Chapter 5, a multi-linear temporal analysis is conducted to contextualise the background of the war on Gaza since October 7, 2023. This analyses the areas of Palestinian identity, societal development, the relationship to the environment, and recent political developments defined roughly after the 1917 Balfour Declaration. These are analysed through qualitative analysis of journal articles, books, and book chapters, providing context for understanding coloniality in Palestine and the events since October 7, 2023. In line with the benefits discussed above, this context may aid understandings of the data subsequently explored.

In Chapter 6, there is a focus on analysing the impact of war on the environment primarily since October 7, 2023. Though, this is not limited to only the environment or only the time since 2023 as there are necessarily historical determinants of later developments. This begins using a qualitative analysis of recent reports by agencies like UNEP and UNRWA to explicate the humanitarian situation in Gaza in terms of fatalities, displacement, infrastructure and buildings damaged, and other humanitarian indicators. Following this, the impact on the environment is discussed in several categories, discussed further below, but which each use qualitative data obtained from reports or journal articles, also not strictly limited to the time since October 2023. These describe the environmental conditions in each of these categories. There are two notable instances of quantitative methods being used. These are to analyse the number of fires in Gaza and to analyse vegetation loss. The spatial data on fires was obtained from the NASA-FIRMS database which captures fires observed by four satellites twice a day (SUOMI VIIRS C2, J2 VIIRS C1, MODIS C6.1, and J1 VIIRS C1) between the dates 7 October 2023 and 12 November 2024. The spatial data on vegetation was obtained from Landsat 8-9 satellite imagery downloaded from EO Browser for the dates 28 June 2014, 16 September 2014, 10 June 2022 and 15 June 2024, and from Sentinel 2A satellite imagery downloaded from Copernicus Browser for the dates 27 October 2021 and 26 October 2024. These images are freely available to download from these browsers which require creation of an account to login. Furthermore, this was supplemented using UNITAR (2014) identification of strike sites in the 2014 war which was also downloaded as spatial files.

Following this, a discussion of genocide is presented using evidence and arguments obtained from reports, journal articles, books, and book chapters. This provides further context of links between the observed impacts to human life and the environment. These data sources all provide contributions towards understanding the impact of war on the environment in the categories discussed (explored further below).

Methods

The qualitative data above is presented primarily through written text, discussing the observations obtained with regards to the history, humanitarian situation, or impact on the environment. It notes specific links and implications as they are presented and at the end of each section. Since these are discussions of various observations which are not always quantitively universal as a data source, some of these pieces of information, such as amount of wastewater being dumped into the sea or saltwater intrusion into the groundwater table, may not be comparable to a baseline and reflect qualitative observations which are presented discursively.

However, in terms of the quantitative analysis, remote sensing is the study of a phenomenon without being in contact with it, through the detection of various phenomena such as light or radiation by sensors, which are then interpreted to evaluate something (Ajmi and Ud din 2009, 42). This evaluates the energy levels of a photon to determine, for example, the chemical composition of a sensed object (Ajmi and Ud din 2009, 43). In this way, when data has not been able to be collected through *in-situ* samples, analysis can nevertheless be conducted through analysis of satellite imagery through a geographical information system (GIS) software. Hence, it is vital that, even without precise data readily available, there be an effort to analyse the impact of conflict on the environment. Remote sensing is a concept informing how this could be made possible. This represents the value of some of the studies reviewed in Chapter 2, as empirical enquiries, which may use novel methods even if not always adequately grappling with the meaning of environmental security.

The quantitative data is analysed through various softwares, before generating maps which are discussed in the text. QGIS is used for the satellite data from the NASA-FIRMS, EO Browser, and Copernicus Browser platforms. This is a free software which enables the analysis of GIS data – spatial data on maps – by depicting it in various layers and assisting in calculations. This produces visual data, which is presented in the maps provided in the chapter, but may also produce numerical data. Numerical data produced was analysed in RStudio, which is a free

software which allows users to input code in the open-source R programming language to perform various functions. In this case, it was used to generate from numerical data two graphs which could aid in understanding the quantitative data from the maps.

The NASA-FIRMS data was downloaded and imported into QGIS where it was transposed as layers on top of a political map of Gaza, freely available within QGIS. This gives a visual depiction of fires as red dots observed by the satellites between 7 October 2023 and 12 November 2024. QGIS is also able to count the number of fires as dots which are discussed in the chapter after the map (Figure 6.4).

The Landsat 8-9 data downloaded from EO Browser was also imported into QGIS as map layers. These consist of several images of the same date and time captured by satellites with a resolution of 30 metres (each pixel of data represents a square of 30 metres by 30 metres). Images for spectral bands 4 (B04) and 5 (B05) from Landsat 8-9 can then be used to calculate an index for normalised difference vegetation index (NDVI). This is an index between -1 and 1, where numbers closer to 1 represent the presence of vegetation and numbers closer to -1 indicate less vegetation (Dovgyi 2022). The following equation represents the calculation used to obtain the index value for each point on the map:

$$NDVI = \frac{(B05 - B04)}{(B05 + B04)}$$

The maps produced from this, for the dates in 2014, and the dates in 2022 and 2024, could then be subtracted to produce a depiction of changes in vegetation, coding growths as blue and reductions as red. These provided preliminary depictions of how vegetation may have been affected by war.

For the dates in 2014, the following equation provided for this analysis:

$$NDVI_{Sept\ 2014} - NDVI_{June\ 2014}$$

This was depicted in a map (Figure 6.8), which was further transposed with spatial data from UNITAR (Figure 6.9) identifying missile strike sites, depicted as green dots, to spatially evaluate if vegetation loss was due to missile strikes.

For the dates between June 2022 and June 2024, depicted in Figure 6.7, the following equation provided for this analysis of vegetation loss or growth:

$$NDVI_{June\ 2024} - NDVI_{June\ 2022}$$

Beyond these analyses of the growth or reduction in vegetation, Sentinel 2A imagery was used to evaluate how vegetation changes occurred between 27 October 2021 and 26 October 2024. This was used to analyse precise changes as Sentinel 2A has a higher resolution of 10 metres, enabling greater detail. Similar to the Landsat images, different spectral bands were analysed to calculate NDVI. These were bands 4 (B04) and 8 (B08). This is represented in the equation below.

$$NDVI = \frac{(B08 - B04)}{(B08 + B04)}$$

The results of this were then coded to depict index values above 0.2 as green, indicating the presence of vegetation. Those below 0.2 are coded as white, indicating an absence of vegetation. This is in line with a determination that an index of 0.2 indicates the presence of vegetation (Forensic Architecture 2024, 247). Within QGIS, it was possible to determine from this what area was covered by green and what area was not. This enabled a determination of how much vegetation was present in Gaza on 27 October 2021 versus 26 October 2024. These were mapped as Figures 6.12 and 6.13 respectively. As similar dates in the year, hence minimising changes due to seasonal variation, these values of vegetation (measured by square kilometre) were plotted, using RStudio. So too were disaggregated values of vegetation for each of the governorates in Gaza (North Gaza, Gaza City, Deir al-Balah, Khan Younis, and Rafah) by isolating the map for each governorate on each date. This extracted from QGIS the number of square metres, and in RStudio converted it to square kilometres and plotted a graph. The graph generated from this appears in Chapter 6 (Figure 6.10). Furthermore, to enhance this insight, it was analysed if there could be some other causal explanation for changes in vegetation, by analysing the changes in vegetation outside of Gaza in Israel from the same satellite images. The graph produced as a result of this also appears in Chapter 6 (Figure 6.11). To further depict this change, the maps containing the NDVIs for each date, before being coded as binary, were subtracted from each other, with the equation depicted below:

$$NDVI_{October\ 2024} - NDVI_{October\ 2022}$$

The results of this were then extracted for values which were negative, indicating a loss of vegetation, and coded as red. This was then transposed on Figure 6.13, showing vegetation cover in October 2024, to produce Figure 6.14, showing how much vegetation was present in October 2024, together with how much vegetation had been lost between October 2021 and 2024.

Altogether, these depictions and the qualitative data extracted from reports and other sources, contribute to the validity of the discussion analysing impact of war on the environment. This method was structured as discussed next.

Structure

Chapter 5 is structured around first discussing Zionism as a framework of understanding coloniality in Gaza. This is followed by discussions of Palestinian identity, societal development, the relationship to the environment, and recent political developments. The latter discussion is defined roughly as pertaining to the period after the 1917 Balfour Declaration. This discussion is done in order to build an understanding of the complexity of Palestinian identity and history.

Chapter 6 is structured to ground the discussion from Chapter 5 in the specific events occurring since October 7, 2023, and their humanitarian impacts. This provides context for understanding the complexity of impacts on the environment. The impacts on the environment are then discussed in the following categories in turn: water, wastewater treatment and sewage systems; solid waste, infrastructure, and debris; energy infrastructure; marine environment; terrestrial environment; air. These necessarily have overlaps but were separated as such to cover broad areas which were sufficiently similar enough so that each category could be analysed in terms of its historical state, present situation, and relation to humanitarian impacts. This was also done along the precise distinctions also used in the UNEP (2024a) report. Water was treated as a broad category related to wastewater and sewage, encompassing a category including water for consumption and the disposal of water used. Solid waste, infrastructure, and debris was treated as a broad category because this groups the accumulation of any solid waste, either due to human activity or destruction of buildings. Energy infrastructure was treated as a category to enable a discussion contextualising energy requirements in Gaza and its relation to production of energy which may use fossil fuels or renewable sources. These sources also often use materials which may have impacts on the environment, such as fuel or heavy metals. Moreover, populations may, in the absence of energy, have to burn solid waste or organic matter which may generate air pollution, representing an overlap with another category. The marine environment was treated as a category because, though related to water, encompasses complex marine ecosystems which are not understood simply in terms of water supply, consumption, and waste. The terrestrial environment was treated as a broad category because it is composed of many overlapping elements of impacts on land, from debris to vegetation loss, to the impact on animals and soil. Finally, air was treated as a category to discuss how impacts even from

other areas, may all contribute to air pollution. Once more, though these categories represent overlapping and indistinctly separated categories (necessarily so as constituents of complex life-forms), they reflect broad groupings of relations in line with the UNEP report.

Chapter 6 concludes with discussing this impact on the environment in relation to understandings of genocide.

Ethics

This study uses publicly available data such as satellite imagery and published written material such as books, book chapters, and journal articles. There are no human participants or deidentified/anonymised human data used in this project. All software used in the data analysis is also free to use and does not require a licence. Data is sourced from various sites online, described above. Some sites do require a user sign-in with a username and password, but do not require payment or permissions. Remote sensing analysis is conducted using resources such as the guide to remote sensing (Ajmi and Ud din 2009) and a guide by the Ukrainian National Academy of Sciences on remote sensing for the environment (Dovgyi 2022).

Limitations

There were some limitations to the methods explored above. Particularly, where expertise was needed to conduct thorough analysis of variables such as air quality or where observations on impact on the environment are not yet possible due to the inability to collect samples from the affected sites (*in situ*). For instance, with no air quality monitors which could be found in Gaza, there would need to be a model constructed to estimate quality, taking into account a variety of factors such as time and climate. In terms of impacts on the soil and water in Gaza, especially from waste or heavy metals in bombs, these are not ascertainable without samples taken from contaminated zones. These would further require scientific analysis, representing another limitation. Furthermore, there have been studies such as the Neimark et al. (2024) estimation of carbon emissions due to the war. However, this is premised on estimates of the number and type of munitions which Israel has used, as reflected in an Al Jazeera article by Zoran Kusovac (Kusovac 2023). His methodology is not replicable because it cannot determine the amount of munitions used since its writing in November 2023.

Overall, these reflect the challenges with scientific expertise or access to information noted in the literature review that can slowly be surmounted with growths in interdisciplinary work which recognise the value of mixed-method approaches.

Beyond quantitative analysis, it is also important to recognise that desktop research of this sort may yield many complex insights. However, in light of the limitations discussed above, there may be a level of complexity, especially in understanding what is an ongoing conflict, which could be in need of further development. This is also because of limitations to understanding the lived experience of humans, animals, and plants in warzones, which may only be developed from first-hand experience or interviews. These all represent areas of further research.

Conclusion

The research design discussed above follows from the critical discussion of IR, war, the environment, and Gaza in Chapter 2. It has been shown that there is a necessity for engaging with thinking beyond the confines of IR to begin to unveil broader understandings for addressing crisis. The Gaza case study presents a pertinent example of where the coloniality of IR and the global order may be at work. This makes it an equally pertinent site of resistance for imagining beyond the anthropocentric trappings of state borders or human security. The methodology discussed above attempts to explore what this may look like by combining qualitative insights and quantitative data. This is in order to develop a deeper understanding of Zionism's coloniality in Gaza, the impact of war on the environment, and the need to rethink IR. The specific data, methods, and structure informing the case study analysis were set out. This shows where quantitative data analysis has been conducted, where qualitative data has supplemented gaps, and where some gaps nevertheless persist despite the enhancement by a mixed-method approach. A framework for how this is analysed is discussed in the next chapter, before turning to the case study.

Chapter 4: Conceptual Framework: From Environmental Security to a Relational Ecology

Environmental degradation and its part in the climate crisis is a pertinent issue faced today. This is augmented, at least within global politics, by the failure of the field of international relations to meaningfully contend with the crisis, its causes, and its solutions. Herein lies an opportunity to rethink how the discipline may engage more expansively to understand the world as the realm of complex relationships between human and non-human beings, living and non-living.

This begins with a definition and discussion of the key contributions which orientalism offers for this study in light of a critique of conventional IR theory. This is foregrounded with a discussion of the insights into how IR may thus be rethought. This is followed by an exploration of how the environment can be understood in terms of a reimagined relationship with humans. In addition, the expansive relational capabilities of what Grove (2019) calls "forms of life" is appraised. In closing, two important considerations of rethinking temporality and positionality, discussed in terms of their colonial manifestations above, are highlighted to inform the subsequent analysis. Altogether, this develops an understanding of how the human relationship to the environment is shaped by understandings of war and the environment. It furthermore sees how a critique of IR theory accounts for modes of orientalism and coloniality, as well as the considerations of temporality and positionality. An expansive relational approach goes some way in presenting decolonial insights which, unlike universalist abstract theories, encompass a variety of perspectives. These perspectives together hold promise for imagining beyond the bounds of knowledge which maintain colonial relations between beings, and amongst them, humans and the environment.

Rethinking IR and Orientalism

The first step towards rethinking the environment is rethinking IR and knowledge. This requires the complete dismantling of the mythology and centrality of Whiteness, and the developing of a broader, perhaps contrapuntal, understanding of history, ethics, and the world (Sabaratnam 2020, 27-28). This entails challenging the ignorance and immanence setting up the West as a universalist and exceptional source of progress. This is by developing theory built on highlighting the coloniality and hierarchies of IR and its values, the contributions of the non-West to the international system, and the transnational networks which contribute to the interrelated international system (Sabaratnam 2020, 28). Epistemological decolonisation of this

form must contend with epistemic coloniality to clear the way for intercultural communication, linking decolonial projects from different spatial sites of coloniality (Africa, South America, Asia) (Quijano 2007, 177; Mignolo 2007b, 159). Importantly, thinking for the Global South must come from it, highlighting racial, ethnic and sexually marginalised voices, and dismantling the zero point of objectivity (Grosfoguel 2007, 212; Mignolo 2007b, 159). Revealing more histories can reflect on the intersections between race, imperialism, patriarchy, and more, as well as how although IR has been a Western-dominated discipline, its origins have a clear non-Western subject (Thakur and Vale 2020, 15). In addition, dismantling how war is seen in IR, especially in relation to the state and with violence often being ignored, could help highlight violence as it has and may target beings outside Whiteness and the environment (Sabaratnam 2020, 29). Importantly, these insights should aid IR's contention with the presence, not absence, of Blackness not to replace Whiteness but to highlight the hierarchies, relations, rights, and obligations between each (Sabaratnam 2020, 29). This could extend to a contention with other realms – the environment, indigeneity, race, gender. Moreover, this would not displace the value of critical perspectives such as those offered by Marxism on class, but subsume them as equal determinants of complex relations, not universally structuring ones (Mignolo 2007b, 164). In addition, this should not be seen as returning to a previous state in which everything was ideal (such as the precolonial) but grappling with the complex relations of power across time (Mignolo 2009). Such a strategy of developing a more expansive understanding of relations is explored further below in rethinking environmental security towards what could be called "forms of life". This is through reconceptualising concepts like war which presently lead to elisions of these relations. In addition, this contends with the presence of the many "others" outside Whiteness.

One critical perspective which could aid this project of rethinking can be gleaned from orientalism. Broadly, this may assist in highlighting the specific features of coloniality in IR beyond the useful insights offered by authors such as Krishna, Sabaratnam, Thakur, and Vale. This may be useful as a concept for understanding the histories of places in the course of forming a perspective of relations. From this, an awareness of the diverse modes used to constitute colonial relations between the "self" and the "other" can be developed.

Orientalism, at its basis, is a term referring to the Eastern "other" which has shaped Europe or the West in the contrast of its image (Said 2003, 5). While this has cultural elements of images and ideas, it also has material elements of imperialist exploitation and unequal power relations (Rai 2018). The power imbalance between the Orient and the West is what allows dominance

to occur politically, economically, and subsequently, in art, literature, philosophy, and culture (Rai 2018). Importantly, this persists in the present, shaping vocabularies, discourses, and perceptions of developing nations (Rai 2018). As a philosophy, orientalism has various modes constituting the separation between the "self" and the orientalist "other" (Said 2003). One key mode of this separation is the co-construction of the West and Orient as geographic entities and the myth of them being normatively civilised and barbaric, respectively, as established through political, intellectual, cultural, and moral power (Said 2003, 3-7, 12). Politically, views of the Orient enable the assertion of authority over it directly through state institutions such as the police and a bureaucracy, and indirectly through cultural hegemony (Said 2003, 3, 7). An example of this would be the bureaucracy set up to manage British rule in India or the cultural promotion of Castilian as a model to script Mesoamerican languages in the Americas (Krishna 2001). In the Americas, this culturally established a fixed language used to draw up title deeds and articulate science and literature, something the picto-ideographic Mesoamerican languages could not so readily do (Krishna 2001, 413). This set up a distinction between what was considered civilised (Castilian) and what was considered barbaric (picto-ideographic languages). In India, the British established the Permanent Settlement to determine land revenues paid by zemindars (landowners) to the British colonial government, thereby establishing the mechanisms of distant government over rural subjects (Krishna 2001, 416).

Furthermore, the cultural mode of orientalism encompasses representations in media such as literature to entrench an intellectual power (Said 2003, 2-3, 41). In this instance, in addition to material power such as a police force or bureaucracy, orientalism makes claims to non-political and true knowledge which is considered universally valid and unrelated to political projects or the politics of scholars devising that knowledge (Said 2003, 10, 32). Furthermore, having knowledge of something establishes authority over it, aiding in domination (Said 2003, 32). This can be thought of as the abstraction of knowledge which Krishna discusses in thinking IR. For instance, in British India, Indians were seen as emotional and unable to be scientific, while accounts such as James Mill's history of India without having been there were considered dispassionate and scientific (Krishna 2001, 416). Regarding Egypt, Lord Balfour asserted that he had knowledge of the lack of self-government in the Orient, which granted the British authority to dominate them (Said 2003, 32-33). Still, what was more than this was the assertion that in the difference between the Orient and West, because Europeans had universal knowledge, this made them know better than Orientals what was good for them (Said 2003, 34-35).

In addition to these facets of orientalism which resemble some of the features critiquing IR discussed earlier, Said (2003, 12) stressed the importance of culture and ideas as dynamic forces alongside "brute political, economic, and military rationales" of imperial domination. More explicitly than other authors, Said thus traces the pervasion of orientalist thinking through diverse modes of art, and remarkably, arrives at a similar conclusion. This is that coloniality has been premised on the establishment of difference (intellectually, culturally, politically, racially) between groups. Furthermore, this difference, alongside the power granted to some groups by their use of political power or universalist applications of culture and knowledge, has assisted in domination. Pertinently, however, Said identifies forms of maintaining this difference and domination not constrained to a discipline or academic pursuit, but which persist in diverse forms today. This offers insights into forms of persistent domination which exist in forms beyond the genealogy in thinking IR and in institutions establishing it. They also exist because of the emphasis of a fundamental difference established between people in diverse forms.

Such a viewpoint is valuable for this study as it enables a thorough analysis of Gaza's history and the current war by drawing attention to the diverse ways in which orientalist relations are present, such as through culture. This goes beyond international legal judgements, for instance. It can assist in calling to attention more expansive accounts of how Gaza has been occupied and how relations to the environment have been shaped through its experience of war. In embracing the power of cultural dynamics, orientalism also challenges thinking IR by introducing elements often not considered in traditional IR. In these ways, as much as orientalism can serve as a critique of IR and how the environment is impacted by war, it offers insights on how rethinking could look. In this sense, in addition to the discussion of what rethinking may look like above, orientalism provides a theory for understanding how relations of power and difference are dynamically shaped. This is not just through obvious relations of imperialism and force but through dualist logics and the force of culture and depictions. For conceiving of the environment's place, orientalism is not rooted in a solely political analysis as IR theories often are, allowing relations to the environment to be seen without politicising it in a security logic, but seeing it as an "other". Also, in terms of this theory, it becomes possible to recognise that since the "self" and "other" are co-constitutive, so too may be the environment or planet and beings which inhabit it. Furthermore, having knowledge of this "other", being able to control and manipulate it, and even extolling ideas of a pure environment, or proclaiming to know what is best for the environment and planet, are orientalist ways of seeing

the environment. Instead, the critical viewpoint of orientalism allows this to be avoided and allows for diverse ecologies of relations to be envisioned in a way that rethinks IR and the impact of war on the environment. Before the capabilities of this as a theory focused on understanding war and the environment is discussed, the way the environment is thought is explored next.

Rethinking Environmental Security

In order to understand how the environment is thought of in security and to envision how it may be thought of alternatively, it is necessary to explore how security is seen generally. As mentioned above, wars are seen as periodic, in relation to the state, and with an increasing martial intellect to relations (Grove 2019; Simangan 2020). Security itself has traditionally been concerned with politico-military issues between states (Dyer 2001, 442). From this stems the classic security dilemma which seeks to secure territory and sovereignty by seeking more security, which inspires suspicion in others, leading to a cycle of perpetually seeking more security (Dyer 2001, 442). Even without a stance critical of statehood and the coloniality of thinking in IR, this traditional view could be challenged by recognising the transboundary nature of global environmental change (Dyer 2001, 442). Alternatively thus, security may have a referent object of humans instead of states, but this may perpetuate Anthropocentrism which is identified as at least imperfectly contributing to the climate crisis (Dyer 2001, 442). Overall, security is thus an area which is concerned with objects. From this limited view, it is problematic to privilege any form of security which perpetuates a hierarchy of concerns as this simply perpetuates the issues with thinking in IR. At a more basic level, security in IR is usually limited to territories or times (much like war) (Dyer 2001, 449). However, the environment defies this in its transboundary nature (Dyer 2001, 449). Hence, security may be entirely insufficient in accounting for the environment as important. For this reason, it is worth turning to ideas critical of IR, for they hold promise for imagining less securitised perspectives that suggest a rethinking of environmental security towards thinking simply for the environment.

As a basis, many emerging theories suggest the importance of recognising entanglements between humans, the environment, and more, while dismantling dualities separating them and embracing the fluidity of their relations (Simangan 2020, 218; Harrington 2016, 488-490). This may embrace attempts such as posthumanism which aim to erase hierarchies and grant agencies to non-humans like animals and non-living objects (Harrington 2016). As discussed earlier, however, because this is premised on decentring the human, it may be insufficient for contending with the structures of power which more concretely explain environmental

degradation (Grove 2019). Still, dismantling a hierarchy of concerns, granting agency to diverse sets of actors, and ensuring that the power relations underlying environmental degradation are all appreciated, represents an integrated strategy for bringing the environment into the fold of a broader relational thinking. As a part of this, it is also essential that the environment, nature, and the planet not be seen as pure and static features which need to be preserved but which change in their relations with other beings (Harrington 2016, 487-488). The "forms of life" framework that Grove suggests as effective for this is discussed next. Then, the discussion concludes by considering how a complete framework which embraces this, rethinking IR and coloniality in temporality and positionality, and the valuable additions of orientalism, may be applied to this study.

Forms of Life

Grove, in his book entitled *Savage Ecology*, envisions a way of understanding the relationship between war and the environment by proposing "forms of life" as a way of witnessing complex and collective co-constitutions and interdependencies of all things. This understanding stems from Grove's critiques of IR and assists both in a critique of destructive forms of life and the envisioning of ones which could address the crises stemming from the impact of war on the environment. Overall, he provides a multitude of insights into the issues with IR which have been explored above. More than this, however, he centrally contends that the Eurocene as a Euro-American-centric world order is one that better describes what is called the Anthropocene as the degradation of the environment. He vitally connects it as a form of life to war and violence, as a savage ecology. In addition, he sees war itself as a form of life, revealing insights into its mechanisms which traditional IR does not imagine. As such, forms of life, as he uses them, represent insightful heuristics for understanding the relations of all things, critiquing the problems of relations as they stand, and imagining alternatives (Grove 2019).

At its basis, forms of life are collective ways of being which define who or what one is in terms of complexity and interdependence with all things human and non-human, such as species, practices, histories, cosmologies, habitats, relations, and the environment. As a means of identifying being, this makes it inseparable from the way life is lived (Grove 2019, 3). This thus provides insight into understanding nature and being as a complex entanglement of all interdependent things. Grove (2019, 10) uses the term ecology to describe the inhuman relationalities across scales which may defy anthropocentric and causal logics, and offer alternative insights into forms of life. Grove (2019, 2) asserts that when forms of life are

interrupted, existential threats are posed not only to practices but to being, causing genocide and extinctions.

As an indictment of IR, Grove (2019, 3, 7) asserts that geopolitics itself is a globally pervasive form of life but one that is concerned with being selective, interventionist, and violent towards other forms of life it encounters. This is in the pursuit of homogenisation, total control, and the erasure of nonconformant beings (Grove 2019, 3, 7). This form of life has used settlement, conquest, extraction, exploitation, and the valorisation of modernity to order the world (Grove 2019, 40). This selectiveness of ordering divides other forms of life into what is useful and what is inconsequential, adopting a productivist logic that determines what is maintained and what is severed (Grove 2019, 3). This severance may manifest in violent wars which interrupt the continuity and conditions of life, leading to long-term impacts on other forms of life (Grove 2019, 4). While this geopolitics may change its focus and means of operating, it nevertheless remains the dominant operating system of the planetary form of life (Grove 2019, 5). It is possible to imagine how this may entail endurance of violence after ceasefires or colonial independence as manifestations of this. He specifically terms this the Eurocene and identifies its contributions to climate change, species loss, slavery, genocide, and extractive capitalism (Grove 2019, 38). Grove (2019, 7-8) sees this form of life as successful in having its presence felt at every point on the planet. This is from satellite feeds and radioactivity to carrier emissions, the pollution of water tables, and the scars on people experiencing sexual trauma or forced removals (Grove 2019, 7-8). In doing so, it encompasses strategies such as genocide and ecocide which may operate simultaneously.

This form of life has grown to utilise the plasticity of technology to its advantage (Grove 2019, 8). This may entail the technological developments of advanced military technology to support annihilation (Grove 2019, 84). Still, while this decentres humans as the primary cause of environmental degradation (as the Anthropocene contends), a geopolitical form of life does not lose sight of what humans have done. Indeed some humans have been a part of the geopolitical form of life (Grove 2019, 10). These are those who have been the Global North beneficiaries of the Eurocene, who in animating the pursual of politics and order, have contributed directly to environmental degradation (Grove 2019, 39, 43). In fact, the Anthropocene may serve as a tool to continue the Eurocene's shaping of the planet by underestimating the scale of the crisis, only focusing on carbon emissions, reinforcing the means by which the crisis was precipitated, and avoiding responsibility by universally attributing blame to all humans (Grove 2019, 47).

This geopolitical form of life, rather than saving the planet, pursues a savage ecology which destroys the environment as a target linked to other forms of life (Grove 2019, 4). The particular mechanism of this is the waging of warfare, which as a form of life itself, is an ongoing, commonplace, and persistent feature with various appendages constituting it (Grove 2019, 6). This view disrupts the colonial war peace binary and preoccupation with states, finding warfare as an enduring form of life. It alludes to the aforementioned instances of imperial encounters of violence which saw the environment as an assemblage of encountered forms of life to be eradicated. This exists in activities not even seen as war which slowly accrete into a perpetual being of war which has devastating consequences (Grove 2019, 77). War as a form of life is thus not a complete unitary organism in this sense, but is composed of relations of violence, machines of war, acts of war, and the recipients of violence (human, animal, and nature alike) (Grove 2017, 69-71). Other entanglements include economies, resources, technology, and science, which augment war as a form of life, and inform its impacts (Grove 2019, 82). War becomes a complex form of life of many parts and defines being in a way defying periodisation. In short, it becomes an ecology.

