RESEARCH REPORT

The Relations between People and Urban Nature in the City of Tshwane, through the lenses of Place Identity and Therapeutic Value

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DECLARATION OF ORIGINALITY

I declare that the mini dissertation, *The Relations between People and Urban Nature in the City of Tshwane*, which has been submitted in fulfilment of part of the requirements for the module of Design Investigation Treatise (DIT 801), at the University of Pretoria, is my own work and has not previously been submitted by me for any degree at the University of Pretoria or any other tertiary institution.

I declare that I obtained the applicable research ethics approval to conduct the research that has been described in this dissertation.

I declare that I have observed the ethical standards required in terms of the University of Pretoria's ethic code for researchers and have followed the policy guidelines for responsible research.

Signature: ....

Date: ....26 July 2023..

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Abstract

Urban migration has resulted in population growth in cities and so has the rise in infrastructural developments that accommodate it. South Africa, one of the most urbanised countries in Africa, has 67.85% of its population residing in cities. These infrastructural developments have had detrimental effects on the ecological and social landscapes of cities, as urban green spaces (platforms that support biodiverse ecosystems and social activities) are dwindling away. Moreover, as green spaces continue to be replaced by infrastructural developments, their accessibility to urban dwellers becomes limited, thus compromising their relations with nature.

This actuality is what inspires this investigation of the relations between people and urban nature in the City Tshwane, as the data could inform contextually fitting approaches towards conserving urban nature and implementing more green spaces that are aligned with local values. Qualitative research, in the form of semi-structured interviews, was conducted at the Pretoria Botanical Gardens, an urban nature site in Tshwane, to gather data on the existing urban nature relations in the city. The collected data was analysed through coding, a qualitative data analysis method, to highlight the recurring topics and themes of the conducted interviews. The findings show that most of the study participants value urban nature and feel that nature conservation and maintenance plus further establishment of green spaces are crucial spatial endeavours in the city. This study also provides insights into the factors that inform attitudes towards urban nature with a focus on place identity and therapeutic values of green space.

Key words: identity, nature, people, place, relations, therapeutic, Tshwane, urban, values,

1.) Introduction

The rise of urbanization and its supporting infrastructural developments has resulted in the unprecedented loss of green space and biodiversity in cities (Cardoso et al., 2020; Wessels et al., 2021). The wide range of ecosystem services that biodiverse green spaces offer, such as provisional services in the form of food and medicine and cultural services, like the sense of place, personal and communal identity derived from nature, are, consequently being compromised (Cocks et al., 2016). This compromise calls for the protection of the remaining green spaces as well as the establishment of more networks of green spaces and infrastructure (Shackleton et al.,2013; Dipeolu et al., 2022). Ahern et al., (2014), communicate the importance of prioritising biodiversity in the planning and implementation of green infrastructure networks to increase the ecosystem services they offer and to mitigate environmental harms caused by urbanisation. Additionally, studies such as Shackleton et al., (2013), articulate the importance of these networks in creating resilient urban environments.

Although there is considerable research on the importance of urban nature; Wessels et al., (2021) recommend that more attention should be given to urban nature relations, particularly in sub-Saharan Africa. This recommendation is supported by the Intergovernmental-Science-Policy Platform on Biodiversity and Ecosystem Services as it has proposed to investigate the relational dynamics that emerge from urban green spaces (Wessels et al., 2021). Research on the ways in which people relate to urban nature, such as their preferences and values regarding it, is important in guiding the establishment of green spaces that offer a wide range of functioning ecosystem services that allow urban dwellers to reconnect with nature (Wessels et al., 2021; Colding et al., 2020). The pursuit of fostering stronger relations between people and urban nature is essential as it influences the actions taken towards building ecologically sustainable cities (Colding et al., 2020).

This study investigates the local relations between people and urban nature in the City of Tshwane with the intention of employing the data as a tool to guide the planning of nature conservation and implementation of green spaces in this city. Literature such as Shackleton et al., (2013) support these intentions as their research reveals that urban dwellers, in South Africa, value public green spaces. Kowarik (2018), shows that nature relations are informed by values of social cultural groups, which determine the kind of green spaces that are demanded. And thus, the consideration of urban nature relations for the implementation of green spaces offers both ecological and social value to the context (Shackleton et al., 2013).

There is limited knowledge of the relations with and values of urban nature in sub-Saharan Africa, which has compromised the quality of the provision of urban green spaces and ecosystem services (Wangai et al. 2016, du Toit et al. 2018, Lindley et al. 2018). The call for research attention on nature relations, particularly intangible nature relations and cultural nature connections, is communicated explicitly in literature,

such as in Russell et al., (2013). This study addresses this call as its research focus is on the local urban nature relations pertaining to place identity and therapeutic value. Place identity refers to the character of a place, the way in which it is perceived and particularly, in the context of this study, the sense of identity it fosters (Keleg et al., 2016; Stobbelaar et al., 2011). The place identity of urban green spaces is one that is dynamic as the urban environment is ever-changing with infrastructural developments continuously underway and the population growing exponentially (Keleg et al., 2016; Bazrafshan et al., 2021). Whereas therapeutic value of urban nature refers to its restorative properties and the therapeutic experiences it allows for. These restorative properties and experiences offered by nature are particularly important in cities, as they are environments that typically bring stress factors and health hazards (Liu et al., 2021).

The main research question; *"What are the relations that can be identified between people and urban nature, in the City of Tshwane?"* as well as the focus research questions; *"What are the place identity relations that can be identified between people and urban nature, in the City of Tshwane?"* and *"What are the therapeutic (healing) relations that can be identified between people and urban nature, in the City of Tshwane?"* seek to learn of the existing local attitudes towards and connections with urban nature. The intentions are to present the findings as a tool to be employed in the planning of contextually sensitive and appropriate urban nature conservation and implementation in Tshwane. Moreover, the findings, particularly on the focus research areas, the ways in which urban nature instils identity and offers therapeutic value, should guide green spatial interventions that foster closer and stronger human-nature relations in the city.

2.) Literature Review

2.1) Main Research Question: What are the relations that can be identified between people and urban nature?

2.1.1) Limited Access to Nature compromises Human-Nature Relations

The limited access that urban dwellers have to green space has compromised their connection with nature (Dipleou et al., 2022). Since green spaces in urban environments are being rapidly replaced by built infrastructure, particularly in Sub Saharan Africa, they are becoming more sparse and scattered and thus reducing their availability to people (Colding et al., 2020) . The limited access to urban green space consequently limits the direct engagement that urban dwellers have with nature and thus compromising their opportunity to appreciate, enjoy and connect with it (Dipleou et al., 2022).

In addition to infrastructural developments of urbanization, accessibility of green space is also informed by historical spatial planning schemes. In South Africa, for example, the distribution and quality of urban green spaces reflect the Apartheid regime where spatial planning and distribution of resources were informed by the agenda to segregate people according to race and class (Cocks, et al 2016). In this regard, green spaces in urban areas are more accessible in affluent and predominantly white suburbs, and less so in townships which are still largely occupied by black people of the working class (Shackleton et al., 2013). A study conducted in Grahamstown, South Africa demonstrates this as the study participants', who are Xhosa-speaking township residents, access to nature is largely limited to municipal commonages (Cocks, et al 2016).

The limited green spaces and insufficient ecosystem services in cities have been associated with the limited knowledge of local human-nature relations and urban nature preferences. The nature relations and preferences of urban dwellers serve as important tools in implementing green spaces in urban environments because, owing to the continuous rise of urbanization, the majority of people's access to nature will be in urban green spaces (Keleg et al., 2016). The implementation of green infrastructure networks and green spaces that are guided by local human-nature relations will result in contextually appropriate and accessible spatial interventions with ecosystem services meeting local needs (Keleg et al., 2016, Wessels et al., 2021).

2.1.2) Fostering stronger human-nature relations

Literature suggests that the conservation and establishment of more green spaces in cities should be prioritised in the pursuit of fostering stronger human-nature connections as the conversion of open green spaces into infrastructural development is what drives the disconnection (Dipleou et al., 2022). Utilising knowledge of local human-nature relations to inform designs for green infrastructural networks and green spaces in cities betters the consideration for ecosystem services, improving accessibility to nature and thus fostering closer human-nature connections (Dipleou et al., 2022; Wessels et al., 2021).

Human nature relations vary widely. A study conducted in Nelson Mandela Bay Metropolitan, Eastern Cape, South Africa shows that there is a preference for urban parks over nature reserves as they are more socially active (Wessels et al., 2021). Dipleou et al., (2022) show that in Lagos, Nigeria, green infrastructure that allows for relaxation and that is well maintained has a positive impact on the ways in which residents perceive their connection to nature. Keleg et al., (2016) illustrate how the symbolism and landscape character of the agricultural Nile Valley shape the cultural identity of residents in Cairo, Egypt. Literature shows that employing socio-cultural nature relations as a tool to guide urban green spaces creates spaces that are accepted and accessible (Keleg et al., 2016; Wessels et al., 2021; Dipleou et al., 2022).

Keleg et al., (2016) illustrate how socio-cultural identities of a place can be shaped by its landscapes, as in the context of Cairo, Egypt. The Nile River and its agricultural landscape, for instance, are of cultural significance as they have been known since the beginning of Egypt's history, are associated with the country's agricultural economy, and are commonly regarded as the country's main natural landscape (Keleg et al., 2016). The correlation between socio-cultural identity and landscapes of place also emerges in a study conducted in Grahamstown, South Africa, where the study participants expressed the significance of forests in their Xhosa cultural and spiritual identity (Cocks, et al 2016). The consideration of the relations and perceptions of nature and the socio-cultural identities that inform them is important in implementing green spatial interventions that are accepted by the local people that use them (Keleg et al., 2016).

2.1.3) The value of strong human-nature relations in urban environments

There is a plethora of benefits in fostering stronger human-nature relations in urban environments. Human-nature relations and engagements in urban food gardens, for example, can create a sense of community in culturally diverse environments, which cities are becoming, owing to globalization (Egrerer et al., 2019; Bazrafshan et al., 2021). In addition, cultivating closer human-nature relations and environmental consciousness in a society can allow it to develop sustainably as these relations can inspire eco-friendly choices and behaviours (Colding et al., 2020).

The correlation between connection with nature and wellbeing, in the psychological, physical and spiritual realms, featured prominently in the literature reviewed (Taylor et al., 2014; Colding et al., 2020). Moreover, biodiverse nature with healthy and functioning ecosystems, enhances the restorative qualities of nature (Taylor et al., 2014). Taylor et al., (2014) refer to the interdependent and harmonious dynamic of human-nature relations, particularly in cities, stating that nature is reliant on people for its upkeep, while nature offers therapeutic value to people. This human-nature dynamic and the restorative effects it offers people necessitates the establishment of accessible green spaces in cities (Taylor et al., 2014).

2.2) Focus Research Question 1: *What are the place identity relations that can be identified between people and urban nature?*

2.2.1) Defining Place Identity (in the context of the landscape)

Keleg et al., (2016) describe "landscape character" as the recognisable and unique patterns and features of a landscape that make it distinguishable from others. This character is not limited to ecology; it includes social and cultural attributes as well. Landscape identity, which falls under the umbrella of place identity, can be a synonym of or likened to "landscape character", as it can be defined as a character

of a place (Keleg et al., 2016). Additionally, Stobbelaar et al., (2011) state that "landscape identity" is also the way a place is perceived, particularly by people of a specific culture (Stobbelaar et al., 2011).

The place identity of a landscape is dynamic, as a landscape and its context change; for example, change in the spatial programme or in the stakeholders responsible for its maintenance and operation (Stobbelaar et al., 2011). Keleg et al., (2016), make reference to this dynamic nature of landscape identity; communicating that the interrelation between natural and cultural forces of a context shapes them. In addition, this study shows how urbanization and its rapid infrastructural developments change the aesthetics of place, in the context of this study, Cairo, Egypt, shifting urban areas from the Nile River to its adjacent desert. These spatial transitions require the affected residents to accept new landscape typologies since much of their identity is rooted in the historical landscape of the Nile River and its agricultural surroundings (Keleg at al., 2016).

2.2.2) The Value of Place Identity

Place identity of space can offer its users several benefits. A landscape that has a sense of place can often unite people of that place and instil in them a sense of identity and belonging (Stobbelaar et al., 2011). A study conducted in Melbourne Australia, gives evidence of this as urban parks and gardens instil a sense of community in an ethno-culturally diverse context (Egerer et al., 2019). Not only does a sense of place foster identity and solidarity within a community but also allows for feelings of safety and security within it (Egerer et al., 2019; Shackleton et al., 2013).