While this form of life may be hurtling down the path to apocalypse, Grove (2019, 9-10) suggests that a form of life view which decentres humans and views the inhuman relationalities of ecology would see that these have occurred before and have led to transformations allowing other possibilities for life. Recognising this, this viewpoint does not romanticise any static vision of human life or even nature (Grove 2019, 9). Indeed, moving beyond environmental security to ecologically understand the relations between all forms of life, within and outside the geopolitical form of life, can imagine more diverse forms of life which may not all end in a human conception of apocalypse (Grove 2019, 10-11). Moreover, despite identifying the issues of a geopolitical form of life, Grove (2019, 24) asserts that it is not a conspiracy, but indeed a form of life. The recognition of this may offer hope in imagining alternative forms of life which do not pursue control (Grove 2019, 24). Such a view should ultimately avoid anthropocentrism and use ecology to see the multispecies, relational, and cross-geographical entanglement of everything (Grove 2019, 43).

In imagining forms of life, Grove presents a way of understandings the entanglements which compose beings that can help reveal problematic elements of current forms of life. In adding nuance, this appreciates extant or possible forms of life which would seem to defy the crises of hegemonic forms of life like the geopolitical Eurocene. As a framework, this offers potential not only to critique and highlight links, but to imagine expansively.

This perspective shares specific criticisms of what is called the Eurocene – as something operating through violence to establish order, universalise experiences (such as the Anthropocene), and avoid responsibility. More than this, however, war as a form of life embraces decolonial provocations which see it as more fluid, less episodic, and concerned not only with states or humans, but a networked assemblage. Finally, imagining existence as a transcendent form of life perhaps may thus encompass other forms of life. It thus provides a way of thinking of the environment as one appendage in a broader assemblage which is impacted by the Eurocene and by war. This is defined by complex being neither defined only in relation to, or completely separate from, human beings.

Overall, Grove contends with a nuanced approach to understanding the global order's role in shaping relations which advance war, violence, and environmental degradation. He does so by trying to grapple with the power of political structures over life and death, but unlike Foucault, locates it beyond European history and imagines appendages beyond the political realm. Understanding entanglements, rather than hierarchically understanding political power, also helps dismantle hierarchies which silence the agencies of marginalised beings like non-Western human beings and the environment, while grappling with what entails life. In granting agency to more than just humans or the living, he expansively considers life so that agency can permeate spaces in which it has been absent. In the body-politic line of thought, Grove does thus consider how what is considered living determines what is allowed to live, as well as considering the violence of making die in line with necropolitics. However, he does not restrain a relational understanding to these considerations of life and death as his savage ecology is able to encompass varying modes and structures.

This approach represents one that contends with the multifaceted relations of coloniality between beings, as constituted in the Eurocene, such as the Western "self" and all its appendages and the non-Western "other" and all its appendages. The orientalist construction of these opposed forms of life or non-life helps describe the diverse modes by which coloniality is perpetuated as well as the specific employment of a savage ecology. This is an important recognition in itself, but is worth enhancing by exploring the rethinking of two additional modes of coloniality – temporality and positionality.

Temporality and positionality

The coloniality of linear temporality has been critiqued above, highlighting the ways in which treating time as linear sets up standards of progress which assist in the marginalisation of the

"other" or by distinctly segmenting the realms of the past, present, and future, such that their entanglements are severed. There are several authors who have considered how this mode of coloniality may be challenged. Hunfeld (2022, 109-110) explores how feminist theory can appreciate the constitutive importance of complex and ethical relationships between all beings in space and time. Herein, insights can be gained towards understanding how the present, past, and future, as well as the beings inhabiting them, shape each other (Hunfeld 2022, 111). Similarly, the relational care proposed by *ubuntu* ethics offers resources for contending with justice by prioritising care and interdependence (Hunfeld 2022, 112-113). Ubuntu is similarly explored by Maphosa and Makama (2024, 9-10) in terms of its promotion of collective co-existence which appreciates the dynamism of time. It devalorises "being" in favour of "becoming", promoting an appreciation of the relational nature of change which has no end-point or static ideal to which to progress (Maphosa and Makama 2024, 10). These authors also explore Ka Canham's cylindrical epiphenomenal temporality which sees time as a productive co-existence of the past, present, and future without compartmentalising them (Maphosa and Makama 2024, 9). Mackay and LaRoche (2017) discuss how pluralism which highlights multiple pasts and views can expose multilinear accounts of history offering richer insights for theory in IR. Overall, these authors suggest eschewing linearity to appreciate multilinearity and what may be cycles or webs of interactions between points and beings in time.

History understood non-linearly, as Hunfeld (2022) asserts, can assist in disrupting practices of linearity and advance justice by bringing an awareness to injustices across time which have cross-temporal relations. This marks the importance of history for decentring the privileging of the present. It may also offer methodological insights into how history should be looked at. Instead of treating history as a purely linear narrative or discriminating between what is of value and what is not, history could be explored non-linearly to bring attention to relations between people, pasts, presents, and futures. This could contend with occlusions by highlighting misrepresentations or violence. Beyond the freeing of temporal bounds, this may also assist in highlighting relations which have acted at the expense of the environment or which may benefit it. As Glamann (2001) discusses, history being discussed linearly assumes the irreversibility of time and valorises causality but cannot at once diachronically study an object through time and synchronically understand its complexity at a single point in time. This is because linearity gives no room for understanding the relations through time which shape being at a single point (Glamann 2001).

There remains a critical question of who speaks this history and discusses the aforementioned reflections of orientalised linkages of coloniality to rethink IR. Who is the subject challenging the coloniality of knowledge so that decolonial subjectivities may emerge? These are important considerations in light of the critiques to thinking IR discussed above which show that positionality of thinkers have been effaced to maintain a dualism which pretends to be universally valid and objective. In fact, this dualism only serves to structure unequal relations between the subject and its object by occluding the voice of the othered object and the violent power enforced upon it.

Interestingly, despite developing theories in line with this mode by utilising a European conception of history, authors such as Foucault recognised that speaking is linked to power and hence non-Western peoples necessarily need to represent their own experiences (Ziai 2018, 118). It is precisely this matter with which Gayatri Spivak takes issue, asserting that thinkers such as Foucault and Deleuze, recognising the power which marginalises some voices, assume that those voices can speak in a utopic way (Ziai 2018, 119). Their essentialist view espouses an abstract universality which creates a moral standard that does not accord with reality. Spivak suggests that it is an intellectual's responsibility to speak for others in this case (Ziai 2018, 119). In a way, it is their privilege which lends them a responsibility to speak (Ziai 2018, 120). However, is it possible to manage the tension here between a subject claiming universal validity and a subject requiring another to speak for it? How can one subject speak for another without making a claim to universal validity or at least a prejudiced judgement of their inability to speak? This is especially when those speaking are speaking from their spatial and temporal position (Mignolo 2009, 163). Corbridge suggests that this may be done by balancing the responsibility to speak for others and the rejection of universalist discourses by contending with the relation of power privileging some subjects and not others (Ziai 2018, 120). This furthermore entails helping develop an understanding of the world as it is so that change may be envisioned for others without presuming that the privileged subject knows exactly what is best for the non-speaking one (Ziai 2018, 120). Rather than providing for a blueprint which asserts knowledge of exactly what is needed to uplift the marginalised, it provides a blueprint for a struggle towards this in which the agency of the marginalised is placed central (Ziai 2018, 131).

Tucker suggests that relations of reciprocity could be another way of looking at positionality. Researchers can be centred as collective contributors to forms of knowledge rather than sole origins of knowledge while disrupting the hierarchy between researchers and non-researchers

by valuing contributions of each equally (Tucker 2018, 226) This may also thereby aid the disruption of hierarchies in coloniality more generally and foster a process of knowledge making which is collaborative and multi-directional instead of extractive and unidirectional (Tucker 2018, 226). Indeed, this may even help alternative methods and perspectives inform studies as different contributors bring different levels of expertise (George and Bennett 2005, 35).

Hence, studying Gaza must contend with avoiding linear conceptions of time which perpetuate a vision of progress rooted in coloniality highlighting the complex relations between various beings across different points in time. At the same time, even this, and the broader rethinking of IR to understand the impact of war on the environment cannot hold a universal validity in speaking for Gaza, for Palestinians, and for an emancipatory future. Instead, it can attempt to root itself in Palestinian voices and recognise that these voices must have agency in collectively shaping their emancipation from colonial relations. More broadly, the environment must attain subjectivity and agency in determining its emancipation from ecocidal effects which may result from war, or from the Eurocene's colonial violence in general. This can be found in understanding that the category of humans, understood by coloniality as speaking subjects, needs to be dismantled to afford life and agency to hitherto non-speaking subjects as well (Mignolo 2009, 165).

Conclusion

Taken together, the insights explored above offer different perspectives that may create a nuanced framework for dealing with case studies and ultimately answering the question: How rethinking IR can use a relational ecology to understand the impact of war on the environment?

Rethinking IR itself suggests the importance of interrogating histories, hierarchies, and relations outside of the bounds of IR to reveal alternative accounts and understandings. Orientalism proposes similar evaluations of relations and power to seek the dynamic forces like culture which shape views of the "other", and in seeing the environment in this way, highlights dynamics which harm the environment. Still, without seeing it as political in the IR sense, this represents an opportunity to see the environment relationally, not in terms of security, which may be inadequate. Forms of life takes this further by highlighting the patterns of savage ecology which the Eurocene practices to dominate and degrade the environment. War is also enhanced here to encompass slow and diverse appendages of violence which deny narrow state-centric foci or periodisations. Furthermore, with a vital focus on the

interconnectedness of all beings, the scope of enquiry has no limit as entanglements between groups such as humans and the environment can be seen in more complexity. They can even be seen in ways which deny catastrophist discourses. This reveals new insights and methods to both problems and solutions. Altogether, this creates a framework of a relational ecology which must understand the history and entanglements of that ecology's appendages (identities, cultures, politics, weapons, conflicts). This is while also vitally recognising the distinction between the "self" and the "other" in shaping relationships. Critically, decolonising the knowledge which is responsible for coloniality may simultaneously exercise disobedience to epistemic coloniality and de-link from coloniality (Mignolo 2009). It furthermore contends with how the knowledge producer as a subject should not perpetuate coloniality in treating a historical analysis purely linearly, or without critical cognisance of their locus of enunciation. It is critical to have a reciprocal awareness of voices from those marginalised by colonial relations. With these perspectives, IR can be rethought to more critically understand the impact of war on the environment.

In terms of the war on Gaza, this requires an appraisal of the history of Gaza to reveal the appendages featuring in its ecology and their relations to each other. Recognising this, the feature of these appendages in the current war on Gaza may then be revealed. For instance, this would consider Gaza's relation to the international and to states, as well as to the State of Israel, its history of occupation, the persistence of violence, the experience of weapons, and the state of Gaza as an ecology of people and an environment at present. Novel methods may be used to establish this, using both qualitative methods to explore history, and quantitative methods to analyse impact. An understanding of the war on Gaza could then be gained which sees its experience of genocide and ecocide as interdependent parts of the same ecology of war. This ultimately rethinks IR by challenging its methods, definitions, and boundaries, in a way that brings a presence to the environment in a relational, not hierarchical way. This is dealt with in the next two chapters, dealing with Gaza's experience of history first, followed by Gaza's experience of war.

Chapter 5: Background on War on Gaza

In rethinking IR and the impact of war on the environment, the case study of Gaza is being analysed in terms of a relational ecology explored in the framework above to elucidate an ecology of people, relations, histories, and the environment. These non-exhaustive constituents are an integral part to understanding the experience of war on Gaza, and especially the entanglements of the impact of war on the environment. This chapter reflects on Gaza in terms of this framework by analysing its history for insights into occlusions of coloniality, the operation of orientalism, and the forms of life which have contributed to the war and its impacts today. These insights are drawn from a critical engagement with its history as a part of Palestine from early times, to more recent history since the establishment of the State of Israel, and finally considerations of what is unfolding at present. To challenge the coloniality of linearity discussed above, an analytical narrative is discussed below which notes important moments in Gaza's history and their relations to other points. This is organised around categories such as identity, societal development, the environment, and political events such as war as related multilinear objects in history. This may involve a non-linear traversal of history along these loosely-defined lines but as far as possible, an attempt is made to deal with events as they occurred while rooting their significance in relations to other times or objects. This is prefaced by a discussion of Zionism to explicate it to understand its exogenous origins, modes, and relations to coloniality in thinking IR, orientalism, and each of the histories of Gaza subsequently analysed. The relations from this history can then be used to highlight how the impact of war on the environment in Gaza, analysed in the subsequent chapter, operates with genocide as appendages of Grove's proposed Eurocene form of life. In conclusion, it reflects on the implications of relational elements revealed by this history. It also reflects on the broader implications for an exercise of this sort in terms of what may be a temporal operation of coloniality as well as how the position of the knowledge producer should be contended with, without reproducing coloniality. In thinking not only with the environment or the human, but with multiple histories, people, and beings, this embraces a view of nature as fluid and consisting of places, histories, people, and the environment.

Zionism

During the 19th century, Zionism emerged as a European phenomenon of Jewish nationalism, which it was contended could adopt colonisation of Africa and Asia as a model for establishing a Jewish state in the Holy Land to address the "Jewish problem" (Pappe 2006, 69; Sayegh 1965, 1). This was rooted in its founder, Theodore Herzl's, inspiration by the Dreyfus affair as

an anti-Semitic trial, which made it seem impossible for Jews to assimilate in Europe (Pappe 2006, 69-70). Despite resistance from traditional rabbis who asserted that only God could return the exiled Jews to Israel, Herzl conceived of Zionism as an attempt to revive Jewish culture, science, and rationalism, nevertheless rooted in Jewish scripture, history, and ancient Hebrew (Pappe 2006, 69). Practically, this sought to address the religious persecution of Jews in Eastern Europe, by establishing three Congresses between 1897 and 1899 which sought to promote colonialism as a solution and Jewish identity as productive (Pappe 2006, 70-72). Herzl saw Palestine as largely empty and, like other colonialists, proposed that its land and people would benefit from colonial settlement (Khalidi 2020, 8-10). This resulted in the First Aliya (ascent) of "pioneers" to historic Palestine, which Pappe (2006, 72-73) contends was modelled after white settlers in North America. These people settled mainly as farmers, with funding from Lord Rothschild premised on their productivity (Pappe 2006, 73). This accelerated despite the resistance of the Ottoman rulers due to pressure from the British in 1888 (Pappe 2006, 74). This later augmented to include colonisation by Christian missionaries concerned with the land's religious affiliation, and developed to form enclaves of European settlements which featured superior technology and infrastructure (Pappe 2006, 75-76). The techniques used by these European settlers, such as for agriculture, were not shared with Palestinians, for the concern was not with local development, but productivity of the land (Pappe 2006, 76). Overall, this represented a migration of what was seen as progressive innovators bringing modernity and productivity to the lands of the traditional and listless Orientals (Malm 2024, loc. 34 of 75).

Zionism could thus be understood as a philosophy developed to contend with the growth of anti-Semitism in Europe. However, the narrative above deepens this view to understand it as a form of life adopting the methods and epistemic mechanisms of colonialism to establish a Jewish state. These methods include the overt replication of European colonisation, the use of religion, the promotion of productivity and rationalism, and the establishment of the Oriental "other" as a backward people and an empty land that did not and would not share in these values of progress. Apart from the contention that it was overtly modelled on colonialism, Zionism thus resembles many of the features governing orientalism and coloniality in IR as explored by Said, Krishna, and others. These include the valorisation of universal values of progress, productivity, and even linearity. It furthermore occluded the histories and being of the indigenous people. The significance of this is that, in surviving today, Zionism may represent an appendage of the coloniality in the contemporary international order. Contending

with its presence and implications is explored below, but an immediate provocation is whether this survives as a mode of ecocide. A historical perspective points to how the land was seen by Zionists like Rothschild for its utility, much as Anghie (2004) suggests that international mandates, including Palestine, were sought and managed to maximise productivity and economic value. If Zionism, and this mode of thinking, survives today, it may inform how the objects constituting Gaza's being are seen. To evaluate this, these objects' histories are explored below.

First, however, it is worth considering how Jewish identity has also been shaped in Israel beyond the basic features of Zionism. Sand (2009, 15) identifies how Jewish identity has been shaped through a narrative in archaeology, history, and anthropology, transcending time to suggest an unbroken continuity between the Jewish forefathers and present-day Jews. More than a mythology of national origin, for Israel, this represents a certain truth that Moses received the Ten Commandments, led the twelve tribes to Israel from exile in Egypt, and conquered it, creating a kingdom featuring figures such as David and Solomon (Sand 2009, 16). Yet, despite the later fall of this kingdom and the destruction of the Jewish Temple twice, as well as the exile of Jewish people, they have avoided diluting their identity and remain purely in line with a continuity originating in biblical times (Sand 2009, 16). A secular reading of this scriptural narrative gave meaning to the Zionist project by asserting it as universal truth (Sand 2009, 65).

In line with the Zionist view, this eternal people could reclaim its ancient homeland to address the issue of integration elsewhere (Sand 2009, 17). In fact, this messianic view would have taken place even in spite of the Holocaust (Sand 2009, 17). And, since the land of Israel had been promised, it necessarily laid empty, awaiting its bloom, but for the foreign inhabitants who had stumbled upon it in the meantime (Sand 2009, 17). With this perspective rooted in a factual view of religious history, the inhabitants of Palestine, even in resisting this almost biblical destiny, would be unjustified (Sand 2009, 17). They could only remain at the pleasure of the original owners of the land (Sand 2009, 17). It is clear that in this form of identity, the colonial dualism between a rational and faithful human and the environment is maintained. This, along with the colonial modes of Zionism, potently serve to shape Palestinian history, as seen below.

However, there are also questions raised by this Zionist view of Judaism which highlight discontinuities between the religion and the ideology, and further, the phenomena of anti-

Semitism and anti-Zionism. If Jews are seen as an ethnic group that represents a continuity with biblical Jews, does this account for the different cultures among Jewish communities (Sand 2009, 21)? If they are instead seen as a belief-culture and not a nation-culture, does this indeed constitute anti-Semitism when it challenges Zionist claims to Israel (Sand 2009, 21)? There is a tension here revealed by a contradiction: claims of Jewish people's alien cultural homogeneity were once used to support anti-Semitic understandings of Jewish people in Europe for instance, but now it may be considered anti-Semitic to claim that Jewish people are multicultural as it defies the foundational premises of the Zionist ethnonational state (Sand 2009, 21).

Coloniality may help in explaining this curious contradiction. Identity, as discussed by authors such as Said, is shaped by relations to others (Sand 2009, 22). Coloniality, as a maintenance of unequal power between the dualistic "self" and "other", necessitates construction of identity through views seen to be universally valid, having a selective view of history, and occluding complexity. Jewish identity can change to take on new meanings in response to different interests – resistance, survival, coloniality. Anti-Semitism as an undeniable form of violence against Jewish people, has been used by Zionism to justify political ambitions. This has its inception in Herzl's answer of Zionism to the Jewish question (Pappe 2006, 70). Sand identifies how this may persist in other forms. The construction of Jewish identity around a claim to the Holy Land, and the valorisation of Jewish eternal exile and suffering, occludes the ways in which Jews are today able to enjoy full rights in many other countries (Sand 2009, 22). The formation of Jewish identity as nationhood develops historiographical means to support the concept of a state, as has modernity itself (Sand 2009, 22). This could be seen in the use of archaeology to support Zionist claims or the Zionist valorisation of productivity and modernity of European settlers (Sand 2009; Pappe 2006).

The Jewish experience of genocide, taking place alongside Zionist settlement of Palestine, is a key contributor to understanding coloniality's varied occupations, the experience of coloniality in Europe, and the strategy of genocide in general. It may also reveal the continuities with contemporary coloniality in Zionism, and its contributions to views of life and death, or humanity and inhumanity, which includes animals and the environment. Jews in Europe were beginning to be seen as insects and were described by Nazis such as Himmler as lice – parasitic, blood-sucking, diseased, insidious, pervasive, and filthy, requiring innovative means of control (Raffles 2010, 144-145). This was supported by modern sciences such as biology and the social sciences (Raffles 2010, 145). It was even embodied by progressive theories critiquing capital

accumulation, which identified Jews as a parasitic class neither owning property nor being productive (Raffles 2010, 146). Dehumanisation, Raffles (2010, 146) discusses, becomes a pertinent strategy in identifying undesirable groups with negative traits such as those found in insects, to justify their eradication. As insects, or non-humans, they move from objects of disease needing care to objects of annihilation – subjects of agency is not considered (Raffles 2010, 155). It is not impossible to imagine that the environment could occupy this role, often being seen as non-human.

Raffles highlights an unmistakable similarity between regimes of cleansing and regimes of eradication that follows from this. The quarantine-style enclosures, gases, collective showers and cremations are shared features of pandemic management and genocide (Raffles 2010, 158). Once they were identified with insects as diseases or disease-vectors, dehumanised people like Jews during the Holocaust would be subject to the same treatment to secure hygiene (Raffles 2010, 160).

Zionists like Alfred Nossig themselves contributed to this, representing a continuity with coloniality and anti-Semitism, by asserting that the exile from Israel had caused Jews to degenerate to become morally base, shrewd, ambitious, and vain (Raffles 2010, 147). Zionism could be the problem to the Jewish question by utilising the same coloniality which places Jews as hierarchically below Christian Europeans, to find solutions elsewhere by extolling the virtues of Jewish people as educated and liberal – Jews could organise and regenerate (Raffles 2010, 148). Jews were at once too immoral to be European but moral enough to be colonial settlers – a contradiction which only the dualist hierarchies of coloniality could manage. A particular logic of this, originating in the philosophies such as Lamarck, asserted that Jews were diseased with immorality due to their spiritual exile, and upon reinstatement to Israel, would regenerate (Raffles 2010, 151). Rather than contending with the coloniality underlying anti-Semitism, Zionists like Nossig chose to be heirs to European modernity at the frontier (Raffles 2010, 154).

The discussion above shows that the experience of Jewish history in the 19th and 20th centuries is marked by traces of coloniality. Zionism could adopt strategies of coloniality which had continuities with anti-Semitism and could carry it out in a colonial setting. This would not necessarily deconstruct the hierarchical view of Jews as inferior but find an "other" on which to assert superiority. Using strategies such as those described above, Zionism comes to embody a colonial matrix of power to subjugate Palestine. This is not to deny the great injustice of the

Holocaust. However, the genocide of the Jewish people has a logic which is implicated in coloniality – in knowledges, practices, and discourses which renders some groups less-than-human. The genocide of Jews represents enclosure, control, and eradication of people which can only be justified by adhering to a colonial view of what constitutes human life and what does not. In some cases, human beings do not constitute human life. But often, non-humans like insects and the environment can seldom constitute human life. It may be that these strategies are reproduced in Palestine and Gaza. Zionism may indeed resemble other colonial appendages like Nazism (Nijim 2023, 169). This is looked at further below.

History of Palestinian Identity

Palestine as a named place emerges from about 1300 B.C.E., when names such as Cana'an, gave way to a name possibly based on the Philistines (Masalha 2018, 8; Lewis 1980, 1). These were a people considered the enemies of the Israelites in the Bible who lived in the coastal region around Gaza (Masalha 2018; Lewis 1980, 1). There were other suggested origins of the name, including 'Peleset', referring to the 'sea people' marauders described in the archaeological record of Egyptian Pharaoh Ramesses III ahead of the Bronze Age Collapse (Masalha 2018, 56; Lewis 1980, 1). Masalha (2018, 56) suggests that, despite this, the origins of the Palestinians are indigenously in the Near East. This reflects a long association of the area with the name Palestine since antiquity, and with names of cities such as Gaza and Ashkelon, which survive today (Masalha 2018, 59).

Looking at history may help diversify an understanding of what may constitute Palestinian identity. For instance, Herodotus speaks of Palestine as a large region where Arabians inhabited places like Gaza's Khan Younis in the 5th century B.C.E. and where polytheism was practiced (Masalha 2018, 73-76). Later, around the 1st century C.E. the Herodian city of Caesarea Maritima situated on the Mediterranean coast, was home to Greco-Roman pagans, Samaritans, Greek and Aramaic-speaking Jews and Christians, and Arab Christians (Masalha 2018, 94). Still later, the Arab Christian Ghassanid kings, clients of the Byzantine Empire, were facilitating the growth of Christianity in the region, as well as aiding in its further Arabisation through supporting migration from the Arabian Peninsula (Masalha 2018). The Arab presence, growing from here, integrated with other groups such as Syriac Christians (Masalha 2018, 151-152), developing a dynamic Palestinian identity. These Palestinians were Aramaic and Arabic speaking, Syriac and Arab, indigenous and immigrant, Christian, and Muslim with the arrival of Islam in the 7th century (Said 1980, 10).

From here, Palestine was incorporated into the Islamic Caliphate in 638, and later the Ummayad dynasty, which promoted Arabic in Palestine and the construction of Islamic holy sites such as the Dome of the Rock and the Al-Aqsa Mosque (Masalha 2018). Masalha (2018) contends that while economic growth was maintained at this time, so was the harmonious transformation of society towards an Islamic majority, though one in which religious autonomy was granted to both Jews and Christians. Instead of religious coercion and mass conversion, the demands made of Christians by Islamic rulers were in the form of taxes (Gil 1997, 221). Similarly, Jews were also not subject to mass conversion (Gil 1997, 222).

This tolerance was brought to an end in 970 with the beginning of the rule of the Fatimid Egyptians who marginalised Bedouins and Christians (Masalha 2018). Christians and Jews had to wear identifying symbols such as crosses or blocks of wood, were forbidden to use luxurious carriages or employ Muslims as servants, and had to use separate bath-houses (Gil 1997, 376). It was also decreed in about 1007 that all churches be destroyed and that Jews and Christians convert or leave (Gil 1997, 376). This situation precipitated the First Crusade and occupation of Palestine by the European alliance until 1187 (Masalha 2018). However, the Ayyubids who re-established Islamic rule in Palestine, encouraged religious tolerance of Jews and Christians, something not extended towards Muslims and Jews under the Crusaders (Masalha 2018, 195). The Crusades had also heightened Islamic concern for Palestine, enhancing its view as central to the empires ruling it (Khalidi 1997, 30).

What is clear is that religious intolerance was practiced by Christian powers in this period. Yet, Muslim rulers practiced tolerance because this was promoted by precedent in the form of sayings by the Prophet and early caliphs (Gil 1997, 141). Despite this demonstration of Palestine's history representing tolerance and integration of diverse ethnic groups and religions, efforts were made around the rise of Zionism to occlude this. This was done using religion in the orientalist mode, to identify Palestinians as the enemy by linking them to the biblical Philistines (Masalha 2018, 56). First, the utility of considering Palestinians as ancient Judeans who had been converted to Islam was recognised for it would allow the Jewish settlers to find kinship with those in Palestine and recover them to Jewish identity and modernity (Sand 2009, 184-185). Of course, Gil argues that this was false as Jews were not forced to convert in the first place (Gil 1997, 222). Either way, this would be firmly rejected with the Arab resistance faced by Jewish settlers, leading to less integrationist views (Sand 2009, 187).

Biblical scholars contributing to this asserted that the 'Peleset' and Philistines were the people who inhabited areas such as Gaza, and produced enemies such as Goliath and Delilah to the Israelites (Masalha 2018, 62-63). This is not to imply that religions such as Judaism or Christianity themselves advanced this view, but that the knowledge asserted by these scholars used scripture to pose as objective truth, through disciplines such as archaeology, which removed Palestinians as indigenous (Masalha 2018, 59). And, though it was the Romans who helped identify the region with the name Palestine to erase Jewish identity (Lewis 1980, 2), it is the people of Palestine who came to form a part of the imaginary of Israel's historic and contemporary enemy. Linguistically, philistine remains the word used to describe people as without culture (Masalha 2018, 63). If this lends itself to the orientalist project of Palestine's Zionist occupation, it exists in a network of ideas which sees Palestine as a land without a people (and the corollary, Palestinians as a people without a history), or an empty desert waiting to bloom (Masalha 2018, 1; Malm 2024, loc. 28-29 of 75; Said 2003, 286). This reflects Doumani's (1992) contention regarding the occlusions of orientalist historiography. That is, in the orientalist project, Palestinian culture and history is denied as much as Palestinian existence, or, in the religious sense, they have no moral significance but as the enemy of God's chosen people. To many historians, Palestinians are only recognised in relation to Zionist history and its milestones such as the First Aliya or the Balfour Declaration (Kabha 2014, 1). This then becomes justificatory of their decimation. This becomes more significant for Gaza as Zionist historiography identifies Gaza as the precise region from where the Philistines came (Masalha 2018, 64).