2.2.3) Employing Place Identity Relations to Guide Planning of Urban Green Space

Place identity also refers to the place specific relations local people have with a space. This concept is investigated in Grahamstown, South Africa, where study participants, who were Xhosa speaking township residents, expressed that they find value in forests as they serve as platforms for cultural and spiritual practices such as rites of passage (Cocks, et al 2016). Another study, sharing similar themes of place identity with the former, shows that socio-cultural identities in Cairo, Egypt are embedded in the Nile River, a landscape symbolising the country's history and agricultural economy (Keleg at al., 2016). Considering place identity relations is crucial in directing sustainable and contextually fitting spatial transformations in rapidly urbanizing contexts (Keleg at al., 2016; Cocks, et al 2016).

In juxtaposition to the studies of Cocks et al., (2016) and Keleg et al., (2016), Bazrafshan et al., (2021) investigate place identity within the context of a culturally diverse environment. The findings of the research revealed that a historic garden allowed a culturally diverse community, Persians and Afghans, to connect because of common

histories and shared memories, highlighting the role of historic green spaces in instilling place identity in an urban context (Bazrafshan et al., 2021).

2.3) Focus Research Question 2: *What is the therapeutic (healing) relationship that can be identified between people and urban nature?*

2.3.1) Human Health in the Urban Environment

Rapid infrastructural development takes precedence over the conservation and establishment of green space, in the context of the urbanizing world, and as a result, green spaces are becoming less accessible (Dipeolu et al., 2022). The presence of nature is linked to human wellbeing and since it is diminishing in cities, stress factors and health hazards, causing ill health, are rising (Taylor et al., 2014). Literature articulates the restorative nature of green spaces; for instance, in their capacity to allow for stress relief and fatigue recovery (Valtchanov and Ellard., 2015; Liu et al., 2019; Janeczko et al., 2020). This validates the value and necessitates the establishment of green spaces in the urban context, as methods to enhance the health of urban dwellers (Liu et al., 2021).

2.3.2) Ecological and Spatial Characteristics of a Therapeutic Landscape

Therapeutic landscapes have been described in academic literature as green spaces that promote the health and wellbeing of their users (Conradson, 2005). A study on therapeutic urban green spaces conducted in Shenyang, China shows that urban green spaces with a greater extent of naturalness and plant diversity were found to be more therapeutic than those with more infrastructure, such as buildings and hardscaping (Liu et al., 2016). Taylor et al., (2014) illustrate the links between biodiversity and human health, showing that the quality of biodiversity and ecosystem functioning of a green space has a direct impact on its restorative qualities and therefore its capacity to enhance human wellbeing. This study gives evidence of this correlation in a variety of examples, one of which is how the quality of air, which is integral to human wellbeing, is determined by the quality of ecosystem functioning (Taylor et al., 2014). All things considered, natural environments are far more restorative than those that are built (Liu et al., 2016).

Liu et al., (2016) show that there are spatial characteristics and environmental components of green spaces that offer stronger therapeutic effects than others. The investigations of 6 urban parks in Shenyang, China found that the green space features and characteristics that offer the greatest therapeutic value include trees, shrubs, bodies of water as well as partially enclosed spacious green areas (Liu et al., 2016). A study that took place in Grahamstown South Africa shares similar findings as trees were found to be spatial elements that bring about the restoration of the mind, body and spirit, and water was found to be an element that is calming and that brings forth peace and stillness (Cocks et al., 2016).

2.3.3) Therapeutic Landscape Experiences

Conradson, (2005) argues that the spatial and environmental characteristics of a landscape, alone, do not determine therapeutic encounters but rather, these encounters are determined by the ways in which the landscape is engaged. Russels et al., (2013) support this argument in expressing that since the ways in which one interacts with the environment influence their thoughts and emotions, it therefore has an influence on their wellbeing.

There are a variety of engagements, tangible and intangible, in green spaces and with nature, that are therapeutic (Liu et al., 2016). A study conducted at a health care centre in Dorset, England stated the guests of the care centre expressed that their interactions in the healthland of the site, such as bird watching, allowed for emotional expansion and inner freedom (Conradson, 2005). Liu et al., (2016), also found that observing nature, in the case of this study, vegetation and water, can relieve stress and stimulate positive emotions, improving one's psychological wellbeing. Another study shows that the multisensory experiences of tangible nature interactions, such as catching fish or gardening, induce the restoration of psychophysiological imbalances (Russels et al., 2013). These relational dynamics of therapeutic landscape experiences, among others, are becoming a pertinent subject in the research that has the intention of acquiring knowledge to better guide the planning of therapeutic green spaces in cities (Wessels et al., 2021).

3.) Methodology

The objective of this study is to learn about existing urban nature relations in the City of Tshwane, tparticularly those pertaining to place identity and therapeutic value. Since this research seeks to understand a social reality of a specific context and attitudes towards nature in an urban environment, it therefore falls within the Interpretivism paradigm (du Toit, 2022). As suggested in the literature, this acquired knowledge, of urban nature relations and attitudes, can pave the way forward for the implementation of contextually appropriate green spaces in Tshwane, propelling it forward in the journey towards ecological sustainability (Colding et al., 2020).

The research studies took place at the Pretoria Botanical Gardens, one of South Africa's nine botanical gardens, and an urban nature site located in Tshwane (SANBI, 2022). Ten randomly selected user profiles of the Botanical Gardens participated in semi-structured interviews regarding the ways in which they relate to urban nature. This research approach was ethnographic as it aimed to understand human behaviours, perceptions, and attitudes in the field in which they occur, which in the context of this study is urban nature (Blomberg, 1993). Blomberg, (1993), communicates that this research approach finds significance in acquiring knowledge

in the context in which it occurs as it is believed that that is where it would be best understood. Moreover, the informality of semi structured interviews gives agency to the study participants to guide and shape the discourse, which is essential to the ethnographic research approach (Blomberg, 1993).

The semi structured interviews conducted, ranging from 21 minutes - 61 minutes in length, were recorded and transcribed verbatim via Otter. Ai, a data collection software tool. Transcriptions were edited and then uploaded to Atlas.ti 9, a qualitative data analysis software program. The uploaded documents were labelled and categorised according to the demographic makeup of interviewees such as, sex and level of education, with the intention of organizing the data in such a way that would reveal whether there are correlations between the demographics of the interviewees and their relations with urban nature.

The interview transcriptions were then coded to highlight the topics that emerged. This coding revealed the main points of discussions, how often they occurred and how they overlapped. Saldana, (2009) describes codifying as the systematic process of segregating and arranging data categories to allow for a clearer understanding of the common ideas and patterns that surfaced from the data. He further describes this process as intuitive rather than a precise science as codes of seemingly similar characteristics are grouped together (Saldana, 2009).

These codes were then further analysed. For instance, 'positive/strong nature relations', had 85 quotations, making it the code with the greatest number of quotations, which suggests the general attitudes amongst the participants towards urban nature. 'Place identity' and 'wellness' are codes that often overlapped with 'positive/strong nature relationships' suggesting that they influence perceptions towards and relations with nature.

Saldana, 2009 describes code groups as families under which codes of similar characteristics are placed. Similarly, to coding, this process is not an exact science but rather intuitive (Saldana, 2009). In this fashion, codes of this study were organized into 'code groups', namely 'nature relations', 'environment' and 'practical benefits/ issues'. The codes, under their respective code groups, were further arranged into sub codes as illustrated below, for a more detailed analysis and concise interpretation of the data.

Code Groups

Code Group	Sub Code Group	Codes
Nature Relations	Positive Nature Relations	o Nature Conservation o Positive Emotions o Positive/Strong Nature Relations o Preferred Environment and Conditions o Preferred Sensory Experiences o Wellness
	Negative Nature Relations	o Negative Emotions o Negative/Weak Nature Relations o Unpreferred Environment and Conditions o Unpreferred Sensory Experiences
	Personal Nature Relations	o Memories o Nature/Place Identity o Social Activities and Connections o Spiritual Activities and Connections
Environment	Manicured Nature	o Green Space Maintenance o Urban Nature
	Wild Nature	o Natural/Naturalistic Green Space o Nature Cycles
	Environment Relations	o Preferred Environment and Conditions o Unpreferred Environment and Conditions o Safety and Security
Practical Benefits/ Issues		o Accessibility o Economic Value o Education an Awareness o Functional Services o Safety and Security o Wellness

(figure 1: prepared by author)

The qualitative analysis technique followed in the data analysis was, as defined by Hsieh et al., (2015), a content analysis with a conventional approach, as the codes, sub code groups and code groups surfaced from the data itself, interview questions and corresponding responses. The intention of this data analysis was to allow new insights to emerge from the data, and in the case of this study, to make a contribution to the discourse on urban nature relations.

4.) Results

Respondent Profile

Interviewee	Nationality Place of birth/ spent most years	Gender	Age	Education	Income	Religion
1	South African Vanderbijlpark	Female	Above 20	Completed Diploma or Degree	R10000 - R20000	Christian
2	South African Pretoria	Male	Above 20	Studying Undergrad currently	R5000 - R10000	Christian
3	South African KwaZulu Natal	Male	Above 20	Completed Post Graduate Degree	R5000 - R10000	None
4	South African Pretoria	Female	Above 20	Studying Undergrad currently	Below R5000	Christian
5	South African Pretoria	Female	Above 60	Completed Post Graduate Degree	R20000 - R30000	Christian
6	South African Rustenburg	Female	Above 45	Completed Diploma or Degree	R20 000 - R30 000	Lutheran (Christian)
7	South African Pretoria	Female	Above 45	Completed Diploma or Degree	R10 000 - R20 000 per month	Lutheran (Christian)
8	South African Kroondal	Male	Above 45	Completed Diploma or Degree	R30 000+ per month	Christian

| 9 | South African Thlabane | Female | Above 20 | Completed postgraduate degree | R10 000 - R20 000+ per month | Christian |
| 10 | British + South African Balito | Female | Above 20 | Completed Diploma or Degree | Student | Christian |

(figure 2: prepared by author)

All 10 of the interviewees were South African with one having a dual nationality, being both South African and British. Most of the respondents were female, 7 out of 10, and 6/10 participants were above the age of 20, with the rest being above 45, of which one was above 60. All participants have had tertiary education, with 9/10 having completed at least one diploma or degree, of which 3 have obtained a postgraduate qualification. With regards to financial income, 9 of the 10 participants earned an income while the remaining one did not as they were a student. Of those who earned an income, there was a diverse spread of income brackets with the most common one being, R10 000 -R20 000., All but one participant were Christian, and 8 of those participants expressed how their relationship with nature is shaped by their religion and spirituality.

The demographic makeup of the sample study in some ways reflects the demographics of the City of Tshwane and South Africa at large, but not in all. All of the participants are South African, for example, but 9/10 have acquired a tertiary institution qualification while only 6.52% of Tshwane and 2.82% of South Africans hold such qualifications (Statistic Times; 2021). Seven out of the ten interviewed participants are female whereas the female population of the City of Tshwane is 50.5% and in South Africa is 50.76% (Statistic Times; 2021). Another major bias includes the economic status of the participants as 9/10 earn an income, while the employment rate in South Africa is 40.10% (Trading Economics, 2022). This study therefore reveals some of the existing relations and perceptions of urban nature in the City of Tshwane however do not reflect those of the city nor the country as a whole.

4.1) Main Research Question: What are the relations that can be identified between people and urban nature, in the City of Tshwane?

The collected data was arranged into codes and code groups with the aim of finding the patterns and common themes of the interviews conducted. Nature Relations was the most common topic that emerged from the interviews, making it the code group with the greatest number of codes. Attitudes towards and relations with nature varied among the participants and as such, codes within the Nature Relations code group were further categorised into sub code groups, namely, 'Positive Perceptions of Nature', 'Negative Perceptions of Nature' and 'Spiritual Nature Relations'. These respective nature relations are considered below.

4.11) Positive Perceptions of Nature

Most of the interview participants expressed positive connotations with nature, whether it be with wild landscapes or manicured pockets of green spaces in their city. (1) Positive emotions that nature ignites, (2) positive sensory experiences that green spaces offer and (3) inspiration for stewardship/ nature conservation through nature exposure and education efforts are some of the subjects that emerged in the interview's conversations.

(1) One of the study respondents expresses how the presence of nature brings about feelings of vitality.

"The presence of flowers, how it makes me feel? It makes me feel alive because it's so nice to see something growing, venturing to something so outstanding. So, I'll say I love, it just makes me feel so alive. " (M_20+_PD_KwaZulu Natal)

The same respondent then speaks of the restorative nature of trees.

"I just feel safe in a space there is a, is a lot of trees…it just makes me feel at home, just makes me feel happy and alive. Yeah, it's just so therapeutic to me. "(M_20+_PD_KwaZulu Natal)

(2) Another participant illustrates how their strong connection with nature is shaped by the sensory experiences it elicits.

"I love nature …It makes me feel happy. I like the light. I like seeing how the seasons change. I like seeing how it goes from a sunny day to a cloudy day and like how the weather just changes in a matter of seconds. The smell of rain." (F_20+_D_Vanderbijlpark)

(3) Other interviewees have demonstrated how their admiration for nature has resulted in care, stewardship and nature conservation efforts, green space promotion and the education thereof.