Furthermore, the Palestinians being identified with Islam or Arab ethnicity was used to similarly orientalise them and normatively pit them against Zionist aims. This adds a dimension used to gaze upon the "other" outside of the selectively propagated biblical narrative. For instance, in the larger orientalist view of Islam, Muslims are seen as vicious, venial, lecherous, and stupid by both popular and scholarly accounts (Said 1980, 26). In addition, Islam was seen as the enemy of Judaism and Christianity (Said 1980, 31). Islam thus predisposed Palestinians to despotism and criminality, emotion, and violence (Said 1980, 89). As Arabs, Palestinians are furthermore seen as cunning, unreliable, and interested only in power (Said 1980, 26-27). This view of Arabs and Muslims as somehow morally corrupt is not far from the orientalist view associating Palestinians with the biblical Philistines. At the same time, a Zionist identity was constructed for settlers to represent an "Eastern" people who had managed to lift themselves out of the worst qualities of being oriental (Said 1980, 26). They were thus considered more

capable for “rebuilding” Palestine and bringing it to modernity (Said 1980, 13). Consequently, Palestinians are seen as Muslim Arabs who are less human or valuable than Zionist settlers or Europeans and thus require tutelage in the form of rule by colonialists (Said 1980, 28). Hence, Palestine comes to represent a battleground between the forces of Islam and the forces of civilisation (Said 1980, 29). Its environment is scarcely considered, except as the site of the backward Muslims or the potential fertility which civilisation could bring.

The brief history of the constitution of Palestinian history discussed above counters these claims by showing a diverse culture in Palestine which has no precise origin. It is one which nevertheless represents frequent instances of assimilation between pagans, Jews, Christians, and Muslims, as well as between Arabs and other ethnic groups such as Syriac people. It becomes difficult to justify a hegemonic orientalist view of Arabs, Islam, and Palestinians in light of this. Below it will be seen how the specific claims of their societal contributions or the land are similarly inaccurate. Still, the implications are that 19th century coloniality may have implications for how Palestine, its people, and Gaza specifically are seen today. Palestinians represent this view of a backward enemy that may be justifiably, from a religious and rationalist perspective, occupied, displaced, or eliminated, to suit the project of expanding the Eurocene geopolitical order.

Arriving at more recent history, this narrative may further be challenged. In 1922, nearly 10% of the Palestinian population was Christian (Said 1980, 17). In addition, in 1948, when the State of Israel was formed, amongst the Muslim Palestinians were still Christians (Said 1980, 5). Moreover, while the majority spoke Arabic or were Sunni Muslim, there were also Druzes and Shiite Muslim Palestinians (Said 1980, 12). Christian Palestinians were nevertheless seen as more modern, beautiful, and free than Muslim Palestinians (Van Oord 2008, 218).

In fact, Palestine and the Middle East was also home to Arab (Mizrahi) Jews who were subjected to cheap labour in the kibbutz settled on confiscated land by Zionist settlers (Said 1980, 21). Their gradual movement from other Arab nations to what would become the State of Israel represents a simultaneous selectivity and universality of Zionism’s judgements only possible with a hierarchical view of people with multiple classes (Daniele 2020; Penslar 2020). The Mizrahim, as Jews, were exempt from the judgements of Arabs but, as Arabs, were nevertheless seen as inferior to the Ashkenazim from Europe (Daniele 2020, 465). They were thus used for their cheap labour, geographically segregated, and politically marginalised (Daniele 2020). Meanwhile, Christian Palestinians were subject to the same orientalist views

of Islam in terms of the orientalist constructions described above. These inconsistencies further undermine Zionism's credibility in understanding Palestinians. They also reflect the continuity with coloniality which saw people, and Jews themselves, in hierarchies. It thus may be of concern when coloniality may relegate some groups to less-than-human positions.

Ottoman rule in Palestine, beginning in 1517, despite having administrative effects, was unable to shake the strong religious association with the land of Palestine held by all Abrahamic faiths (Khalidi 1997, 29). In this sense, the Holy Land included, for Muslims, "Hebron, Jericho, Nablus, al-Ramla, Safad, Ascalon, Acre, Gaza, and Nazareth" (Khalidi 1997, 29). Hence, Palestinians have possessed a strong religious identity with diverse origins.

This discussion of Palestinian identity in terms of ethnic origin or religion may not have direct implications for understanding ecocide. However, if it is further explored how this undergirded relational understandings of Palestine and its people, especially relative to Zionism, it becomes possible to see how both the people and environment of Palestine were colonially constructed.

History of Societal Development in Palestine

The identity of Palestine explored above helps inform how societal developments in Palestine were seen. Byzantine rule of Palestine established Christianity as a major religion amongst the population, who continued to espouse religious and linguistic diversity in trading hubs such as Caesarea Maritima (Masalha 2018). At this time, Gaza also boasted extensive trade, numerous scholars, and a sizeable Arab community who developed the Rhetorical School of Gaza, the Rose Festival of Gaza, and many monasteries (Masalha 2018). Following later Islamic rule, the Crusades were initiated to recapture the Holy Land. Zionist historiography saw Islamic rule as leading to the decline of Palestine, something only the Crusades may have stalled (Said 1980). The impact of the Crusades, however, were not enduring as Saladin deposed the Fatimids and conquered Egypt, then further retook Palestine from the Crusaders (Masalha 2018, 194). The Ayyubid rule of Palestine and the Muslim world which followed is contended to have espoused great cultural and scientific advancement. This runs contrary to claims in coloniality of the Eurocentric origin of useful knowledge, espoused by the immanence of Whiteness (Sabaratnam 2020, 13).

In a continuation of the turn away from the Mediterranean and the western coast of Palestine after the Crusades, the Mamluks, who controlled Palestine from 1260, emphasised the importance of al-Quds (Jerusalem) in terms of architecture, religion, learning, and infrastructure such as bath houses and fountains (Masalha 2018, 199-200). Amongst Muslims,

not only was there a free-flow of pilgrims coming to the now wall-less city, but there was a free-flow of Muslims scholars around the Muslim world, including Palestine (Masalha 2018, 200). These developments were not restricted to al-Quds, and many cities in the hinterlands, such as Safad, enjoyed similar patronage (Masalha 2018). At this time, not only was the modern image of Palestine beginning to form – with buildings in Jerusalem from that period persisting – but so was the entrenchment of Palestine as a place being reiterated, despite claims to the contrary (Masalha 2018, 204). In fact, while some have claimed that Palestine was only brought back as a reinvention in the late Ottoman period, Palestine featured in the work of local writers and jurists of the time, including Muslim explorer Ibn Battuta who spoke of his travels to *Filastin* (Masalha 2018, 204-206).

Without concerning itself with these developments, as Said (2003, 26) contends, the orientalist demonisation of Islam and attempt to tell a history of Palestine in terms of this has been used to portray them as a threat to Zionist aims. Practically, it has also aided Zionism in achieving these aims, by for instance gaining British support for the productivity that Jewish settlement could bring to Palestine which was portrayed to be empty and unproductive (Pappe 2006; Van Oord 2008, 220). Furthermore seen as Arabs, Palestinians were seen to have represented Islamic civilisation's hand in the decline of ancient Greco-Roman civilisation (Said 1980, 80-81). Only the Crusades had temporarily challenged this and Palestine had made no contribution to civilisation (Said 1980, 81). Islam was asserted to be incompatible with efficiency and progress because of the moral judgements predisposing them to religion, emotion, passion, and violence (Said 1980, 89).

But, if occluding history is used to support this, then revealing it highlights the falsehoods of truths claiming to be universal in the pursuit of domination. Palestine has not been empty and is not only home to Muslims who are the intolerant biblical Philistines. It has featured growth, change, religious tolerance, intellectual contribution to knowledge, and migration which complicate the identity and origin of Palestinians. This disrupts aims to homogenously identify them as orientalist enemies who have no history or contribution to the world. An instance of Palestine's contribution, linked to the environment, is gauze, used for medical dressing, which was developed from Gazan silk in England (Masalha 2008, 174). Others include Antiochus of Ashkelon's influences on Cicero, the development of the Rhetorical School of Gaza, and advances broadly made by the Muslim world during the Ayyubid period (Masalha 2018). This disrupts the view of time in Palestine as an empty existence bookended by biblical history and Zionist settlement (Said 1980, 87) by highlighting its presence, thereby challenging the

orientalist constitution of the "other". Palestine was not simply the unchanged place where Abraham and King David had lived (Van Oord 2008, 210).

However, it has already been seen how Palestine has had an enduring presence long before the Ottomans arrived. Indeed, the Arab presence predates the Ottomans by about 19 centuries, and the history of Palestine precedes even that, with cities like Gaza originating nearly 5000 years ago (Masalha 2018). Still, the Ottoman period was significant in many ways. Under Ottoman rule in the 18th and 19th centuries, Palestine exported great amounts of cotton and wheat (Masalha 2018, 219). While the wheat staved off famine in France, the cotton contributed to the growth of British mills after the Industrial Revolution (Masalha 2018, 219). The Palestinian modernity that this ushered in included autonomous rule, agricultural innovations in the 18th century, exports of cotton, wheat, citrus, and olive oil to Europe, and the expansion of urban spaces (Masalha 2018, 221-222, 231-232). These were only parts of the modernity that Palestine was experiencing, which, contrary to discourses of its origins with Napoleon or Europeans, emerged earlier (Masalha 2018, 220). Although occurring during the Ottoman period and with interaction with Europeans, these developments were rooted in the indigenous people (Masalha 2018).

Particularly central to this were the *fellahin* (or agricultural workers with communal ownership of land), who were nevertheless seen as living centuries behind the contemporary time establishing their primitiveness and justifying Zionist settlement (Said 1980, 28; Abufarha 2010). In fact, even Palestinians who were "urban" or educated, the *effendi*, were judged by the orientalist moral standards discussed above to be too self-preserving to be efficient (Said 1980, 28). Hence, Palestine was seen as empty and sparsely cultivated even under the Ottomans (Khalidi 1997, 101). Moreover, concerted resistance to this was hard to overcome due to the divide between the urban and rural Palestinians (Khalidi 1997). Still, in the 20th century, a consciousness of Palestinian identity and resistance to Zionism began to proliferate through the growth of education outside of cities (Khalidi 1997, 175).

Aiding the aforementioned discussed moral judgements of Palestinians were thus civilisational standards, often rooted in liberalism, such as freedom and democracy, which encompassed orientalist views of Arabs and Muslims (Said 1980, 29). This was aided by the Cold War opposition to communism to justify Zionist settlement and the establishment and protection of the State of Israel (Said 1980, 29). Palestinians were seen as backward, tyrannical, and lacking democracy, such that European Jews were needed to develop the lands encompassed by a state

called Israel (Said 1980, 30-32; Shalhoub-Kevorkian 2014, 279). Said (1980, 30) asserts that this brings the settler colonial project in the fold of American liberal democracy by valorising Western superiority and establishing a right to assert this. This is not inconceivable given how authors such as Krishna, Sabaratnam, Jahn and Anghie have explored trajectories of liberal entrenchment premised on abstractions and universal values establishing subject-positioned Whites as superior and possessing the right to control others to spread this. At the same time, these colonial discourses served to deny the very humanity of those encountered. Outside of modernity, Palestinians were outside of humanity itself (Shalhoub-Kevorkian 2014, 288).

This can be enhanced by considering Herzl's colonial views in developing Zionism. In addition to seeing Palestine as empty or in need of upliftment, Herzl broadly subscribed to a view that the barbarism of Asia could be contended with by the outpost of a Jewish state as a "wall of defence" between Europe and Asia (Penslar 2020, 185). This could be achieved in the land without a people, for a people without a land (Khalidi 1997, 101). Despite this, he at the same time subscribed to views of a civilisational hierarchy with Europeans at the top, followed by eastern European Yiddish- and Russian-speaking Jews susceptible to barbarism, Arabs, and at the very bottom, sub-Saharan Africans (Penslar 2020). This complicates the relative subject-positioning of Whiteness used by Zionism. This leads to insights highlighting how Zionism may have espoused anti-Semitic values towards Jews (among them eastern European and Mizrahi) as a broader way of colonial thinking valorising progress. This is evidence by the aforementioned view of Jews as advanced, but nevertheless Eastern, as well as the treatment of Mizrahi Jews by the Zionist project (Raffles 2010; Said 1980; Daniele 2020). Gentrification in Tel Aviv and Jerusalem aimed at marginalising, in addition to the Mizrahim, Ethiopian Jews or Arabs, similarly accords to Herzl's views (Daniele 2020, 472). These instances reveal that almost no one is safe from the relative entanglements used by Whiteness towards propagating a Eurocene order premised on order and productivity. While not equating the Palestinian and Mizrahi experiences, for instance, this recognition highlight's Zionism's exploitation of "asymmetric power dynamics" such that a civilisational hierarchy is used as a central ordinal value (Daniele 2020, 464). This may have insights into how the environment is targeted, not directly because of race or anthropocentrism, but because of the violent ordering of a Eurocene form of life.

Supporting this, archaeology has been used by Israel to uncover a history to prove their superior right to occupy the land, while selectively occluding findings which counter it (Khalidi 1997, 15). For instance, the Moroccan quarter of Jerusalem, established in 1193, was demolished in

1967 to build the plaza near the west wall, believed to be the only remaining structure from the Second Temple, which is used for nationalist gatherings (Khalidi 1997, 17). In Jerusalem, this is done more regularly (Khalidi 1997, 18). This is further reflected in the destruction, loss, or containment in Israeli archives of Palestinian sources of history, making it an inaccessible history (Khalidi 1997, 89).

Emblematic of this dynamic could be the village of Al-Khalasa which was settled by Arabs in the 4th century B.C.E. (Masalha 2018, 154). It served as a principal administrative town during both the Roman and Byzantine periods but was abandoned under the Mamluks in the 15th century before being resettled by Bedouins in the 20th century (Masalha 2018, 154). With the Zionist encounter, it was destroyed and renamed Haluza (Hebrew for pioneer), before being declared the UNESCO World Heritage Site of Haluza in Israel's Negev desert (Masalha 2018, 154; UNESCO 2005). Here, it is the Palestinian history which is being memorialised but almost as a spectacle for it is Israel which occupies the site of that history and recognised as such.

Viewed this way, Zionism operated by orientalist modes to valorise the virtue, both in scientific and religious terms, of the occupying "self". It did so while establishing an "other" which was religiously unvirtuous, scientifically backward, and unproductive. It both effaced some Palestinian histories and appropriated others to support a project asserting that Zionism could bring civilisation to Palestine. This reveals coloniality in thinking which operated with a network of appendages to encourage an occupying form of life. There have already been possibilities for how this may look for the environment. While its specific manifestation in terms of war is explored in the next chapter, its historical forms are discussed next.

History of the Environment in Palestine

The environment has featured in Palestine's recorded history since at least the Roman era when Palestine was known for its production of wine and its cities with medicinal natural warm springs (Masalha 2018). For the much later Abbasid dynasty, Palestine was seen as the site of both prestige and peak revenue production (Masalha 2018, 172). Recognised for its fertility, this may represent a relationship to the land in which it is valued by an imperial power for its productive capabilities, though this was not accompanied by dispossession of the people on that land. Indeed, Palestine of the 10th century was producing olives, dried figs, raisins, carob-fruits, silk, cotton, apples, and pineapples (Masalha 2018, 173).

At the same time, Palestinian history does not indicate that the environment was pristinely maintained, as evidenced by the rubble dumped by the Ayyubids in the Mediterranean to fend

off the Crusaders (Masalha 2018, 196). This displays that the environment has anthropocentrically featured as an appendage of war, or its avoidance, even outside of Palestine's encounter with European colonialism. Still, while this displays environmental degradation due to the pursuit of war as a form of life, it is perhaps more defensive in nature as a response to war. This represents a discontinuity between anthropocentric use of the environment defensively and offensively, as it is subsequently contended is evident in Gaza at present. This highlights the coloniality which is more destructive of the environment as a target, and nuances the centrality of anthropocentrism by recognising its operation alongside power and offensive violence as more ecocidal. At the same time, anthropocentrism does not preclude an impact on the environment as a result of war, even in defence. Defence against the Crusades is one example, but others include the use of the environment by guerrillas during the Vietnam War, and its subsequent targeting with defoliants (Grove 2019, 42). Or, as explored below, the displacement of people in Gaza and disruptions to WASH infrastructure feature as sources of indirect impacts on the environment of the survival of people targeted by war. However, these instances do not seem to target the environment as the "other" in the same way that coloniality does. They represent a co-constituting relationship to it.

A more recent look at history leads to more specific encounters with the environment. Around the establishment of the State of Israel in 1948, about 65% of Palestinians were involved in agriculture, rearing ground crops, fruits, and vegetables (Said 1980, 12). Yet, effacing this, as discussed above, Zionism saw the land as empty and awaiting blooming. From the colonial perspective, the environment was viewed for its potential for development. Hence, American soil experts were hired by the US to survey irrigation in the Jordan Valley (Van Oord 2008, 222). Yet, one of these experts, in a departure from considering the environment, suggested that Arabs who did not want to live in an industrialised Palestine could go to other parts of the Arab world (Van Oord 2008, 222). Of course, this was supported by earlier discussed views of Arabs and the state of Palestine as one of underdevelopment. More than these surveys, the political project supported by this view of the environment was one which emphasised the role of Jews in fertilising the land (Van Oord 2008, 225). For instance, returning to Palestine's decline under the Fatimids, it contributed to an orientalist view which valorised the violence of the Crusades, and asserted that any violence was not as harmful to Palestine, its culture, and even environment, as Islam (Said 1980, 90). Here, occluded history even misrepresents the environment and asserts that it benefitted from violence. With these assumptions, the Zionist occupation subsequently progressed.

With many Palestinians having been exiled from Palestine or internally displaced and with no access to their land, there have been symbols of their collective identity derived from this environmental history (Abufarha 2010, loc. 136 of 255). The first of these is the *saber* (cactus) which has traditionally been used to separate orchards and olive groves and act as a protective fence (Abufarha 2010, loc. 138 of 255). Shared between the bordering orchards, or even by villages using them, these bore fruit which was freely available to those in this collective form of ownership (Abufarha 2010, loc. 139 of 255). Reflecting Palestinian adaptation to life on the rugged terrain in the hills and mountains of Palestine, these cacti were able to adapt and thrive, even surviving attempts to destroy them in destroying Palestinian villages (Abufarha 2010, locs. 139, 162 of 255). Their social meaning is reflected in one ritual where a male elder would open the thorny fruit so that others may gather and enjoy the fruit (Abufarha 2010, loc. 140 of 255). This represents a sacrificial role of communal responsibility taken by elders towards future generations (Abufarha 2010, loc. 140 of 255). Furthermore, the fruit picked from the cacti are taken by villagers and sold in cities, representing a link between rural and urban Palestinians (Abufarha 2010, loc. 140 of 255). The cactus, cooked in the form of jams, is only one of many features in the Palestinian diet (Sharif 2014, 239).

Another symbol is located in the *al-burtuqal* (orange) which has been grown in groves on the coastal plains of Palestine, from as far north as Acre to Al-Majdal, just north of Gaza (Abufarha 2010, loc. 141 of 255; Hamdan 2018, 321). This represented a booming industry for export in the early 20th century, when the "Jaffa orange" became renowned in Europe (Abufarha 2010, loc. 141 of 255). As a native source of pride for Palestinians, this defied the view of Palestine as a desert awaiting bloom from Zionist settlement (Abufarha 2010, loc. 141 of 255). Jaffa itself was at this time the most populous Palestinian city, but became a target for Israel not only to occupy this city but to appropriate the orange as a symbol of Israel, when it had been a symbol of Palestine (Abufarha 2010, loc. 141 of 255; Hamdan 2018, 321). An environmental heritage firmly Palestinian is in this way stolen, reflecting Palestine's occupation. Considering how this shapes Palestinian identity, a novel by Ghassan Kanafani considers what someone displaced from the city of Haifa where oranges have been grown would find upon returning (Abufarha 2010, loc. 144 of 255). Rather than finding a memory suspended in time, they would invariably find settlers living there (Abufarha 2010, loc. 145 of 255). They would also find that the oranges may not be as bountiful as before because the land itself comes to be worth more to Israel than the oranges growing on it (Hamdan 2018, 330). This reflects that Palestine is not to be found in a history unchanged, but in considering how the memories of what once was

could shape a future (Abufarha 2010, loc. 145 of 255). The orange represents a symbol for holding this memory of national identity for Palestinians and the trauma of their dispossession, as well as the colonial view of land as an "other" for productivity (Hamdan 2018, 321-322, 330-332).

A third symbol is the *al-zaytuna* (olive tree) which grows in the mountainous West Bank and has been there since at least 8 000 B.C.E (Abufarha 2010, loc. 147 of 255). Unlike the orange trees of the coastal regions which were fully appropriated by Israel, resulting in the exile of Palestinians there, the olive trees represent a rootedness in the land of these ancient plants and the Palestinians of the West Bank (Abufarha 2010, loc. 147 of 255). Moreover, in communally harvesting olives from these trees or practicing traditional methods to maintain them, the olive tree is a symbol of Palestinians' enduring relationship to the land (Abufarha 2010, loc. 149 of 255). This is reflected in the Palestinian diet where olive oil is a staple year-round, supporting the livelihoods of about 100 000 families (Abufarha 2010, loc. 150 of 255; Sharif 2014, 10). The practices used to maintain this include daily maintenance of the trees, and their growth on terraces as stacked stones encircling hills (Abufarha 2010, loc. 150 of 255). These, if cared for, hold the soil and prevent erosion, and while not allowing for ploughing and harvesting with tractors, is a central location of gathering for communities to harvest (Abufarha 2010, loc. 151 of 255). Indeed, over half of the Palestinian populations partakes in this harvest (Sharif 2014, 273).

Furthermore, their endurance as an ancient tree, where some are planted by elders to bear fruit not for themselves but for future generations, represents a non-linear, intergenerational relationship that is not concerned with productivity but community (Abufarha 2010). This is echoed in the refusal of one Palestinian man to let Israel cut his olive tree, even at the risk of losing his life (Sharif 2014, 10). Later, representing its rootedness, and that of the Palestinian people in the memory of the land, the olive tree and harvest became a symbol and activity to mobilise Palestinians during the First Intifada (Abufarha 2010, loc. 154 of 255). At the same time, Israeli bulldozers targeting these trees by uprooting them represents a specific mode by which Zionist settlement aims to sever Palestinian identity and its roots in the environment. In 2013 alone, 8000 olive trees were uprooted by the Israeli military and settlers to disrupt this rooted identity (Sharif 2014, 12). Between 1967 and 2010, 800 000 olive trees have been uprooted by Israel in the West Bank (Sharif 2014, 12).

A fourth symbol is found in the poppy flower which, possessing the colours of the Palestinian flag, and featuring a red flower, has come to symbolise the martyrdom of those resisting occupation (Abufarha 2010). It also reflects that the blood and body of those who lose their life is given to the land to nourish it (Abufarha 2010, loc. 161 of 255).

These symbols and those reflected in Palestine's environmental history more broadly, speak to a complex relationship to the land. While there have been instances of anthropocentric use of the land, these could be seen as deep entanglements which did not seek to destroy the land, but reflected the fluid essence of Palestine's nature, including its human inhabitants. The specific symbols of recent Palestinian history represent various elements of this nature. It is one that is communal, intergenerational, non-linear and non-productivist, adaptive, subject to appropriation, and vitally non-dualist. This relationship to the land, while possessing a central human character, is not anthropocentric in the form of coloniality, where the land is seen as only a resource to sustain humans. It has complex meanings of cultural meaning and social practice which are mutually constitutive. This reflects the Palestinian relationship to the land which may make it a target (as orange groves, cacti, or olive trees have been) of coloniality.

This has implications, as seen above, for seeing the environment not as empty, barren, pristine, and undesirably lacking in productivity, but supporting a form of life of interdependence with Palestine, whether its people were occupied, and whatever ethnic or religious identity they held on to. Occluding this may support the orientalist objectification of the environment, in which valorising its utilitarian uses, may lead to genocide to clear the land, and use ecocide to bring it into the fold of productivist use. It is not hard to imagine this as being in line with the Eurocene order's project to engineer the earth in North America for agriculture by exterminating its native population and targeting flora and fauna, such that the climate itself was altered (Grove 2019, 42). This is especially given Zionism's modelling after colonialism. Before discussing how this may be at work in Gaza today, the key recent political moments informing Gaza's Zionist occupation are discussed next.

Recent Political History of Palestine and Gaza

The longer history explored above, alongside the operation of Zionism and orientalism, help nuance the Palestinian story. Rather than an empty land of listless Arabs (Malm 2024), Palestine, for millennia, has been anything but. It has featured a diversity of religions, migrating ethnic groups, and economic activities which have had relations (often peaceful) to their

environment, their neighbours, and their occupying powers (Rome, Byzantium, Islamic Empires).

As discussed above, when Zionist settlement began to accelerate, the Ottoman Empire held control of Palestine. The Ottomans, however, failed to provide the means to counter the Zionist movement by ignoring protests, petitions, and political efforts (Khalidi 1997, 187). It was then promised by the British to the hereditary ruler of Mecca that if Arabs revolted against the Ottomans, they would support Arab independence in the Middle East after the defeat of the Ottomans in the First World War (Khalidi 1997, 160). Arabs were still seen as a hegemonic group and the Palestinian place in this was not clear (Khalidi 1997). The Balfour Declaration of 1917 similarly promised Palestine as a national home for the Jewish people (Khalidi 1997, 160). However, both agreements were accompanied by the Sykes-Picot accords of 1916 dividing the Middle East between Britain and France (Khalidi 1997, 160).

The 1917 Balfour Declaration and the 1923 League of Nations Mandate both gave legal force to Zionist aims and only referred to Palestinians as the "non-Jewish communities in Palestine" (Khalidi 1997, 8, 23). Not described as people, they were promised civil and religious rights, but not political ones (Khalidi 2017, 8). More than a backward people who had occupied and rendered unproductive the land of Israel, these colonial forces deemed Palestinians non-human entirely (Shalhoub-Kevorkian 2014, 278). They were not the humans of coloniality deserving of political rights. Simultaneously, declarations such as these omitted Palestinians and committed the world to supporting their Zionist occupation (Khalidi 2017, 9).

Resistance to these developments and Zionist settlement emerged amongst the urban elites who were opposed to Zionism on principle (Khalidi 1997, 114). It also emerged amongst the *fellahin* who were beginning to feel the impacts of Zionist land seizure (Khalidi 1997, 114). This represented a shared experience of Zionism not seen in the same way before (Khalidi 1997, 114). Still, the Arab Revolt (1936-1939) was initiated from the grass-roots rather than by urban elites (Khalidi 1997, 8). Furthermore, sustained national efforts from the Palestinian side were unable to materialise due to persistent strong and fragmentary local affiliations (religious, clan, family) outside of the intellectual urban centres (Khalidi 1997, 25-26). Bombings before 1948 and the Deir Yassin massacre in April 1948, in which 100 people, mostly women, the elderly, and children were killed, represented the beginning of displacement and destruction of Palestinians and Palestine (Khalidi 2017, 10). Israel had used this opportunity and the previous Arab Revolt to weaken Palestinian resistance, such that by 1948, there was a political and

military vacuum allowing Israel to emerge victorious, despite the intervention of several Arab armies (Khalidi 1997, 27, 178). This was supported by a UN partition plan concluded in 1947, as well as the earlier Holocaust which had lent strength to Zionist aims for Jewish self-determination (Khalidi 1997, 178, 190). It seemed to prove Herzl's original prediction that Jews could not assimilate correct, and bore a reluctance amongst Western powers to deny the establishment of the State of Israel (Pappe 2006, 71-72; Maoz 2013, 35). At the same time, Palestinian resistance was viewed abroad to prove an Arab propensity for violence and hindrance to progress (Van Oord 2008, 221). This was all supported by what was ostensibly a neutral body as the United Nations. Instead, the UN reflected the power politics of the time, with P5 superpowers such as the US, the UK, and France themselves having been involved in coloniality in Palestine and the world more generally (Khalidi 2017, 10). This partition plan itself identified Palestine as an "Arab state", reflecting its deeper adherence to the colonial views of Palestine (Khalidi 2017, 11).

The result was that about 700 000 Palestinians were displaced in what is called the Nakba, and their lands came under the control of Israel, and to a lesser extent, Egypt and Jordan (Khalidi 1997, 179). As discussed earlier, Israel's absentee laws then prevented their return, effectively depriving them of land and citizenship (Mock et al. 2014). Unfortunately, this was supported by the poor effort to organise nationally before 1948, and the alliance with other Arab nations, which gave strength to arguments that Palestinians were Arabs, did not constitute a nation of their own, and could thus be moved to other Arab nations (Khalidi 1997, 185). Hence, today, Gaza is largely populated by people from other parts of Palestine who had been displaced by Israel in 1948 (Khalidi 1997, 3). Furthermore, the Nakba could not be understood as a tragedy comparable to the Holocaust or the two-thousand-year Jewish exile (Sand 2009, 19). More than the religious constitutions of identity, this was supported by colonial thinking which valorised Western ideals. In keeping with the view of Arabs as undemocratic and tyrannical, Israel garnered international support by beginning to accept the role of the sole democracy in the Middle East, only possible because of Zionist colonialism (Sand 2009, 307). This was in spite of their refusal to grant Palestinians political rights – a contradiction managed by keeping them eternally occupied (Sand 2009, 308; Mock et al. 2014).