"I'm striving to become a better nature conservationist and promote green spaces. I'm also trying to speak about it to people around me, who I realise are not so observant about the benefits of natural environments." (F_20+_PD_Thlabane)

This participant gives an example of how these conservation efforts can unfold.

"I'm a great fan of Wangari Maathai, who planted a lot of trees in her life and I think that's the way to go. Everybody needs to plant at least five trees a year or whatever." (F_20+_PD_Thlabane)

Another participant illustrates the links between exposure to nature, love for nature and inspired stewardship and nature conservation.

> "So I've always been someone who's exposed to nature environment and that's just enhanced my love for nature… So it's always been something that lives within me, its always been something that I love. And I want to enrich my mind more of the ways to protect the environment because I believe that the environment should be taken care of."(M_20+_PD_KwaZulu Natal)

The same participant continues the subject of nature conservation by demonstrating how education can have a positive impact on the environment.

> "if I could learn ways to protect nature even more, that could, that could be more beneficial to me. If I could be more informed about the ways to control alien species to do not dominate the indigenous species that could be beneficial to me, as someone who adores nature, more ways to protect or to conserve what we already have… I can even apply data to my neighbourhood. I can even try to teach people about that… that's the reason I studied this course because I want to be more informed about the ways to conserve nature." (M_20+_PD_KwaZulu Natal)

4.1.2) Negative Perceptions of Nature

The lack of education about nature and the value of nature conservation is associated with degrading green spaces. The deterioration of these spaces, and consequently of the ecosystems they support, is largely caused by people's actions such as littering and dumping. The participants of this study suggest that education can be instrumental in mitigating these behaviours.

> "We tend to pollute water, which end up killing some of the species that are living in water… because of some people are less informed about why we should conserve certain, certain things like water." (F_20+_PD_Thlabane)

> "Because we learn by… through education. Education is the key. Without education, people won't know. And why people are destroying nature because some of these people they don't know. They don't even know the importance of nature. For them it is useless." (F_45+_D_Tshwane)

The disconnection between people and nature in urban environments has also been attributed to rapid infrastructural developments, technological advancements, and materialistic lifestyles. A participant who holds this view responded, "I would say also the materialism, when people start chasing money, wealth, buildings" when asked about the reasons behind the disconnection between people and nature (F_60+_PD_Tshwane).

4.1.3) Spiritual Nature Relations

The ways in which people relate to nature are varied and the reasons shaping these relations are equally broad. This study brings these dynamics to the surface, giving evidence to this vast spectrum ranging from functional and tangible relations to intangible relations allowing deep nature connections.

Some of the non-material ways in which people connect with nature are spiritual, as revealed in the interviews conducted. Watching the sunrise from the beachfront is an experience that reminded one of the participants of the work of God in nature, in its creation and in the interconnectedness of the living materials that compose it. (F_20+_CD_Vanderbijlpark)

The spiritual pursuit of simply observing nature is echoed by another participant.

> "Remembering even if you're in the bedroom, looking at the sun, or looking at the sunrise, or looking at sunset, or looking at the stars, and you know, it's always a reminder of the greatness of God." (F_60+_PD_Tshwane)

The same participant goes on to express how a more tangible way of engaging nature can also be spiritual and cultivate a connection with God.

> "If you walk up, observe people working in the Botanical Garden, the relationship that they have with what they are working with is a different relationship to somebody working in a factory. That person I think is so close to first of all, to God and secondly to mankind." (F_60+_PD_Tshwane)

4.2) Focus Question 1: What are the place identity relations that can be identified between people and urban nature, in the City of Tshwane?

Conversations about the place identity of green spaces surfaced in the interviews conducted. Some topics of discussion were the association between perception of place and childhood memories, sense of home ignited by the familiarity of natural elements and green spaces, and a sense of home in nature inspiring eco-friendly behaviours. The most prominent themes from the discussed topics of place identity were (4.2.1) green space as a place that brings about a sense of home and as a (4.2.2) place that shapes one's identity.

4.2.1) Green spaces that instil a sense of home and belonging

Landscapes associated with memories, particularly childhood memories, are the kinds of environments that some of the study participants find comforting and homely. One of the participants demonstrates how childhood memories associated with experiences in nature shaped the ways in which he engages and relates with nature.

The participant speaks of his deep connection with nature and the 'sense of home' it nurtures in him.

> "Well as a child I often heard my father say when he's... he's got a certain tough decision to make and he doesn't know the right answer. He often said he just wants to escape into the bush over into the grasslands or away from other people and he just wants to sit on a rock for an hour or two and then you would get the answer he needs. So that definitely influenced me. I often think of that, and I often feel I get, I get answers to many questions which I get when I'm alone in nature… I feel at home in nature. So I, I always enjoy it when when I'm in nature be it alone or with friends or family." (M_45+_CD_Rustenburg)

The same participant goes on to communicate how the sense of home varies from place to place and how that influences the extent to which he identifies with the place.

> "I identify myself in that I just feel at home in the natural landscape. I feel more at home than in an urban area where there's only concrete around me." (M_45+_D_Rustenburg)

This study shows that green spaces and features that are familiar and remind one of where they come from can foster a sense of home and belonging. One of the study participants demonstrates this in the context of the Pretoria Botanical Gardens in relation to the garden of her home.

> "hearing all the birds makes me think of home in the big tree we have in our backyard, which hosts a lot of birds and their nests and their babies." (F_20+_D_Vanderbijlpark)

Another participant expresses similar sentiments as their appreciation for the Grassland Section of the Pretoria Botanical Gardens derives from the fact that its wild and untamed spatial characteristics reminds them of the spatial characteristics of the environment where they grew up. This place identity relation brings about feelings of peace and a sense of belonging, as illustrated in the quote below.

> "something like this part of the Botanical Garden here. Yeah, because it's so wild and not very designed, just natural, so I appreciate that. That's why I sometimes come here…It reminds me of where I grew up and where I've spent a lot of time in the Magaliesberg…That is what my home is all about. I feel at home there and gives me peace and a sense of belonging." (F_20+_D_Rustenburg)

4.2.2) The ways in which green spaces shape one's identity.

The extent to which one has engaged with nature influences the extent to which they identify with it. This study shows that the deeper one has immersed themselves in nature and in green spaces the more likely they are to have a stronger connection to it as well as a stronger sense of identity within it. One participant shares how their frequent experiences in nature, in their upbringing, have shaped who they are and how they relate to nature.

> "My parents always took us camping. So I've always been in a nature environment, being forced, but I loved it. But I've been placed in an outdoor environment where you're supposed to live with other animals and you live in another ecosystem, which is quite cool. And then you are, you, being placed in that environment you get to learn about ecosystems and how certain insects live and what they eat and what they do on a daily living. Yeah, so I think being placed in that situation, and that environment has definitely informed me and shaped my, my relationship with nature, but I just I also feel like it is part of my personality. I just love being in nature, and I don't mind getting dirty or picking up a spider or frog. It's not weird for me. Yeah." (F_20+_D_Vanderbijlpark)

Another study participant also shows how their nature engagements in their upbringing have shaped their relationship with nature and their sense of identity.

> "Back home, when I was, when I was a little boy, I used to take care of my father's livestock cows. So, we just take the cows to the fields, where they graze. So, I would just just wait until they are done grazing, take them to drink to the river to drink, that was pretty much of my upbringing or my background. So, I've always been someone who's exposed to nature environment so and just enhanced my love for nature. And that really made me want to study a cause that is more nature based because this is pretty much what I know, what I've been exposed to from, from, from my childhood. So, it's always been something that lives within me." (M_20+_PD_Kwazulu Natal)

4.3) Focus Question 2: What are the therapeutic (healing) relations that can be identified between people and urban nature, in the City of Tshwane?"

A number of the participants associated the ill health experienced in urban environments with the limited green spaces there are. It is felt that since green spaces are limited yet offer a plethora of health benefits, the opportunity to obtain these benefits is compromised.

Therapeutic experiences, of calmness and ease felt in nature, were a recurring point of discussion in the interviews conducted in this study. The opportunity to relax and be in meditation in a green space is one that is valued by the interviewees, particularly in the context of a fast-paced urban environment.

4.3.1) Ill Health in the Urban Environment

An interview respondent described the urban environment as an area where there is noise and air pollution produced by "the mass of people and vehicles" and "the hustle and the bustle of the streets" (M_45+_D_Kroondal). Another respondent referred to other characteristics of the urban environment, such as the large extent of buildings and hard infrastructure that encroach on the natural environment resulting in sparse green spaces. She went on to suggest that the lack of green spaces in cities limits the extent to which city dwellers can connect with nature and consequently brings about mental health issues (F_20+_D_Vanderbijlpark).

The importance of green space accessibility for health enhancement, particularly mental health, was a matter articulated by several study participants. Some benefits of engaging and being in green spaces, stated in the study, include "the decluttering of the mind" and as a result "mental clarity" (F_20+_D_Ballito). A participant suggested that simply observing nature and its visual aesthetics can be healing to those suffering from mental health illnesses (M_20+_CD_Tshwane). Since the lifestyles, cultures and technologies that are prominent in urban societies are felt to be "fast paced" and over stimulating, urban green spaces thus become places of pause and restoration (F_20+_D_Ballito).

4.3.2) Restoration in Green Spaces

All 10 of the study participants spoke explicitly on the restorative nature of green spaces, both wild and manicured. Some of the sentiments regarding the therapeutic value of green spaces, communicated, include.

> "you just forget about the hustle and bustle of the city and just recuperate and find yourself again." (F_45+_D_Rustenburg)

> "having those natural elements within an urban environment can very much bring us to the here and the now." (F_20+_D_Ballito)

> "It's very relaxing, very beautiful. It's very refreshing. It's very energizing… It's so good, that we don't even want to miss coming here." (F_60+_PD_Tshwane)

The study shows that there are several factors that contribute to the restorative nature of green spaces such as its quietude as well as the extent to which the landscape is wild (M_45+_D_Kroondal; F_60+_PD_Tshwane). Another factor that was attributed to the restorative qualities of green space was the sensory experiences elicited there.

Positive emotions and meditative state of being arise through sound

> "meditating in a green space is much more peaceful than meditating indoors. Like, you get to hear different sounds, you know, different insects, animals. And if there's water around that area it's also nice, like, you know, hear the water stream and stuff." (M_20+_CD_21Y)

through smell

> "the trees, it relaxes me… the fragrances, the smells also, they they they relax my mind." (M_20+_CD_21Y)

through sight

> "they would just like, add some color, add vibrant energy, to the Botanical Gardens, bring some more creativity, and just colour, colour is always a good idea, always brings a positive vibe and energy and happy feeling." (F_20+_D_Vanderbijlpark)

Moreover, the enhanced vitality experienced in nature can ignite a sense of inner freedom and can inspire healthy living, as articulated in the quotes below.

> "we are retirees and you know, when you're not in the workforce anymore, some, you sometimes become depressed… So if you come out into a space like this, it really opens up that closeness that you, were held to at home. You feel free, you feel young again, you feel energized. You see your purpose in life again." (F_60+_PD_Tshwane)

> "The presence of flowers… It makes me feel alive because it's so nice to see something growing, venturing to something so outstanding…

> to be like a flower… you need to take care of yourself. We need to, we need to grow like in all aspects of life." (M_20+_PD_KwaZulu Natal)

5.) Discussion

The ways in which the interview participants of this study relate to and connect with urban nature varies and the reasons informing these relations and connections are equally broad. Most of the study participants expressed positive emotions and states of being that nature arouses such as happiness, a sense of vitality and rejuvenation. These psychologically restorative landscape experiences foster stronger and closer human-nature relations, which this study reveals, are instrumental in developing environmental consciousness and in inspiring actions toward nature conservation and green space promotion. Moreover, this study finds that access to and direct engagement with green space enhances self-reported human health and wellbeing, and thus nature conservation and green space implementation are key pursuits.

Links between strong human-nature relations, nature conservation, green space promotion and the education thereof, are illustrated in this study. A study participant who shows a love for nature, which is nurtured through gardening, observing wild

landscapes and the therapeutic experiences it brings, also expressed her intentions of becoming a better environmentalist through nature conservation efforts, promotion of green spaces and fostering environmental consciousness in her social networks (F_20+_PD_Thlabane). Another study participant expresses similar attitudes, as their love for nature has inspired them to conserve it (M_20+_PD_KwaZulu Natal).

While the findings of the study reveal that strong human-nature relations often encourage nature conservation efforts and green space promotion; literature suggests that this correlation works vice versa as well, by showing that the conservation and establishment of more green spaces foster stronger human-nature relations (Dipleou et al., 2022). The greener spaces are available, the greater the accessibility and direct engagement with nature, and thus more opportunities to connect with nature (Dipleou et al., 2022). Colding et al., 2020 found that direct nature engagements enhance psychological, physical, and spiritual wellbeing and which, this study demonstrates, also enhances human-nature connections (M_20+_CPD_KwaZulu Natal).