Both Israel's victories in 1948 and 1967 continued the trend of proving Zionism's universal validity after Herzl's supposed prediction of the Holocaust (Sand 2009). In keeping with biblical views, these victories were sacred recurrences of David's victory over Goliath – the small Israelite and the large Philistine enemy becoming the State of Israel and the combined

Arab armies (Sand 2009, 112). The establishment of the PLO after the 1967 war was able to claim a normative basis for Palestinian identity as the sole legitimate representative (Khalidi 1997, 199). However, while not having the full effects of government, the PLO made some progress in fostering identity through publications such as newspapers, books, radio stations, and periodicals (Khalidi 1997, 199). However, this was driven by Palestinians in exile (Khalidi 1997, 200).

Despite this Israeli occupation persisted, and the First Intifada, beginning in 1987, saw a grassroots uprising in the occupied territories, leading to a resurgence of resistance from Palestinians within Palestine (Khalidi 1997, 200). The Oslo Accords, while establishing peace between the PLO and Israel after this, and ostensibly ending the occupation of the West Bank and Gaza, saw the US maintain its role as a vital Israeli supporter and not a neutral mediator (Khalidi 2017, 14). The events following this were discussed earlier, but the failure of the Oslo Accords marks an effort of the West to foster an acceptance of defeat in Palestinians (Khalidi 2017, 14). This is something further perpetuated in the West's refusal to acknowledge the electoral victory of Hamas in 2006 unless they abandoned armed resistance (Khalidi 2017, 14).

As a result of these histories, today, more than a million Palestinians are stateless, residing in Gaza and Lebanon (Khalidi 1997, 3). Palestinians in Lebanon are not entitled to carry the passports issued by the Palestinian Authority which are themselves only partially recognised (Khalidi 1997, 3). Palestinians are thus seen as refugees in documents such as Resolution 242 promoting peace after the 1967 war, but are not mentioned as Palestinians specifically, with them still being seen as Arabs more generally (Khalidi 2017, 12).

A view of Palestinians was thus enhanced from earlier Zionist narratives and policies where they shifted from absentees or backward peoples to security threats (Shalhoub-Kevorkian 2014, 278). As a threat to the Israeli state and its exceptional representation of Western sovereignty, Palestinians become the inhuman threats to humanity – terrorists (Shalhoub-Kevorkian 2014, 289). This occluded their resistance to occupation by pitting them against the virtues of that colonial occupation – modernity, progress, democracy (Khalidi 2017, 7). As discussed by Grovogui (2013), what is understood is human security is defined by what is considered human in the colonial sense, which, often defined by Western standards like these, justifies what is humane and what is not. Palestinians are not the subjects of human security in this case, they are the non-human objects (terrorists) opposed to state and humans security. Against the democracy of Israel, they can be no more (Khalidi 2017, 13).

At present, Israel remains supported in its military operations by the US, reflecting a continued support from the West from Britain's support before World War II, the support of the P5 in 1948, and the weapons support of the British and French in 1967 (Khalidi 2017, 14). This allows Israel to maintain its blockade of Gaza since Hamas's victory, as well as to bombard it significantly in 2008-9, 2012, 2014, and at present (Khalidi 2017, 15).

Khalidi (2017, 7) asserts that invasion is a structure, not an event, and has thus been ongoing in Palestine since 1917. This has been explored in terms of the history above which shows a longer history of Palestine at odds with Zionist views of Palestine as backward, empty, and uncivilised. Since 1917, this has seen colonial involvement in Palestine which resulted in the creation of the State of Israel and the Nakba in 1948. Subsequent resistance has emerged in response to this with the formation of the PLO, the First and Second Intifadas, Hamas's political ascendance, and the blockade of Gaza. Meanwhile, Palestinians have been placed in a historicised colonial view that puts them increasingly at odds not only with their colonial occupiers but with the global order itself. Like the environment, they occupy an increasingly less-than-human space which may have dangerous implications for the ability of the Eurocene order to advance a violent power of death.

Conclusion

Who are Palestinians and what is Palestine? Palestine has never been a state in the modern international system, but Palestinian identity has been defined by borders (Khalidi 1997, 1, 10). Borders are where Palestinians are often singled out for verification because of their ambiguous defiance of security norms with no clear nationality matching their passport (Khalidi 1997, 1). In fact, Palestinian identity is contingent and dependent on relations, not on a primordial essence (Khalidi 1997, 20).

Their complicated history shows that Palestinians are moreover neither Islamic nor Christian, Ottoman nor Arab, local nor universal, family nor tribal (Khalidi 1997, 6). Instead, they traverse these designations in ways that only a diverse population could. They are united by some factors, and divided by others (Khalidi 1997, 33). Moreover, in the absence of a state structure, Palestinians have been animated by dynamics emerging from below rather than above (Khalidi 1997, 7). Indeed, many Palestinians have been identified by their attachments to local loyalties, whether to specific towns or villages (Khalidi 1997, 21).

Palestinians have also been shaped by the relationship to the "other", or as the "other" in the Zionist relationship (Khalidi 1997, 9). First, they had to shape an identity in resistance to

European colonialism, perhaps as early as the Crusades, and then they had to shape it in resistance to Zionism and the justificatory religious claims it made (Khalidi 1997, 20; Shalhoub-Kevorkian 2014, 277). In addition, they had to shape an identity in relation to Ottoman administrative borders (Khalidi 1997, 151).

Zionism succeeded where the Crusades could not, in colonising Palestine and bringing civilisation to the backward Islamic world (Khalidi 1997, 13). This was perhaps in part due to the failures to win support from either the Ottoman or the British powers, as well as the failures to organise Palestinian society across the urban-rural divide (Khalidi 1997, 188). Khalidi (1997, 193) identifies three key stages in this. Before World War I, Palestinians were divided on traditional ethnic, religion, or local lines, though urban intellectuals resisted Zionism. This was reduced after the war with growth in education and a realisation of the realities of Zionist and British imperial domination (Khalidi 1997, 193). However, without time to bridge these gaps, 1948 saw Israel achieve victory and Palestinians displaced with a trauma further shaping their collective identity as dispossessed peoples at the mercy of others (Khalidi 1997, 194).

With Gaza now occupied, and densely populated with both its original inhabitants and other displaced Palestinians, it is important to understand how Palestinians in Gaza are seen in terms of this complicated identity. Today, when Palestinians in Gaza are referred to as "human animals" or "monsters", healthcare professionals and academics are pressured to remain silent about atrocities being committed in Gaza (Khan and Tinua 2024, 805), or Palestinians are seen as "two-legged beasts" representing a "cancerous growth" or inhabiting "terrorist nests" (Said 1984, 37), from what does this stem? Furthermore, while Palestinians were evicted from history, modernity, civilisation, and humanity itself, in the strategies discussed above, even their dead have been evicted from humanity. Palestinian bodies and mourning practices are suppressed by Israel and their graves are often disturbed, denying their history with the land and their very life (Shalhoub-Kevorkian 2014). From what does this stem? A new dimension emerges from this – coloniality supports the construction of the non-human being as well as the non-human dead. Resisting this too, Palestinians have practiced naming the place of birth of the dead in obituaries as a form of documenting their sense of place in Palestine's history, even if those places are now occupied by Israel (Shalhoub-Kevorkian 2014, 286-287). However, Raffles' chilling account of the ways coloniality can ascribe to the "other" non-human characteristics to preface their eradication calls to an urgent contention with how coloniality is dehumanising Palestinians. Furthermore, it calls for an urgent contention with how the longer othering of the environment places both humans and the environment in the

way of the Eurocene's savage ecology. This requires novel ways of understanding Zionist occupation.

For instance, there is a novel argument offered by Eyal Weizman (2023) suggesting that there is a politics of verticality at play in Palestine. Consistent with the discussions above, he asserts that the very landscape of Palestine becomes an arena of conflict (Weizman 2023, 123). At its basis, this describes the attempts to use archaeology to portray a version of Palestinian history privileging a religious narrative of Jewish ownership (Weizman 2023). Moreover, romanticised architectural views of Jerusalem were mandated by appropriating Palestinian vertical architecture like domes and arches, and mandating the cladding of building in slated Jerusalem stone (Weizman 2023, 126, 130-132). This was done in order to prescribe an identity of what was purely Jewish Jerusalem and what was not. For the Al-Aqsa Mosque in Jerusalem, proposed to be the location of the demolished Second Temple, Clinton proposed that Israel be given sovereignty over the air above it and the earth below for security and archaeological purposes (Weizman 2023, 128). Meanwhile, Palestinians would retain sovereignty over the building and access it via a tunnel (Weizman 2023, 128). Palestinians naturally saw this for its coloniality (Weizman 2023, 128).

Furthermore, Jewish settlements in the West Bank are built so as to disrupt territorial continuity of Palestinians, often being based on land uncultivated by Palestinians (atop the arid hills above the fertile cultivated valleys) (Weizman 2023, 133-134). These often resemble inwardly-oriented and brightly-lit civilian fortresses which are able to overlook Palestinians, often employing blackouts at night, below (Weizman 2023, 136-137). In a way, this mirrors the use of hierarchy in coloniality, quite literally placing Israelis above Palestinians – light above dark. These vertical ways of thinking perhaps reflect an appendage of coloniality and the Eurocene. It shows a hierarchical separation of beings and selectively utilises history, imagery, and sovereignty. It furthermore develops means of control which defy a mutualist relationship to the land, instead privileging security, technology, and humans. This represents a way of thinking as part of the expansive framework, which introduces novel insights into the strategies used to sustain the colonial, Zionist, and Eurocene form of life. Thinking along these lines may help imagine how walls are used to restrict Palestinians in Gaza, how buildings are levelled in Gaza, or how tunnels are used to organise resistance. Beyond this, it is necessary to evaluate the impact of war on the environment in Gaza expansively, so that Zionist invasion as a structure can be understood in all its complexity. Verticality is one way of thinking. Others

including thinking about Zionism's ordering of life and death in Gaza and how different forms of death such as ecocide and genocide may be present.

In considering what stands in resistance to this, it remains to consider who speaks for Palestine. Or, as Said (1984) asks, do Palestinians have permission to narrate? Palestinians, seen as uncivilised terrorists with no history opposed to the civilisation of democratic Israel, are rarely offered a voice. Above, it has been discussed how orientalised views of them efface their existence and being while justifying Zionist occupation. Even in landmark historical documents such as the Balfour Declaration, the UN partition plan, or Resolution 242, they are not mentioned by name, let alone given a voice (Khalidi 2017). The mobilisation of anti-Semitism has further been used to efface the coloniality of Zionism and silence resistance to its project (Said 1984, 30-31, 35). Furthermore, the Holocaust has been used to assert that the Jewish experience of genocide is exceptional and that they cannot perform one on others (Said 1984, 33) even if there may currently be one underway. Even in including Palestinian voices, Palestinians are faced with numerous challenges. In addition to having a precarious status as either refugees, stateless people, or Palestinian Arabs, even those invited to contribute to profiling themselves such as Said must contend with simultaneously recognising Palestinians as distinct but without disconnecting them from a pan-Arab image (Said 1984, 32-33). The latter is seen by Arabs as too liberal or Western (Said 1984, 33).

Even non-Palestinian authors writing on peace in Palestine may fall prey to trying to speak a truth on behalf of Palestinians. Chomsky presumes that Jews had a right to settle in Palestine and thus considers the situation irretrievably broken-down (Said 1984). Shulman (2007) proposes a radical embrace of peace which eschews violence, even in resistance, because a second crime, retribution, or victimhood lead to a cycle of violence that will only give to Palestine a blood-stained flag. Do these perspectives represent a universal truth which can meaningfully aid resistance (Said 1984, 47)? Or, do they presume a universal standard of justice, non-violence, criminality, and peace which assumes equal relations between two groups considered to be human? In remembering Grovogui's (2013) discussion of how what is humane is defined in relation to coloniality, it is not possible to judge what is criminal, just, or valid, without grappling with that coloniality. If Palestinians are not seen as humans, they may never be seen as equals in negotiating a peace with their occupiers. This holds true for the environment. Anthropocene discourse which aims to speak for the environment from a colonial position of power cannot yield the agency which the environment possesses. Once more, returning to the matter of who speaks, the West cannot speak for those it oppresses. Moving

beyond Whiteness to presence Blackness, the environment, subalternity, and Palestinians is essential. As suggested above, Said (1984, 47) agrees that an account which properly contends with the coloniality of relations and is rooted in a collective pursuit of reciprocal knowledge, can presence these voices and assist rethinking.

In light of this complicated identity at odds with coloniality, what would the right of return look life for Palestinians? Khalidi asserts that it would be a return to the homeland which shaped their identity and upon which they were the recipient of manifold injustices by coloniality and its appendages (Shalhoub-Kevorkian 2014, 287). This would signify a collective return to peoplehood, not only to statehood or to the land (Shalhoub-Kevorkian 2014, 287).

Hence, understanding the environment in Palestine or mediating conflict is not a simple consideration of who possesses control of land. Precisely because land can have meaning and even being, constituting Palestinian identity, and being constituted by it, this makes considering mediation difficult (Abufarha 2010, loc. 133 of 255). This is especially given the centrality of land in Palestinian identity as a unifying feature for all Palestinians, whether in exile, fragmented, or occupied in Gaza or the West Bank (Abufarha 2010, loc. 134-135 of 255). There are certain plants which help think this relationship. However, the discussion above has more broadly tried to envision the forms of life constituting Palestine which make its nature one including Palestinians, the environment, and the forces of coloniality. Simultaneously recognising the persistence of coloniality and its occlusions of both the historical and contemporary reality of Palestine is important. This is in order to highlight occupation, violence, dispossession, and Eurocene ordering which disrupts the entanglements of life in Gaza. In rethinking these relationships between the beings constituting Palestine, and the world, more expansively, it becomes possible to deconstruct the coloniality at work. Furthermore, it helps imagine more just alternatives and engage in an ethical practice which reciprocally contributes to the collective knowledge of emancipation in which Palestine's being is necessarily present. To continue this study's attempt to contribute to this, the following chapter considers the impact of war on the environment in Gaza, discussing its entanglements with life and death in Gaza more broadly. In this, it is evaluated whether ecocide and genocide are entangled appendages of a Eurocene form of life.

Chapter 6: Impact of War on the Environment in Gaza

To rethink IR for understanding the impact of war on the environment, it is vital to rethink colonial assumptions which occlude complexity. This could be done by evaluating history to reveal this complexity, understanding the entanglements of different forms of life, disrupting dualist logics which govern the classification of lives (human and non-human), and disrupting linearity to bring beings forth as subjects of their existence, not objects of coloniality. In viewing nature as a fluidly expansive ecology that includes the environment and people, it is possible that in targeting one form of life in Gaza, the colonial Eurocene order of Zionist occupation targets other forms which altogether constitute non-dualist being. This highlights an immediate implication of ecocide following as a result of genocide. However, in presencing the environment, it is important to look at this relationship more closely. Hence, this chapter seeks to understand how the impact of war on the environment in Gaza reveals the practice of ecocide and further, how this may be constituted by and constituting of the pursuit of genocide. The environment thus, inextricably linked from a nature populated by many beings, is targeted in the pursuit of violence on people, and becomes collateral damage of violence perpetrated. This centres neither the environment or people, nor establishes a linear flow of causality between processes targeting them (ecocide and genocide). Instead, it recognises the complexity of relations both in Gaza's being and the colonial violence it experiences. To evaluate how this manifests in Gaza, this chapter first explores what humanitarian impact has resulted from the unfolding of a colonial history explored earlier in this study. Without turning to the implications of this on genocide yet, this is used to ground a discussion of the impact of war on the environment, evaluating how ecocide is being perpetrated in terms of different categories of analysis. To grapple with the complexity of the Zionist occupation, genocide is then discussed to reveal how the humanitarian impact and impact on the environment inform an ongoing genocide. In concluding, it is recognised that from the expansive framework discussed above to rethink IR, ecocide and genocide are co-constitutive forms of violence against nature.

Humanitarian Impact in Gaza

It is important to appraise the extent of Israel's destruction of Gaza to contextualise what is a longer historical project designed to colonise Palestine, remove its inhabitants, and control its very nature. The environment plays a key part in how this strategy is achieved. Hence, it is important to recognise that the humanitarian situation in Gaza is intimately tied to the environmental destruction there.

The recent humanitarian reports on the situation in Gaza, as of 20 June 2025, portray a concerning advance of Eurocene violence. There are various indicators of what the direct impact on the people of Gaza has been as well as indicators of longer-term impacts for the population which may also impact the environment. At the same time, it must be recognised that Gaza was already facing difficulties. Before October 7, 2023, due to Israel's blockade, Gaza had a high population density of 6102 people per km^2 (UNEP 2024a, 13). In some parts of Gaza, the population density was as high as 30 000 people per km^2 (UNEP 2024a. 13). Of this large, concentrated population, many were under the poverty line, and 60% were refugees (UNEP 2024a, 13). In addition, Gaza had a young population, with 40% of the population being children under the age of 15 (UNEP 2024a, 13). It is clear that Gaza was already home to an extremely vulnerable population.

This vulnerability has only exacerbated since October 7, 2023. The number of people killed in Gaza is 57 680 (UNRWA 2025). In June 2024, this number was at 37 396, and it was possible that the total number killed could be as high as 186 000 if the indirect impacts of the conflict leading to death were conservatively estimated at 4 indirect deaths per 1 direct death (Khatib et al. 2024). Hence, total deaths, including indirect deaths, as of the July 2025 UNRWA report may be as high as 288 400 (or about 12% of the population) at the same rate of direct deaths to indirect deaths. In addition, 137 409 people have been injured and 1.9 million people (or 90% of the population) have been internally displaced, some ten times or more (UNRWA 2025). Of these fatalities and injuries, as of 11 November 2024, 174 deaths have been of journalists, while 101 have been injured, 30 detained, 115 journalists' homes targeted, and 514 family members of journalists killed (UNRWA 2024). This represents 10% of all journalists in Gaza killed (UNRWA 2024).

Furthermore, in addition to targeting hospitals, such that 19 out of 36 hospitals were out of service as of 9 October 2024, Israel has created 7 mass graves of 520 bodies inside hospitals (Wood 2024; Chughtai and Okur 2024). And, if the total number of deaths are classified, as of 11 November, over 30% of them have been children, and over 40% have been women and children (UNRWA 2024). Among the children, 786 were children under the age of one, representing 6% of children killed who have been identified (UNRWA 2024). In addition, 35 055 children have lost one or both parents in the first year of the genocide (UNRWA 2024). These figures depict an irrevocable decimation of Palestinian identity, including the infliction of trauma on children to have generational impacts. Also representing this strategy of Israel's is what has been described as scholasticide. In Gaza, 10 490 school and university students

have been killed while 500 teachers and university staff have been killed (Turse 2024). In addition, 85% of the 564 school buildings in Gaza have been destroyed or damaged (Turse 2024).

To evaluate further, this integrated strategy pursued by Israel must necessarily go beyond the direct impacts observed to include indirect impacts so that longer-term impacts on both humans and the environment can be envisioned. It has already been explored how buildings are being targeted and people being displaced. This follows from Israel's strategy to make Gaza uninhabitable by destroying the conditions for life and confining people to ever smaller regions (Albanese 2024). While 90% of the population has been internally displaced, at least 84% of the population have been directed to a "safe" zone which only represents 12.6% of the land (Albanese 2024, 8). This represents about 1.8 million people in an area of about 43.2 km^2, or a population density of about 42 000 people per square kilometre – a density as high as urbanised cities with apartment buildings. This dynamic is accompanied by conditions described by 15 international organisations as apocalyptic in northern Gaza where famine is imminent (IPC 2024; UNRWA 2024). This is exacerbated by the restriction of aid, where aid had been completely blocked for over 80 days by 19 May 2025, and since resumed only slowly (UNRWA 2025). In addition, the small provision of aid is currently managed by a joint US-Israeli food distribution system described as a "death trap" due to the gunfire or shelling sustained by Palestinians awaiting aid (Knell 2025). At least 46 Palestinians have been killed waiting for aid (Knell 2025).

This strategy of starvation and bombardment has been accompanied by the targeting of WASH infrastructure leaving Gaza with sewage running everywhere and waste accumulating such that Gaza is described as "not a place for humans to survive" (OCHA 2024). Gaza is now considered among the 5 highest alert territories for catastrophic food insecurity, with 100% of the population facing crisis levels or worse (IPC 2025). Other concerning trends include the proliferation of diseases, such as polio which has now been detected for the first time in 25 years due to the destruction of water and sewage systems (Albanese 2024, 8). Overall, this scale of destruction has produced 42 million tonnes of rubble as of August 2024 (UNITAR 2024). In the figure below, it can be seen how this has been generated through the damage of what is nearly 63% of the structures in Gaza (UNITAR 2024).

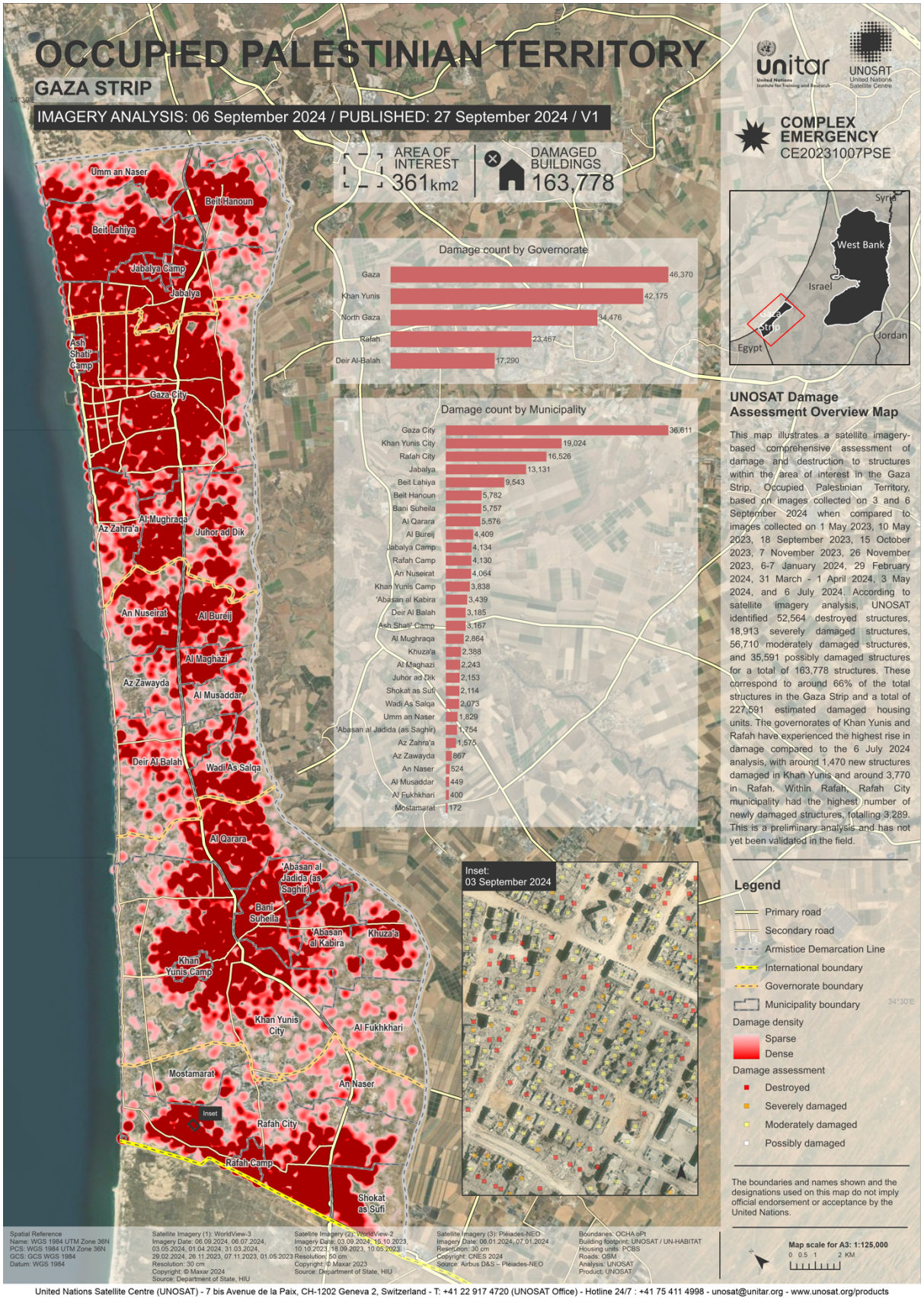


Figure 6.1: UNITAR/UNOSAT assessment of damage in Gaza as of 27 September 2024 (UNOSAT 2024).

It is evident that Gaza has seen unprecedented levels of humanitarian disaster. Moreover, it can be anticipated that the impacts which have led to this disaster may lead to environmental damage which is in furtherance of a strategy of genocide. Moreover, the impacts on people of displacement may themselves have impacts on the environment. Consequently, the impact of war in the environment in Gaza is explored next to explore how these strategies co-constitute ecocide.

Impact of War on the Environment

As of October 7, 2023, there has been an interruption of environmental management systems and services, a disruption of progressive environmental efforts, and the coordinated destruction of the environment. This is as a result of the genocide and to advance it. The impact of war on the environment of Gaza has been as unprecedented as the humanitarian impact. While the special rapporteur calls this an unquantifiable environmental cost (Albanese 2024, 6), there are ways in which at least some of the impacts on the environment may be quantified. In addition, while there is no precise baseline of ideal environmental conditions to which to compare what has occurred as of October 7, 2023, there is evidence of what environmental conditions have been prior to October 7. These assist in gaining an understanding of the escalation in scale of the environmental destruction at present. These pertain to environmental analyses conducted over previous years as well as the qualitative understanding of the Palestinian relationship to the environment, especially with life forms such as olive trees. These can be evaluated in the categories explored by the 2024 UNEP report – water; solid waste, infrastructure, and debris; energy infrastructure; marine environment; terrestrial environment; and air. However, these should be seen as somewhat overlapping. For instance, wastewater treatment being interrupted could have an impact on the marine environment. These impacts and links are explored below.

Water, wastewater treatment and sewage systems

With a resource like water which is integral to human survival, there is perhaps the closest interaction of humans and nature in a holistic environmental framework. Hence, understanding human use of water depicts the impact on the environment which may be resulting. For context, Gaza is situated on the eastern edge of the Mediterranean Sea which touches its western border (UNEP 2024a, 13). The 2024 UNEP preliminary assessment has a look at what environmental conditions in Gaza were like before October 7, 2023. In terms of water, untreated or partially treated wastewater (including sewage) was flowing into the Mediterranean at a rate of 90 000 m^3 per day in 2012, 100 000 m^3 per day in 2016, and 110 000 m^3 in 2018 (UNEP 2024a, 13).

This shows an increasing rate of pollution of the Mediterranean Sea. In addition, the groundwater aquifer in Gaza has diminished over time due to the dual impacts of reduced rainfall and over-extraction by Gaza's population who rely on wells due to poor access to water (UNEP 2024a, 13). Hence, the coastal aquifer is now 10 metres below mean sea level, with seawater intruding into it (UNEP 2024a, 13). Greater urbanisation has also contributed to this by increasing runoff and evaporation, preventing rainfall from reaching the aquifer (UNEP 2024a, 13). In addition, this has been polluted by pesticides and poorly treated sewage, such that there were high chloride levels and nitrate levels were found to be 6 times the safe amount (UNEP 2024a, 14). These conditions are intimately tied to human consumption which required 50 to 100 litres per person per day for basic needs (UNEP 2024a, 14). Before October 7, this was being provided by 300 wells across Gaza, 3 low-volume desalination plants, water piped by Israeli company Mekorot, and water in the form of aid by agencies such as UNRWA (UNEP 2024a, 14). In spite of this, only 6% of people in Gaza had access to water safe for consumption (UNRWA 2024, 14). So, it is conceivable that the increased vulnerability due to conflict may enhance the population's reliance on the environment, increasing the negative impact.

Some strategies have been implemented since October 7, 2023, to address these conditions. These have included hydroponic techniques to reduce the use of water for agriculture, the treatment of wastewater to support irrigation, the collection of stormwater to recharge the aquifer, and the application of renewable energy sources to run desalination plants (UNEP 2024a, 15-16). These would all reduce the reliance on groundwater which has contributed to its depletion, as well as circumventing reliance on energy supply to run desalination or treatment plants. Another effort at environmental preservation has included the restoration of the Wadi Gaza wetlands which has included the removal of 35 000 tonnes of solid waste and the greening of 42 000 m^2 of land (UNEP 2024a, 17).

Since October 7, 2024 and at the time of the UNEP report, all sources of water in Gaza have been disrupted, in addition to the damage or destruction of 57% of infrastructure and assets, the destruction of 162 of the 300 wells, the disruption of 2 of the 3 Mekorot connections from Israel, and the damage of desalination plants in the north and middle of Gaza (UNEP 2024a, 19). In addition, 3 of the 6 waste treatment facilities have been damaged (UNEP 2024a, 19). While people are thus having to use the remaining wells to access water which is brackish, has high levels of salinity and exposure to chemicals and pesticides, there are also implications for the inability to deal with wastewater, especially when the population is being displaced (UNEP 2024a, 19; UNRWA 2024). For instance, there may be implications from the sudden increase

in Rafah's population from 280 000 to over a million as of June 2024 (UNEP 2024a, 19; UNRWA 2024).

In addition to the stressors to both the supply of water (and hence reliance on the environment), and the disposal of wastewater, Israel has also been flooding tunnels under Gaza (UNEP 2024a, 21). Both the construction of these and their destruction can impact groundwater quality, with contaminants being able to leach into the soil when they are flooded (UNEP 2024a, 21). The land above can also be impacted by this if tunnels are collapsed (UNEP 2024a, 42). From the conflicts of 2008-2009 and 2014, there was already the pollution of farmland and urban areas with 100 000 m^3 of wastewater which was found to be contaminated with heavy metals (UNEP 2024a, 21). The UNEP (2024a, 21) report identifies this to be at 60 000 m^3 per day flowing mainly into the Mediterranean, based on an estimate of 70 000 m^3 of water available per day as of March 2024. This significant increase does not bode well when untreated sewage contains pathogens, organic matter, plastics, and chemicals which may contaminate beaches, soils, the ocean, and groundwater sources (UNEP 2024a, 21). This is especially of risk to groundwater due to the high porosity of the soil (UNEP 2024a, 21). In addition, increased reliance on wells is not only depleting groundwater, but increasing seawater intrusion and the increase of salinity (UNEP 2024a, 21). Hence, there has been a significant deterioration of water resources, the extent of which cannot be fully ascertained until *in-situ* testing is possible.

Solid waste, infrastructure, and debris

In terms of waste and debris, before October 7, 1 726 tonnes of waste was being generated every day, with the largest landfill being the Johr Edeek landfill in the north containing 3.9 million tonnes (UNEP 2024a, 14). As a part of this, most medical waste was not being separated which possibly leads to contamination of land and groundwater, and disease transmission (UNEP 2024a, 14). However, this was still being treated in some forms at a rate of 1 to 1.5 tonnes per day. In addition to this, other periods of conflict have led to accumulation of debris from building destruction. For example, Israel's offensive at the end of 2008 and the start of 2009 led to the damage of 2 692 buildings, generating 600 000 tonnes of debris (UNEP 2024a, 14). With the current appraisal of debris being 70 times that number, there is clearly a vastly larger impact on the environment.

Since October 7, there has been a similar interruption of waste disposal systems as water systems, which has seen the generation of 1 100 to 1 200 tonnes of waste per day by internally displaced persons (IDPs) as of November 2023 (UNEP 2024a, 22). Since then, this has likely

increased, and the risk of this is exacerbated by the further damage of 5 out of the 6 solid waste management systems (UNEP 2024a, 22). Waste has also been burnt alongside firewood to provide energy due to the unavailability of gas, which contributes to air pollution and the incidence of respiratory diseases (UNEP 2024a, 22). While UNRWA has assisted in collecting waste, such as the 10 000 tonnes collected in Rafah and Khan Younis in January and February 2024, this will also be hampered by challenges faced by UNRWA (UNEP 2024a). This is due to limitations to their activity by Israel and efforts to completely ban them (Al Jazeera 2024). The risks which may follow from this are compounded by the large amount of debris in Gaza (42 million tonnes as of July 2024) which is contaminated with human remains and unexploded ordnance (UXO), the latter of which was estimated to stand at 7 500 tonnes in May 2024 (UNITAR 2024; UNEP 2024a, 23; Frayer and Baba 2024). These may further leach into the soil and aquifer (UNEP 2024a, 23). This is as the result of the destruction of over 60% of all physical infrastructure except WASH facilities, and 290 820 housing units (or 62%) at the time of the UNEP report (UNEP 2024a, 23). Figure 6.1 above displays the cartographic distribution of this form of destruction, which has increased to encompass 66% of buildings as of September 2024 (UNOSAT 2024). Put otherwise, each square metre of Gaza has produced an average of 114 kilograms of debris (UNITAR 2024). In perspective, this exceeds the debris produced in all conflicts in Gaza for the prior 16 years and is over 5 times more than the debris produced from the ISIL conflict in Mosul in 2017 (UNITAR 2024; UNEP 2024a, 23).

In Figures 6.2 and 6.3 below, it is shown how between May and July 2024, debris accumulated had increased by 3 million tonnes from 39 million to 42 million. This is possible to see where debris accumulation on the map gets darker, indicating growths of debris collecting. It can also be seen that debris in the northern parts of Gaza remained fairly similar, but high. Some areas had over 20 000 tonnes of debris, but debris in Rafah dramatically increased, coinciding with the offensive in Rafah commencing after May 2024, which is also where most Palestinians in Gaza have been displaced (Malm 2024, loc. 6 of 75; Albanese 2024, 8). Below, this accumulation will be qualitatively compared to other depictions of impacts on a map. For now, it is evident that the destruction depicted in Figure 6.1 corresponds with the debris accumulated shown in Figures 6.2 and 6.3.

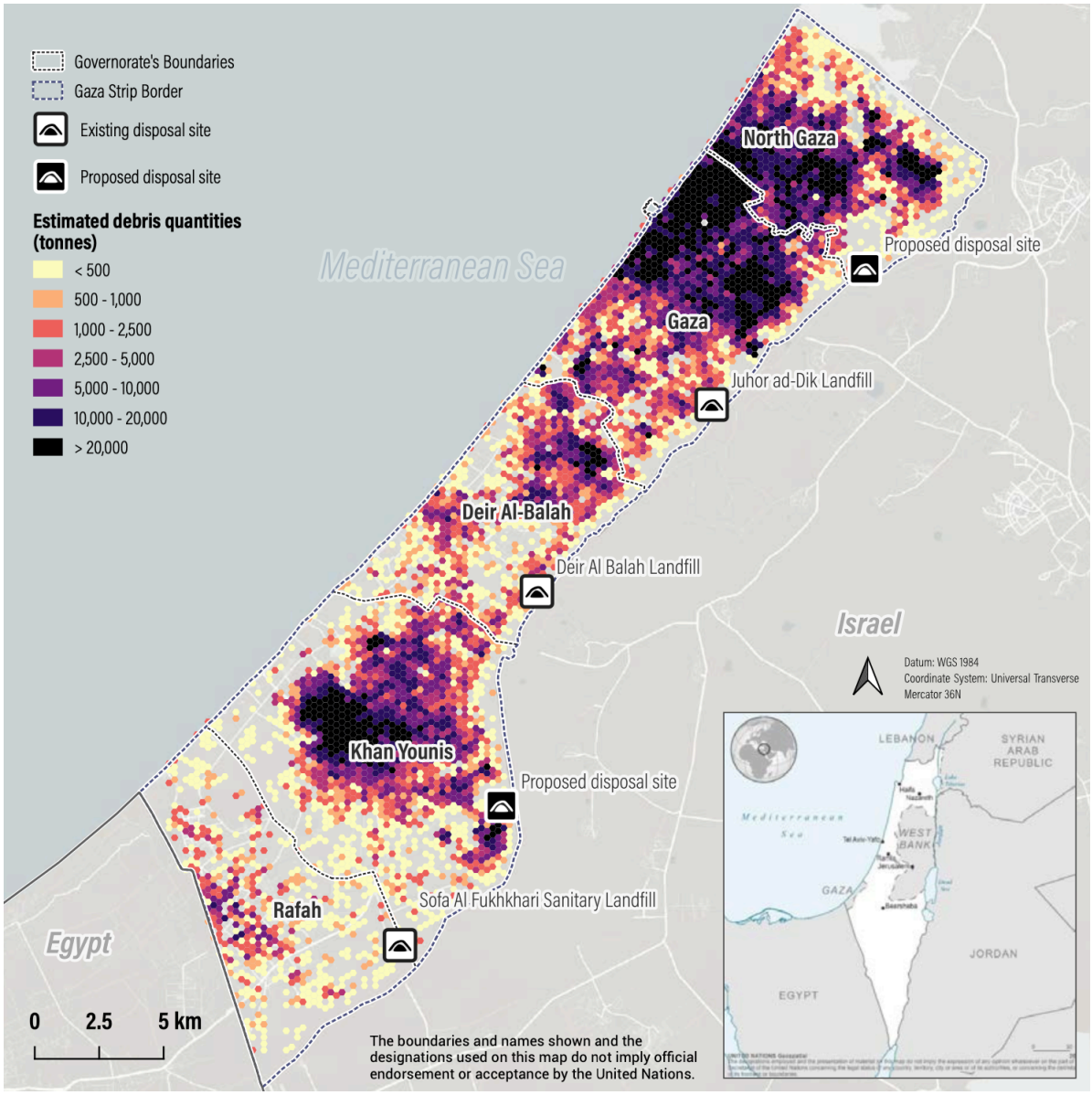


Figure 6.2: UNOSAT assessment of debris in Gaza as of 3 May 2024 (UNEP 2024a, 25).

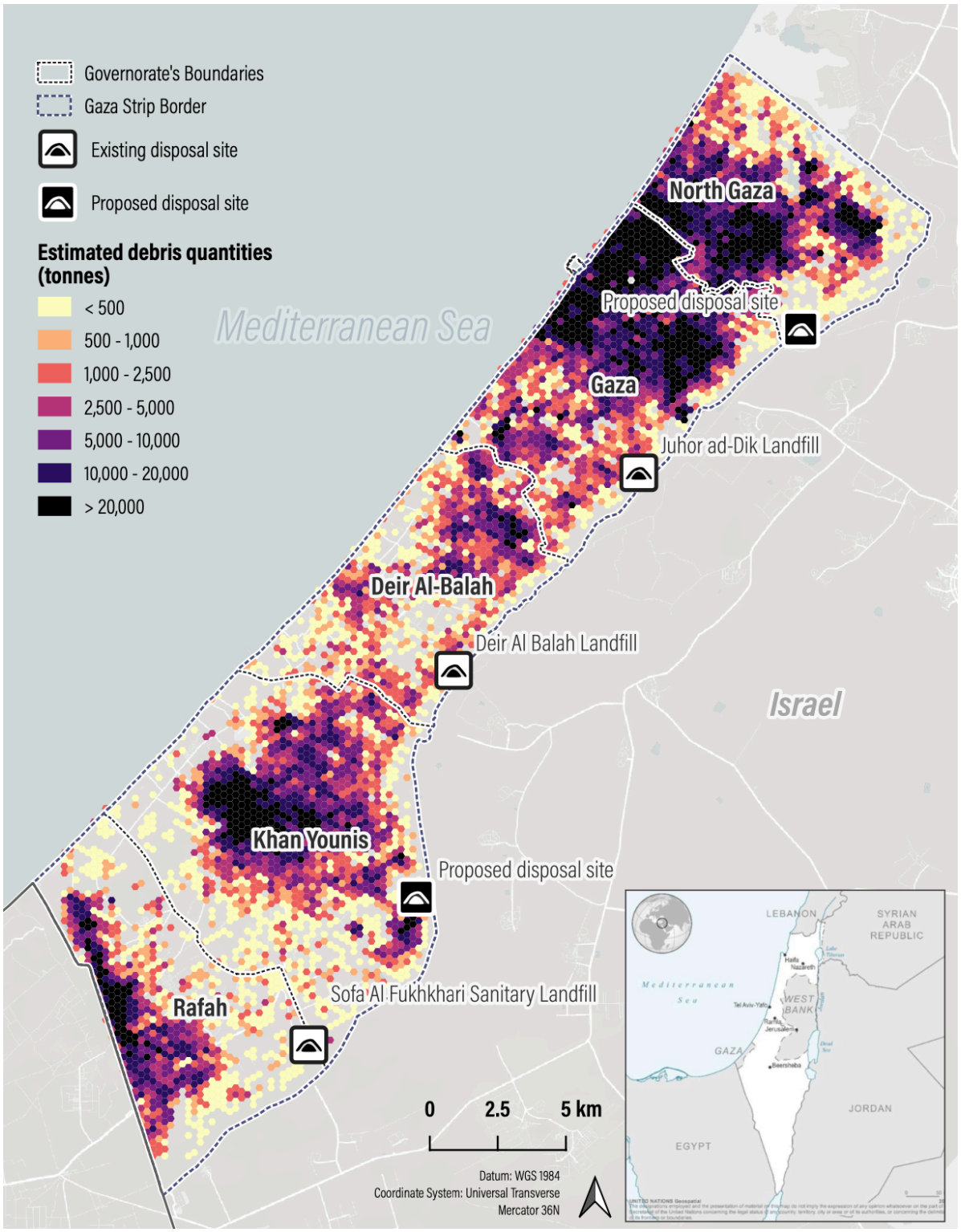


Figure 6.3: UNOSAT assessment of debris in Gaza as of 6 July 2024 (UNEP 2024b).

Given the findings of disruptions to waste systems, and the accumulation of solid waste in the form of debris, as visualised in the maps above, there may be further impacts to both humans and animals. This is in addition to risks to vegetation as a result of debris accumulation or the explosion of munitions or unexploded ordnances within the debris. One such threat includes

the inhalation of dust, which is also implicated with air quality, to be explored below. Another is the presence of asbestos as a result of its use in older buildings. This may cause lung cancer, mesothelioma, larynx and ovarian cancer, or fibrosis of the lungs (UNEP 2024a, 27). This effect is not limited to humans. Animals are also at risk of fibrogenesis or carcinogenesis such as mesothelioma from asbestos exposure (Palmieri 2024; Holt 1974). This is a significant risk as it was estimated in the UNEP (2024a, 27) report that 800 000 tonnes of the debris was contaminated with asbestos. Finally, chemical concerns should also be noted with the destruction of the Gaza Industrial Estate, which may risk many hazardous chemicals causing pollution (UNEP 2024a, 27).

Energy infrastructure

Before 2023, to address Gaza's energy challenges, there has been a growth in solar panel installations from 12 in 2012 to 8760 in 2022 (UNEP 2024a, 16). In addition, there have been UNDP installations at hospitals and schools, and for the treatment of wastewater (UNEP 2024a, 16). Finally, UNOPS has built a 721 KWp installation on the European Gaza Hospital as well as on 5 schools (UNEP 2024a, 16).

With the targeting of infrastructure in general discussed above, energy infrastructure has also been targeted. The Gaza Industrial Estate is of note because this also raises the matter of energy in Gaza, identified as an environmental category due to the impact that targeting of energy infrastructure may have. This is either directly, or indirectly by forcing people to rely on other sources. It has already been alluded to that there may be a risk of air pollution from people burning solid waste to generate energy. There are also implications for the treatment of wastewater or the desalination of water which may result from the destruction and damage of over 510 km of the electricity distribution network (or 61.5% of the total) (UNEP 2024a, 29). This may result in more pollution due to waste and more use of groundwater which would further its depletion. In addition, fires due to the targeting and damage of petrol stations and diesel power plants can exacerbate air pollution (UNEP 2024a, 30). Damage has already been sustained by 84 petrol stations and 5 wholesale petrol facilities while a fire was caused by the bombing of the diesel-powered Gaza Power Plant on 10 January 2024 (UNEP 2024a, 30). Risks from this also include groundwater which may be contaminated by leaking fuel. Other energy systems such as PV systems, 67 MW of which have been destroyed, have also contributed to ground pollution, with the release of 1.675 tonnes of lead into the environment (UNEP 2024a, 30). All the PV systems located at the Gaza Industrial Estate have also been destroyed (UNEP

2024a, 30). Risks of other heavy metals polluting the soil and water includes cadmium which is found in PV systems (UNEP 2024a, 30-31).

The level of the impact of such targets is not precisely quantifiable but as seen in Figure 6.4 below, a number of fires have been detected by satellites. Using the freely available data on fires from NASA-FIRMS, the figure below was produced by evaluating fires detected between 7 October 2023 and 12 November 2024. If the number of points on the map are counted in QGIS, it reveals a total of 489 fires detected by four satellite data sources (SUOMI VIIRS C2, J2 VIIRS C1, MODIS C6.1, and J1 VIIRS C1). With the UNEP (2024a, 36) report finding 165 fires in about the first 90 days, it is conceivable that this is a fair depiction, though its accuracy may be reduced as fires are only detected twice per day and fires extinguished quickly enough would not be detected. It can hence be considered that such fires not only contribute to air pollution, but the destruction of buildings and production of debris, and the destruction of vegetation. There is a clear overlap between the categories being discussed reflecting the complexity of the environment.

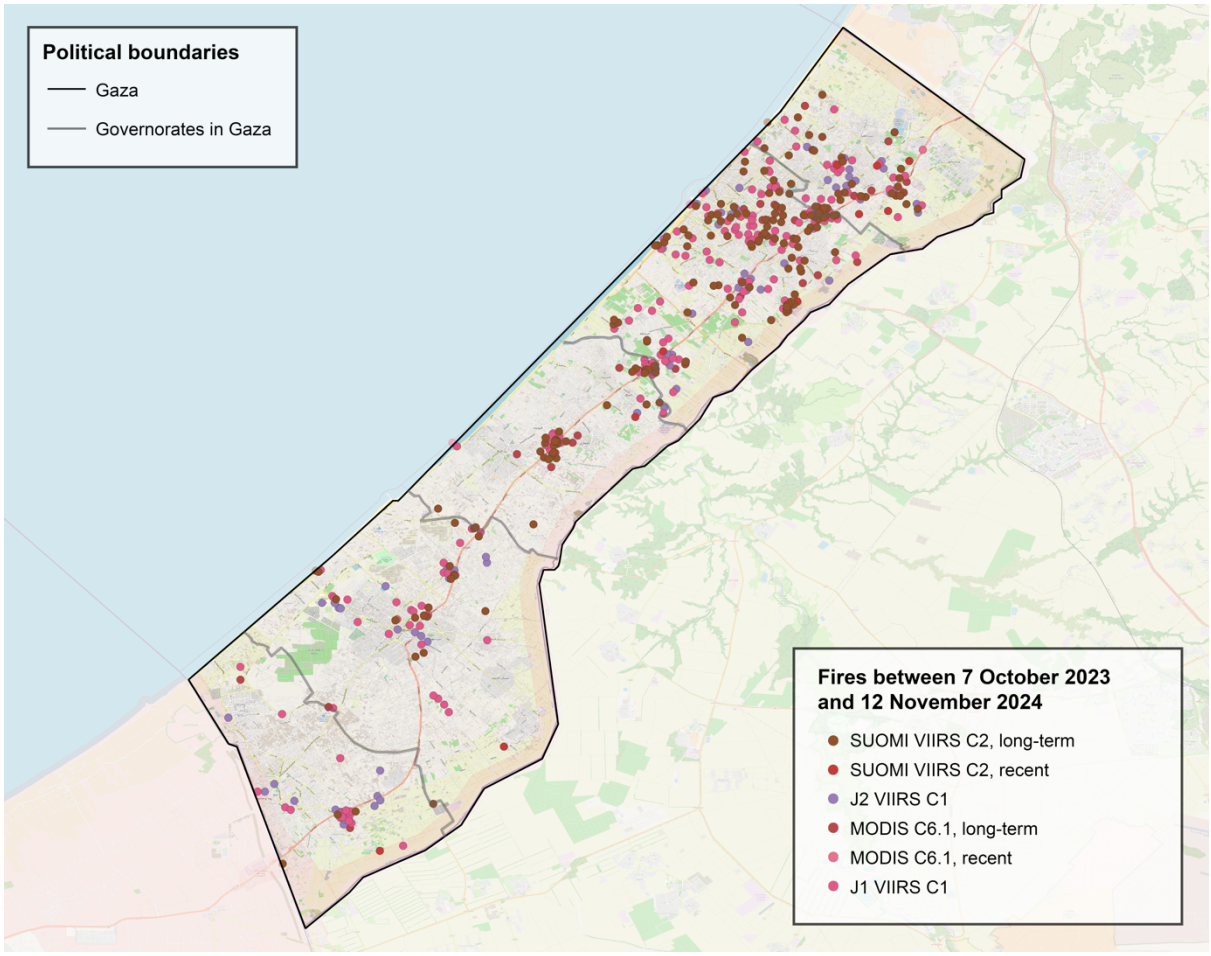


Figure 6.4: NASA-FIRMS detection of fires between 7 October 2024 and 12 November 2024.

Compared to the figures showing debris and destruction above, Figure 6.4 does seem to have a lot of fires concentrated around Gaza City in the north, which has seen the most destruction. It should be noted that these fires may be lit by Gaza's inhabitants to provide heat or for cooking. However, this figure accounts for larger and prolonged fires, and the UNEP (2024a, 36) report shows that fires of this type dramatically increased by nearly 150 times from 2022 to 2023, so these findings cannot be dismissed. Moreover if fires are being lit by inhabitants, these could also be considered unusual if they result from people having no access to electricity or gas and are burning solid waste or firewood.

Marine environment

It is clear that there is an overlap between the categories of analysis for evaluating the impact on the environment in Gaza. Hence, when looking at the impact on the marine environment, there has already been some discussion of the impact of wastewater being dumped into the Mediterranean Sea. While the precise impact is not known, untreated sewage, waste, and munitions may be contributing to pollution (UNEP 2024a, 31). This could result in illness in humans and animals from ingestion of water or seafood (UNEP 2024a, 31). In addition, microplastics and bacteria may bioaccumulate in marine food webs and persist over the long-term in the environment (UNEP 2024a, 32). Bacterial decay of organic matter such as that found in waste creates hydrogen sulphide and ammonia which are both toxic to marine organisms (UNEP 2024a, 32). However, only samples taken from the Mediterranean Sea or other water sources may provide an accurate portrayal of what the impact has been. Because this is made difficult by the ongoing conflict, these are some of the implications which the UNEP report identify as possibly arising from pollution due to wastewater, munitions, and solid waste.

Terrestrial environment

While there are not always precise measures available for every environmental category, at least prior to 2023, there is some information of the terrestrial environment. Gaza does possess arable land to grow citrus, vegetables, almonds, dates, olives, guavas, strawberries, and flowers (UNEP 2024a, 14) and this they have been doing for a long time as discussed above. Along the eastern part of Gaza, near the fences separating the strip from Israel, there is a roughly 3 to 5 kilometre-wide band of fertile ground where most of this occurs (Forensic Architecture 2024, 21). There is also a small width of soil along the northern bank of the Wadi Gaza in the north which is highly fertile (Forensic Architecture 2024, 21). However, there has been a

deterioration of soil due to intensive agriculture which has also depleted groundwater and contaminated it with chemicals from fertilisers (UNEP 2024a, 14).

Since October 7, this has been exacerbated. It was found as of mid-February 2024, that 42.6% of cropland in Gaza had been damaged, with 43.1% of orchards, 41.2% of irrigated cropland, and 41.7% of rainfed cropland being damaged (UNEP 2024a, 32). As of 3 April 2024, 44 to 52% of tree crops had likely been damaged and 42% of greenhouses were more than 10% damaged, with 23% being completely destroyed (UNEP 2024a, 32). Depicted in Figure 6.5 below, this represents the work of Dr He Yin of Kent State University using satellite imagery. Red areas show damage to tree crops while dots coloured in gradients running from white to black show increasing amounts of greenhouse damages.

It is possible that this destruction is partly due to the cutting down of trees to have firewood to bake bread or to boil water (Wood 2024). However, this impact is also due to the impact of munitions which may also present a risk to farmland in the form of unexploded ordnances, or to the ground in the form of heavy metal pollution (UNEP 2024a, 35). The deliberate targeting of food systems has seen 70% of cropland destroyed and 70% of olive trees and orchards burned to the ground as of 1 September 2024 (FAO 2024a). This is a significant increase since Dr Yin's analysis in April and resembles Israel's similar strategy in 2009 (UNEP 2024a, 35). In 2009, Israel's offensive saw the mechanical removal of trees and plants, leading to compression and thinning of topsoil, and increasing the risk of desertification (UNEP 2024a, 35). Importantly, these target orchards and olive trees, already discussed earlier to be vital environmental life forms in Gaza's history. The Wadi Gaza in the north has also been severely impacted, with about 25 to 50% of it destroyed (UNEP 2024a, 34). This has impacts on the band of fertile land to its north.

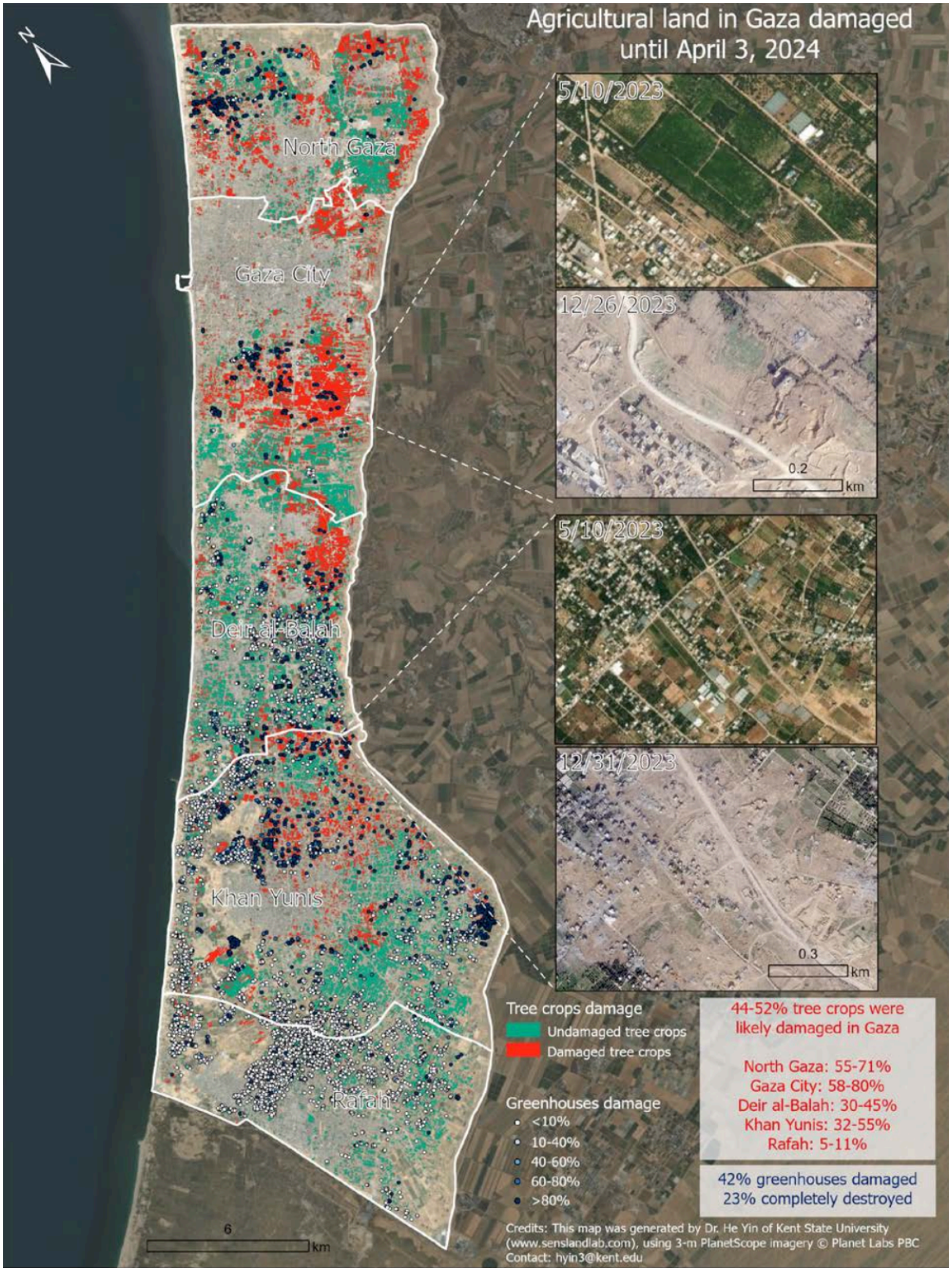


Figure 6.5: Tree crop damage in Gaza as of 3 April 2024 (UNEP 2024a, 33).

Vegetation

Supplementing these findings is possible by using remote sensing techniques to make observations of the vegetation in Gaza. Figure 6.6 below shows a political map identifying the borders of the Gaza Strip as a beginning point.