Strong human-nature connections are informed by a range of factors, one of which is spiritual relations with nature, as made evident in the findings of this study. A spiritual nature relation, in the context of this study, can be described as experiencing or witnessing the divinity of God in nature, in its creation and in the interconnected lattice of the elements that compose it (F_20+_CD_Vanderbijlpark). A study participant expressed that nature interactions such as working in the garden can bring one closer to God and that this divine connection is evident in the demeanor of the gardeners of the Pretoria Botanical Gardens (F_60+_PD_Tshwane). Another participant communicated that simply observing elements of the sky, like the rising and setting of the sun, can be a spiritual experience that reminds one of the magnificence of God (F_20+_CD_Vanderbijlpark).

A spiritual nature relation is characterised, by the interview respondents of this study, as a largely intangible nature relation that nurtures a deep nature connection. Russel et al., (2013) argue that the intangible nature relations are often overlooked and need more research attention. These relations, many of which fall under cultural ecosystem services, like spiritual, social, philosophical, and psychological nature connections, improve human wellbeing, further validating the call for research attention on the respective nature relations. This study responds to the academic call as the research focus areas are on place-identity and therapeutic (healing) relations with urban nature, which are primarily intangible relations. Green spaces that foster a sense of belonging and that shape one's identity as well as green space as places for recuperation and pause were expressed as important to people in Tshwane in the interviews conducted.

The literature reviewed shows that there are several ways in which to define 'Place identity'. The term can be used to describe the character of a place, how it brings about a sense of home, or how a place can shape the identity of an individual or community (Keleg et al., 2016; Cocks et al., 2016). These various definitions and

themes of place identity emerged in the interviews, particularly those pertaining to a landscape as a home and as a space that shapes one's personal identity.

The feelings of home and belonging experienced in a green space can bring about a sense of place and identity within it, cultivating stronger and deeper nature relations. This study finds that green spaces that elicit childhood memories or memories of home, where one lives or originally comes from, foster place identity relations in the respective spaces. This correlation is demonstrated by one of the study participants who communicated that her appreciation for the Grassland Section of the Pretoria Botanical Gardens is informed by the spatial characteristics and visual aesthetics, which are wild, untamed and grassy, that remind her of the spatial characteristics of the environment where she was raised, the Magaliesberg. This participant went on to say that the familiarity of the Grassland Section brings about peace, a sense of home and belonging (F_20+_D_Rustenburg).

Stobbelaar et al., (2011), a study conducted in Melbourne Australia, shares similar results, as it also finds that the sense of place of a green space can foster a sense of identity and belonging in its visitors. In addition, the study shows that a collective sense of identity experienced in a green space can unite people and instil in them a sense of community, even across a wide spectrum of ethnicities and cultures (Stobbelaar et al., 2011; Egerer et al., 2019). Furthermore, a sense of place in a green space brings forth feelings of safety and security (Egrer et al., 2019; Shackleton et al., 2013).

The extent to which one engages nature determines the extent to which they identify with it. The study participants who showed a deep connection with nature have also deeply immersed themselves in natural environments. This study also shows that deep nature connections can often shape one's personal identity and sense of identity in relation to green spaces. One of the interviewed participants gives evidence of this relationship, by stating how taking care of livestock, in his upbringing, and his exposure to nature, in rural Kwa-Zulu Natal, has fostered his deep connection to nature and shaped his sense of identity. The participant reveals the great extent to which he identifies with nature by stating "it's always been something that lives within me", in reference to natural environments (M_20+_PD_Kwazulu Natal). Another study participant expressed those moments of living intimately in nature with other animals and ecosystems, in her childhood, have moulded the individual she is and shaped the strong relationship she has with nature (F_20+_D_Vanderbijlpark).

While the study illustrates ways in which nature engagements can shape one's identity, literature shows how the nature engagements of a community can shape their cultural identity. This dynamic is evident in Cocks et al., (2016), where the term biocultural diversity, the ways in which people of a culture relate and engage with nature, is used in reference to the nature relations of the study participants, Xhosa speaking residents in Grahamstown, South Africa. This study found, for example, that the interviewed residents, despite their limited access to nature, find value in nature,

particularly forests, as their cultural identity is shaped by the practices they perform there, such as rites of passage (Cocks et al., 2016). The interplay between cultural identity, green space and place-specific relations appears in another study, this one conducted in Cairo, Egypt (Keleg et al., 2016). Since the interviewed residents' cultural identity is shaped by the historical and cultural landscape of the Nile River it is thus important to consider these place specific relations in the urban developments of Cairo (Keleg et al., 2016). Moreover, the residents' place attachment is shaped by the aesthetic landscape characteristics of Nile, an ecologically structural body of the Egyptian Landscape, which according to the study participants, represents the country's natural heritage (Keleg et al., 2016).

The rapid infrastructural developments, unfolding in cities, under the banner of urbanization, not only bring aesthetic and cultural changes to space, challenging place identity relations, as illustrated in Keleg et al., (2016) but also give rise to ill health, as revealed in this study. Since these developments encroach on green space, the opportunities to access and connect with nature become limited, bringing mental health issues, consequently (F_20+_D_Vanderbijlpark). The relationship between limited green space and psychological ill health is also echoed Taylor et al., (2014) stating that since the presence of nature, which is beneficial to human health, is diminishing, health hazards and mental distress are rising.

The therapeutic value of green spaces was a recurring topic of discussion in the interviews conducted. A participant felt that since green spaces offer psychological restoration through the experiences of calmness, ease, and stillness that they bring, it is felt that their role and service in the fast-paced urban environment is vitally important (F_20+_D_Ballito). Liu et al., (2021) also refer to the therapeutic qualities of green spaces such as their capacity to relieve stress and fatigue. In this regard, given the urban conditions pertaining to human health, the implementation of green spaces in the urban environment, as platforms to enhance the wellbeing of urban dwellers, becomes essential (Taylor et al., 2014; Liu et al., 2021).

The restorative qualities of green spaces have been attributed to several factors, particularly to specific spatial characteristics and environmental components of green spaces, for instance, the presence of water and trees in an open natural space (Taylor et al., 2014; Liu et al., 2021). Condradson, (2005) argues that spatial characteristics of a green space, alone, do not determine therapeutic encounters but rather by the ways in which the green space is engaged. Sensory experiences in nature often make therapeutic moments, as revealed in the interviews conducted in this study. The participants communicate that being aware of the sounds, smells and colours of nature brings forth psychological restoration and ignites feelings of happiness and peace (M_20+_CD_21Y; F_20+_D_Vanderbijlpark). The association of sensory experiences in nature with wellbeing also emerges in previous studies (Russels et al., 2013). Russels et al., 2013 state that multisensory experiences in nature

interactions, such as gardening and fishing, fosters the restoration of psychophysiological imbalances.