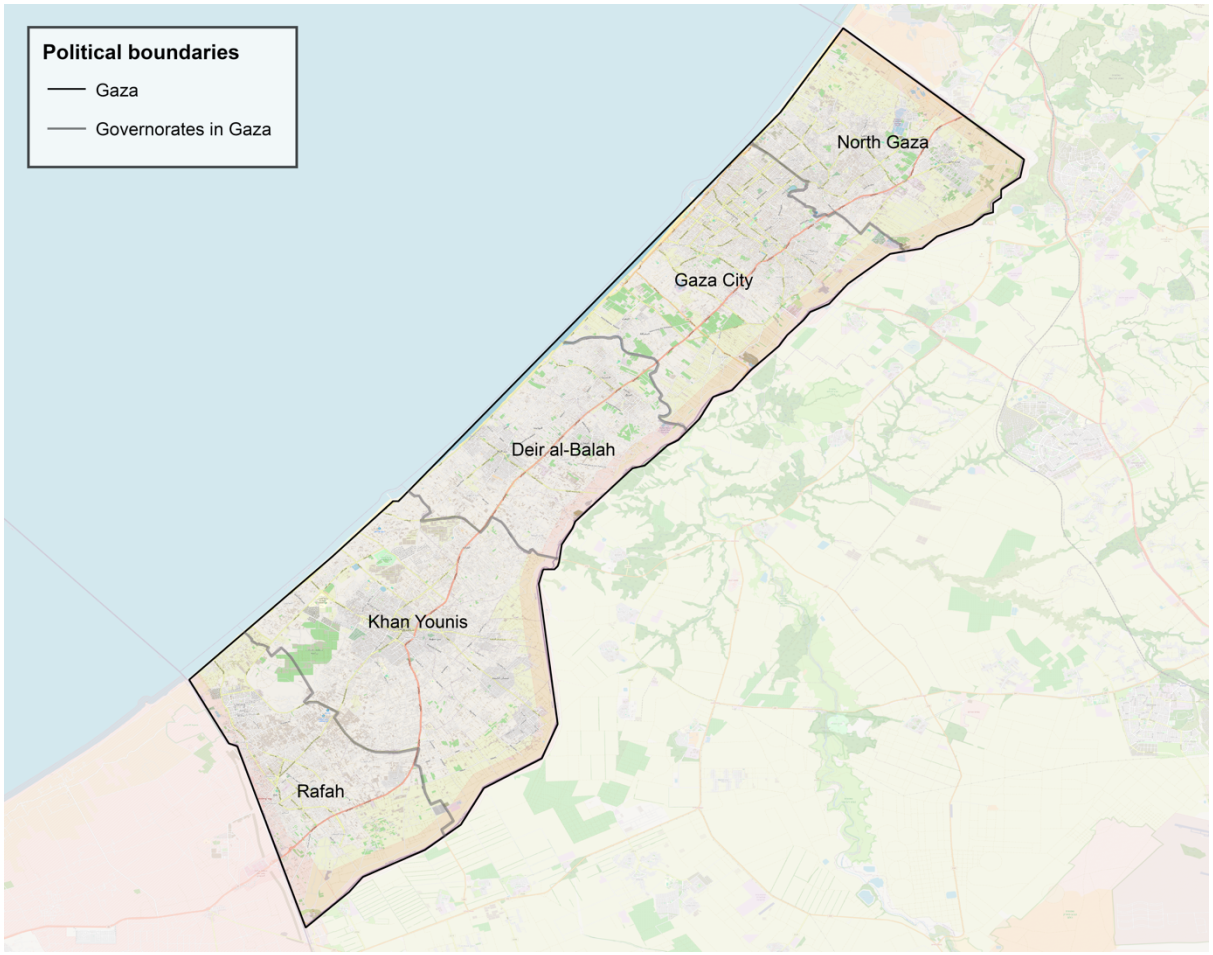


Figure 6.6: Political boundaries of Gaza.

Figure 6.7 below depicts changes in vegetation between 2022 and 2024. It comprises Landsat 8-9 satellite imagery of the same area from 10 June 2022 and 15 June 2024, obtained from EO Browser. Bands 4 and 5 imagery was extracted from these to calculate a Normalised Difference Vegetation Index (NDVI) for each time. This displays the occurrence of biomass in an area (Dovgyi 2022, 109). This was done in QGIS, along with calculating a difference between the index for 2024 and 2022. This is displayed below, where redder areas indicate a decrease in NDVI, and bluer areas indicate an increase.

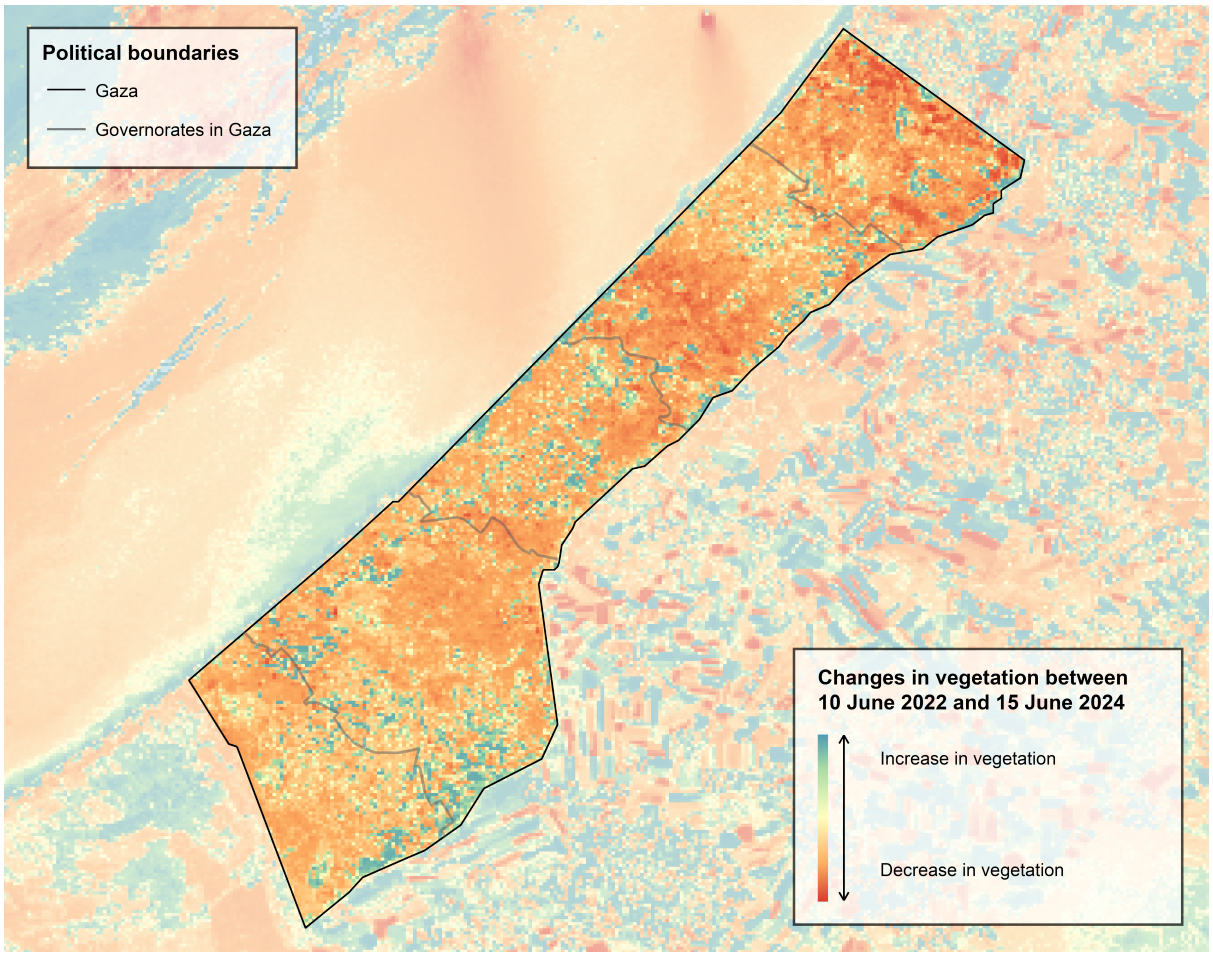


Figure 6.7: NVDI difference in Gaza between 2022 and 2024. Decrease (red), increase (blue).

The same analysis was conducted for imagery taken from 28 June 2014 and 16 September 2014 (when Israel conducted a previous bombardment of Gaza) from the Landsat 8-9 satellite. This appears in Figure 6.8 below.

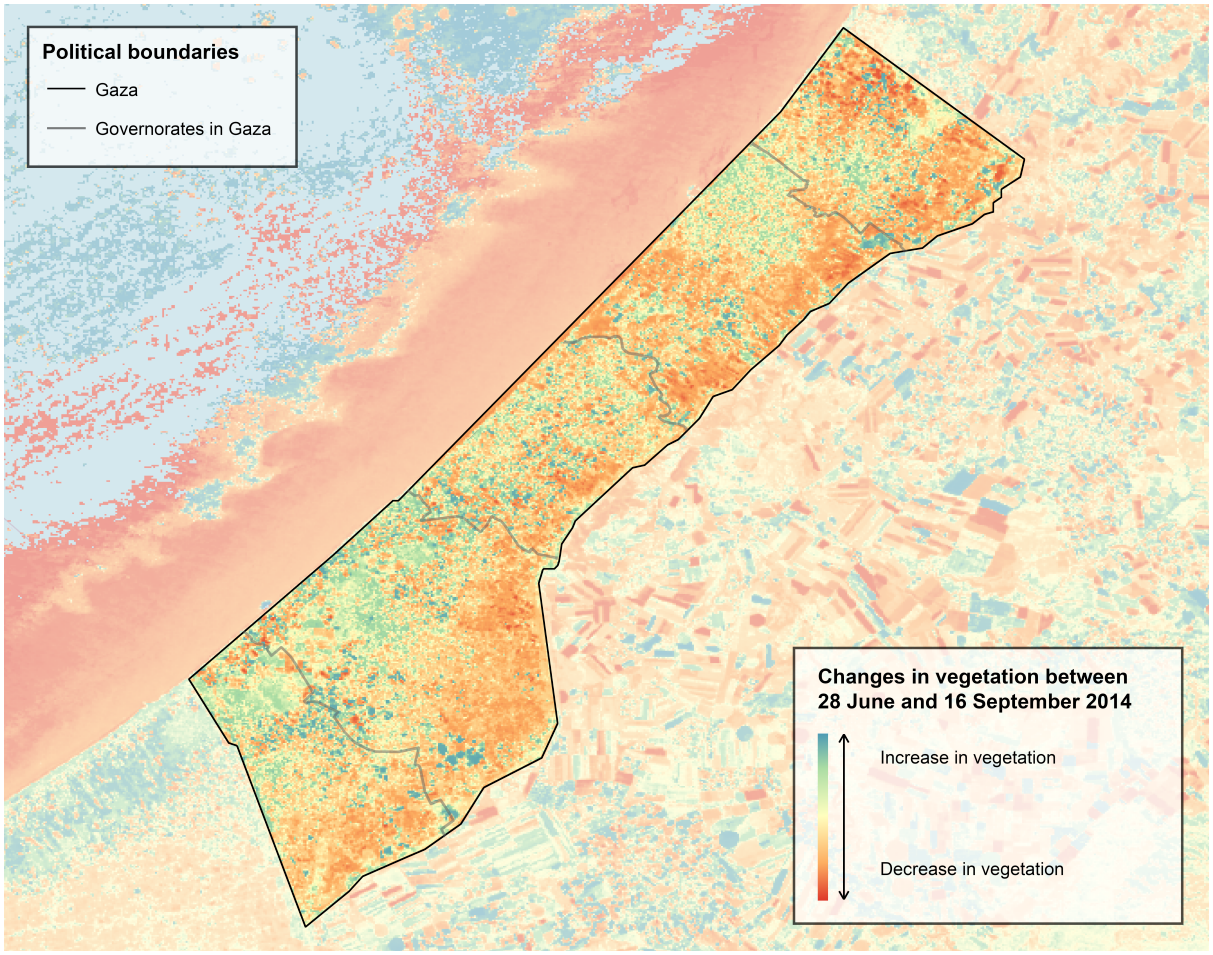


Figure 6.8: NVDI difference in Gaza between June and September 2014. Decrease (red), Increase (blue).

It is noticeable that while there is no concentrated observation in the rest of the region, Figure 6.7 shows that almost exactly where the Gaza Strip is located, there is a decrease in NDVI due to more red areas. This is despite the area being a small one, and sharing the same climate and weather conditions. This clearly shows the impact that conflict has had on the environment of the area for it is implausible that there may be another cause during such a short period of time, with a concentration on the Gaza Strip.

Figure 6.8 shows less of an impact, probably due to the decreased severity of the 2014 conflict (Buheji and Muhannadi 2024). However, it is worth considering if the impact observed (concentrations of redness in the Gaza Strip) is due to conflict. If compared to strike sites identified by a July 2014 UNITAR report, as seen as green points on Figure 6.9, there does seem to be an association between decreased NDVI and Israeli strikes (UNITAR 2014). This again strengthens the case that there is an observable impact on the environment due to conflict.

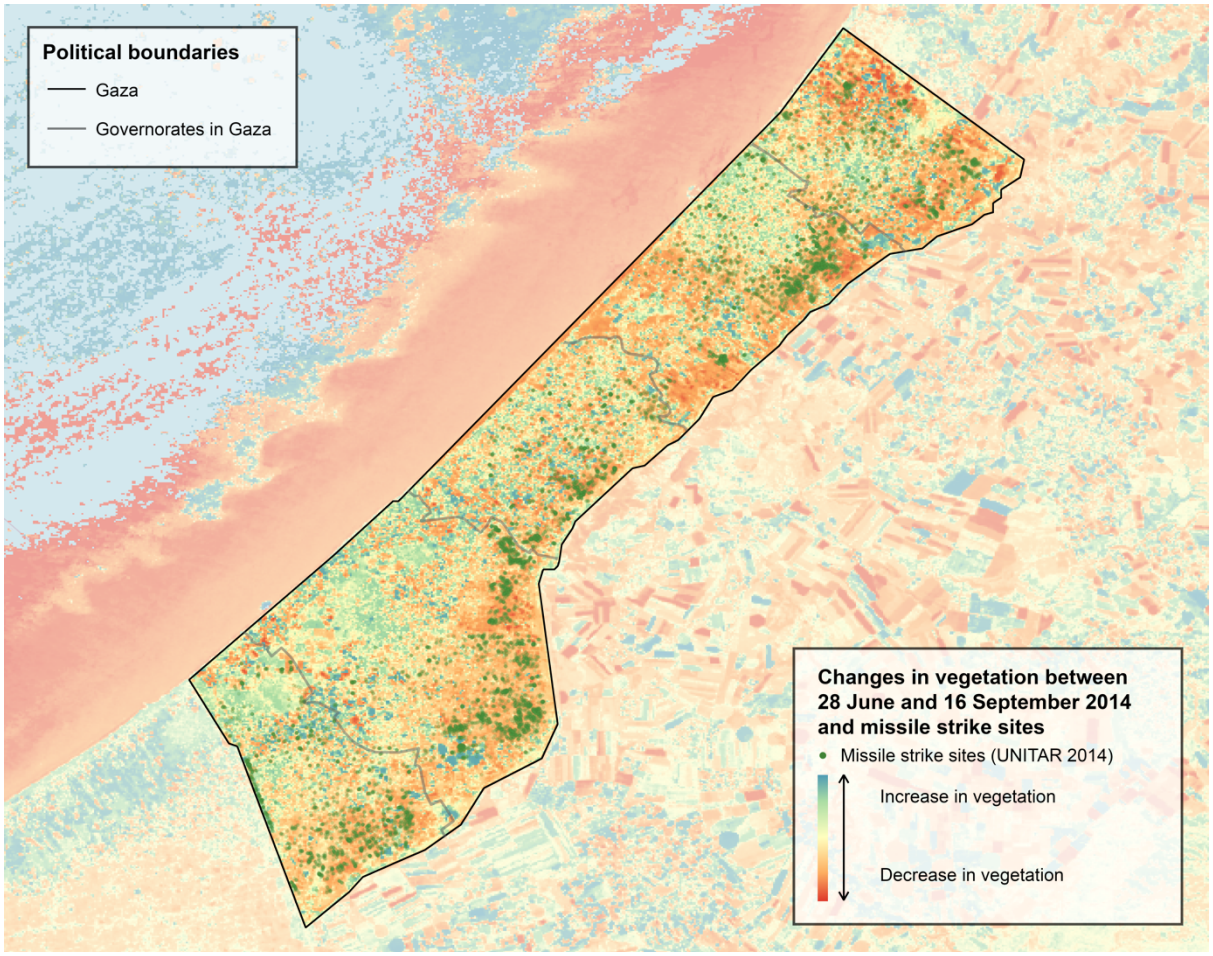


Figure 6.9: NVDI difference in Gaza between June and September 2014, with UNITAR identified strike sites in green.

To supplement these findings is analysis done through the use of remote sensing of vegetation using Sentinel 2A satellite imagery. Comparing vegetation between 27 October 2021 and 26 October 2024 attempts to see if there has been a long-term shift in vegetation levels at a time more recent than the findings of the UNEP report. Furthermore, it is attempted to quantify this change. This attempted to replicate the process conducted by Forensic Architecture looking at the same impact between June 2021 and June 2024. Using their assumption that vegetation is present in areas with a vegetation index (NDVI) of above 0.2 (Forensic Architecture 2024, 247), total vegetation was analysed in Gaza and its regions between 2021 and 2024 to produce the following data.

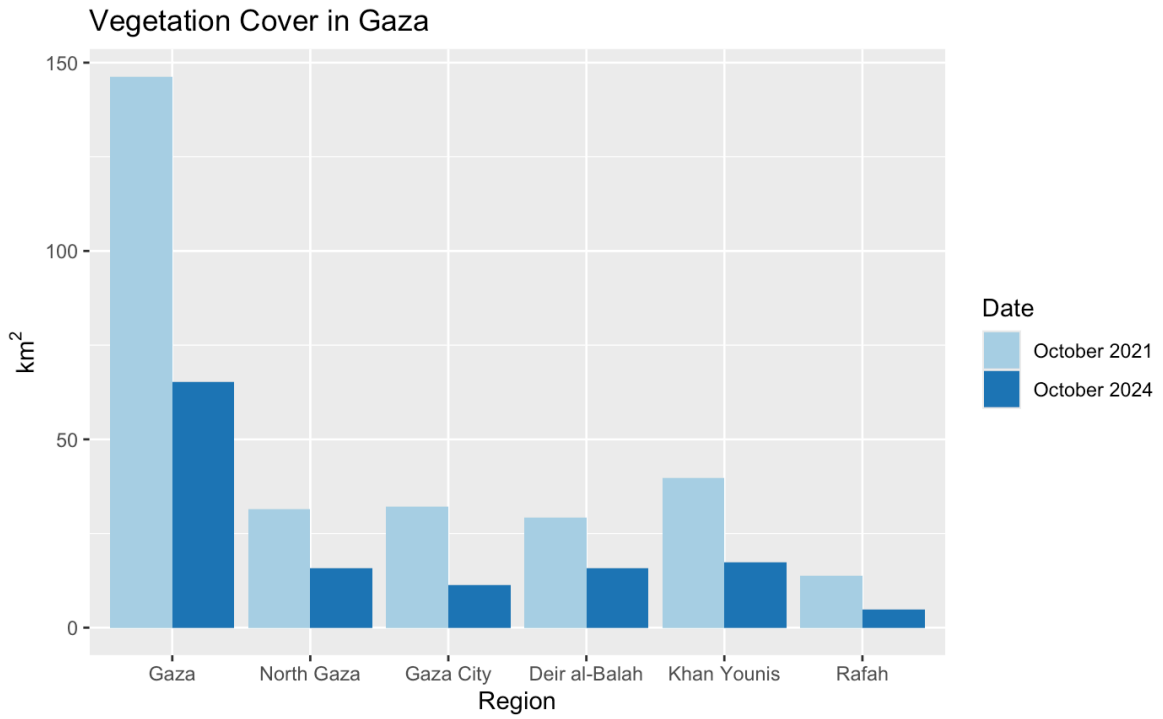


Figure 6.10: Vegetation cover in Gaza between October 2021 and October 2024.

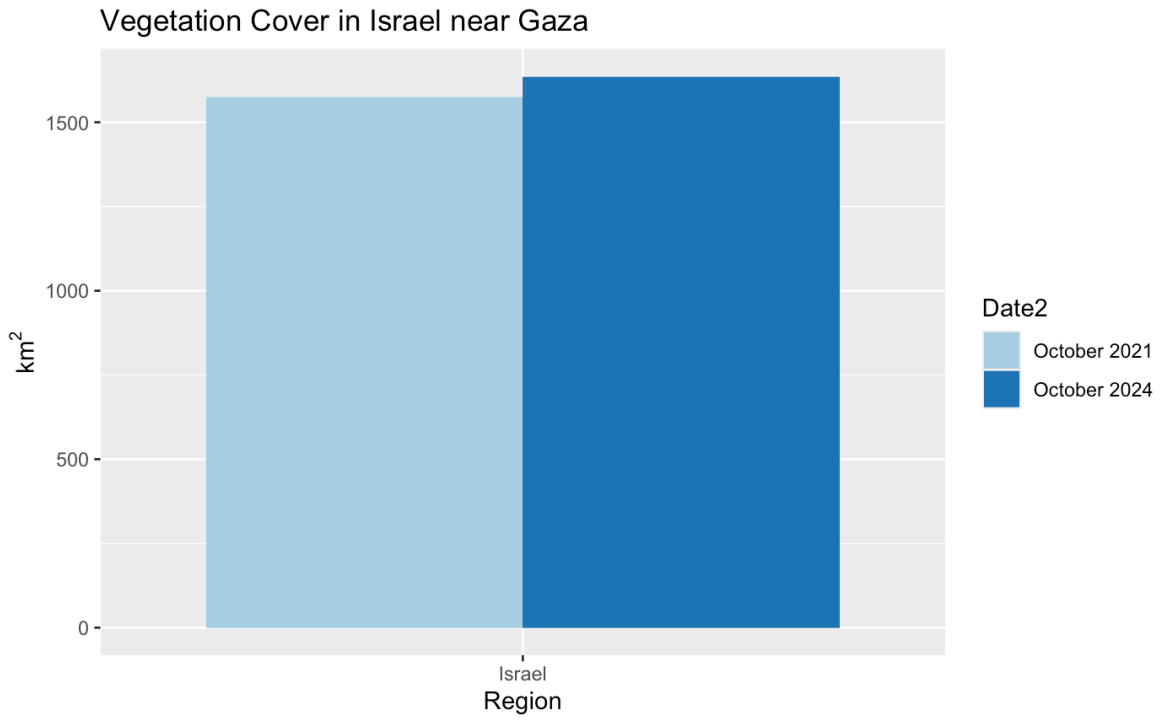


Figure 6.11: Vegetation cover in Israel, near Gaza, between October 2021 and October 2024.

Figure 6.10 above shows that in Gaza and each region of Gaza, there has been a decrease of over 50% of vegetation cover between October 2021 and October 2024. Analysis of the same satellite imagery but of the areas of Israel surrounding Gaza shows a stable, though slightly increased, level of vegetation. This is evidence that the change observable in Gaza is indeed

due to war, and an Israeli strategy which does not also include the lands which are a part of Israel.

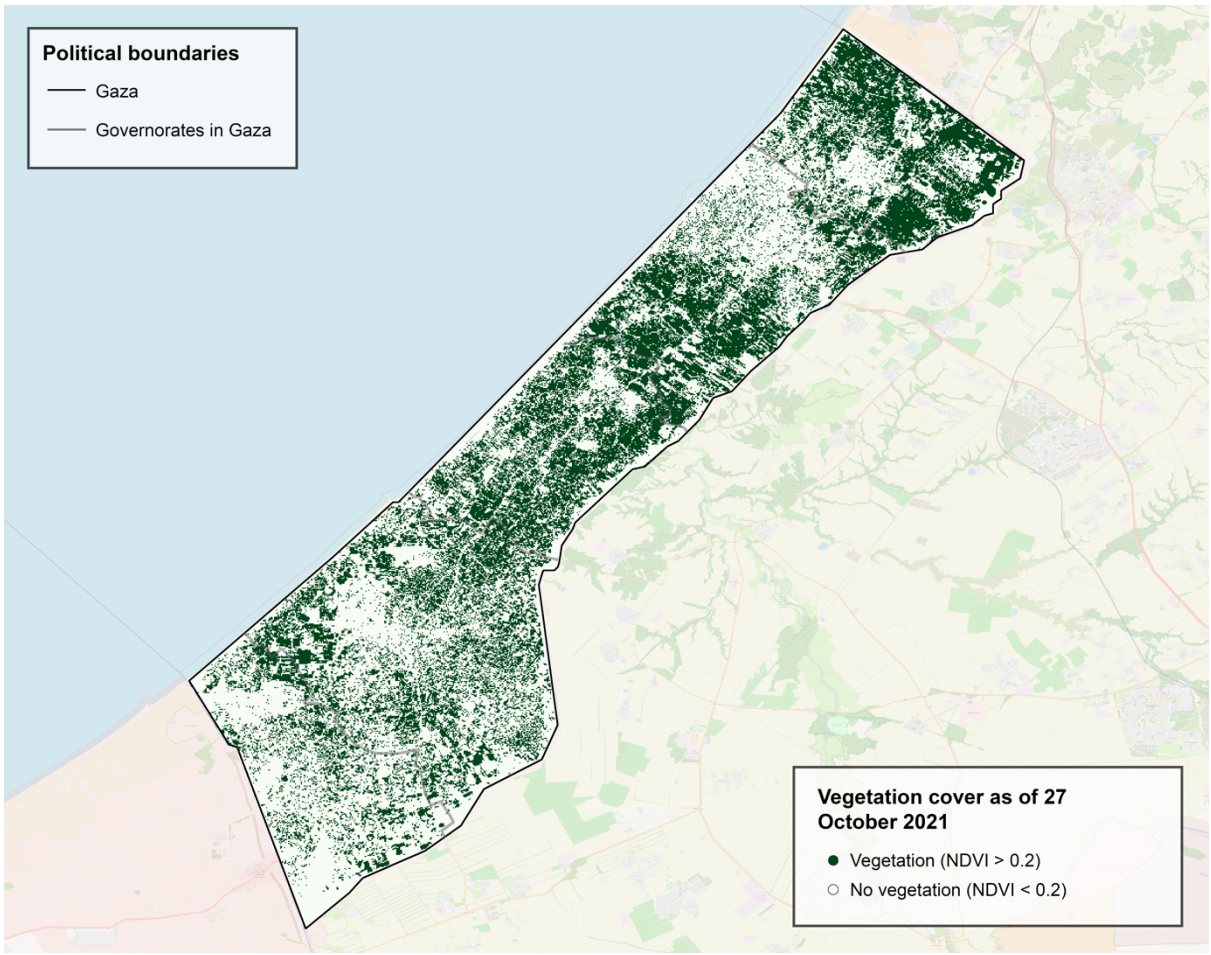


Figure 6.12: Vegetation cover in Gaza in October 2021.

Figure 6.12 above depicts this in October 2021. Any land with a normalised difference vegetation index (NDVI) higher than 0.2 is considered as indicative of vegetation and hence coloured green. Anything lower than 0.2 is coloured white to indicate a lack of vegetation. Figure 6.13 below depicts the same parameters analysed in October 2024. At first glance, there is a clear difference in the two depictions and there has been a vast decrease in vegetation in all parts of Gaza as reflected in the graph above.

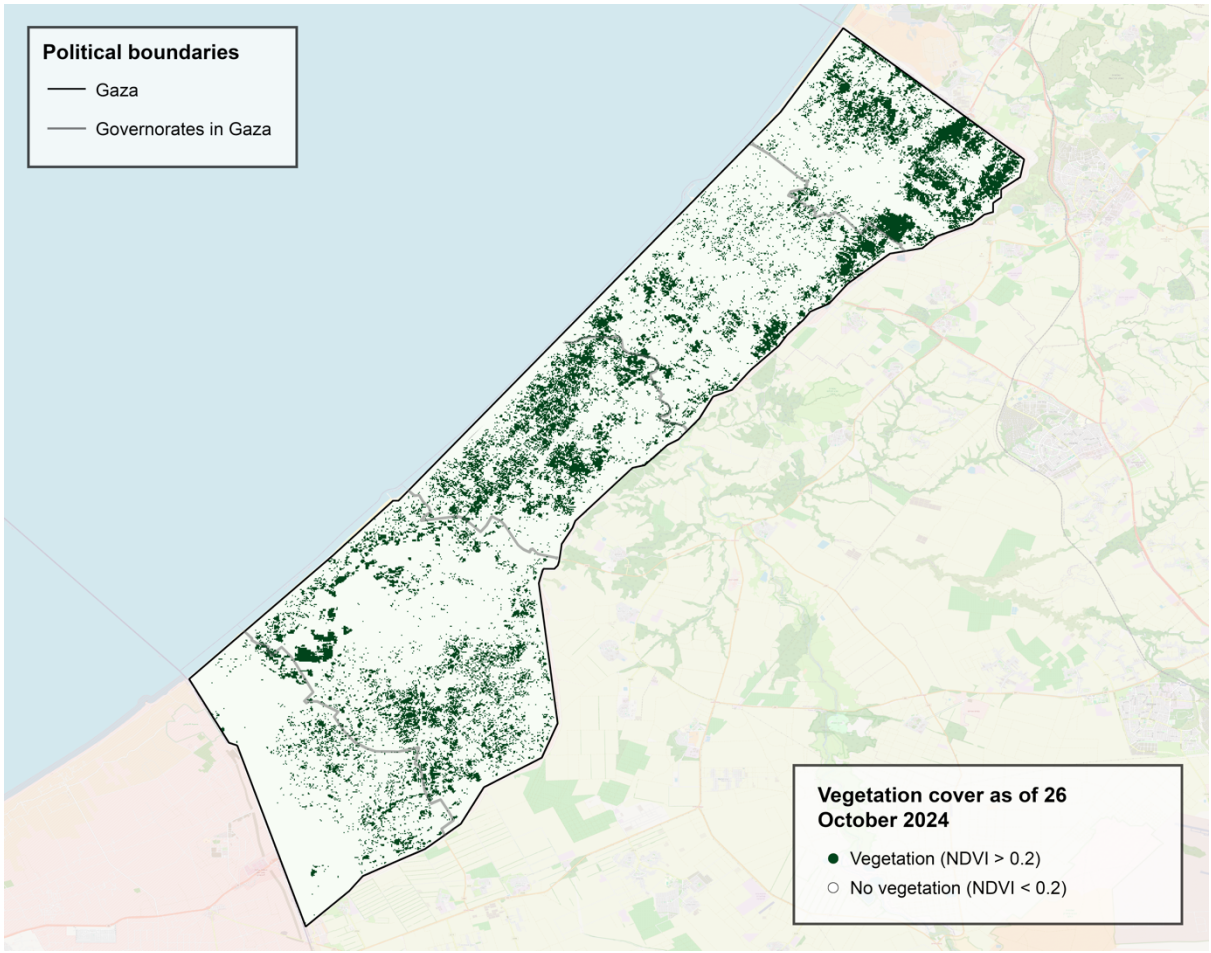


Figure 6.13: Vegetation cover in Gaza in October 2024.

Figure 6.14 below enhances this analysis by depicting areas in which vegetation was lost between 2021 and 2024 in red. This is transposed on the existing vegetation, coloured in green, present in October 2024. From this, the loss of vegetation can quite significantly be seen. Comparing it to the figures above, there is a similar geographical distribution of destruction, debris, fires, trees and cropland lost, and vegetation lost. These are particularly evident in the north of Gaza, in the middle of Gaza around Deir al-Balah and Khan Younis, and in Rafah in the south. And, from this analysis, it was found that 55.42% of vegetation was lost. This can be seen in Figure 6.10 where the total vegetation in Gaza decreases from an area of nearly 150 km^2 to an area of about 65 km^2.

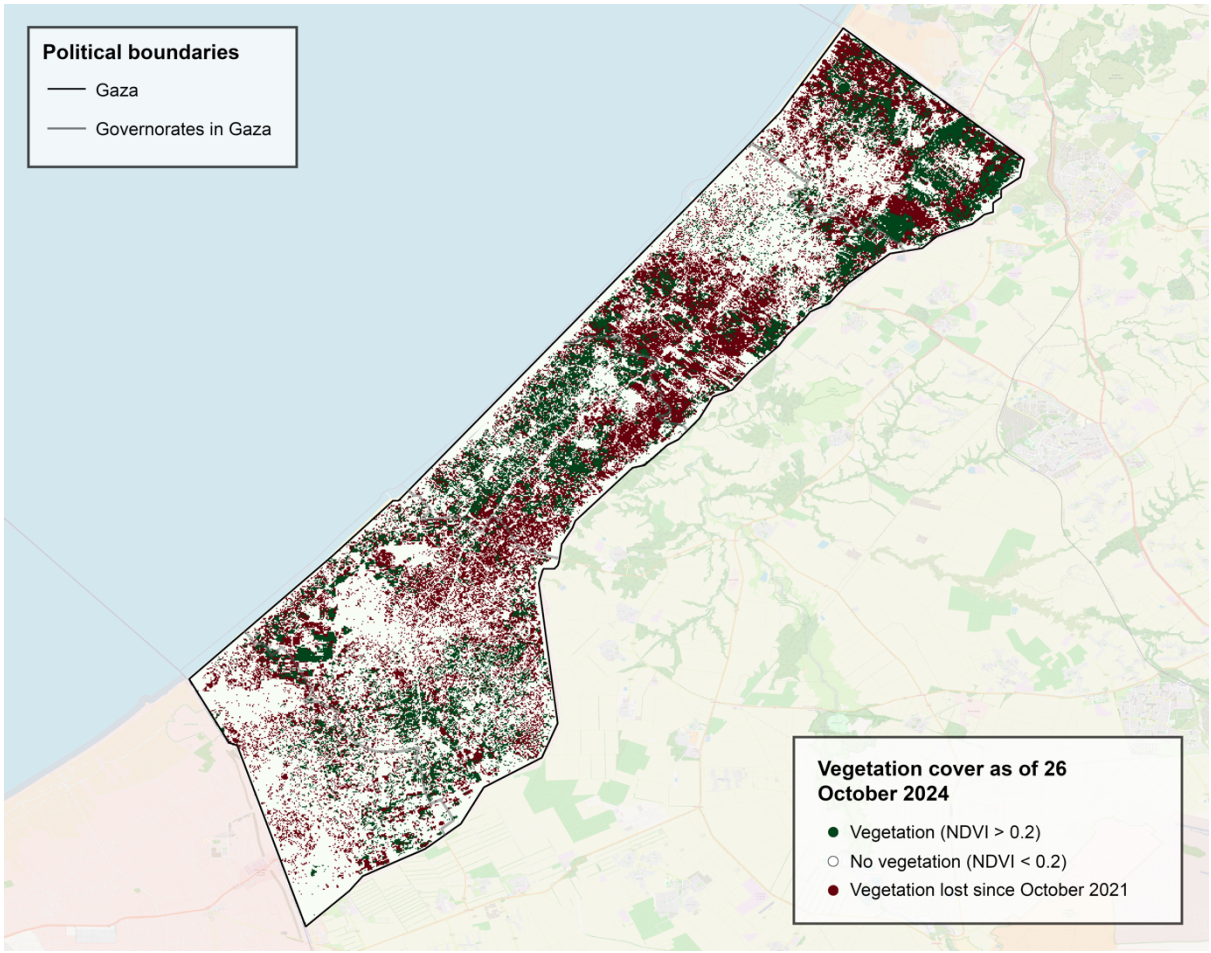


Figure 6.14: Vegetation cover in Gaza in October 2024 and vegetation lost from 2021.

Animals

There is no doubt that animals have likely been affected by this destruction. In fact, it has been found that 15 000 heads of cattle, or 95%, have died, and all calves have been slaughtered (UNRWA 2024). In addition, only about 25 000 sheep (or 43%), 3 000 goats (or 37%), and 34 000 birds (1%) are remaining alive (UNRWA 2024). This has resulted from the need to quickly move and leave animals behind, the lack of food for both humans and animals, death due to bombing, and the destruction of agricultural infrastructure and the restriction of input (UNRWA 2024; FAO 2024b).

Air

The impacts on the air quality in Gaza as a result of the impacts above and the military action by Israel is yet to be seen. While fires have been observed, and there is likely an impact due to the amount of debris and dust due to explosions, there is no open source air quality data which precisely quantifies air quality before and after. Despite this, the increase in number of fires,

the air quality monitors in Israel near Gaza detecting a greater mean PM2.5[5] reading in 2023-2024, compared to 2022-2023, and the proliferation of respiratory diseases, all suggest significant air pollution (UNEP 2024a, 37). However, without precise readings from air quality monitors in Gaza, it is hard to assess if and how much measures such as PM2.5 concentration have exceeded safe limits (see footnote 6). The burning of plastic waste releases toxins, the burning of medical waste may release pathogens, and the burning of batteries may also release toxic chemicals (UNEP 2024a, 37). Furthermore, continued bombing spreads more dust and debris, including asbestos (UNEP 2024a, 37).

Conclusion

In summary, it is clear that there is a large, though not completely quantifiable, impact on the environment due to Israel's genocide in Gaza. Water is being impacted both due to limits to access to water, the overuse of natural water resources and the mismanagement of wastewater. Waste is accumulating due to the disruption to management systems and debris is accumulating due to bombing. These have significant effects on the terrestrial environment and are especially concerning given the UXO and asbestos, as well as human remains, within the debris. The targeting of energy infrastructure has also led to more fires, disruptions to progresses made in renewable energy facilities, and possible pollution of the land by petroleum or heavy metals. The marine and terrestrial environments are being affected by these, the latter both through pollution and through physical change and loss of vegetation and animal life. And while impacts on air quality may not be clear, it is likely that they are significant or may be due to other impacts (such as fires or the burning of solid waste).

There are other areas of analysis which could provide further insight but are also hindered by a lack of information. For example, chemicals from weapons are not known, even though it is known that 75 000 tonnes of explosives have been dropped on Gaza, so the precise nature of the pollution is unknown (UNEP 2024a, 38; Chughtai and Okur 2024). However, it is conceivable that TNT and RDX from explosives may be carcinogenic, lead to liver or kidney damage, lead to nervous system damage, and bioaccumulate in water and soil resources and

[5] PM2.5 refers to fine inhalable particles which are less then 2.5 micrometres in diameter which may enter the lungs and the bloodstream, posing risks to health such as premature death, heart attacks, asthma, decreased lung function, and other cardiac or respiratory issues (EPA 2024a; EPA 2024b). It may also cause acidification in lakes, deplete nutrients in soil, damage sensitive plants and ecosystems, or contribute to acid rain, though the impacts are dependent on precisely which particles are present (EPA 2024a). WHO guidelines prescribe that this should not exceed concentrations of 5 micrograms per metre cubed as annual averages, though in 2021, Gaza had an annual mean of 20.1 micrograms per metre cubed (WHO 2021). However, the precise measure since October 7 is not known.

flora and fauna, leading to stunted growth and disease (UNEP 2024a, 40). Heavy metals such as arsenic, cadmium, chromium, lead, and mercury can similarly bioaccumulate, lead to organ damage and developmental delays, or pollute the soil (UNEP 2024a, 40). Craters which have been studied before have already shown high levels of nickel, chromium, copper, manganese, and lead (UNEP 2024a, 40).[6] There is also the risk of white phosphorous which has allegedly been used, and this leads to indiscriminate chemical burns when in contact with oxygen (UNEP 2024a, 38). Other imprecise estimates of the impact on climate change due to carbon emissions have been explored in the second chapter, though these are also imprecise (Neimark et al. 2024).

Overall, ecocide is unfolding in Gaza. This is especially if ecocide is defined as the destruction of the environmental ecosystem, with war, deforestation, mining, pollution, emissions, and any other deliberate destruction (Satgar 2018b, 55; Dunlap and Brock 2022, 2). Israel has destroyed the environment deliberately by bombing infrastructure, facilities, and buildings which lead to a build-up of solid waste, wastewater, and debris. These have been to target the conditions of life in Gaza (Albanese 2024). Evidently, this targets all conditions of life, not just humans, by having impacts on the environment in the form of pollution. Bombing has also directly impacted vegetation and animals, the latter of which have also been impacted by displacement of populations. There may also be conceivable impacts from the use of bombs with heavy metals which are yet immeasurable as the war unfolds. Flooding of tunnels with saltwater is another direct impact. Some even suggest that Gaza is being targeted so that oil reserves off the Palestinian coast may yield economic value for Israel and the US, representing a targeting of the environment in Gaza to enable further environment degradation (Malm 2024, loc. 36-37 of 75). Indirect impacts of war on the environment have also resulted from the humanitarian impact. Beyond the impacts of destroyed infrastructure and facilities, disruption to supply of electricity and water, as well as internal displacement, have resulted in increased reliance on wells for water. This has depleted water levels and risked saltwater intrusion. Other indirect impacts result from the burning of trees and solid waste for heat which has destroyed vegetation

[6] Heavy metals can have impacts on human and animal health similar to asbestos by causing different types of cancer and may also impact fertility (Najar et al. 2015, 157). These may bioaccumulate in ecosystems if they are in soil which provides nutrients for plants eaten by humans and animals. They may also change the acidity or texture of soil, impacting its fertility, or leaching into the groundwater below (used by Palestinians in Gaza as a water source) (Najar et al. 2015). This study found varying results of different heavy metals but which demonstrated levels at bomb crater sites between 2 and 7.3 times higher than average levels for cadmium, cobalt, nickel, and manganese, between 20 and 42 times higher than the average for tungsten and mercury, and between 25 and 300 times higher than the average for molybdenum (Najar et al. 2015, 157). This study compared these levels not to a safe prescribed maximum, but to average levels set as controls from locations unaffected by bombs (Najar et al. 2015, 152).

and generated air pollution. The environment is thus both the precise target of Israel, and collateral damage in its targeting of others. In short, whether targeting the environment directly or indirectly to kill people, or through indirect impacts of displacement, Israel is perpetrating an ecocide. This finding is made possible through the mixed-method analysis conducted above, recognising the complex relations between different beings in this war – the environment, people, weapons, plants, animals. A more precise understanding of this ecocide in relation to genocide, both as appendages of a colonial Eurocene form of life, is discussed next.

Ecocide and Genocide as Eurocene Appendages

On October 1, 2024, the Special Rapporteur on the situation of human rights in the Palestinian territories occupied since 1967, released a report which serves as an influential document towards understanding the situation in Gaza as genocide. In this report, she recognises that the occupation of Palestine since 1967 by Israel has already been ruled as unlawful by the ICJ in July 2024 (Albanese 2024, 3). This unlawful occupation has utilised force, racial segregation, and apartheid, as tactics aimed at annexation of Palestinian territories (Albanese 2024, 4). As an occupying power, this means that Israel cannot claim self-defence as a reason for military action in territories occupied such as Gaza (Albanese 2024, 4). In the present case, this means that not only is Israel's offensive not one of self-defence, but it follows an agenda of occupation and annexation with the use of unlawful tactics including apartheid. These inform what has been Israel's long-term intentional, systematic, and state-organised effort to forcibly displace Palestinians and replace them (Albanese 2024, 2).

With this context, the genocidal intent of Israel is established as one within the context of decades-long territorial expansion and ethnic cleansing for the colonisation of Palestine (Albanese 2024, 3). The location of this within a complex ecology of coloniality which includes Zionism was discussed earlier. This is furthermore established by the statements of Israeli officials, government ministers, and religious leaders which have encouraged this erasure and dispossession (Albanese 2024, 5). At the same time, the events in Gaza have escalated the violence, ethnic cleansing, and apartheid in the West Bank and East Jerusalem (Albanese 2024, 5). In the report, these pieces of evidence support a legal establishment of genocidal intent in a variety of ways. First, the special rapporteur discusses the scale of destruction witnessed in Gaza, which was detailed above. Importantly, these suggest that the destruction of infrastructure is part of a strategy showing that Israel wishes to establish a permanent presence in Gaza (Albanese 2024, 8). In fact, 26% of Gaza is already being covered in Israeli roads and bases (Albanese 2024, 8). This desire to occupy requires both death and displacement. And,

with any mass displacement of Palestinians in Gaza being for now precluded by the blockade, Israel is pursuing a strategy of destruction (Albanese 2024, 9). This is being carried out through starvation by targeting agricultural land and reservoirs or attacking aid convoys and people waiting for food and justifying this through a permissive interpretation of IHL (Albanese 2024, 9; Sultany 2024, 7). An Israeli human rights organisation, B'Tselem, asserts that this is the product of deliberate Israeli policy designed to "to wipe out Gaza" (Sultany 2024, 7). Concerningly, in spite of this, arguments endorsing the displacement of Palestinians in Gaza are gaining prominence (Shaw 2025, 418-419). Palestinians in Gaza thus face the threats of displacement and policies of starvation in furtherance of genocide.

In a dossier compiled by the Republic of South Africa, the evidence of genocidal intent in the speech of various figures is what supports this genocidal conduct. Indeed, they identify 20 senior government officials and 12 senior military officials making statements in support of this conduct, the dehumanisation of Palestinians, and the desire to completely destroy Gaza (Joyini 2024). In addition, 130 army officers were signatory to a statement against the delivery of humanitarian aid (Joyini 2024). There were also over 50 instances of documented conduct of soldiers which portray all Palestinians in Gaza as guilty, demand Gaza being totally destroyed, advance Biblical justifications for dehumanising and destroying Palestinians, support the displacement of Palestinians and resettlement of Gaza, and perform acts desecrating Palestinian corpses or destroying and defiling Palestinian homes (Joyini 2024). One letter by an army commander represents this by asserting that the war on Gaza should "pulverize every accursed plot of land" and "destroy it and the memory of it" (Sultany 2024, 13).

Perhaps emblematic of this genocidal rhetoric at all levels are statements such as those by Finance Minister Bezalel Smotrich calling starvation "justified and moral" (Albanese 2024, 9). He has asserted that pressure from the international community has prevented Israel from completely starving Gaza (Times of Israel 2024). In addition, the former Head of the Israeli National Security Council has suggested that all aid should be blocked and epidemics used as a tactic of war (Albanese 2024, 9-10). The President of Israel, Isaac Herzog, has also said that for October 7, there is an "entire nation out there that is responsible" (Albanese 2024, 26). The rhetoric of these officials alludes to the underlying Israeli policy to commit genocide in Gaza. This engages dehumanisation, starvation, and epidemics as some other violent appendages to effect a genocide alongside ecocide.

The ways in which these statements and acts operate together have had consequences for the West Bank and East Jerusalem too. Former Minister of Defence, Yoav Gallant, suggested that the operation in Gaza be projected to Judea and Samaria (West Bank) (Albanese 2024, 10). This has come to fruition in some ways, with there being, since October 7, 2023, 5505 raids by Israeli forces, 1084 settler attacks supported by Israeli forces, 692 deaths, 169 children killed, and 5199 injuries (Albanese 2024, 11). This represents a 900% increase of deaths from the average of 69 deaths per year for the previous 14 years, and a 250% increase of the death of children from the previous 9-month average (Albanese 2024, 11). In addition, of the children killed, 80% were shot in the head or torso (Albanese 2024, 11). This has been accompanied by 9400 detentions of Palestinians including academics, students, lawyers, journalists, and human rights activists who are designated as terrorists and are subjected to abuse, brutality, torture, and rape (Albanese 2024, 11). Smotrich and Foreign Minister Israel Katz have also alluded to Palestinians being Nazis whose cities must be turned into a pile of rubble (Albanese 2024, 11-12). Finally, the West Bank has seen the replication of strategies used in Gaza such as air raids and the targeting of hospitals (Albanese 2024, 12). Furthermore, military authority has recently been transferred to civilian authority, signalling an acceleration of the West Bank's annexation and resettlement (Albanese 2024, 13).

Based on this, Albanese (2024, 15-16) considers whether all these acts taken together indicate a pattern of genocidal intent, even if they may also constitute other charges such as war crimes. This would entail an intent to destroy the foundation or will of the people to live, and their relationship to their culture, heritage, and land, such that they can never be reconstituted (Albanese 2024, 16-18). And, while individual actions may perpetuate this, it is not precluded from aggregating into the responsibility of the state (Albanese 2024, 18-19). In addition to the evidence of the destruction in Gaza explored above, this understanding establishes genocidal intent in numerous ways. First, this project of genocide can be seen to support a foundational aim of the Zionist project, Greater Israel (Eretz Yisrael), which is necessarily impeded by Palestinians, hence demanding their erasure (Albanese 2024, 20, 30). This has been realised through the increase in colonies and settlements that has recently taken place (Albanese 2024, 21). It is also reflected in rhetoric such as Netanyahu's presentation of a map of Israel erasing Palestine to the General Assembly in September 2023 (Albanese 2024, 21). To effect this, Palestinians are dehumanised or portrayed as security threats, justifying their displacement, detainment, and death (Albanese 2024, 21). Quite explicitly, rather than beginning on October

7, Gaza's colonisation is a part of a longer strategy which is reflected in a leaked concept paper outlining Gaza's colonisation premised on October 7 (Albanese 2024, 21).

Indeed, even before October 7, Israel's use of international law has been to inflict violence on Palestinians. This has been by framing Israeli actions as the pursuit of law and order, redefining civilians as combatants, practicing deliberate disproportionality in responses, and asserting that Palestinians are used as voluntary human shields (Sultany 2024, 8; Shaw 2025, 418). These have blurred the lines between peace and war to justify Israel's colonial strategy within IHL, demonstrating an intent preceding October 7, 2023. At present, this means that Israel is able to argue that it is not breaking the law but acting precisely in accordance with the law, as it did before the ICJ (Shaw 2025, 418; Verdeja 2025, 11).

Besides the rhetoric, ideological roots, and extension to the West Bank, this genocide has manifested in a variety of ways. These include mass killing and the rendering of Gaza unliveable through the targeting of WASH infrastructure, schools, hospitals, places of worship, and the environment (Albanese 2024, 22). This furthers a severance of the connection of Palestinians with their land, undermining their food sovereignty and culture, and decimating their social fabric (Albanese 2024, 23). For instance, hospitals seen as medical shields allows Israel to interpret IHL to target medical facilities and disrupt their role in societal survival (Sultany 2024, 11). This will inevitably lead to severe psychological harm from the experience of Palestinians with torture, degrading conditions, trauma, maiming, and even mass graves (Albanese 2024, 23).

Israel further targets Palestinians by wantonly killing women and children to prevent their reproduction as a group (Sultany 2024, 15). The targeting of UNRWA and other UN agencies in Gaza is another dimension in which the conditions of life are being decimated in Gaza (Albanese 2024, 23). These patterns, and the scale discussed above, all point to Israel's attack on Palestinians in Gaza and their capacity for long-term survival and renewal (Albanese 2024, 24). Like Lemkin's view of Nazi policies in Europe as genocide by making life itself an act of physical survival, Israel is pursuing policies to cripple life in Gaza (Shaw 2025, 417).

In light of this, and the ICJ ruling on the unlawfulness of the occupation, it is not possible for Israel to reasonably claim that their actions constitute self-defence (Albanese 2024, 25). This is especially when their offensive has disproportionately targeted civilians and removed their "civilian-ness" with Israel's vastly superior military capabilities (Albanese 2024, 25-26). This suggests that their prolonged engagement must signal a different intent to that claimed

(Albanese 2024, 25-26). In fact, despite claims to be engaging in Gaza for the release of hostages, more hostages have been killed by Israel than rescued and negotiations with Hamas have deliberately been sabotaged (Albanese 2024, 26-27). With these defences for Israel not being possible, the state can be held responsible for actions or omissions which have led to genocide (Albanese 2024, 27). Furthermore, Israel can be understood to have genocidal intent in what has amounted to the destruction in whole, or in part, of the Palestinian people (Albanese 2024, 24). This is based on the scale of destruction, the non-compliance with ICJ rulings to refrain from acts of genocide, inciting it or aiding it, and reporting on it (Albanese 2024). It is also based on the documented statements of leaders and the military in Israel, and the general impunity and active encouragement practiced by the judiciary, attorney general, Knesset, and media (Albanese 2024). These statements further represent the widespread support for the genocide by the Israeli public (Shaw 2025, 418).

Despite the aforementioned arguments establishing Israel's genocidal intent, Israel's effective use of IHL as well as the Holocaust, has meant that scholars have debated whether Palestinians in Gaza are facing genocide (Verdeja 2025, 6). This has not been seen in other genocides in Myanmar, Sudan, or Rwanda, representing a crisis of the international order itself (Verdeja 2025, 6, 8). Yet, the recognition of Israel's actions as a genocide of Palestinians in Gaza is now finding consensus amongst legal scholars (Sultany 2024, 25). Hence, these legal identifications of a genocide taking place since October 7, 2023, are important for the elements they highlight. These include dehumanisation, the creation of conditions preventing reconstitution of life, and the broader strategy of Zionist occupation. However they could further be understood from other perspectives which highlight the underlying colonial logics targeting life, including the environment. A starting point for this is understanding colonial strategies as structures, not events, which fluidly target various aspects of a group's life (Wolfe 2006, 388; Nijim 2023, 173). Necessarily including a negative dimension which erases colonial subjects, these structures also include positive elements which replace those erased (Wolfe 2006, 388). Removing Palestinians through genocide is thus co-constituted by the construction of what replaces it – Israel. This has been discussed earlier, in terms of the narratives and modes aiding Zionist occupation. However, seeing genocide as a structure rather than an event, enables a more holistic appreciation of the cross-temporal and spatial dimensions of coloniality and the manifold targets it impacts (Wolfe 2006, 403; Nijim 2023, 173).

An instance of this is Israel's increasing shift away from relying on Palestinians for labour (Wolfe 2006, 403). With growths in reliance on migrant labourers, Palestinians become marked

as unnecessary for the capitalist system and become dispensable, as reflected in their increased enclosure (Wolfe 2006, 404). Before this, Israel ensured through the Oslo Accords that it could maintain control of critical components of life in Palestine – water, power, labour, borders – allowing it to later exploit or deny these (Nijim 2023, 183). Remembering Raffles' discussion of the dehumanisation of people and their eradication as diseases through strategies like quarantining, adds a new understanding to the dehumanisation of Palestinians. This has taken place long before 2023, through the blockade of Gaza and the targeting of hospitals and use of mass graves. Genocide has been well under way for Palestinians who have been marked for death. In blockading Gaza and denying its people dignity by labelling them all terrorist, as well as consistently revisiting destruction upon it, genocide has come in waves like the "operations" in 2008, 2012, 2014, and 2021 (Nijim 2023, 177, 180). More than a legal argument, the political and moral arguments of Israel's exceptionality determine which bodies die and which do not (Verdeja 2025, 8).

As perhaps a necropolitics subjecting life to death, Israel may more broadly be visiting death on all beings in Palestine and Gaza – people, infrastructure, culture and heritage, the environment (Gray 2025, 65; Nijim 2023, 183). They have even targeted mosques and churches in Gaza, museums, cultural centres, and archives – killing the very idea of Palestine (Gray 2025, 66). Moreover, the exceptional claim to Jewish identity and the Holocaust for Israel helps occlude this, representing Israel's work across time to perpetrate violence (Sand 2009).

Apart from identifying the longer pattern of the dehumanisation of Palestinians or the ways in which coloniality, Zionism, and the Eurocene form of life is able to define what is human and living to erase them, there are other forms in which death and genocide exist as structures. For instance, on October 7, the vastly inferior technologies of the Palestinian fighters were able to overpower the occupation (Malm 2024, loc. 46-47 of 75). This has been met with swift reinforcement of the technological superiority of the Israeli military, supported by the United States with weapons, technology, and strategies of surveillance, to execute a devastating genocide (Malm 2024, loc. 46-47 of 75; Stoler 2016, 50). Hence, Israel has been able to harness the devastating capabilities of technology to conduct a genocide that can be witnessed around the world but is still somehow allowed to occur. As discussed earlier, this technology in fact contributes to the impact on the environment.

However, more than technology as an appendage of the Eurocene violence, there are other appendages. The war on infrastructure described above, as well as the longer practice of

destroying, appropriating, or de-Arabising Palestine targets life in Palestine by destroying its identity and memory (Nijim 2023, 170-171). This allows the colonial construction of Zionism, and targets the environmental repositories of identity like olive trees and orange groves, to destroy Palestinian culture itself (Nijim 2023, 170-171). As much as planting olive trees could be seen as resistance to coloniality by eschewing productivist views of the environment and providing for future generations, Israel's disproportionate targeting of children reveals coloniality at work in severing intergenerational being (Nijim 2023). Moreover, in blockading Gaza and making it reliant on aid, Israel creates an aid economy which values Palestinian suffering, even as their labour becomes dispensable (Nijim 2023, 183-184). This suffering, induced by targeting children, traumatising people, making them dependent on aid, and exhausting their resistance, may be fostering a social crisis which further strikes at Palestinian identity (Nijim 2023, 185-187).

Seeing genocide structurally, and encompassing all these elements, makes it possible to see it in action since at least 1917. From then, lands have been seized, communities have been massacred such as at Deir Yassin, wars have been fought such as in 1948 and 1967, and Palestinian resistance has been suppressed (Nijim 2023, 191). Even in hiding this long history, pointing to Israel's democracy, and seeing Palestinians as terrorists who cast the first stone on October 7, 2023, the many atrocities repeatedly visited upon Palestine are occluded (Ajour 2025, 12). This also makes it possible to see the many colonial strategies used by Zionism as strategies of death – perpetuating genocide and gradually seeing the land as so tied to Palestinian identity that ecocide eventually also became necessary.

Puar (2015) identifies other elements in this colonial matrix. The infrastructural warfare and policy to maim and disable Palestinians, rather than only designed to enforce death on Palestine, enforces a right to suffer that denies death to Palestinians because they cease to become human (Puar 2015). While providing a justification for Israel which keeps it operating within human rights and humanitarianism, Palestinians seen as non-humans are valuable in asserting the Israeli moral superiority (Puar 2015). They are also of value as victims of the recurrent cycle of destruction which can create not only the extractive economy of aid and militarism, but reconstruction (Puar 2015). In keeping Palestinians alive but suffering, in other words, a living dead, their dehumanisation reaffirms Israeli humanity and generates economic value in the weapons that kill and maim them (Puar 2015). Their economic value is also espoused in the aid which does not ease their suffering, and the reconstruction costs after each war (Puar 2015).

Time and space are important to this perspective. Coloniality uses time to keep Palestinians suspended in recurring bouts of suffering, but the use of maiming visits upon them a permanent suffering which gets underreported next to deaths (Puar 2015). Indeed, even if a ceasefire is reached, the suffering of war will not end for the at least 137 409 people injured or the millions traumatised due to injury, loss, and displacement (UNRWA 2025). At the same time, weapons which will have a lasting impact on the land are used to devastating effect (Puar 2015). These include weapons containing depleted uranium with its toxic half-life of 4.5 million years, or white phosphorous with its associated birth defects (Puar 2015). Children are targeted so that the trauma generated in them can create bodies of victims, resistance deemed terrorist, or suffering to last far beyond the present (Puar 2015). Even space is used to look beyond the horizontal plane to the verticality of the heights at which Israelis settle above Palestinians (Puar 2015). Lower down, Israel operates in the subterranean depths where brackish water collects, toxic pollutants taint the soil, histories affirming coloniality reside or are effaced, or tunnels for resistance get flooded (Puar 2015).

Genocide could thus been seen as a legal definition, which Albanese argues is met in Gaza through ideologies and practices of coloniality which dehumanise Palestinians and perpetrate devastating violence. As a structure, it may occupy a longer period, but encompasses the various strategies which target the very idea of Palestine – its people, buildings and infrastructure, culture, future generations, and environment. This is done through various modes such as enclosure, dehumanisation, and technology. Or, Palestinian genocide is complete because they become so dehumanised that their lives are not worthy of death. As objects, they may be allowed to occupy a place of suffering to maintain the moral superiority of their occupier, reaffirm their dehumanised form, and extract economic value of economies of war, aid, and reconstruction. A common element between all these views is that across both time and space, life and death are reconfigured in unexpected ways to render Palestinians non-human, dead, or living dead. This is done in ways that preclude no other colonial subject, like the environment, from becoming an "other" from which coloniality may extract value, render valueless, or enforce violence upon. They are harmed from this violence, whether as a target or collateral damage.

Conclusion

In conclusion, this chapter has sought to rethink IR by discussing the continuation of Gaza, and Palestine's, occupation by the Eurocene order as Zionism. This has discussed the devastating humanitarian impact which it has seen, and the impact of the environment which has

simultaneously occurred. This was discussed in terms of water, waste and infrastructure, energy, the marine environment, the terrestrial environment, and air. These were discussed as complex but interrelated categories in which Israel's war has directly targeted the environment or seen it as collateral damage as ecocide in the savage ecology of Eurocene ordering. Each of these realms have witnessed impacts, even if they are not all directly observable as yet – something achievable only when Palestine can speak. A precise measure was obtained, however, to see that as of October 2024, about half of all vegetation had been killed, in comparison to levels in 2021.

Going further than the precise links in which war and population displacement have led to direct and indirect impacts of war on the environment, it was considered how genocide is argued to be occurring in Gaza. In a legal sense, or a longer structural sense, Israel has targeted various facets of being in Gaza and Palestine more broadly, to achieve the colonial project of Zionist settlement. This occurs across time and space. More than this, understandings of life itself may be undergoing reconfiguration in Gaza so that those dehumanised are not just killed, but allowed to continue to suffer so that their death or suffering may extract value.

From either view, ecocide and genocide exist together as appendages of Zionism. Ecocide is pursued, constituting genocide by severing the historical and contemporary links and interdependencies between people and the land. In severing these ties, Israel is utilising ecocide as a strategy to prevent what Albanese (2024) calls the reconstitution of Palestinian people in Gaza. The biological conditions of life are being threatened through the targeting of sources of food and the limitation and depletion of water sources. Genocide is pursued, constituting ecocide by enforcing increasingly restrictive and violent conditions on all beings. This leaves marks upon the land both in terms of the direct impacts of weapons or the indirect impacts of infrastructural destruction and population displacement.

Both in terms of the impact of war on the environment as ecocide, and the genocide in Gaza, this analysis has shown that a longer colonialism has featured through Palestine's history as a structure and not an event. Defying the linearity of coloniality, this does not silence the past or await the future, but sees the past in the present and the present in the future. There are a few instances of this. Even before October 7, 2023, some of the impacts on the environment have already been underway. These include the intrusion of saltwater into the groundwater table due to overuse of wells as a result of unstable water supply, or the heavy metals which were found in bomb crater sites. The marks of the present on the future will likely be quite significant, and

this may be conceivable from the same heavy metals observed from the past which, in the bombs used today, may continue to have impacts. The trauma and violence of the present will also undoubtedly be felt in the people, animals, and environment of Gaza – whether in the polluted waters, the landscapes rendered barren, or the obvious scars of war. There may also be the construction of economic value in this destruction through a future need for clearing of debris and the "rebuilding" of Gaza. Though, this may simply ready Gaza for another round of violence even as its land and people bear the persistent trauma and damage of previous ones. Rethinking IR in this context thus becomes essential.

Chapter 7: Conclusion

To conclude, this chapter will discuss the broad approach and findings which the study has undertaken, exploring each chapter and their contributions. Furthermore, it will imagine what some possibilities for rethinking IR, in line with the project of understanding the impact of war on the environment more broadly, may look like. Finally, it will imagine how these possibilities, and others, can help construct a research agenda going forward.

Discussion

This study has attempted to answer the questions, how can rethinking relationality in IR create a new lens for understanding the impact of war on the environment and how has war led to ecocide in Gaza. This has been explored using an approach which first critiqued the normative basis and practice of IR and then imagined what rethinking IR would look like to think beyond the limits of IR. This was applied to the case study of Gaza to explore how its history, identity, and contemporary being have been shaped by complex relations of religions, diverse identities, cross-temporal meanings, and resistance to coloniality. This was furthermore applied to Gaza's experience of war to explore how this complexity in its being has meant that the longer colonial strategy of Zionism has perpetrated both ecocide and genocide as a part of its Eurocene savage ecology.

The literature reviewed discussed how the origins of IR were implicated in coloniality. This was traced from a deeper enquiry into knowledge itself, identifying specific manifestations of coloniality in knowledge and IR stemming from the colonial matrix of power as a complex ecology of coloniality. This encompasses strategies which valorise abstract knowledge and assert universalist utility, but occlude both the knowledges and experiences of non-Western bodies, including the violence they faced as a result of coloniality. Specific strategies identified included ignorance of anything beyond this coloniality, immanence asserting its validity, and innocence diminishing responsibility by posing violence as well-intentioned or accidental. Furthermore, an element of seeing time as linear further entrenches this. It does so by emphasising a history of European progress, simultaneously relegating those outside of this to primitiveness and denying the relational links in being between the past, present, and future. All of this works to silence the voices of those outside of this colonial matrix and occlude the complexity of the world.

These patterns manifested specifically in how conflict and security have been seen, where security is considered either in relation to the state or to humans, but still defined by colonial

terms. Furthermore, wars are subjected to this treatment such that some instances of violence are occluded through a focus on periodisation or borders. This cannot contend with instances of violence against beings not ordered in colonial ways, or the violence which persists after wars are deemed over. The environment is one such being occluded. This informs how the impacts of war are seen – often in relation to the state and humans, or in limited time periods. Again, the impact on the environment may be occluded or relegated subsidiary to state or human interests, as a threat multiplier for instance.

There are, however, studies which do analyse the impact of war on the environment and these are varied in their analysis of the impact by certain states, on certain areas, by certain weapons, or on certain areas of the environment. There may still be an element in which these studies are limited by their focus on only one state or area of the environment, or even their specialised scientific nature. These make it difficult to imagine their contributions to understanding the complexity of colonial relations which perpetrate violence and result in impacts on the environment. Still, they have contributions in understanding how the impact of war on the environment could be assessed in terms of categories and specific elements.

This was followed by a specific review on the discourse of the Anthropocene as a human-driven geological epoch resulting in climate change. This was largely critiqued for its adherence to the same colonial matrix of power which occludes responsibility and attempts to anthropocentrically make universal claims to the roles humans can play in alleviating the impact on the environment. This further reifies man as master over nature and denies the limited role colonial subjects have played in this, nor the value in their ways of being which do not always see the environment as an object. Agency could thus be afforded to many more actors, human and non-human alike, from a poststructuralist perspective, while decolonial perspectives centred on recognising the role of coloniality in precipitating the Anthropocene go further. They do so by attempting to challenge the power which underlies dynamics treating the environment as an object. Alternatively thus, nature itself may be seen as a complex ecology encompassing all beings – humans, animals, plants, inanimate objects, and more. This is such that dealing with the climate crisis, or understanding something like the impact of war on the environment, is not limited to any one of these only. Instead, it grapples with the structures underlying crises without centring any being (like humans or the environment), but recognises their interdependency. Furthermore, to centre this perspective in terms of the case study at hand, a discussion of Gaza was presented to see briefly how the current war is being seen in terms of the aforementioned coloniality. For instance, the crisis is seen in security terms either in relation

to the state or humans only. While there are promising studies which help understand the impact of war on the environment, Gaza is not often understood in terms of the complexity constituting its being.

Recognising these flaws, this study thus envisioned a mixed-method research design grounded in understanding the complexity of colonial relations which result in an impact of war on the environment, and specifically in Gaza. This aimed to present a framework that could rethink IR to understand the impact of the war on the environment in Gaza and beyond. This rethinking is in ways that recognise the relational ecologies which may result in ecocide, as well as other co-constituting forms of violence like genocide.

To do this, a framework was presented which recognises the importance of history, transnational relationality, and ultimately complexity. This is for rethinking IR such that beings understood as related, privileges no single being as central, but recognises the ways in which they all constitute each other. Specifically Said's *Orientalism* was discussed for the ways in which it helps think critically about the key dualism underlying the relationship between the "self" and "other". This is whether as Western bodies and Eastern bodies, or as humans and the environment. Furthermore, Grove's forms of life understanding provided a critical means by which to contend with this. This highlighted the pervasive project of violence, ordering, and war, underlying a Eurocentric destruction of the environment as a Eurocene. At the same time, understanding this coloniality in its complexity, where multiple appendages constitute the world and coloniality itself, can help challenge coloniality by understanding the world itself. This may yield promise for resistance, thinking about crisis and apocalypse outside of Eurocene or IR limits, and contributing to an ethical and caring understanding of the world, and nature as a complex ecology itself. Finally, this framework considered how both time and the position of the author should be recognised such that the coloniality of time as linear could be avoided to highlight multiple relations between multiple objects across time. Furthermore, this could recognise that coloniality necessarily attempts to pose as universally applicable objective knowledge. Deconstructing this means critically recognising that even studies such as this are not universally valid, and need to be complicated by reciprocal contributions to collective knowledge. This necessarily includes those most central to the violence being perpetrated – in the case study, the environment and Palestinians.

This framework was used to explore a background on Gaza which contended with broader Palestinian history and its relation to Zionism as a manifestation of coloniality and the

Eurocene savage ecology. Vitally, this discussed the complex origins of Zionism in adopting the coloniality of other Eurocene appendages such as anti-Semitism and Nazism. This uses colonial strategies such as advancing universal truths, constructing certain historical narratives, occluding other complex histories, seeing people in hierarchies, and dualistically seeing the environment as an object for its productive value. At the same time, it adopted the same dehumanisation used by Nazism, which as a colonial strategy, identifies humans with non-humans to justify their eradication.

In discussing Palestinian history, this coloniality was recognised in the ways in which it attempts to shape how Palestine is seen, but how specific evidence defies this. This was discussed in terms of the complex Palestinian identity defying Zionist views of a homogenous group of backward people. Further discussed were the manifold societal developments in Palestine which counter a view of Palestine as empty and barren. Additionally discussed are the complex relations to the environment in Palestine which reveal that humans were a central part of nature, lived alongside the environment, and constructed meanings of Palestine through plants such as cacti, orange groves, olive trees, and poppy flowers. Finally, a discussion of recent political events in Palestine was presented to show how Zionism at work in terms of this history has served to displace people, sever their relationships to the land, and ground itself in a Eurocene discourse. This discourse emphasises the moral contributions of Israel and the immoral, even sub-human, place of Palestinians as people written out of their own history and seen even in their resistance as terrorists and human animals. Consequently, Palestinian identity is complex and consists of shifting identities, successes and failures, and transnational resistance. This can only fully be appreciated outside of linear time and space defined by borders. Thinking beyond this, for understanding Palestine as a complex ecology, and for advancing the collective right to return for Palestinians becomes possible by reciprocally contributing to a collective understanding. This centres the presence of Palestinians and does not parade any one knowledge or thinker as universally valid. This study has aimed to do this by drawing on Palestinian voices, amongst them Khalidi, Said, and Nijim, to grow an understanding of Palestine.

In understanding this complex constitution of Palestine's nature, in which the people and environment are relationally present, the study then analyses how the humanitarian impact of the war in Gaza, perhaps as an ongoing war of coloniality before October 7, 2023, could be understood alongside the impact on the environment. This was conducted as a mixed-method study of various elements such as water, solid waste and infrastructure, energy, the marine

environment, the terrestrial environment, and air. Quantitative methods were able to analyse the impact of war on fires appearing in Gaza as well as precisely measuring the loss of vegetation as of October 2024. This was supplemented by qualitative data, obtained largely from the UNEP preliminary assessment of the same category. It was found that ecocide is occurring in Gaza both as the environment becomes the direct target to kill people and sever their relations to the land, or as the indirect impact as a result of deaths and displacement. For instance, the destruction of WASH infrastructure contributes to waste polluting the environment and increases the reliance of people on increasingly precarious natural resources such as groundwater. Moreover, farmland is directly targeted, as evidenced by the analysis of vegetation loss, while animals suffer directly from bombardment, or indirectly from the blockade and displacement. At the same time, there are impacts of war which are yet unascertainable. This includes precisely what is in the weapons used by Israel and how they may impact the soil and water. It also includes how the air is being affected by bombardment, proliferation of toxic fumes from explosions, or reliance of Palestinians on burning solid waste and plants for heat.

In the subsequent analysis of how genocide is also being perpetrated alongside ecocide, it was seen how a legal analysis of the situation since October 7 identifies genocide as occurring. This is through Israel's larger ideological project, their dehumanisation of people in Gaza, and their intrusions to not only sever all forms of life and prevent its reconstitution, but to replace it with colonial settlement. More than this, however, if genocide is seen as a structure, then the dehumanisation and targeting of Palestinians across time and space sees genocide occurring for far longer. This includes increasing their technological capabilities and surveillance of Palestinians, the aims to sever Palestinian identity and their relationship to the land, and killing children. In addition, this may also be a part of a strategy by which Palestinians become so dehumanised that even death is denied by aiming to induce as much suffering as possible. This is so that their resistance is diminished and their suffering contributes to an economic cycle by which value is derived from providing them with aid, bombarding them, and reconstructing Gaza in cycles. From this view, life is a shifting determination in Palestine as Palestinians are increasingly seen as less than human so that they may be eradicated or so that value can be extracted from their suffering. This is predicated on colonial views of hierarchies of life and humans. Ecocide necessarily occurs alongside this once slow and now rapidly accelerating genocide because the environment similarly becomes a direct target or collateral damage in killing any life form seen as less than human in Gaza, or attempting to extract value from it.

Coloniality is at work here. The appendages of ecocide and genocide advance a project of ordering Gaza in the image of the West, target the complexity of life and being which defies this, and sees the environment and people as an "other". These "others" are denied the ability to speak, denied their ability to be seen as human, and dualistically seen as objects to be master over, to extract value from, or to kill.

Returning to the questions posed in the introduction, there is undeniably a link between genocide in Gaza and the climate crisis. They have both been structured by the same coloniality which has enabled a Eurocene form of life ordering the world. Furthermore, they do indeed constitute each other, as appendages of this violent form of life. Exploring the case study of Gaza has shown how the impact of war on the environment in Gaza is an ecocide which constitutes genocide and is constituted by it. This same ecocide, as a microcosm of the larger war on nature which has caused climate change, reinforces genocide by targeting the land to sever living of life forms. This is furthered with the environment becoming collateral damage in the targeting of life forms marked by genocide and the displacement they face. Hence, these crises are not only shaped by the same structure, but reinforce each other. It follows then that attempting to grapple with the structure causing them may yield promise for dismantling that structure and addressing these crises. For this, rethinking IR even further is needed – a project that can never be complete, but only grow through reciprocal contributions to collective and diverse understandings. Some possibilities for this are now mentioned.

Possibilities

This study has attempted to think with the environment and people together, privileging the presence of both. There is another thinking between the link between the processes of ecocide and genocide which is worth discussing – the increase in communicable diseases. As of the UNEP report's release, there were 179 000 cases of acute respiratory infection, 136 400 cases of diarrhoea among children under five (or 25 times more than before the conflict), 55 400 cases of scabies and lice, and 4 600 cases of jaundice (UNEP 2024a, 18). In addition, there has been the resurgence of polio in Gaza (Albanese 2024, 8). As of 8 October 2024, 75% of the population of Gaza, or 1.7 million people, were infected with contagious diseases (Chughtai and Okur 2024). These are all signs of disruptions to WASH infrastructure such as destruction of wastewater treatment plants or disruptions to solid waste removal, or the severance of water supply, which also have serious impacts on the environment. This example is noticeable, and mentioned in conclusion, because it represents an interplay of relations between people and the environment at multiple levels of space and time. The same violence which has an impact on

the environment (targeting of WASH facilities), has an impact on people. However, this is aiding the thriving of disease-causing life such as infectious bacteria or lice. It may be possible that these same conditions could be impacting plants or animals. In an area of confinement, with so many people suffering from diseases, it may be worrying that this may also aid later arguments which clinically dehumanise Palestinians. This is much as Jews were dehumanised by being portrayed as diseased (Raffles 2010). Moreover, the impacts of these diseases may result in suffering, trauma, and deformities which will have impacts in the future, even after a ceasefire, representing a feature across time. Furthermore, what is not recognised by coloniality is that even insects, or microorganisms, are deeply present in the world, forming an integral part in shaping it (Raffles 2010, 3). When thinking about the environment in terms of all its complexity, perhaps the life forms which can be seen are facing ecocide and genocide but those which are not seen are thriving. Thinking with an insect or a microorganism thus reveals added layers of complexity which assist in grappling more deeply with meanings of life and the multiple spaces and temporalities of existence. It also grapples with the coloniality which, in deeming these life forms undesirable, perpetrates suffering and sickness, and deems their carriers worthy of extermination.

Thinking with animals may also be an expansive exercise. While there may be still the need to develop avenues by which to think with animals in Gaza as of October 7, 2023, there have been attempts before. Salih (2014) discusses how animals in zoos in Gaza were seen by the world following Israel's blockade and the various instances of bombardment of Gaza. Zoo animals like lions were seen by Western media sympathetically, and indeed in ways which highlighted their suffering at being starved or killed (Salih 2014, 303). However, thinking with how these animals were seen suggests that they were not pitied because of a genuine sense of care (Salih 2014, 303). Instead, they were viewed as a passing and apolitical spectacle, helping their viewers in avoiding a stance on Gaza's situation – taking neither the side of Israel or Palestine (Salih 2014, 308). Alternatively, the starvation of the animals in zoos become media spectacles of Israeli occupation though this does not lead to deeper thought of the animals as objects being confined (Salih 2014, 307). These spectacles even become habits of people – unflinchingly viewing suffering (Salih 2014, 304). This argument also suggests a consideration of public zoos emerging at the same time as imperialism and the dualistic view of nature and animals as objects (Salid 2014, 305-306). In this, animals could be domesticated and viewed as entertainment by those with sufficient wealth and leisure (Salih 2014, 305-306). As a provocation, what does this mean for the way blockaded Palestinians in Gaza are viewed? Is

their suffering providing pleasure for viewers around the world who may view it as a passing distraction from their leisurely lives? And, does this further reify humans from nature?

Alternatively, the suffering of animals may inspire "humanitarian" action, such as in the case of an Israeli welfare organisation which offered to move animals to foster homes Israel (Salih 2014, 305). In the vein of colonial humanitarianism, these miss the obvious irony of saving animals by moving them to Israel where it is safer, but condemning Palestinians in Gaza to remain. This is especially as animals in zoos in Gaza represent the same confinement faced by Palestinians in Gaza, who, in watching these animals, are watching themselves (Salih 2014, 306). However, this is indeed missed by most viewers. Indeed, watching suffering provides a level of comfort with the uncomfortable which allows people to comprehend the suffering without fully grasping the enormity and complexity of suffering (Salih 2014, 309). This real suffering, which is not shown by images of suffering animals, are the systemic issues enabling the suffering of the many life forms in Gaza (Salih 2014, 312). In the same way, the reports of deaths in Gaza enables the occlusion of the injured and their ongoing experience of war, as Puar (2015) highlights. And, watching animals, Salih (2014, 310) contends, allows viewers to ignore the suffering of Palestinians in Gaza. Indeed, rather than initiating compassion, spectacles of zoos and their animals corrupts compassion (Salih 2014, 312). Thinking with animals in this way enables an interrogation of compassion and sympathy through the media, asking whether the compassion genuinely contends with the complexity of suffering. In this case, it is suffering perpetrated by a Eurocene order with its policies of objectification and enclosure. Furthermore, it contends with whether this media provides just enough for people to believe that they care enough to turn away, thus occluding suffering and diminishing real care.

This is by no means the extent of thinking beyond IR. Swart (2010) considers how horses were featured in the South African War between 1899-1902. This is the same war which Thakur and Vale identify as a key moment in the making of IR as it spurred new forms of modern coloniality. This point suggests that thinking from different subjects about the same event may yield different insights. Indeed, in thinking about the suffering faced by horses during the war, Swart (2010, 349) discusses how about 330 000, or 66% of all horses in the war, died. Because horses were needed in so many numbers, they were brought in from all over the British Empire, representing an effort that drew on transnational imperialism to maintain imperialism (Swart 2010, 351). This meant that they were shipped to South Africa in terrible conditions and their multinational characters and needs could not fully be appreciated by their riders, contributing

even more to their loss (Swart 2010, 351-353). Thinking with the horse enables thinking of multinational imperial networks such as the provision of weapons to Israel by the United States at present (Neimark et al. 2024). It can also appreciate that universality is not suitable for diverse life forms, even horses. With horses also suffering from disease due to overcrowding while being shipped or poor nutrition in a new country, many died from illness, though local knowledge was able to help Boer commandoes treat their horses better (Swart 2010, 354). Again, this represents the effectiveness of local knowledge over universal knowledge.

Interestingly, the strong bond between horse and rider would also yield insights into varied dynamics. The suffering of horses, like the suffering of zoo animals in Gaza, was noted with great concern by many, amongst them the British (Swart 2010, 356). It may be worth considering why this was so. Indeed, they came to be described as having agency and personality – uncharacteristic ways of describing nature, the environment or wild animals in general – and were even euthanised if they were ill (Swart 2010, 357, 360). While other animals were not afforded this respect, sometimes neither were other humans. For instance, parties on either side of the war did not see the other side as even deserving of riding horses, criticising their riding abilities, or they were accused of eating horses – something tantamount to cannibalism (Swart 2010, 360-361). At other times however, horses were seen as property, not differently to useful weapons which were valued parts of the war machine (Swart 2010, 360). And, while their suffering during the war and death in battle led to commissions of enquiry, public outcry, and even memorials to the dead, black South Africans fighting in these wars were not afforded the same respect (Swart 2010).

Thinking with these horses sees shifting views of animals to suit colonial interests. At times, they were deploringly treated and indiscriminately shipped in to aid the war machine. At other times they were afforded a great respect though still used for their value either during the war or for discrediting the other side. Somehow, these animals, like zoo animals in Gaza, were seen as more human by Europeans than the native people, with their deaths even deserving commemoration. This suggests that life forms, themselves a part of nature, may occupy shifting roles between subjecthood and objecthood, as horses have and even as humans have. In addition, thinking with horses enables an appreciation of the complex entanglements, like transnational networks of imperialism, which feature in events which may look as simple as two sides.

Next steps

As a means of closing, this study has critiqued IR for the ways in which its coloniality inhibits expansive understandings of the environment, and specific relations such as the impact of war on the environment. It has presented a framework for rethinking IR which flows from critical reckonings of colonial modes such as orientalism, to a view of nature itself as fluid, beyond rigid confines of space and time, and constituted by the interdependencies of beings such as humans and the environment. This was applied in the context of Gaza to see how its complex history sees it become the target of the co-constituting colonial appendages of ecocide and genocide. Finally, opportunities for thinking further were discussed, such as thinking with insects or thinking with animals.

In the spirit of thinking further, several considerations are worth contemplating. The relational framework discussed here may be critiqued for being too abstract and with no room for practical effects in policy or resistance. While it is true that relational thinking is often abstract, its application on a case study, as demonstrated in this study, is able to provide the evidence of crimes such as ecocide and genocide, and accurately delineate responsibility, to bolster resistance and policy changes. It is the case that more specific work could be done to contribute to resistance and policy. However, this study does not suggest that more work should be precluded. Instead, it encourages further study in a relational way to highlight the specific manifestations of coloniality so that possibilities of policy change and resistance may be aided.

This possibility is worth contemplating in terms of another potential critique that this study focused unduly on Gaza, when other cases of conflict, such as that in Ukraine, may reveal similar workings of coloniality. This indeed represents an area where the further validation of a relational framework may be achieved, aiding the growth of resistance and policy targeting instances of colonial violence. While this study may have benefited from these omitted considerations, it was necessary to give Palestine a treating which adequately addressed its complex history, identity, and political situation. This treatment would be no less pertinent for other cases of colonial violence and war. Again, this highlights the need for such a framework to inform further decolonial research agendas which embraces that research and its role in delivering actionable change is never complete. Indeed, to suggest that this framework or piece of research is the complete answer to colonial violence would be to replicate the epistemic methods of coloniality discussed earlier.

Even in the case study of Gaza, dealt with here, this research cannot be complete. For instance, the evidence discussed above is either preliminary or constantly changing. The preliminary environmental damage assessments are based on efforts to analyse impacts on the environment when this exercise is complicated by data collection in a warzone. Similarly, the fatalities and casualties discussed are constantly changing. In recognising that periodisation of war precludes an appreciation of its true cost, it is thus necessary to engage with such incomplete sources to provide a dynamic account of war and its operation. If genocide is occurring, as is contended here, it would be irresponsible to only account for it once it has been achieved. Data and evidence should thus never claim to be complete accounts of changing situations but represent collaborative efforts at research which brings to light instances of colonial violence and bolsters the resistance to that.

Finally, these contentions may be critiqued for representing advocacy. While it is the case that the findings of this study may be closely aligned with the views of groups advocating for Palestinian freedom, this does not invalidate its contribution even within academia. It is for this reason that this study has grounded its assertions not only in fact, with a rigorous mixed-method methodology, but in discussion of the key thoughts by prominent scholars in IR and beyond. What has been attempted as an attention to rigour bolsters that this study may be considered valid analysis in research. Still, it is worth contemplating that colonial epistemology is precisely premised on what is deemed to be valid, objective, and academically valuable. Thus, in the critical tradition of scholars such as Said, Mignolo, Grosfoguel, and others, it is important to reflect on a researcher and study's place in colonial epistemology. By attempting to do this, albeit challenging traditional IR, this study may have affinities with advocacy, but is not precluded from being a valid analysis supported by evidence, rigorous methods and critical discussion.

These questions are pertinent when considering any study and its contribution to knowledge. To go further, however, the insights from this study are not exhaustive, and a universal understanding of the world and its complexity can never be reached. Only in recognising many contributions to a collective understanding of the world's complexity can it be better understood. This is what rethinking IR looks like – thinking with insects, with animals, with the subaltern, with non-linearity, with objects like weapons, with the living dead, with plants like the orange or olive trees. Perhaps the most important question going forth is who does this thinking. There can be no right or wrong knowledge producer for this if it is at once seen that all knowledge producers have a position informing their view and that any knowledge they

produce can never be held to be a universal truth. In addition, those marginalised by coloniality need to have their own voice in understanding their reality. Contending with this is a view that many knowledge producers can act reciprocally to begin to challenge coloniality and clear the way for the construction of a collective body of alternatives. This study has aimed to make one such contribution in understanding the impact of war on the environment and the co-constitution of ecocide and genocide in Gaza.

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