Therapeutic experiences in green spaces not only enhance one's vitality but can also ignite an internal freedom. This is expressed by a study participant who describes her experiences in green spaces like the Pretoria Botanical Gardens as energizing and liberating. As a retiree she feels that she is susceptible to depression because she is no longer employed, so coming to the Botanical Gardens is an act of therapy that makes her feel youthful and free and affirms her life's purpose (F_60+_PD_Tshwane). Similar landscape experiences are expressed in Condrason, (2005), a study investigating the relational dynamics of therapeutic landscape experiences at Holton Lee care centre in Dorset, England. The participants in this study communicated that their engagements in nature, for instance, bird watching and interacting with wild animals in the wild open green space of the study context, were activities that gave way to emotional expansion and inner freedom (Conradson, 2005).

6.) Conclusion

Cultivating closer human-nature relations is instrumental in the conservation of nature and implementation of green spaces in urban environments, which in the context of this study, is the City of Tshwane. The study participants who exhibited strong relations and relationships with nature expressed a deep care and concern for the environment which often lent itself towards environmental education, nature conservation and green space promotion. The pursuit of establishing a greater network of green spaces in cities is not only important for mitigating climate change and achieving ecological sustainability but also for greater accessibility of nature, stimulating stronger urban nature relations and thus enhancing human health and wellbeing.

Most of the study participants expressed positive nature perceptions, which are informed by a wide range of reasons. What surfaced prominently in the interviews conducted were the intangible nature relations that nurtured deep nature connections namely, place identity and therapeutic (healing) nature relations, and which then became the focus areas within the research of local urban nature relations. This study therefore supports the academic call to bring research attention to the contribution of intangible nature relations, many of which fall under cultural ecosystem services, in the enhancement of human wellbeing.

Place identity relations and connections in green spaces are fostered when the spaces arouse a sense of home and belonging. Typically, these landscapes, as revealed in the results of the study, have spatial characteristics that are familiar or that trigger childhood memories. The study also shows that the participants who expressed

deep nature connections, pertaining to place identity, are those who have deeply immersed themselves in nature to an extent that it has shaped their personal identity.

Therapeutic landscape experiences also foster stronger and closer human-nature relations. The results of this study together with the reviewed literature show that these therapeutic encounters are informed by the spatial characteristics of the green space as well as the ways in which the space is engaged. The role that green spaces play in improving human health and wellbeing is critical, particularly, in cities. Given the unprecedented replacement of green spaces by infrastructural developments and the therapeutic value of nature; the fostering of close human-nature relations as well as the conservation and further establishment of green spaces becomes crucial in urban environments.

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Figure List

❖ Figure 1: Code Groups, prepared by author
❖ Figure 2: Respondent Profile, prepared by author

Appendix

Semi Structured Interview Questionnaire

A) This place: Botanical Garden

1. Do you know the botanical gardens? How do you feel about this section of the garden - please elaborate on emotions or memories they bring about? (If applicable)
2. How do you feel about the plants and features that you see here? Do they seem familiar/ do you know any of them? Please elaborate.
3. Are there any plants/ features that you enjoy seeing? If so, do they provoke any emotions or memories in you?
4. Are there any plants/ features that you do not like? If so, do they provoke any emotions or memories in you?

B) Own garden

5. Do you have a garden at home? (If not - Did your parents/grandparents/guardians have a garden when you grew up?) Can you describe this garden?
6. Do/ did you enjoy this garden or not, and which aspects particularly - please elaborate.
7. Do you see gardens as part of nature? Please elaborate.

C) Urban Nature

8. Do you think nature belongs in an urban setting?
9. What is the relationship that you have with nature? Is it the same for other people? – please elaborate?
10. Which of these relationships exist within an urban context? – please elaborate?

D) Nature relations (including place identity)

11. Do you identify with natural landscapes …if so in what way?
12. Which natural landscapes do you identify most with and why?
13. Do you identify in the same way with some urban green spaces? Or how does this differ?
14. Are there any natural environments/ urban green spaces that you prefer because of how they make you feel? If so, which ones

15. Are there any natural environments/ urban green spaces that bring about a sense of home.
16. To what extent do you consciously engage with nature? (Natural or urban)
17. Why do you or/ why don't you?
18. What about nature do you like or dislike? Please elaborate.
19. Do you see yourself as a nature-loving or a nature-neutral person?

E) Nature relations: Spirituality

20. Have you participated in and/or observed spiritual/ religious rituals and/ or activities performed in nature? please elaborate (also where were these held)
21. Which emotions/ feelings do natural environments evoke in you? Is that also true for urban green spaces?
22. [Are there natural environments/ urban green spaces that make you feel restored/ vitalised/ rejuvenated? If so, which ones and why?]
23. Are there any natural environments that disturb you? If so, which ones and why? is that also true for urban green spaces? if so which ones? please elaborate.

F) Nature relations: Functional

24. What kind of (practical/ useful/ direct benefits) do/ have natural environments/ urban green spaces offer(ed) you?
25. Can you think of other functional benefits natural environments/ urban green spaces **could** have in your life? please elaborate?
26. How did/ could you obtain these benefits? (E.g., made a garden, went into natural spaces.) Did/ would this involve practices/rituals? Please describe these.
27. What or who made you decide to do this? (e.g., tradition, family, culture, religion, education)
28. Would you say these practices/rituals have influenced your relationship with nature? if so, how? please elaborate

G) Nature relations: Functional (South African design urban context)

29. What do you think are functions nature could have within a **South African urban context**?
30. Do you think these functions could strengthen people's relationships (feelings/ connections) with nature? If so, how?
31. What would make it possible for these nature relationships to exist / become stronger in the urban environment

Ethics Clearance Letter

Reference number: EBIT/26/2020

Dr CA Breed
Department: Architecture
University of Pretoria
Pretoria
0083

Dear Dr CA Breed

This is to notify you that the <u>amendments</u> to your application entitled "Native plant communities for increased biodiversity and ecosystem services in the City of Tshwane", have been approved by the EBIT Ethics Committee.

Recommended approval from both reviewers

Kind regards

Prof K.-Y. Chan
Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY