

# ORCHID CARE:

An exploration in experiential and theoretical environmental care practice shown to orchids through the Anthropocene



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MASTERS THESIS

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## Abstract

This thesis is an exploration in experiential and theoretical environmental care practice shown to orchids through the Anthropocene. It revolves around two African orchid species, one in Cape Town and one in Zimbabwe, and the care practices shown to these plants. The thesis explores the question: *in what way does an orchid's status generate a level of institutional care that attempts to protect the plants?* Chapter 1 explores the idea of orchid status through colonial collection. Chapter 2 focuses on the reactionary rules that came about after this exploitation. In addition, this chapter deals with the structure of CITES and what happens when orchids are over-collected because of their status. These ideas and themes of status and collection are applied to the case studies in Chapter 3, with special focus on field philosophy. Storytelling is used as the basis for Chapter 3, personal experience and primary research informs this chapter to interrogate care practices that surround the case studies. Major influences on the interactions throughout this thesis are theorists Anna Tsing, Thom Van Dooren, Donna Haraway and Amy Hinsley. These theorists deal with anthropogenic landscapes and ways of being that navigate the Anthropocene which is a lens used throughout this thesis in an attempt to answer the research question.

## Contents

|  |           |
|--|-----------|
| Abstract.....  | 1         |
| Why Should I Care? .....   | 6         |
| A tale of two orchids living in the Anthropocene .....                                     | 6         |
| Situating Care For Orchids In The Anthropocene.....  | 16        |
| <i>Chapter One: An Orchid Obsession, A Brief History Of Orchid Mania Then And Now.....</i> | <i>21</i> |
| Romantic Sublime And Orchid Landscapes.....  | 21        |
| What Makes An Orchid? .....  | 27        |
| Victorian Orchid Stripping.....  | 32        |
| <i>Chapter Two: Orchid Protection And Exploitation .....</i>                               | <i>40</i> |
| CITES And Ideas On Protection.....   | 40        |
| Orchid Imaginings And Literary Sources Of Inspiration .....                                | 46        |
| <i>Chapter Three: Orchid Case Studies.....</i>   | <i>53</i> |
| Comparisons Of Care Practice Between Disa And Angraecum.....                               | 53        |
| Angraecum Chamaeanthus.....  | 56        |
| Disa Uniflora .....  | 67        |
| Tools For Facilitating Care.....   | 72        |
| The Care Shown .....   | 76        |
| <i>Conclusion.....</i>   | <i>79</i> |
| <i>Bibliography .....</i>  | <i>82</i> |

## List of images

|  |    |
|--|----|
| Image 1 <i>Disa uniflora</i> in situ on the<br><i>Helderberg</i>     | 4  |
| Image 2 <i>Angraecum chamaenthus</i> on a<br><i>guava tree</i>       | 5  |
| Image 3 <i>Orchid and Hummingbird near a<br/>Mountain Waterfall</i>  | 21 |
| Image 4 Illustration of <i>Disa uniflora</i>                         | 30 |
| Image 5 <i>Phragmipedium kovachii</i>                                | 42 |
| Image 6 <i>angraecum chamaenthus</i>                                 | 56 |
| Image 7 <i>Angraecum chamaenthus</i> on a fruit<br>tree in the vumba | 59 |
| Image 8 <i>Disa uniflora</i> in flower on table<br>mountain          | 67 |
| Image 9 <i>Disa uniflora</i> in flower in the man<br>made aquaecuct  | 71 |



Image 1. Croukamp, B. 2020. *Disa uniflora* in situ on the Helderberg. Digital photograph.



Image 2. Croukamp,B. 2021. *Angraecum chamaenthus* on a guava tree. Digital photograph.

Why should I care?

### A tale of two orchids living in the Anthropocene

Take a walk on Table Mountain from late January until about March and look along a stream bed or on an exposed cliff face with running water. Hidden amongst the ferns and moss could be a bright red, yellow, or pink *Disa uniflora* clinging to the mountain. Called the Pride of Table Mountain, this plant is used as the emblem of the City of Cape Town.

Much of the city's identity is tied into the triangular red shape. The image of the plant is used as an emblem for the Western Cape rugby team, the mountaineering club, and the Western Cape health service. It is an icon of the city of Cape Town as much as the mountain itself and it is given pride of place as the most magnificent plant in all the fynbos (Brooks et al., 2002:910). This plant occupies a singular position in the Cape floristic region, which itself is a highly specialized biome (Brooks et al., 2002:913).

The Cape floristic region is a "biodiversity hotspot," and as such is critically threatened because of its specificity and limited range (Moran & Hoffmann, 2012:139). Fynbos is a type of vegetation for which the *Disa uniflora* has become the emblem (Moran & Hoffmann 2012:139). The Cape floristic region is limited to the Western Cape and within that the fynbos vegetation is limited further still (Moran & Hoffmann, 2012:140). The *Disa uniflora* occupies a very limited distribution within this already narrow range of fynbos. *Disa uniflora* is limited to certain mountain ranges within the Western Cape, from Hermanus to the Cedarberg. This limited distribution increases the plant's chances of natural extinction (Holmes, 2011:6). *Disa uniflora* occupies perennial streams and springs that flow yearly, and it often occurs in full sun (Johnson & Byterbier, 2015:255). It has multiple connections in its ecosystem, such as the Pride of Table Mountain butterfly which is the plant's primary pollinator (Johnson & Byterbier, 2015:255). The dependency of the orchid on one species of pollinator adds to the risk of extinction. If one of *Disa uniflora*'s symbiotic connections disappears, the plant will cease to function in its ecosystem. Its extinction would be the result of an unravelling of webs of connection, spanning far out from the *Disa uniflora* itself (Van Dooren, 2014:13).

The orchid itself is much like lichen in that it is the visible partner of multiple webs of connection through the space of the fynbos (Johnson & Byterbier, 2015:12). Its continued existence therefore is predicated on the continued protection of the fynbos. Much of this care can mean the removal of invasive species, such as spruce pines and the Himalayan tahr (Slingsby & Botha, 2018:1). These introduced species represent a risk to water security for the *Disa uniflora* and measures have been taken historically to remove these alien species to maintain the purity of the mountain biome.

The removal of introduced species, however, as an act of care contradicts for the requirements of the second plant, *Angraecum chamaeanthus* (Image 2). This orchid lies in contrast to the *Disa uniflora*, given that its newly chosen habitat is that of introduced trees, specifically fruit trees. Information about this plant is scarce and much of the information obtained about it is through primary observation; indeed as Johnson and Byterbier (2015:48) state, this plant is often overlooked. The *Angraecum chamaeanthus* is a twig epiphyte<sup>1</sup> and proliferates on the outer most branches of trees in warm afro-montane forest (Johnson & Byterbier, 2015:22). It occurs from South Africa to Tanzania (Johnson & Byterbier, 2015:20). In Zimbabwe, it grows in limited areas and favours introduced fruit trees, specifically the guava tree (Wursten, accessed website 2022). It is so prolific on introduced trees it has gained the nick name of “guava baby” (Wursten, accessed 2022).

*Angraecum chamaeanthus* (guava baby) colonises the outermost twigs of fruit trees and when in flower creates a fine misting of white that looks like frost on the branches of the trees. It is the smallest of African epiphytes in the group *Angraecum*, and the name is “derived from: chamai, a dwarf, and anthos, a flower” (Wursten, accessed 2022). The idea of an orchid as a weed seems to contrast with the idea of an orchid as a hyper-cultivated display object.

Fruit orchards provide the ideal habitat for the plant, The “guava baby” thrives in novel ecosystems to such an extent that its high population density and little commercial value means that it could fall into the category of weed, and only the plant’s status as an orchid saves it from ignominy.

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<sup>1</sup> Twig epiphyte indicating that the plant is small and likes to grow on the outermost branches and exposed twigs of trees, where there are high levels of light and air movement compared to under-canopy plants.

Additionally, these two orchids represent binaries of perceived value. *Angraecum chamaeanthus* is dismissed as “weedy” while *Disa uniflora* is prized as a commercial plant. The *Disa uniflora* was one of the first hybridised orchids and has a history of collection that predates the very idea of what an orchid is (Schelpe, 1968:34).

However, it is not just these plants that are seen as having different social value but the habitats they occupied are valued differently too. The *Disa uniflora* occupies a sacred space on mountain habitats, while the *Angraecum* often occupies commercial spaces, where “nature” has been cleared for human progress or profit (Cielemęcka, 2020:65). *Angraecum chamaeanthus* creeps into these new ecosystems and thrives. However, because these ecosystems’ makeup is part introduced and part indigenous, they are disregarded by some environmental imaginaries as legitimate ecosystems (Marris, 2009:451). In being disregarded as a functioning ecosystem, rules such as clearing of introduced species can be institutionalised, disrupting these more-than-human-made landscapes (Tsing et al., 2017:2).

While researching this thesis, I was confronted with the question of what defines nature. I was traveling through an area of Zimbabwe that was heavily cultivated in fruit orchards prior to 2000. As farms were abandoned and orchards left to their own devices, these orchards became hotspots of orchid diversity, with some trees hosting up to seven different species of orchids. The indigenous forest trees around the orchards had far fewer visible species. These abandoned orchards have become new ecosystems with new connections being made and unmade around them and the destruction of these spaces for the reintroduction of indigenous forest fails to recognise how life proliferates in entangled symbiotic ways external to human intentions (Haraway cited in Braidotti & Hlavajova, 2018:81). This exploration of the fruit orchard is where I took Image 2 of *Angraecum chamaeanthus* on a guava twig.

Arguably the landscape that the plant occupies contributes to their perceived value, as one is more likely to invest financially in the rarer showier *Disa uniflora*, than a small white flowered *Angraecum chamaeanthus* that grows like a weed on invasive trees. The lack of monetary incentive to cultivate *Angraecum chamaeanthus* robs the plant of a safety net of ex- situ conservation through collection. This view of orchid collection, however, does not take

into account the fact that orchids of value have historically been stripped from their ecosystems and in many cases populations are yet to recover (Hinsley et al., 2018:440).

One can easily examine the power dynamics inscribed on the plants through the lens of biopolitics: Cielemeńska comments on Foucault's ideas of bio power focusing on themes such as those made to live and those let die (Cielemeńska, 2020:67). Arguably the *Disa uniflora* is made to live and is seen as the superior species, and any challenge to this status is a risk to the plant's security of life, is less than, and must be made to die (Cielemeńska, 2020:67). Biopower ascribes power dynamics on the natural world from the perspective of the human or "higher being" and ensures only that which is deemed of value will be granted life (Cielemeńska, 2020:68). Again, this stems from humanist ideology and, to dismantle these ideologies of power, a new way of engaging with these plants is required; one that takes their more-than-human worldmaking into account (Tsing, Mathews & Bubandt, 2017).

By engaging the more-than-human worldmaking process, these plants are not seen as passive objects of the landscape but rather agents that are fighting for their space in the Anthropocene. Indeed, *Angraecum chamaeanthus* actively shapes, and is shaped by, the environment it inhabits to the extent that one could argue when introduced trees are planted, humans are being used by the *Angraecum* to provide the plant with a home (Haraway cited in Braidotti & Hlavajova, 2018:80). The active participant within this space is blurred as the orchid utilises these human spaces that we have seemingly created for it, creating a more than human landscape (Tsing, 2017). These new landscapes are compared to an ideal or "pure" landscape and often the reality of what the landscape was before is forgotten (Bubandt & Tsing, 2018:2). Bubandt and Tsing (2018:2) comment on forgetting landscapes:

Our newly shaped and ruined landscapes become the new reality. Admiring one landscape and its biological entanglements often entails forgetting many others. Forgetting, in itself, remakes landscapes, as we privilege some assemblages over others.

The remembered landscape is one of purity and Edenic, and our new landscapes, with their introduced multispecies comingling, taint this pure Edenic narrative and represent something to be destroyed in pursuit of the pure (Cielemeńska, 2020:68).

The spaces that orchids inhabit necessarily have to be relatively undisturbed for long periods of time because of the slow rate at which the plants reproduce; thus, when they exist in anthropogenic spaces they are often in "novel landscapes" and would not occur in such numbers in working human landscapes. By that I mean that novel ecosystems are spaces that were designated for human use but biological processes have crept in after the space has been

left abandoned (Marris, 2009:451). In this case, a novel ecosystem becomes a shelter for indigenous species and there gains a proliferation of biodiversity; however, because the fruit trees are “seen as the wrong species”, this proliferation is not considered authentic biodiversity when compared to “pure nature” (Marris, 2009:451).

Studying novel ecosystems provides a space with which to acknowledge human impacts on the environment but also a way of recognising more than human world-making processes that would take over if given the chance (Tsing et al., 2017). Novel ecosystems embrace the ephemeral nature of ecosystems that are constantly changing and have introduced species encountering them naturally, and it is a counter to the static permanent notion of “pure nature” (Marris, 2009:454). Novel ecosystems, however, are contentious as often the clearing of land to create these spaces displaces indigenous plants, animals, and people and disrupts co-dependent evolutionary symbionts, so pre-existing processes become fractured and disturbed, which ecologically is a loss (Marris, 2009:451). However, they can also be studied as to what happens to these spaces afterwards and the new connections that can arise through the Anthropocene (Marris, 2009:451).

These new ecosystems are not considered under the “Convention on International Trade in Endangered Species of Wild Fauna and Flora” or CITES legislation so habitats that occur within them are not seen as warranting protection and they begin to become ambiguous (Marris, 2009:451). Under Zimbabwean legislation, orchids are not allowed to be removed from their habitat, however, the fruit trees on which they grow are encouraged to be trimmed or chopped down for fire wood as the removal of foreign trees will promote the regrowth of indigenous forests. While traveling in Zimbabwe, I often saw bundles of exotic firewood, with orchids still attached.

These anthropogenic spaces, however biodiverse, do unfortunately come at the expense of indigenous ecosystems and connections, and their existence is predicated on the destruction of local worlding processes. One way of reintroducing these processes has been conceptualized through the re-wilding initiative. “Re-wilding” is focused on creating spaces that return to nature by reintroducing native species to an area that has been heavily disrupted by anthropogenic practices,-(Tree, 2018:10). Re-wilding, however, has become a complex term and has come to include experimental practices of introducing proxy species in the case of extinct species in aims to restart biodiversity in a altered landscape (M. & R. Fowkes cited in Braidotti & Hlavajova, 2018:388). On her farm in England, author Isabella Tree aims at

rewilding to promote local biodiversity and does so through the reintroduction of indigenous species, or proxy species which for tree include cattle instead of aurochs (M. & R. Fowkes cited in Braidotti & Hlavajova, 2018:388). The act of rewilding is concerned with restarting earth's world-making processes in spaces that have been denuded of them (M. & R. Fowkes cited in Braidotti & Hlavajova, 2018:389). If one were to examine the word itself, the "-ing" at the end of rewilding highlights how this is not an end goal oriented attitude but one of continuous present action towards self-sustaining and self-managing ecosystems (M. & R. Fowkes cited in Braidotti & Hlavajova, 2018:388).

Despite its benefits, rewilding has come under scrutiny. It is concerned with a movement back to nature, but the standard of what is seen as natural is ambiguous as this could refer to a wide range of times, from the pre-colonial to the Pleistocene (M. & R. Fowkes cited in Braidotti & Hlavajova, 2018:389). A movement to Pleistocene rewilding such as in Pleistocene Park neglects to recognise human impact and indigenous people's interaction within the ecosystem (M. & R. Fowkes cited in Braidotti & Hlavajova, 2018:388). Many agents within those specific ecosystems have managed to evolve for thousands of years without those same interactions and have adapted to the current way of being (M. & R. Fowkes cited in Braidotti & Hlavajova, 2018:389).

These ideas of a pure, pre-human space untouched by man are romantic idealisations that fail to recognise nature's adaptability and newly created patterns of intermingling (Haraway cited in Tsing, 2017). To that end, Fowkes and Fowkes comment that "Frankenstein ecosystems highlight the survival within rewilding of the technocratic urge to interfere with nature" (M. & R. Fowkes cited in Braidotti & Hlavajova, 2017:389). Frankenstein ecosystems, in this respect, comment on spaces where nature has started to reclaim the land over the actions of human input. These spaces become something monstrous and objectified in that there are elements of the recognisable becoming unmade; the human endeavour becomes something other and foreign (Tsing et al., 2017:G1), highlighting that even in an attempt to dissolve the boundaries between culture and nature, power imbalances maintain a level of separation between what is natural and what is man-made (Cielemecka, 2020:67).

As such, to acknowledge how to care for ecosystems and the agents within them, a more pragmatic approach needs to be utilised to generate a better understanding of what is actually

happening rather than a romantic ideal of what actually is. To enact care there must be a recognition of the way things currently are, and “staying with the trouble” (Haraway cited in Tsing et al., 2017:G2).

Within the case studies, both landscapes these orchids occupied have been heavily influenced by humans and so have become Frankenstein ecosystems (M. & R. Fowkes cited in Braidotti & Hlavajova, 2018:388). These Frankenstein ecosystems are made up of human intervention and more than human changes, such as *Angraecum chaemanthus* making its home on guava trees. Indeed, as Cielemecka (2020:64) states, “a consensus is forming that there is no possibility to achieve complete purity of any sort”. The idea of a pure ecosystem becomes not only a fantasy but something actively detrimental to recognising the reality of the current ecological situation. Table Mountain, for example, is hailed colloquially as a heart of wilderness in the city of Cape Town. It is thought of as a wild refuge and, because of the fact that it has been protected, it is assumed that it is “pure nature”. However, the myriad of invasive species (tahr or pine trees, for example) highlight humans’ influence in terraforming the space. This level of human interaction is not as immediately obvious as an abandoned fruit orchard that is carved out of indigenous forest, but nevertheless human action actively shapes the ways ecosystems interact.

Indeed, there are many modern ideas to revert Table Mountain to a status of “pure nature”, through the eradication of the tahr, or the removal of the pine and gumtrees which are seen as a fire risk and an unnecessary consumer of the city’s water resources. Alien plant species are the biggest threats to South Africa’s water security, so much so that legislation to remove invasive plant species has been passed (Slingsby & Botha, 2018:1). These actions to clean up the mountain space do not acknowledge the roles these agents have in changing the processes of the mountain complex and how life has adapted to these changes.

However, when considering conservation of life on the mountain, the eradication of the tahr and gumtrees is an essential component of maintaining precarious ecosystems. That is not to say that no indigenous life can live in these spaces, as while walking through Newlands Forest, one can see the layers of understory growth where the trees provide a space for indigenous life to proliferate (Marris, 2007:451). The *Disa uniflora* becomes an icon of this idea of the mountain as a pure space. Its status as an emblem cements the idea that the mountain is still pure and has its natural processes untouched.

But what does this mean for care? Throughout this thesis, theorists such as Thom Van Dooren have been instrumental in the forging of what is meant by care. Van Dooren focuses on telling stories around certain species to represent the creatures as something tangible and to highlight their interconnected situatedness in the world. By telling stories of the animals and the people that care about them, he highlights the individual levels of care required to bring back a species from the brink of extinction. As he states: “Rendered in this way, these creatures become more than a name – no longer an abstract Latin binomial on a long list of threatened species, but a complex and precious way of life” (Van Dooren, 2014:24).

Van Dooren is concerned with the idea of extinction specifically subverting the notion that extinction is perceived as the expiration of the last individual of the species, but he highlights how extinction manifests when that agent can no longer meaningfully interact with its ecosystem. By the time we get down to a single species, we are already too late as we have lost the multispecies connections.

Rather, the edge of extinction is more often a “dull” one: a slow unravelling of intimately entangled ways of life that begins long before the death of the last individual and continues to ripple forward long afterward, drawing in living beings in a range of different ways. (Van Dooren, 2014:31)

This could be the fate of many species in the Anthropocene if we do not stay with the trouble and acknowledge environmental issues rather than by imagining a romanticized ideal of nature. The *Disa uniflora* and the *Angraecum*'s specific worlds need to be understood through lively story telling: hopefully, an idea of care can be curated to their needs. This form of care for the individual can potentially be radical, bordering on the illegal, as the systems in place for the orchids' conservation works under the assumption that all orchids everywhere are under the same threats, and strictly enforced rules will help them.

This unfortunately hampers certain species because orchids are such a large group and only certain orchids have been used as the standard for understanding what orchids need. The *Disa uniflora* would undoubtedly qualify as an ambassador for these rules because of the high value, monetarily and culturally, that is attached to its name. While *Angraecum chamaenthus*, by comparison, would have different environmental pressures, it would internationally be governed by the same rules. These ideas of hierarchical value should be understood through Foucault's notions of biopower. In this case, orchids are seen as valuable and are made to live,

but this term is again like the term “human” in that it refers only to a select few supreme beings (white men for the human, and the showy, financially viable for orchids), not all of humans/all orchids. Because of this heightened perceived value, the plants that are valued become fetishized objects in their environment.

Orchids are one of the most widely grown and traded groups of plants, with ornamental orchids and the cut flower trade making up billions of dollars of revenue (Hinsley et al., 2018:435). Orchids can be found from specialist nurseries to grocery stores around the world (Hinsley et al., 2017:602). They are seen as a form of aspirational luxury that anyone can have, and this is in part due to their history through colonialization. Their history of collection has affixed them in the modern world as an indicator of the exotic other, while many plants are grown externally to their jungle habitats.

Orchid hybrids make up the bulk of this trade, with *Phalaenopsis* species being highly desirable ornamental plants for the home. The fact that they have been so in demand globally means that wild stocks could not meet demand, which led to plants being cloned (Endersby, 2016:5). While this elevates pressures on wild collected species, orchid connoisseurs find wild collected plants that much more desirable because of their “fresh genes” that can contribute to breeding stock, and the manufactured status rare wild-collected species have due to over collection (Hinsley et al., 2018:436). Wild orchid species become flagship species for both conservation and collection (Hansen, 2000). It places the plants in a precarious situation; as protection of the plants gets stronger, their desirability for collections rises. Chapter 1 deals with this idea of precarity as explored through orchids’ history as hyper-cultivated western objects of colonial expansion. The chapter explores our chosen case studies’ relationship to colonial expansion and collection. Chapter 1 asks in what way collection practices have disadvantaged orchids to facilitate the need for reactionary conservation legislature.

By exploring the orchids’ historical relationship to collection and colonialization, this thesis attempts to gain a deeper understanding about the notion of care that has come to inform both protection but also commodification of this plant. Chapter 2 will deal with the theoretical framework of care as a practice by exploring the rules that have evolved from orchids’ history of exploitation. The commodification of orchids has placed them in this situation of precarity; however, due to environmental degradation, orchid collections could also become sites of ex situ conservation where at risk species are safe from extinction due to their existence in cultivation. The chapter will explore the legislation that has come into play in the 20<sup>th</sup> century

in attempts to regulate trade around the plants, but also explore how these regulations have failed. This chapter argues that the means by which the trade bans are created and forced do not take into account the individual needs of the species but rather use umbrella rules applied to a vastly diverse group of plants that are eking out an existence through the Anthropocene. These umbrella rules can often perpetuate more damage than good and a reconceptualization of how to engage with anthropogenic landscapes is needed.

Chapter 3 engages with the ontology of care practice and sacrifice engaging with the spaces in which *Disa uniflora* and *Angraecum chamaenthus* survive. These themes supply the grounds to acknowledge an anthropogenic landscape. Indeed, this chapter relies heavily on Van Dooren's notions of "field philosophy" which he described as being an analysis that "emerges out of situated encounters in the field" (Van Dooren, 2015:3). Another theorist that influences the story telling that surrounds my experiences with the plants is Fröydi Laszlo (in Bencke And Bruhn 2022:122). This theorist examines ways of being in nature and how the act of observing nature becomes a way of understanding it.

Chapter 3 also explores how conventions on trade arguably do not enact care towards the plant in entirely beneficial ways and often the outcome of this crimes-and-fines kind of care results in habitat destruction and an inability to protect vulnerable species with ex situ conservation (Hinsley et al., 2018). The chapter explores the ways protection or care can be enacted when legislation protecting the natural world does not take biodiversity into account. The guava trees that the guava baby grow on are explored here as both the preferred home of an enigmatic little orchid and an invasive species that outcompetes other species biodiversity.

## Situating Care for Orchids in the Anthropocene

It has been claimed the earth has entered into a new epoch, the Anthropocene (Parikka cited in Braidotti & Hlavajova, 2018:51), described as the current geologic era where humans have become one of the driving factors of planetary systems and world-making processes (Parikka cited in Braidotti & Hlavajova, 2018:54). The Anthropocene as a term is a conceptual framework to understand and rationalise “human” impacts on the planet, highlighting how the human has become a major actor on the earth’s geologic and worlding process (Parikka cited in Braidotti & Hlavajova, 2018:52).

This impact has been created through an imposed binary of the “human” and the “other” where nature and the environment (the other) is seen as an extractable tool for human control (Cielemęcka, 2020:64). This hierarchy of power is inscribed onto the environment, to the extent that very little untouched or “pure” nature is left (Cielemęcka, 2020:64). However, even the idea of a “pure nature” has been imbued with meaning by humans as something to be revered but also as something useful or extractable (Cielemęcka, 2020:63). From human intervention, this idea of “pure” has become a fantasy because there is some aspect of “human” intervention within even the most remote spaces (Cielemęcka, 2020:63).

This is not to say, however, that nature is stagnant in anthropogenic spaces as there are still interweaving, tentacular connections that are made and unmade over space and time (Haraway cited in Braidotti, 2018:80). Even in a controlled and planted landscape, life makes new connections, interweaving alien and indigenous, rare and feral into new unique ecosystems (Marris, 2009:450).

The wild spaces of the world have become disrupted by human influence, the deepest parts of the oceans have plastic in them, and the most untouched parts of forests are at risk of fires because of human-caused climate instability (Cielemęcka, 2020:64). What this generates are

landscapes that in some way all have an interaction with the Anthropos<sup>2</sup> (Cielemęcka, 2020:65). In this way, a “pure nature” that is untouched by humans becomes a fantasy of modern environmental imaginings, while new ecosystems and new ways of being become disregarded in favour of maintaining the fantasy (Marris, 2009: 451).

This thesis explores ways of being in the Anthropocene. Ideas such as “pure nature”, patchy Anthropocene<sup>3</sup>, novel ecosystems and hope, will be interrogated in relation to the orchid. All these theories deal in some way with humans’ relationship to nature and how life manages to eke out an existence, sometimes with our help, and at other times in spite of our interference. To highlight the shifting ways of being, personal stories that explore different modes of existence will be used to investigate orchids’ worlding processes (Tsing et al., 2017:7). Orchids exist in every terrestrial ecosystem, from rainforests to the arctic, in some way and these modes of existence play on the novel and the pure.

Two orchids will be used as main examples to highlight how orchids have come to exist through the Anthropocene. A binary of existence can be explored through these orchids with one orchid existing in “pure nature” and another occupying a novel contaminated landscape. An orchid occupying a novel ecosystem would be one that has managed to thrive in a space that has been heavily influenced by human interaction; the space is not wild in the traditional sense but it is something new. It becomes a part of a contaminated diversity as part of a “collaborative adaptation to human-disturbed ecosystems” (Tsing, 2012:95). “Pure nature”, by contrast, is a space that is envisioned by people as being much closer to “wild”; it is not considered edited or transformed by humans and worlding processes and is thought of as independent to humans (Cielemęcka, 2020:65). These binaries are presented as opponents to one another, however,

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<sup>2</sup> Anthropos literally translates to human, however, in this context it means the human that has enforced the power dynamics generated through binaries of “human” and “other” and not all humans everywhere over all time (Parikka cited in Braidotti & Hlavajova 2018:52). It is a specific reference to “people” in power.

<sup>3</sup> Author Anna Tsing writes the most succinct description of the patchy Anthropocene, stating “Patchy Anthropocene” is a conceptual tool for noticing landscape structure, with special attention to what we call “modular simplifications” and “feral proliferations” (Tsing, Mathews, & Bubandt, 2019:186).

through the Anthropocene “pure” and “disturbed” intermingle and exist on a spectrum, and no place is truly wild as much as no place is truly new (Tree 2018:I). Remnants of both sides of the binary creep in around the edges (Haraway cited in Braidotti & Hlavajova, 2018:180).

To highlight these contrasting ideas, two orchids will be focused on out of the roughly 25000 different orchid species: the first one, the showy and emblematic *Disa uniflora* that has been utilised as an emblem of Cape Town and has become an icon of “pure nature” in the heart of a busy city. The second is *Angraecum chaemanthus*, a “weedy” species that has managed to find a space to reclaim within a new anthropogenic ecosystem. These two species will act as a nucleus to understand ideas of how care is enacted on the environment through the orchid.

Care in relation to these species is variable and case specific. Because care is so deeply specific and personal, defining it has been challenging. A broader definition is arguably more apropos and one could use author Cary Wolfe’s description of deep ecology to help centre ideas of what care may be. Care is a thought practice and action that places emphasis on the value of more than human life. For Wolfe, this is biodiversity. Wolfe writes about deep ecology as a means of decentring the structured impersonality of scientific thought processes and writes of deep ecology as:

*The ultimate good is not harmony with nature, nor even holism per se, but rather something much more specific: biodiversity. Once this is recognized, we must affirm the inherent value of all forms of life that contribute to this ultimate good, and we must actively oppose all actions and processes by human beings and their societies that compromise these values. (Wolfe, 1998:24)*

Care as recognition of biodiverse agency is a primary way this thesis engages with care. Ideas of biodiversity surround the orchid and themes such as novel ecosystems and “pure nature” revolve around biodiversity and world making. By recognising and engaging with biodiversity, we can conduct ourselves in a way that recognises the importance of the biosphere in enacting care (Wolfe, 1998:24). This recognition is not a one size fits all approach, as biodiversity is both site specific and temporally specific and requires individual attention.

Furthermore, most orchid species have care enacted upon them in different ways through conservation efforts. Author Amy Hinsley writes extensively on orchid conservation and her work deals with the failings of conservation. Her work is a major influence on this thesis and

many of her articles form the basis of Chapter Two. Hinsley's work revolves around the inefficacy of the Convention on International Trade of Endangered Species (CITES) and the way that this convention deals with care.

Hinsley focuses on how trade regulations through CITES exist in umbrella terms and create broad generalised rules that are aimed at working for all orchids. These umbrella terms are often aimed at regulating orchid trade in the hopes that, through control of trade, there will be a control of in situ conservation. By focusing my case studies on two species, this thesis aims to explore care-centric environmental practice on two separate socio-ecological contexts. Care as practice is deeply personal and, even within the group of orchids, requirements differ, however, broad spectrum conservation fails to recognise the need for individuality of care.

*Disa uniflora*, for example, is considered to exist in "pure nature;" invasive species management is a crucial aspect of the species conservation. *Angraecum chaemanthus*, by comparison, has relocated to a novel, anthropogenic ecosystem. It is less common on indigenous trees within the same area. Because *Angraecum chaemanthus* uses exotic trees as a host, invasive species management would become detrimental to the population density of this orchid (Marris, 2009:452). The same act of care here would affect these two species very differently.

The status of orchids unifies them within culture as objects of high value, both as ecological indicators and as flagship species. This thesis aims to explore; in what way an orchid's status generates a level of institutional care that attempts to protect the plants? furthermore the way in which care is enacted will be queried as to how it could furthered draw attention to orchids as something desirable, adding to their precarity. I will argue that the way care – or rather environmental regulation and management – has been enacted might often fail to recognise the plants' particular needs and can do more damage than good. Within the legislation there is a sense of optimism that places these plants in an ideal world rather than the shifting colliding one they actually inhabit (Hinsley et al., 2018:435).

Care in many depleted anthropogenic spaces is enacted through rewilding projects. However, as rewilding can be concerned with achieving a "pure nature" and involves an idealised romanticized form of what nature is, I avoid using this frame as a means to explain care within this thesis, instead focusing on novel ecosystems as spaces of "weedy proliferation" and looking at anthropogenic ecosystems (Cielemęcka, 2020:70; Bubandt & Tsing 2018:4). These

anthropogenic ecosystems have remnants of pre-Anthropocene nature mixed in with human activity and the interaction between the human and natural generates new, altered landscapes (Bonneuil, 2016:9). Orchids exist as biological life forms and cultural objects through which we can conceptualise the different forms of what nature has become through the Anthropocene. Indeed, according to author Jim Endersby (2016:9):

*Plants like orchids are usually considered part of nature – a world that exists outside and independently of us – and which we usually contrast with culture – the world humans have created. Yet there is no stable boundary between the natural and the cultural; we cross, erase, and redraw that frontier whenever we imagine orchids. Through interrogating orchids as something that exists in these spaces between the boundaries of nature and culture, hopefully one can examine how ideas of nature itself has been conceptualised and changed through the Anthropocene.*

## Chapter One:

### An Orchid Obsession, A Brief History of Orchid Mania Then and Now



Image 3. Johnson-Heade, M. 1902. *Orchid and Hummingbird near a Mountain Waterfall*. Oil painting.

#### Romantic sublime and orchid landscapes

Orchids are often thought of as ephemeral, beautiful but foreign plants from far off jungles. This idea is a manufactured one generated from the Victorian orchid mania, to boost sales and romanticize the plants (Endersby, 2016). Indeed, as Endersby (2016:1) notes, “Orchids have often been thought of as floral aristocrats, rarefied and elite”. Their position in society is highlighted through being rare and special. Orchids, however, are found on every continent

except for Antarctica (Pridgeon, 1992). They are one of the largest groups of flowering plants, having between 26000 and 34000 species with more being discovered every year, and which proliferate to some extent in any habitat (Endersby, 2016). In addition to the sheer variety of orchids, orchid flowers are some of the most complex of all plants (Johnson & Bytebier, 2015:12).

The elitism connected to orchids stems from the requirements the plants had when being grown in Victorian England. They were seen as temperamental and expensive and so only the wealthy who had leisure time to inspect them and wealth to build massive greenhouses could afford to grow orchids (Endersby, 2016:70). The Victorians saw orchids as coming from hot steamy tropical jungles and this informed how they attempted to grow them, when in fact these growing conditions killed more orchids than it maintained (Endersby, 2016:72). In the early days of collection, orchids were little understood and this only added to their mystique. As they were collected and brought to Britain they were romanticized and fetishized; they were unknown plants that had unique habits to the orchids that Victorians knew. Orchids' flowers were complex, unique and sexual – which titillated their early audiences (Endersby, 2016:73).

Through art and literature, the plants gained a life of their own as more than static objects in the way that other plants were. The short story, “*The Flowering of the Strange Orchid*” by H.G.Wells (1894), enlightens the reader to the Victorian drive to collect orchids in addition to how the plants came to represent the dangerous steamy jungles of their origin. The story tells how an orchid is nefarious in its ploys to attract and ensnare its victims and tries to kill and suck the blood of an orchid grower. The violent and sexual connections attributed to orchids because of where they were thought to be from drives the narrative.

To expand, “*The Flowering Of The Strange Orchid*” by H.G.Wells (1894) is about a bored landowner who is nearly killed by a parasitic orchid. He escapes with his life and the orchid is killed in the process. The short story mentions the fact that Victorian orchid collection was seen as a dangerous, swashbuckling job. This connection to danger added to the real world sensationalism of orchids at the time, as many orchid collectors would die as they searched for rare species (Schiff, 2019:8). Indeed, the short story was written during the tail end of Victorian orchid mania, so called because “the feverish period of Victorian Orchid Mania pretty much coincides with the reign of Queen Victoria (1837-1901)” (Schiff, 2019:8).

Orchids fitted well within a Romantic ideal; they were large, showy and natural which led to them becoming romanticized as something godly. There were ideas of huge crimson blooms and speculative plants so fantastical that they staggered belief (Schiff, 2019:15). Art and literature of the age reflected the savage romantic beauty associated with orchids. Indeed, in Wells' short story, the description of the orchid is not one found in nature but is

rather a romantic fantasy that plays on ideas of wonder but also garishness. The orchid he describes cannot possibly exist because the colours he describes it as being simply cannot exist on the same plant. For Wells, the orchid in his story was a romantic or sublime exaggeration of an orchid where he described it as:

The flowers were white, with streaks of golden orange upon the petals; the heavy labellum was coiled into an intricate projection, and a wonderful bluish purple mingled there with the gold. He could see at once that the genus was altogether a new one. And the insufferable scent! How hot the place was! The blossoms swam before his eyes. (Wells, 1894:1)

The story emphasises the monstrous and equates the orchid to the jungle it came from. The orchid becomes a piece of the deadly jungle brought back to Europe to kill its master. The colours it uses seem fantastical and would not exist in nature but make the plant seem that much more unusual and enticing. The orchid appears abstracted and the long awaited blooms are something dangerous as the scent of the flowers makes the collector pass out. The plant is the villain and so becomes a metaphor for the dangerous exotic other.

Additionally, the story works through tropes of horror. Tropes such as foreshadowing and gore as well as beauty and aesthetics work to create something sensational and horrific. But these tools also move further than just horror, working into the sublime. The romantic sublime becomes the space where language starts to fail and emotions take over. Sublime has been described as using astonishment. For Burke (1958:53) "astonishment is that state of the soul, in which all its motions are suspended, with some degree of horror". Essentially, the sublime captures the moment before an unseen unknown catastrophe is about to take place: the viewer is confronted with the notion that something horrific and unknowable is potentially about to happen and we as humans are unable to interact with, stop or alter it (Burke, 1958:54). The sublime works externally to language and is rather an emotion that is felt when interacting with art (Burke, 1958:53). We are confronted by our own mortality and ephemerality (Burke, 1958:55). An example of this can be seen in American artist Martin Johnson-Heade's multiple

paintings of salt marches that have heavy dark, brooding storm clouds on the horizon. Orchids in H.G. Wells' story become the manifestation of this sublime; they are beautiful but also set up through the story as something horrific and deadly, unknown and inevitable, whose aim is to hunt down humans arguably as a metaphor to describe all the unknown deaths of orchid collectors who met their demise while out hunting orchids (Schiff, 2019:13).

Image 3, by American artist Martin Johnson-Heade, adds a visual representation to highlight the level to which orchids were romanticized through the sublime. This painting is dated 1902, after the great orchid mania starts to decline (Endersby, 2017:78). By this time orchid plants have become more democratised and were no longer the luxury of only the elite but were more widely available for reasonable prices (Endersby, 2017:78). This plant also represents a more realistic orchid than that in Wells' short story. However, the artist has still taken liberty with the depiction of the plant. It is of an orchid, a hummingbird, and a romantic imagining of the jungle. The jungle is shown to be something brimming with life but also something foreign and unsettling (Vanni, 2012:175). The image shows an empty landscape which is a popular trope of American artists as they forged through the frontier; by depicting the landscape as uninhabited they present a space that is ripe for colonial consumption (Elston, 2012:181).

Images like these would have become the standard via which the orchids' habitat would have been visualised, and Image 3 would arguably have been taken as an accurate depiction of the plant's forest home. While mountain landscapes are a space where many orchids in cultivation originally grow, this image is a romantic ideal of what those mountain habitats would actually be. The flowing stream and dramatic mountains, coupled with the imagined absence of other life as well as the dark emotive clouds, are not intended to be an accurate descriptor, but rather to inspire awe in the viewer.

The orchid is based on a *cattleya* (a group of south American orchids grown for their showy blooms), but the orchid itself is romanticized and not strictly true to botany. The green behind the flowers does not exist on typical plants, furthermore the absence of roots highlights how the plant is not really thought of as ephemeral and growing, but rather as something static and always there. The absence of botanical reality means this image is one suspended in time and imagination. These ideas of grandeur are echoed in writing on orchids at the time as tales of orchid collectors succumbing to the jungle was a popular trope of Victorian orchid collecting mythology and reality. Indeed, many people did die in the search for orchids, and this only fuelled the ideas of romantic mystical qualities of how orchids grew. Again, the jungle was

seen as a monstrous other and in western culture the “jungle” became a mystified other, as described by Endersby:

*[T]he idea of the “jungle” became the centerpiece of European fantasies about the tropics: steamy and dangerous, but filled with elusive treasures such as orchids, a place far from civilization where white men could go to prove they were men—or die in the attempt. (2016:2)*

Jungles were seen as spaces of cannibals and untouched tribes, where civilisation stopped at early man, and it was the western imperative to pierce these green infernos and civilise them as payment for this civilisation. The wealth of the jungle would be sent back to England (Vanni, 2012). The term “jungle” was often “used to describe the locale of the ‘primitive,’ is a ‘natural’ space, untouched by the passing of time (Vanni, 2012:181). The jungle is a space of otherness where orchids come from and so, in cultivating them, we enact power over not just the orchid but the jungle they came from. This connection of otherness of the jungle led the orchid to be seen as something mysterious, sexual and dangerous. As the plants were transported and brought into hothouses, they were “tamed” and brought into the modern world. This allure of the dangerous was used as a sales technique to bring the Victorian orchid fever to a climax that resulted in huge hothouses and ostentatious displays of wealth (Schiff, 2019:17).

In Image 3 the green of the jungle merges into the sky where the clouds are painted in similar hues of green, giving the impression of an impenetrable wall; in this way the jungle becomes all encompassing. The orchid and the hummingbird stand out as the focal points highlighting that if one braves the green inferno there are jewels to be found in the forest. The pink is carried through the painting, drawing the eye deeper into the jungle, provoking the viewer to get lost in the foliage and wonder what else could be hidden in the underbrush. The dark lighting works within the sublime and gives the viewer a sense of unease that some cataclysm of nature may be about to occur (Martin, 2002: 1441).

This image places the focus on the flower, while still managing to alienate it into a botanical object rather than an interconnected member of its environment. The bloom alone becomes the object of desire. The proximity of the hummingbird could cause the viewer to assume that the bird was there to pollinate the orchid, however, there are almost no orchids known to be pollinated by birds (Candeias, 2022. In Defence of Plants, podcast: ep. 379). The artist has shown a link between the two through placing the bird perched on the orchid, and the colour

of the throat of the bird mirroring the colour in the flower. This image would have informed many people's perceptions of what orchids are and this in turn influenced how people would go about growing the plants. The orchid is seen as a treasure to be rescued from the jungle, but those environs that it needed to bloom were hard to replicate in Britain and so the plant became seen as something that needed extra care and attention.

## What Makes An Orchid?

Much information has been given on how orchids became seen as mystical beings of the jungle; however, this needs to be distilled further to the question of what makes an orchid an “orchid.” Botanically, orchids all share similar traits and this shared homogeneity within the group sets them apart from other plants (Pridgeon, 1992:4) They are one of the largest groups of flowering plants with over 25 000 species, and new species being described yearly (Johnson & Bytebier, 2015:12). They occur on every continent except Antarctica and in most habitats where plants grow (Johnson & Bytebier, 2015:12). Orchids, like lichen, are partners in multispecies comingling as they are dependent on fungi for germination (Johnson & Bytebier, 2015:12). This is because their seeds are extremely fine and lack the protein stores, typical of seeds, which would provide energy for the new seedling (Johnson & Bytebier, 2015:18). If the seed manages to land on the specific fungus, the fungus invades the seed, providing the seed with nutrients while it grows. The orchid then grows leaves and starts to produce sugar which is sent back down to the fungus (Pridgeon, 1992). The plants produce great proliferations of seeds and play a numbers game; if the plant produces 200 000 seeds, the likelihood of one germinating is high (Johnson & Bytebier, 2015:18).

Orchids are closely related to lilies and share their morphology of three outer sepals and three inner petals (Johnson & Bytebier, 2015:12). However, unlike lilies, in most orchid species, one of their petals is modified into a landing strip for insects. This is called the lip or labellum and it faces down, providing a platform for insects to land on (Johnson & Bytebier, 2015:18).

One of the main reasons for orchids being lumped together is that all orchids share a fused reproductive organ called a column, which holds the male and female reproductive organs (Johnson & Bytebier, 2015:18). The column is made by the fusing of the male stamens and the female stigma into one elongated appendage with the male portion in the front with the pollen, and the female stigmatic surface behind it to receive pollen from insects. The column, however, can be small and hard to see so a ready form of identification for orchids is through the examination of the pollen (Johnson & Bytebier, 2015:17). In addition to this, certain

orchids are dioecious, meaning that the plant is either male or female and so would lack one or more of the visual indicators on the column, however, even in these plants the column is still

present, therefore the pollen is a much more reliable indicator to identify orchids (Johnson & Bytebier, 2015:18).

Orchid pollen is bundled together to make a parcel, called pollinia, while non-orchid plants produce pollen as a powder that comes from the stamens. Non-orchids can rely on wind and insects to spread this powder from one to several plants, while orchid pollen bundles go from one plant to another individual plant. The need for pollen to be in little parcels is due to the quantity of seeds the orchid produces, which can range into the thousands (Johnson & Bytebier, 2015:19). One individual pollen grain here or there would not enable such a quantity of seeds to be fertilised, so the pollen is required en masse to facilitate pollination (Johnson & Bytebier, 2015:18).

The relationship orchids have with their pollinator is just one of their multispecies intermingling within their environments. Some orchids are highly specialised to fit only one specific pollinator, and this specificity has led to interesting, almost abject, forms of flowers. This relationship, however, is not always entirely beneficial to the insect partner. In addition to their connection to the dangerous jungle, the orchid is seen as sexually deceptive as orchids often mimic non orchids that would produce nectar without producing any themselves. According to Endersby, other orchids rely on mimicking insects and tricking male insects into mating with the flowers rather than another insect and causing pollination:

Science, empire, sex, and death have shaped the ways we understand orchids; as our cultures have changed, so too have the ways we see orchids. And in turn the orchids have shaped human cultures, including our sciences; the full intimacy of the relationships between orchids and insects was only realized in the twentieth century when plant biologists discovered that orchids cheat their insects, seducing them into pollination without rewarding them with nectar. (2016:8)

This specialisation has led to orchids' nefarious reputation as some orchids, such as the hammer orchid of Australia,<sup>4</sup> have developed flowers that mimic female insects and trick male wasps into mating with them. The level to which orchids go to ensure pollination arguably confuses the idea of what does or does-not have agency within the natural order (Bubandt & Tsing, 2018 ). Orchids also mimic other plant species, as it is costly to produce nectar and some orchids

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<sup>4</sup> See Sneaky Orchid Tricks a Wasp | The Green Planet | BBC Earth  
<https://www.youtube.com/watch?v=6yLnKfhmUzg>

have evolved to look like nectar producing species and so trick insects that are attracted to those nectar producing species into pollinating them (Johnson & Bytebier, 2015:18).

These plants are part of interconnected systems and actively shape and are shaped by their surrounding agents. Without the connections of the whole system the orchid would cease to function. But it is exactly these specialisations and trickery that adds to their allure. We find them attractive because they want to be pollinated and they want to be found attractive. It also adds to their mysticism as early Victorian orchid collectors would have found these connections to sex and misdirection scandalous and at odds with their point of view of humans as being the only entities with agency (Bubandt & Tsing, 2018:1 ). *Disa uniflora*, Image 1, is part of a group of plants that actively try to deceive their pollinators; *Disa pulchra* mimics watsonia flowers in the fynbos to attract the same insects without having to produce nectar thus saving on energy but tricking the insect (Johnson & Bytebier, 2015:18). *Disa uniflora* is the deep rich colour we have come to associate with the plant because the insect that pollinates it has a predilection for red flowers (Johnson & Bytebier, 2015:19). The *Disa uniflora*<sup>5</sup> has a rich heritage through colonial expansion as it was one of the first tropical orchids to be taken to Europe for identification.

The genus “*Disa*” was labelled by Swedish botanist Peter John Bergius in 1767 from a single dried stem of a wild collected *Disa uniflora* (Pettersson, 1985:457). The plant was collected from Table Mountain and sent to Sweden’s botanical garden by the Dutch East India Company’s Head of The Gardens, Andreas Auge (Pettersson, 1985:457). This plant came to be the type specimen for the genus *Disa* and the group is a widely spread predominantly African group. The discovery and naming of the *Disa uniflora* predates by several years the start of the start of the mania that swept Europe.

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<sup>5</sup> In 1688 the very first specimen of the distinctive red *Disa uniflora* was taken from South Africa. John Ray (1627-1705) described this flower as ‘the loveliest orchid from Africa’ in his work ‘Plantarum History’ (History of Plants). The earliest Western books specifically on orchids did not appear until the ‘*Herbarium Amboinense*’ was written by the blind Georg Eberhard Rumphius (1627-1702). (ANGHELESCU et al., 20202)



Image 4. Walter Hood Fitch. 1844. Illustration of *Disa uniflora* (as syn. *Disa grandiflora*). "Curtis's Botanical Magazine" vol. 70 (N.S. 17) pl. 4073 accessed from [https://commons.wikimedia.org/wiki/File:Disa\\_uniflora\\_\(as\\_Disa\\_grandiflora\)\\_-\\_Curtis%27\\_70\\_\(N.S.\\_17\)\\_pl.\\_4073\\_\(1844\).jpg](https://commons.wikimedia.org/wiki/File:Disa_uniflora_(as_Disa_grandiflora)_-_Curtis%27_70_(N.S._17)_pl._4073_(1844).jpg) on 20/05/2022

The root for the name *Disa* was never recorded by Bergius and there are multiple theories about its nomenclature (Pettersson, 1985:457). Many orchid species have Latin names that relate in some way to their morphological qualities, and some have suggested the Latin root “dis” as “spectacular” for the name (Pettersson, 1985:458). However, the more socially accepted root of the name is a reference to the Swedish folkloric queen Disa.<sup>6</sup> Many of the early hybrids of *Disa uniflora* come from England where it first flowered in 1825 (Schelpe, 1968:34). The *Disa*'s history is one of transportation, unencumbered by rules but also unregulated and unprotected. It was a spoil of the continent that was removed and commodified for a European audience. This plant, however, was grouped with orchids before orchids were officially recognised as a group and before there was a mania about the plants.

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<sup>6</sup> infirm members of society who were singled out to be sacrificed to Oden to stop a famine (Pettersson, 1985:458). By healing so many people Disa caught the eye of the king. The king wanted to meet her but made a number of parameters in order to test her ingenuity. Disa must meet the king neither dressed nor naked, neither by walking, nor by horse, or by boat or in a wagon (Pettersson, 1985:459). She cannot come in day or night, not when the moon is and it was at dusk on a full moon, on the third day of yule (Pettersson, 1985:457). It is believed that the fishnet highly in hybrids and given its desirability for collectors. The story of Queen Disa stems from the Middle Ages, with comparisons being drawn to the tale of Lady Godiva (Pettersson, 1985:457). The myth is a story about Disa who, through her skill and knowledge, saved the elderly and waxing or waning and not in a month or a year (Pettersson, 1985:457). She arrived on a sled being pulled by two men, with one of her legs over a goat (Pettersson, 1985:457). She wore a fishing net so as not to be clothed or naked pattern on the dorsal sepal and lateral petals of the *Disa uniflora* is what created the connection between the folklore queen and the flower. If one were to see the flower, there is a striking gold webbing pattern along the back of the flower. This connection has been considered controversial because Bergius only saw a dried specimen which was losing its colour as it dried. He did, however, comment on the redness of the flower so it has been assumed that there was sufficient colour left to see the patterning (Pettersson, 1985:459). This patterning has led the plant to be used

## Victorian orchid stripping

Because orchids occur in almost every habitat, the notion that they are difficult to grow can be erroneous, and indeed growing orchids has become a popular hobby (Endersby, 2016). Ignorance about orchids' requirements fuelled the idea that the plants are temperamental. While it is true some orchids require specialised conditions in order to flourish, the vast majority of desirable species in cultivation require more intermediate or cool conditions and good air movement (Schiff, 2019:14). Early orchids' connections to the "jungle" were so entwined that early botanists assumed that orchids growing on trees [epiphytes] must actually have been parasitic plants that would just as soon cannibalise other plants as flower (Endersby, 2016:50).

Orchids have been in the collective imaginings for as long as people have been people (Endersby, 2016:1). As we shape them through collection and hybridization, they shape us, influencing our sense of luxury, our sense of taste, and even our moral code (Endersby, 2016:1). Early Chinese scholars write about orchids as traditional medicine. One such Chinese scholar was "Shen Nung (~2695 BC). In his *Materia Medica*, Shen mentions the medicinal properties of the *Dendrobium* orchid species" (Schiff, 2019:2). Early Europeans used orchid tubers as aphrodisiacs due to the early belief that plants that looked like body parts held cures for those body parts (Schiff, 2019:2). In the Anatolian region, a species of orchid grows that has been used for its aphrodisiac qualities for so long that its name, orchis, is the Greek word for testicle (Schiff, 2017:3). Orchis, the Greek word not the species, is the root of the word orchid highlighting the links between orchids and sex that persists to modernity (Schiff, 2017). The drink made from these tubers is called salep and is drunk throughout the eastern Mediterranean region (Hansen, 2000:91)

These orchids were historically collected in modest numbers to be dried and have their tubers ground down to become a flour for salep (Hinsley et al., 2018:436). They were not collected in vast quantities as salep was thought of as a peasant drink (Endersby, 2016:14). This rate of modest collection for orchids ended when a large showy species was sent back as packing material from Manaus Brazil (Schiff, 2016:8). The plant was a *cattleya* and caused a sensation through the European upper class.

Orchid mania was marked by a quest for new and unknown species, sending collectors out to bring back spoils for a European audience (Endersby, 2016:73). This search for new unknown species continues in the 21<sup>st</sup> century through modern hybridisation practices, as new species are artificially created to meet demands for a consumer market (Schiff, 2019:22).

Victorian orchid fever was a moment that could occur because of the Industrial Revolution, creating new wealth and making manufacturing more affordable, coupled with Western expansion. The interaction between these events created a boom for anything unusual and foreign to the British. Orchids became the spoils of the jungle which had newly been explored, and the greenhouses needed to grow them were able to be produced on a large scale with new manufacturing technology. The fact that these orchids were brought back to Britain does not mean that many survived; most either died in transit, or died in the Victorian stove houses (Endersby, 2016:69). It was assumed that jungles were hot and steamy and dark, the antithesis of the cool, breezy European landscapes and so the hothouses were often pumped full of steam to the point that the orchids just cooked in these giant glass boilers (Endersby, 2016:66). He describes orchid fever as:

*an extraordinary disease that gripped many rich men, particularly in Britain, during the nineteenth century. This obsession with orchids resulted from the paradoxical fact that Europeans had been naming, collecting, and drawing orchids for over 2,000 years; they had, for the most part, failed to grow them. The native European species were not beautiful or glamorous enough and the tropical species initially resisted all attempts to cultivate them. (Endersby, 2016:66)*

In the early days of Victorian orchid collection, orchids were transported to Britain in substantial numbers. This vast quantity of orchids was to satiate a demand from wealthy collectors who initially did not know much about how to grow the plants and so many, if not all the plants that were brought back, died (Endersby, 2016:67). Indeed, the plants were collected in such vast quantities because of the high mortality rate that few from a shipment were saleable (Schiff, 2019). It was not understood that plants had differing condition requirements and because of the dangerous and romanticized notion of the “jungle,” plants were placed into large stove houses (Endersby, 2016:66). The climate of Britain and the assumed climate requirement for orchids meant that only people who were able to afford costly stove houses were able to collect tropical orchids (Endersby, 2016:69).

Orchids were seen as helpless without Western intervention but by bringing them into these specialised growing areas it was almost guaranteed that the plants would die. As such early growers who managed to grow the plants or even get them to flower could demand exorbitant prices for them, thus placing them further out of reach for the working classes. Enormous orchid books were produced to provide a visual aid to understand the plants and often these were the only access people had to tropical orchids (Schiff, 2016:15). People were fascinated with these alluring plants, whose botanical illustrations often staggered belief. The reason most plants failed under stove house conditions is that many orchids that are grown commercially come from more moderate montane habitats, which have seasonal variations as well as daily temperature fluctuations (Schiff, 2019:17).

The plants and the books showcasing them became ostentatious displays of wealth and so orchids become aspirational symbols of luxury (Endersby, 2016). Orchid nurseries became a major business and their need to present ever more unique flowers led to them hiring specialist “orchid hunters” (Hansen, 2000:63). Many orchids still bear the names of the orchid nurseries and collectors who brought them into cultivation. Some of the major orchid nurseries were Hugh Lowe and company, Harry Veitch, and Frederic Conrad Sander at St. Albans (Hanson, 2000:64). There are dozens of different orchid species named *lowii*, or *veitchii*, or *sanderanum* after these nursery owners. Many of the most spectacular of all orchids bear these epithets.

Early orchid nurseries hired swashbuckling explorers to bring plants back to Europe to sell. Orchid collectors had a particularly hazardous job description as numerous members died in the process of collecting plants (Hansen, 2000:64). This connection to death and adventure only fuelled the price of orchids and they became more alluring (Schiff, 2019). The jungle itself, where the plants originated, became the adversary which the collectors had to work against, playing into the European fantasy of the tropics.

Due to the competitive nature of Victorian orchid collection there was great honour and acclaim to being an orchid collector. Orchid hunters often travelled to remote areas to look for rare or unknown new species. There was little concern given to the landscape that the plants came from and there was irreparable damage done to forest ecosystems in the name of financial gain. Indeed, as Anghelescu et al., (2020:1) write about orchid collectors:

*Many of them paid for their desire to become rich and famous with their lives. Once the rarest species were found, whole areas were often stripped. Specimens that could*

*not be loaded onto the ships due to lack of space and those that could not be transported from the regions where they had been discovered were destroyed in vast quantities, either in order to avoid falling into the hands of competitors, or to further enhance the value of those being shipped back. Once the plants arrived home, they were sold at exorbitant prices, enriching the most important European botanical collections and gardens. The orchid hunt also had catastrophic consequences for the existence of some of the species. Many habitats were seriously damaged or destroyed during this time, causing numerous species to become endangered or driven to extinction. This obsession with orchids became known as the Orchid Fever*

Orchid fever changed the way that plants were collected. They were shipped to Europe en masse with little regard to replenishing wild populations. Orchids were an exploitable commodity and collection practices still reflect that. This means of collection is still used in modern orchid collecting and certain plants seem to face extinction almost as soon as they are discovered. The main reason for this mass collection is because plants kept dying, but this changed through industrialisation.

Through industrialisation in Europe, orchid collecting became more accessible and plants grew more easily. Cheaper production of steel and glass allowed for glasshouses to be manufactured more cheaply opening up the hobby to people other than the elite and landed gentry (Endersby, 2016:75). Iron production and cheaper glass due to the relaxation of the glass tax meant that more people were able to experiment with growing with orchids and with this came breakthroughs and better understanding of how to grow the plants (Endersby, 2016:75).

With this experimentation came experiments with how to generate seedlings. Orchid seeds never took because there was no understanding of orchid's symbiotic connection with a fungus to enable germination (Hansen, 2000:65). This was done by sprinkling ripe seeds around the base of a parent plant that been transported with the symbiont still alive and attached (Hansen, 2000:64). *Disa uniflora* was instrumental in shaping this understanding of orchid hybridisation. *Disa uniflora* was the parent plant of one of the earliest recorded orchid hybrids (Schelpe, 1968:34). *Disa racemosa* and *Disa uniflora* were crossed to produce *Disa Veitchii*, in honour of the nursery that created it, and successfully flowered in England in 1891 (Schelpe, 1968:34).

With the discovery of symbiosis and how readily orchids cross pollinated, hybridising orchids opened a new range of possibilities that has carried on into modernity. Orchid hybridising has

replaced the swashbuckling jungle explorers with laboratories and chemicals (Hansen, 2000:66). Modern orchid hybridising can be seen as a new way of exploring due to orchids proclivity to hybridise with each other. Hybridisers look to create new forms and combinations never seen before. This search for “new” has resulted in a large number of different hybrid plants; there are over 100 000 registered hybrids (Johnson & Bytebier, 2015:14). The new plants that originate from hybridising are unusual colours and the thrill of discovering something never before seen is felt in much the same way as colonial explorers would have felt it. This endless variability undoubtedly adds to the orchid’s charm. Victorian orchid collection brought the orchid into the Western eye but in so doing destroyed the ecosystems from which they originated.

Orchid mania was brought to an end by the first world war as rationing of metal meant the price of iron for glass houses increased. In addition to this it was no longer possible or practical to maintain and heat such extensive hothouses (Schiff, 2019:20). There became an oversupply and under demand for orchid species due to wartime conservatism. Additionally orchid species were now becoming harder to find in their natural habitats due to stripping by orchid hunters. Indeed as Schiff (2019:20) writes:

*What ended Victorian Orchid Mania was essentially the start of the First World War in 1914. Prices had been softening for years, and in some instances, there was oversupply. Hybrids had been taking over the orchid scene since the turn of the century, as many of the native habits had been plundered bare in order to meet the insatiable demand. No consideration was given to conservation, and gradually, the new and rare species dwindled. With the Great War, Orchid Mania was effectively over.*

This had been the last great plant mania since the Dutch tulip mania<sup>7</sup> of 1634 which had reached fever pitch in February 1637 before collapsing violently, causing people who had invested into

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<sup>7</sup> Tulip mania was a period in the 1600s when tulips were introduced to the Netherlands (Dash, 2011) bulbs of certain colors were coveted and given such high values they quickly created an economic inflation. The most prized bulbs were infected with a virus that gave the flowers striations, but also made the plants physically weaker and so more prone to disease (Dash, 2011). The value of the tulip was arbitrary, based often off a conceptual price or weight of the bulb when it was lifted at the end of the growing season (Dash, 2011). Tulip mania reached its peak during the winter of 1636–37, when contracts were changing hands five times. No deliveries were ever made to fulfil any of these contracts, because in February 1637, tulip bulb contract prices collapsed abruptly and the trade of tulips ground to a halt

the plants to lose fortunes. Then, as orchid fever ended, the wild orchid was nearly decimated, but from this came a desire for the new and interesting, and orchid hybrids were still relatively popular. Many of the orchid hybrids produced at the start of the 20<sup>th</sup> century are the parents of modern hybrids, as these were basically first or second generation hybrids (Schiff, 2019:21).

Orchid fever has been going through a resurgence in modernity through cheaply produced clones that are readily available in supermarkets and florists (Schiff, 2019:22). Modern orchid fever treats orchids as an item of aspirational luxury, in much the same way as in the Victorian era, as they are used for staging in expensive houses and magazines to represent and signify opulence and excess. *Phalaenopsis* orchids are the most common of these mass produced hybrids and can be found with relative ease. *Phalaenopsis* come from south east Asia, from a range of habitats such as lowland tropical Borneo and the cooler misty base of the Himalayas (Pridgeon, 1992). The plants are then placed into the home and treated in much the same way as early Victorian collectors. Little thought is given to their growth needs, so invariably the plants die, but this is desirable through latent capitalism as then another one is bought to replace it (Endersby, 2016:55).

The mass stripping of plants from the wild in the Victorian Age led to wild plants becoming scarce in the 20<sup>th</sup> century, driving up potential markets for wild collected plants. Wild collected plants become the antithesis of mass produced intergeneric hybrids<sup>8</sup>, in that wild collected plants are seen as genetically pure and untainted through human manipulation. Much of the wild collected species for cultivation are newly discovered species (Angelescu et al., 2020:528). These newly discovered plants are almost immediately threatened with over collection or extinction as they are sought after in cultivation. Wild collected plants are often more expensive than nursery raised plants due to the risk and cost of getting the plants from their habitat. Indeed as Angelescu et al. (2020:528) states:

Avid orchid collectors worldwide have a craving for new specimens that just cannot be satisfied. Today, there is a massive market for illicit plants and it seems the rarer and more

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<sup>8</sup> Hybrids between different genus orchids within a group, e.g. *wilsonaria* is a hybrid in the *oncidium* alliance.

valuable the find the better. Many of these collectors rely on buying specimens from people who have smuggled the orchids across borders without a permit and have obtained them directly or indirectly from the wild. Often the fact that a plant has been secretly brought into the country under wraps adds greatly to the appeal. Of course, this means that the collected plants are even more sought-after and expensive.

Today, wild collected plants have become a means to immortalise the finder; if one discovers and names a new orchid that name will live on into posterity. New species of wild collected plants become a way to both immortalise the discoverer and be a potential cash grab. Indeed, this is what happened with *Phragmipedium kovachii*. This plant was bought from local farmers in Peru, illegally taken to the Marie Selby Botanical Gardens in Florida, and named for the man who smuggled it (Pittman, 2012). *Phragmipedium kovachii* is one of the latest greatest orchid discoveries as it has enormous purple flowers, which look like they are made of velvet (Pittman, 2012:528). This plant remained unseen to Western collectors till the 21<sup>st</sup> century. After its discovery, the main populations of this plant were stripped to near extinction for private collection in a matter of months (Anghelescu et al., 2020:528). Orchid collectors and societies are meant to advocate the protection of species from being over collected but often the competitive nature among societies to have the rarest or most sought after plants ensures that there is a market for endangered or rare specimens (Anghelescu et al., 2020:528). One means of combating this exploitation is the CITES (Anghelescu et al., 2020). This convention protects wild species of orchids being traded; however this convention has such a broad spectrum of species under its umbrella that it lacks individual considerations on the specific requirements for what that particular agent requires and so can inadvertently promote more damage than care (Anghelescu et al., 2020:528) with CITES, the agent they are trying to protect is often thought of in isolation to the more than human world making that they contribute to (Bubandt & Tsing, 2018:2). An example would be *Angraecum chaemanthus*. This is an orchid and therefore protected under CITES legislation, however, the fruit trees it grows on are not, and people are well within their right to clear the fruit trees to make way for natural forest to reclaim the space. The multispecies connections are not considered in CITES legislation and this leads to a complicated system of protection.

Arguably a new system of care is required when faced with orchid conservation in the face of collection through the Anthropocene. Orchids are highly desirable and this has led to a massive trade in both legal and illegal orchids. The illegal trade strips orchids from their habitats and

endangers the plants to extinction. However the strict universal rules that have been put into place to control deforestation and plant trade does not take the fact that some plants have become adapted to anthropogenic landscapes and these plants may need a new way of being interacted with to save them.

## Chapter Two: Orchid Protection And Exploitation

### CITES and Ideas on Protection

The allure of the orchid is still an incurable condition that afflicts multitudes of aficionados around the world. New orchids are continually being discovered, and in Ecuador alone, a thousand new orchid species have been discovered in the last dozen years. However, very strict regulations are now in place through the international CITES agreement to safeguard the survival of the orchids in their native habitat. Moreover, the now-illicit orchid trade, worth millions, remains as ruthless and fraught with intrigue as ever. (Angelescu et al., 2020:528)

CITES, is a convention aimed at the restriction of trade on endangered species and aims to stop extinctions of species based on trade (Angelescu et al., 2020:529). CITES was founded in the 1970s as a reaction to species going extinct through being traded (Hansen, 2000:24). One of the main focus areas of CITES has been megafauna, often at risk of extinction due to slow reproductive rates and their high desirability for hunting/poaching (Hansen, 2000:64). But CITES regulates trade in over 35,000 species, over 70% of which are orchids (Hinsley et al., 2017:602). Orchids make up the majority of species being protected by CITES; however very little of the treaty makes accommodation to recognise the difference between plants or animals, let alone the differences that occur with the group of plants<sup>9</sup> (Zelenko, 2007:164). The questions that this chapter attempts to ask is: in what way do these regulations that centre around trade and commodification provide the facilities for care to be shown? Furthermore, how does one manage to navigate practices of care when protective legislature becomes convoluted and contradictory?

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<sup>9</sup> Decisions to amend the appendices may take place without debate. In September 2016, at CoP17 in Johannesburg, South Africa, debate on listing proposals involving charismatic megafauna lasted several days, while decisions on 11 other proposals were made rapidly in 32 minutes toward the end of the final day. This meant there was very little time to discuss the merits of these proposals and one result was the immediate transfer of Cuban land snails (*Polymita spp*) from Appendix II to I without debate. (Challender et al., 2017:199)

This is why the *Disa* and the *Angraecum* have been used as case studies as they make up two different aspects of how plants have interacted within anthropogenic ecosystems. The *Disa uniflora* is protected in its “pure nature” habitat through the removal of invasive species because otherwise its connections to its ecosystem will fail and it will die, while the *Angraecum chamaeanthus* has had its connections disturbed and utilised human intervention to create a new habitat for itself. Of the two case study plants, however, only the *Disa* is at risk of extinction through trade. It is a visually spectacular species and has become a flagship species in its own right. It is grown the world over and its multiple hybrids can be purchased for a reasonable price at most orchid nurseries.

CITES relies on individual countries to enforce their own protection and conservation laws through national legislature (Hinsley et al., 2017:603). CITES’ main aim is to monitor how nations trade biota with each other and ensure that trade does not contribute to extinction (Hansen, 2000:14). CITES, however, is not a fool proof system and there are loop holes in the legislation such as species must be named and identified if being traded. Within the orchid group, this has led to large numbers of look-alike species being placed on CITES’ trade restrictions regardless of their endangered status (Hinsley et al., 2017:605). Because there are so many different orchids and so many different hybrids, correct identification by someone not specifically trained in orchid identification is almost impossible, and even then some plants look almost identical, right down to the genetic level (Hinsley et al., 2017:607). Due to this level of similarity plants that resemble endangered species are placed on CITES’ appendices to protect the endangered plant from being passed off as something else. Furthermore, orchids’ history of commodification requires the plants to be protected due to the mass removal of plants through colonialization. This protection, however, only adds to the desirability of the plant, and in some cases complete restrictions of the plant will almost ensure that people will poach it for collections. CITES has come under scrutiny for not understanding trade demands with regards to wild orchids and has “ been criticised because of its emphasis on regulatory measures and disregard for the economic reality of wildlife trade” (Challender, 2019:199).

Conserve biodiversity and contribute to its sustainable use by ensuring that no species of wild fauna or flora becomes or remains subject to unsustainable exploitation through international trade, thereby contributing to the significant reduction of the rate of biodiversity loss. (CITES Vision Statement, 2020)

In its vision statement, CITES set out clear goals for the convention's aims. The means of monitoring is through different gradients of restriction. There are varying levels of restriction of trade based on the protected species. These levels of restriction are done using appendices: Appendix I, Appendix II, or Appendix III with Appendix I being the most restrictive, and Appendix III being the least restrictive but still monitored.<sup>10</sup> Most orchids fall under one of these banners of protection, apart from slipper orchids which fall into Appendix I; other species in Appendix I are African elephants and the Bengal tiger (Challender et al., 2016:199). Image 5 of *Phragmipedium kovachii* shows what a slipper orchid is. Orchids have been placed on CITES protection since the convention was inception in 1973 (Hansen, 2000:13). Recently there has been a push to recognize that current over-collection for cultivation is not at the same levels it was in Victorian orchid mania, thanks in part to nursery-grown plants meeting demand. It has been noted that "many orchids are not collected for horticulture or are collected in such small numbers that there is unlikely to be much impact" (Fay, 2018:2). That is not to say that orchids are not at risk, but rather the main risks of orchid extinction cannot be attributed solely to collection for cultivation (Fay, 2018:2). As Fay (2018:2) notes:

*Indiscriminate collection for horticultural collections has been documented as having a major impact on some orchids, notably species of Cattleya, Laelia, Renanthera and*

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<sup>10</sup> Appendix I shall include all species threatened with extinction which are or may be affected by trade. Trade in specimens of these species must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances.

Appendix II shall include:

(a) all species which although not necessarily now threatened with extinction may become so unless trade in specimens of such species is subject to strict regulation in order to avoid utilization incompatible with their survival; and

(b) other species which must be subject to regulation in order that trade in specimens of certain species referred to in sub-paragraph (a) of this paragraph may be brought under effective control.

3. Appendix III shall include all species which any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exploitation, and as needing the co-operation of other Parties in the control of trade.

4. The Parties shall not allow trade in specimens of species included in Appendices I, II and III except in accordance with the provisions of the present Convention.

*some slipper orchids (Cypripedium, Paphiopedilum, Phragmipedium), and in some cases these have been systematically stripped from the wild to the point of (near) extinction.*

These orchids share a common thread among them in that they are visually spectacular and therefore desirable in collections. The orchids that would not be collected en masse and traded are likely to be small, less visually interesting species, such as *Angraecum chamaenanthus* (Johnson & Bytebier, 2015). Many of the more visually striking plants are placed on CITES Appendix I because of the high risk connected to the quantity the plants that are traded (Fay, 2018:2). Despite orchids making up more than 70 percent of CITES' listed species, there is little to no differentiation, however, between plants and animals in the convention document (Hinsley et al., 2017:604). The CITES convention document states that "no parts living, or dead" may be traded in species listed on Appendix I (Hansen, 2000:14). This level of universalism equates an orchid seed to ivory (Zelenko, 2007:165). Confusion can arise as two seemingly disparate species and are weighted equally. In so weighting orchids next to ivory or rhino horn, there is a precedent to treat people that smuggle orchids with the same treatment as people who smuggle ivory. Indeed, this has happened historically as orchid grower Henry Azadehdel was incarcerated for his act of transporting species of *Paphiopedilum* into England (Hansen, 2000:72). This action was sensationalized through tabloid media where Azadehdel was used as an example of what happens when breaking the rules of CITES (Hansen, 2000:72). His punishment through fines, from \$15,700 were used as the main means of deterrent (AP news archive, 1989: accessed 2022). This punishment of fines highlights how environmental protection shifted into environmental policing rather than focus on environmental care.

At its core, CITES is concerned with extinction, and this extinction is a mark of the Anthropocene (Colebrook cited in Braidotti & Hlavajova, 2018:150). Victorian orchid collection and mass consumerism of orchids have driven beautiful species to near extinction, and coupled with often limited distribution patterns, orchids are particularly vulnerable to extinction (Brooks et al., 2002). Extinction, however, is as much a part of life as much as proliferation or mutation; extinction exists in the background of evolution, constantly morphing (Colebrook cited in Braidotti & Hlavajova, 2018:151). However, currently the rate of background extinction has been far surpassed and we are witnessing a sixth mass extinction where life on earth is placed in precarity (Colebrook cited in Braidotti & Hlavajova, 2018:150). Colebrook, however, criticizes this panoramic view of extinction and states:

*For now, I would suggest that even the general notion of the ‘sixth mass extinction’, which ‘we’ are witnessing and perhaps feeling responsible for, is grounded in a panoramic view of life and humanity that is culturally and historically specific. (Colebrook cited in Braidotti & Hlavajova, 2018:151)*

This view of extinction takes into account the historical grounding of humanism and how the Anthropocene has been created based on biopolitical regimes of power where only a small percentage of humans were considered “human” (Braidotti & Hlavajova, 2018). Other humans as well as nature were treated as expendable tools to be utilised. CITES is not immune to these power dynamics at play and while it attempts to control trade, it fails to recognise indigenous forms of knowledge or care practices that would include collection and so fails to acknowledge different systems of care outside of the Western notions (Challender et al., 2019). CITES conceptualises conservation from a Western perspective, perpetuating power dynamics, and in this instance the West dictates what a nation can or cannot do with their indigenous biota (Challender et al., 2019:199).

Apart from this, CITES has a narrow delineation of what extinction is. Extinction is a complex system of environmental becomings and unravellings as much as evolution is (Van Dooren, 2014). In his book *Flight Ways* (2014), author Thom Van Dooren highlights how extinctions have become so commonplace in the Anthropocene that they are normally just conceptualised as a statistic and a number, and through telling lively stories, his book attempts to highlight how the statistics were once vibrant living creatures (Van Dooren, 2014:). Van Dooren is focused on exploring relationships that are created by birds within their habitats. He also interrogates human influence on trying to revive the species. His book becomes an exploration on how extinction happens before the death of the last individual, sending out ripples and breaking connections. The author sees extinction as an unravelling of the multispecies connections that surround his subjects. By the time the last individual animal has died, it has ceased to function in its environment as that species has lost the multispecies connections (Van Dooren, 2014:6). For example, if there are only one or two passenger pigeons, the seeds of trees they dispersed have already functionally been lost as agents of the ecosystem (Van Dooren, 2014:6).

Extinction is not a final act but rather leaves behind ghosts that haunt collective imagining like phantom limbs (Svenning cited in Tsing et al., 2017). The Ginkgo Biloba is an example of this loss. The Ginkgo produces fruit in great quantity; however, the fruit sits and rots without

dispersal (Svenning cited in Tsing et al., 2017). The creature that used to spread the seeds of Ginkgo Biloba haunts the world by its absence and the Ginkgo's habitat shrinks as its partner no longer exists (Svenning cited in Tsing et al., 2017). It could be argued, however, that CITES does not consider the multispecies connections but rather treats agents in isolation and through binary thinking (Fay, 2018). According to Fay, preventing the last specimen's death becomes the main goal of conservation rather than preserving the multispecies connections that the species generates through its existence (Fay, 2018:2). Orchids are prime examples of multispecies entities. This, however, highlights how orchids are more vulnerable to extinction because of their multiple connections (Fay, 2018:1). Due to orchids' "complex interactions with pollinators, mycorrhizal fungi and host trees, they are likely to be at greater risk [from extinction] as they are dependent on other organisms that are also being affected by habitat or climatic change" (Fay, 2018:2). Orchids like many other organisms are at risk of extinction through the Anthropocene. Hopefully engaging with the plants before they are gone will provide the platform to create awareness of the biodiversity that swirls around the plants in their multispecies connection. To save them from extinction, their environmental presence as a whole must be protected.

## Orchid imaginings and Literary Sources of Inspiration

Orchids are some of the most protected taxa and this protection arguably contributes in some way to their desirability (Hinsley et al., 2018:436). Orchids being so desirable have captured global imaginings and inspired art and literature. In the 21<sup>st</sup> century, three books gained popularity for their portrayals of orchids and orchid collecting. These books investigate the dichotomy of protection and value and have influenced this thesis. Namely, “*The Orchid Thief*” by Susan Orlean (1998) which was adapted to the film, “*Adaptation*” (Jonze, 2002), starring Nicholas Cage and Meryl Streep. “*Orchid Fever: A Horticultural Tale of Love, Lust, and Lunacy*” by Eric Hansen (2000) and “*The Scent of Scandal: Greed, Betrayal, and the World's Most Beautiful Orchid*” by Craig Pittman (2012). These three books all revolve around orchids and the precarious position they take in nature as something highly desirable and highly protected and what happens when those protection measures fail or actively work against the plants. I use these three works as they are modern interactions with the plants that deal with ideas around their conservation. *The Orchid Thief* (Orlean 1998) deals with the complexity of orchid conservation and how people exploit these rules for their own personal gain. *Orchid Fever* (Hansen 2000) deals further with orchid legislation with his book providing inquiries into CITES protection and the reality of orchid conservation in the 1990s. I have used these books as a way to understand the way to interrogate legislation.



Image 5. Orchi. 2012. *Phragmipedium kovachii*. Digital photograph. [https://commons.wikimedia.org/wiki/File:Phragmipedium\\_kovachii\\_Orchi\\_2012-09-21\\_026.jpg](https://commons.wikimedia.org/wiki/File:Phragmipedium_kovachii_Orchi_2012-09-21_026.jpg) accessed September 2022.

Craig Pittman's book *The Scent Of Scandal* (2012) highlights this best with a focus on one highly enigmatic species, the *Phragmipedium kovachii* from Peru (Image 5). The genus that the plant comes from, *Phragmipedium*, is that of the south American slipper orchids and the whole genus is under CITES Appendix I protection, which states that "Trade in specimens of these species must be subject to particularly strict regulation in order not to endanger further their survival and must only be authorized in exceptional circumstances" (CITES, accessed 2022).

Before the plant was 'discovered' in 2001, it had trade restrictions placed on it because of the genus to which it belonged. In theory the plant was not allowed to be traded commercially. However, the plant was transported illegally to the United States from Peru and named at the Marie Selby Botanical Gardens in Sarasota (Pittman, 2012:10). In botany, the name of the plant that is first published is the official name of the plant (Pittman, 2012). *The Scent Of Scandal*

revolves around the discovery of *Phragmipedium kovachii* and the rush involved in producing the name first from the Marie Selby botanical gardens while competing botanists attempted to name the plant in honour of the country of origin rather than the name of the man who smuggled the plant into America (Pittman, 2012). *Phragmipedium kovachii* was an instant sensation after its botanical release, shocking the world of orchid collecting. It is huge and brightly coloured with large flowers in a deep almost velvet purple colour. The fact that something so spectacular remained undiscovered for so long amazed the orchid growing community. However, because of the unethical way it was described, there was little that could be done about how the location of the plant was disclosed, and the plant's habitat was stripped in much the same way that Victorian orchid hunters used to strip the landscape. Within months, wild *Phragmipedium kovachii* was virtually extirpated from its limited environmental range following its discovery (Cribb, 2005; Hinsley et al., 2018:441). This is just one story about orchid collecting but the reason this is so well documented is arguably because the plant involved is so spectacular. Indeed as Anghelescu et al., (2020:528) write:

Orchid smuggling led to new orchid discoveries in more recent years. In 2002, American orchid dealer and entrepreneur Michael Kovach bought three magnificent, large-flowered pink and purple slipper orchids from a roadside flower seller in Peru. Kovach smuggled one of the plants into the United States in his suitcase to Marie Selby Botanical Gardens in Sarasota to get the orchid identified. The stunned experts confirmed that this was a species of the genus *Phragmipedium* previously unknown to science. They published the first scientific description of the flower within 8 days, calling it *Phragmipedium kovachii* to the honour of its discoverer. Following an investigation Kovach was arrested and fined for breaking the international CITES treaty prohibiting the movement of wild orchids across borders. He was fined and put on probation, narrowly avoiding a prison sentence. Federal officials charged the Marie Selby Gardens and one of its employees with illegally possessing the plant. On returning to Peru, Kovach found to his dismay that all of the wild plants, some 500 or so specimens, had already been dug up and removed from the area by plant poachers.

Because of orchids' slow growth rate and slipper orchids particularly low rates of germination, wild collected plants were sought after for private collections as well as for large nurseries interested in generating artificial hybrids (Hinsley et al., 2018:435). While *The Scent Of Scandal* focuses on one particular species discovery and what this entails, *Orchid Fever* (Hansen, 2000) deals with vignettes of orchid collectors and the extremes that people will go

to in order to grow the plants. The book revolves around private collectors, conservationists and hobbyists who all are fascinated with the plants and these people's interactions with CITES. A central theme of the book is people's interactions between the plants, other orchid collectors, and the institutions at play to protect orchids. Hansen shows a great deal of disappointment in the way that CITES has dealt with ideas of orchid conservation through blanket protection of the whole group. His vignettes include multiple different stories of how people's attempts to conserve the plants borders on the illegal, or even become outright renegade (Hansen, 2000).

One such vignette is of Au Yong, an orchid grower in Malaysian Borneo, whose nursery is filled with indigenous Bornean species. Many of these species were lost to cultivation and were reintroduced by Au Yong in an attempt to alleviate pressures from wild collection, the contradiction being that the plants "come from somewhere" and a small parent stock of wild collected species were used as breeding stock for nursery-raised seedlings (Hansen, 2000:108). The collection site for some of the plants is described as a space of forest that will be destroyed because of the building of a hydroelectric dam (Hansen, 2000:108). People are not allowed to collect the plants or relocate them from the destroyed forest but the forestry department is well within their right to log the entire ecosystem (Hansen, 2000:108). This book revolves around stories that highlight the bureaucracy of international protection of orchids, specifically CITES, and highlights that agents, in this case orchids, are treated in isolation to their surroundings. Orchids cannot be removed from the forest, but the government is well within their right to log the forest for a hydroelectric dam (Hansen, 2000:109).

The third book from which I have drawn inspiration is Susan Orlean's (1998) *Orchid Thief* which examines various orchid collectors' ideas of conservation. The story follows enigmatic character John LaRoche who recognises the failings of CITES protection and goes about collecting wild orchids to grow for both reintroduction and for sale. However, in so doing he breaks the law and the motives he expresses seem to become more unclear though the book. He uses Indigenous Americans to collect the plants for him as they are exempt from trade rules for endangered plants for traditional rituals. LaRoche exploits Indigenous communities for monetary gain. The *Orchid Thief* revolves around one space of swamp called the Fakahatche Strand in the south of Florida. This swamp is home to rare and endangered orchids found nowhere else on earth with several species bearing a close resemblance to the African species, *Dendrophylax*. CITES and the ideas of conservation, while important, are not the central tenure

of this book; rather, it is the writer's fascination with how people become so absorbed by orchids that they are willing to break the law to collect or see them.

These books helped inform ideas around how CITES works and while they all deal with different plants from different areas, the rules around them remain the same. One of the criticisms of this broad form of protection is that information on species density is often hard to come across because of the bans on interacting with the plants in the wild. According to Hinsley et al., (2018:447), "The blanket protection of the family from trade via CITES and some national legislation potentially creates an illusion of conservation outcomes, but there is nevertheless a need to understand which species are actually being targeted."

Indeed, in *Orchid Fever* (Hansen, 2000), the book opens with a chapter on how two orchid growers from America travel to Borneo to look at a slipper orchid called *Paphiopedilum sanderianum*. It was described by the author as being "championed by certain botanists and botanical institutions as one of the rarest of the rare; one of the most endangered plants on earth" (Hansen, 2000:7). Months after the plants rediscovery in 1978, it was placed on CITES Appendix I which placed the plant in the same group as the African elephant or the giant panda (Hansen, 2000:13). Hansen comments that:

One of the main problems of this analogy, was the simple fact that the trade laws don't distinguish between plants and animals. Endangered megafauna (elephants, rhinoceros, whales) might produce only one offspring per year, whereas a single sanderianum seed pod can produce about 8000 to 10000 seedlings per year in a commercial nursery, and mature plants carries five to twenty pods. (Hansen, 2000:13)

The issue with the ban placed on orchids is the lack of consideration of differences between plants and animals. In addition to this, the plant was placed onto Appendix I with hardly "any hard data to support the claim that the plant populations were critically low, and the species was endangered" (Hansen, 2000:12). The need for protection is evident but often the rules are enforced with little understanding of actual plant numbers. It is important to note, however, that the number of producible seedlings Hansen mentions is in a laboratory settings and does not reflect the rate of wild germination that can occur which would be significantly less than that. In addition, the *Paphiopedilum sanderianum*'s story of collection and protection also revolves around its location which is inaccessible, as made evident in the book as Hansen states they had to trek up a river through the jungle of Borneo to reach the mountainside where the

plant grows. This contrasts highly with *Phragmipedium kovachii* which was stripped from its environment almost as soon as it was discovered and so its population density is directly related to trade (Pittman, 2012).

One of the reasons behind this blanket ban on trade is the result of a lack of information on species population numbers. In addition to this, many of the orchids that are placed on CITES Appendix I are hard to tell apart from one another. In one of their multiple articles on orchids and CITES, authors Hinsley et al., (2016) state that “Species are listed by governments when trade poses a direct threat or adds pressure to vulnerable wild populations, or as a “lookalike” of a listed species, to aid enforcement of the Convention” (CITES, 2013).

The lookalike principle revolves around the fact that many orchids have evolved for similar conditions and so can look extremely similar and it can be nearly impossible for people to differentiate a threatened species from its more common counterpart. Indeed, a seedpod or a leaf cutting can look like any other orchid’s seed pod or leaf cutting and so orchids as a group were placed into strict levels of protection to prevent the truly endangered species from being passed off as non-endangered ones. One way to decrease trade of wild collected plants is through using nursery-grown ones. There are incentives to collect nursery-grown plants as private collectors do not have to go through the extensive paper work and potential jail time to grow nursery-grown plants. Artificial propagation is seen as the main way to combat wild collection. However, this does not stop species becoming endangered as little concession is made for habitat destruction.

One of the consequences of CITES has been to encourage “artificial propagation” of many plants. The increase in the availability and variety of plants grown in controlled conditions improved access to supplies of cheap, high quality, uniform and disease-free plants while taking the pressure off wild populations (Sajeve et al., 2007). However, some plant collectors still prefer wild collected plants because they have a “history” and better display the aspect they have in their original habitat (RBG Kew,2017 cited in Sajeve et al.,2012). Furthermore, some buyers in the medicinal plant market can show preference for wild collected plants, claiming they contain superior active ingredients. (McGough et al., 2004; Sajeve et al., 2012; Ivorgna et al., 2017:271)

This highlights that information on species density is not always considered when making these rules. The debate about these agents revolves around how trading in these species is aiding

their destruction when in actuality habitat destruction may be a greater cause for the species precarity. In addition to this, placing them on a stricter appendix would make transporting the species for ex situ conservation harder as special permits would be required and this can be a lengthy and time consuming process which would result in people resorting to smuggling the agents. This would mean any information about the legal trade and distribution of these agents becomes silenced (Challender et al., 2019:200).

## Chapter Three: Orchid case studies

### Comparisons Of Care Practice Between *Disa* And *Angraecum*.

The *Disa uniflora* and *Angraecum chamaenthus* face many of the same struggles as other orchids but their levels of protection vary greatly. The reaction the plants have to the same levels of protection varies greatly between them, as the same actions that protect one species can be damaging for the other. These themes intend to be inspected through field philosophy and personal moments of exposure to the plants. Personal moments are intimate experiences felt between the author and the plants. These personal moments are reflections and while they are from this author's personal archive, the works of theorists such as Anna Tsing, Thom Van Dooren, and Olga Cielemecka will be used to ground the observations in theory. The work of these theorists is molded around the ethics of conservation focusing on themes such as "pure nature", care and the more than human worlding process. These authors each focus on different forms of the need for individual care, from matsutake mushrooms in the case of Tsing, to a forest complex in Cielemecka's writing.

During the colonial era, orchids became seen as hyper-cultivated because of the need for expensive and elaborate glass houses that the European collectors needed to keep the plants alive (Endersby, 2018:75). Through consumerism and commodification, wild orchid populations began a rapid decline, of which the *Disa uniflora* is a prime example. This decline through colonialism led to regulations being created to preserve biodiversity mostly by restricting trade (CITES). These themes were explored in depth throughout Chapters 1 and 2.

This chapter aims to centre these ideas and focus them on two seemingly disparate orchid species and highlight the need for individual care practices external to trade restrictions. The *Disa uniflora* has managed to survive due to strict environmental management efforts and restrictions on collection and trade. Despite this, there are still instances of poaching due to the plant's high status and desirability. *Angraecum chamaenthus*, however, lacks the qualities that have made the *Disa uniflora* desirable and so there are fewer protection precautions taken. The fact that *Angraecum chamaenthus* has laid claim to a new niche in the environment adds to its precarity of protection. By generating new environmental connections in a novel ecosystem, the plant is seen as weedy and is granted limited protection or recognition. These differences are what highlight the need for more specific care practices, and this is affected by location, geography, and politics.

*Disa uniflora* and *Angraecum chamaeanthus* are both orchids that fall under CITES Appendix II which restricts trade internationally. These restrictions on international trade often influence how orchids are interacted with on the local level. Local legislation often models itself on CITES and care in these instances is often thought of in broad terms rather than on the individual. As such, local care practices utilize broad spectrum Western notions of conservation. CITES makes little concession for local knowledge practices and often these ideas are carried through in the local legislation (Hinsley et al., 2018:435; Challender et al., 2019:200).

In addition to this, rules for conservation and care can become convoluted and confusing and so enacting care towards plants blurs the line between legal and illegal. Care practices for these orchids can in some ways be contradictory and renegade where rules are broken to enact care. Care for *Angraecum chamaeanthus* might particularly fall into renegade terms because of the limited amount of education that surrounds the plant and the environment it grows in. Additionally, this management is often posited as a form of care shown toward the environment. Thom Van Dooren, in his explorations on the ethos and ethics of care around the Hawaiian crow, describes “‘conservation ontology’ – that shapes decision making about which animals are cared for, but also about those that can, or must, be ‘sacrificed’ in the name of conservation” (Van Dooren, 2015:2). Van Dooren (2015:2) highlights that “when the logic that structures care or violence go unexamined they both become invisible” and common sense and so trying to define a third alternative space become s problematised. Novel ecosystems in this case become the third space that exists externally to the traditional logics of care.

This notion of field philosophy that deals with situated encounters in the field informs how ethics will be used to interrogate the multiple ways in which orchids in their specific context are interacted with and cared for (Van Dooren, 2015:3). There is much writing on fynbos and the practices of care towards the system as a whole and the *Disa uniflora* itself, while *Angraecum chamaeanthus* exists in the periphery as neither a flagship species, nor one of particular rarity. Because of *Angraecum chamaeanthus*’ place in the world, existing in the failed state of Zimbabwe, and in “abandoned” areas of Zimbabwe, there are limited resources that deal with the plant in its multiple connections. As such, first-hand stories that I have collected while interacting with the plant and the people that know it will be used as source material. I will depart from the highly critical analytical approach of chapters one and two and use personal experience to explore the nature of care surrounding the plant and how conservation

for both of these separate plants is enacted. Along with this personal interrogation will come images from my personal archive that best highlight the interactions that take place around these plants. My personal experiences with these plants will be used as primary source material. As such these stories of the plants come from my unique experience as a white, queer, Zimbabwean, my lens of perception is skewed with a perspective that I hope to navigate.

This chapter deals with “care” as environmental practice. This is a personal term and deals with an individual level of intimacy based on specific instances (Tsing Mathews & Baubant 2017). Van Dooren (2015) deals with personal stories and acts as a source of inspiration for this chapter. Indeed, *Angraecum chamaeanthus*, because of limited recognition has relatively little information on it compared to the plethora of writing that surrounds *Disa uniflora*. This chapter will focus on moments of care I witnessed being enacted towards the plants, in addition to moments when care failed to be enacted. The moments of care and moments of failure to care are important as it is these moments that will define and shape the relationships that humans have towards these plants and will indicate their continued presence through the Anthropocene.

In dealing with discourse around the Anthropocene and human nature relationships, Cielemečka’s writing on “pure nature” highlights how both *Disa uniflora* and *Angraecum chamaeanthus* are affected from different conservation efforts to return to a pure, untouched form of the environment. Both species occupy landscapes where natural purity is an aspect that is strived towards. The *Disa uniflora* actively benefits from the move to ecological purity, while the *Angraecum chamaeanthus* loses the assemblage it has had to generate in an anthropogenic landscape. Most modern landscapes are not pure and have an anthropogenic influence, intentional or otherwise, which results in new tentacular connections (Haraway cited in Braidotti & Hlavajova, 2018:81).

How these plants engage with these anthropogenic spaces and make their homes within them speaks to their more-than-human world making. Arguably, the act of investigation and bearing witness to the new reality becomes a means of care that can be enacted towards orchids. By bearing witness, staying with the trouble (Haraway cited in Braidotti & Hlavajova, 2018:81) and, to reference Thom Van Dooren, telling lively stories that entangle and enliven critters on the edge of extinction, this chapter will shed light on what it means to care (Van Dooren, 2014). Storytelling will, I hope, give the plants the recognition and the liveliness they require to be brought up from the status of mere scientific specimens to become a living being that deserves the right to inhabit the landscape.

*Angraecum chamaenthus*



Image 6. Wursten, B. 2004. *Angraecum chamaenthus*. Digital photograph.

[https://www.zimbabweflora.co.zw/speciesdata/image-  
display.php?species\\_id=118550&image\\_id=1](https://www.zimbabweflora.co.zw/speciesdata/image-display.php?species_id=118550&image_id=1) accessed 25/10/2022

It is important too to understand who is telling the stories about these plants, much of the stories that revolve around them are from my perspective and from the people I encounter in orchid spaces, whether orchid societies or through hiking or everyday interactions. As author Fröydi Laszlo states in *benke and bruin*

I'm aware that the ability to experience oneself as taking part in a multispecies network to a large extent is funded in childhood experiences, and I ask myself about the role of multispecies storytelling in the culture that I belong to.

When recently traveling in Zimbabwe, I took a trip to the Eastern Highlands, to an area called the Vumba. This area is on the eastern slopes of the plateau that makes up much of central Zimbabwe, and rises above the relatively flat land below it. It also immediately borders

Mozambique and so the area is particularly lush as air laden with moisture from the Mozambique coast is swept in. As the air rises and cools, thick clouds and banks of mist condense providing the Vumba mountains with year round water. This is an area that I have often travelled to as a child. I have been an avid orchid enthusiast for many years and one of the memories that foregrounds this fascination was seeing *Angraecum chamaenthus* in bloom. It was completely unexpected and came as the result of wondering away from my father while he was birding. I took photographs of the flowers and had no idea what they were. These little plants were growing at the tips of guava trees and I was looking for guavas to eat. The small white flowers seemed to catch the light in a way that only exists through my memories of youth. The drive for this thesis came about after I travelled back to the area I had first seen them. While the river and mountain was much as I remembered it, the guava trees that the plants had grown on were totally destroyed as the land had been burned and regrown several decades ago. The orchids from my youth came and went seemingly without anyone ever noticing them. This moment of realisation made me consider the ways in which we enact conservation and raised questions of what was considered worth conserving and what was let die. I have on several subsequent trips spent countless days in the Vumba observing the plants, where they grew and the way their habitats were interacted with.

I think of these habitat interactions in the same way that Laszlo (Bencke And Bruhn 2022:124) discusses tracking animals, by following the strands of lively entanglements. The author describes how for the San hunter !Nqate Xqamxebe “dancing, reading signs, praying, overcoming physical struggles, knowledge of utilizing plants and animals to make objects, food and medicine, and actually becoming the animal itself through tracking and hunting are all connected and necessary” to a successful way of life in their own environment ( Laszlo in Bencke And Bruhn 2022:124). I feel that experiencing orchids is done in much the same way.

Growing up I used to spend so much of my time outdoors looking for orchids that unknowingly I started to recognise the signs of what areas would have orchids growing in them. Whether a rock that had a particular kind of moss on it that only occurred when growing close to water. If a tree was growing on a hill, I would work out what direction the sun would hit it in which season. These all influenced whether an orchid could grow in these spaces. Not every rock or tree would have an orchid on them, and through constant repetitive exposure I started to learn the signs of what to look for. The trees rocks and even mountains themselves became agents of influence on what orchids could and would grow in an area. For example while growing up

in rural Zimbabwe, there was a space where two granite mountains grew that were bisected by a stream. In the valley of the mountains there were multiple different orchids, one such was a cousin to *angraecum chaaenthus*, and it grew abundantly on every rock, tree and fallen stump. However directly outside of the shelter of the granite it was not nearly as abundant. One might encounter the odd plant growing above a river, but in this space they proliferated en-mass. This valley, called Mukhuve, always seemed to hold a special place for me because of these plants however, the trees there were often at risk of being chopped down as it bordered farm land. This space further confirmed my internal bias that orchids exist in pure nature as all the trees in the immediate area were indigenous and the orchids only grew on these, not the introduced ones. *angraecum chamaenthus* challenged my ideas of where orchids were found because as they seemed to be found predominantly on the introduced guava trees. Creating a space for themselves.

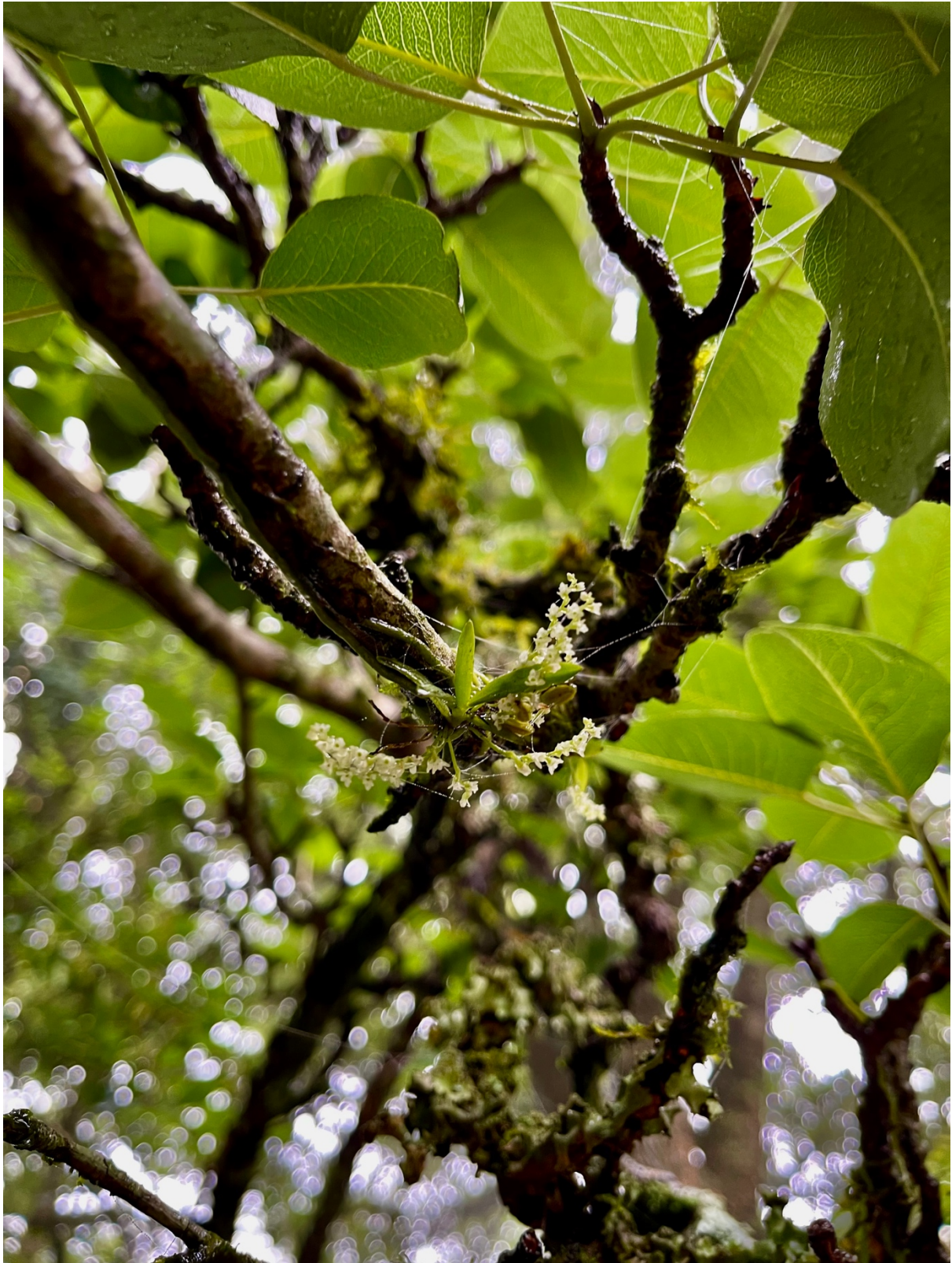


Image 7. Croukamp,B. 2022. *Angraecum chamaenthus* on a fruit tree in the vumba. Digital photograph.

Taking these personal moments I went to the zimbabwe orchid society and started talking to the members there. When I spoke to the orchid society I found indigenous orchids are often not thought of. The society that is there to promote orchid protection in fact does not seem to “care”. That is not to say they ignore the orchids and destroy them, but the subject of indigenous orchids and where to see them or how to save them are treated as taboo subjects that are skirted around due to the contentious and volatile nature of the legislation. As such, modes of care practice shown towards local orchids are overlooked. There are a few passionate orchid society members who focus on indigenous orchids but knowledge about local flora is not widely distributed. This may be in part to the strict rules that revolve around indigenous orchids in Zimbabwe where the failing state does not prioritize orchids as something to be protected; however, anyone who deals with them is treated with suspicion.

On visiting the local herbarium in Harare and indicating I was interested in orchids, the response from the clerk behind the desk was “why?”. It is well known locally that orchids are protected and so are not to be moved, but often there is a lack of education on what an orchid is. And with this comes suspicion. People interested in indigenous Zimbabwean orchids are obliged to care for them discreetly.

While doing research for this thesis in Zimbabwe I became aware of these issues revolving wild orchids, they became something semi mystical in that one was not supposed to know about them. Ignorance seemed to become a means to engage with them without raising too much suspicion. I acknowledged this way of engaging the plants socially and went to the Vumba, the tropical rainforest areas where orchids grow. While there I spoke to the owners of a tropical plant nursery in the mountains. A white woman named Sally came over and offered assistance. I stated that I was there doing research and wanted to know if there were any fruit trees, specifically guava trees that she could show me. I used this form of inquiry throughout my trip up to the Vumba, rather than asking if anyone had seen the orchids, I asked to see the fruit trees. Sally with some pride said no they had chopped out all the guavas trees. When I asked why, she stated that in the immediate area the trees had become invasive and so all the mature fruiting trees had been destroyed as the fruit was being dispersed by birds and monkeys, out competing indigenous trees that had smaller fruit with shorter fruiting periods. She was a proud member of the local conservation group and offered to take me on a hike in the mountains with the other members of her group while I was there.

I accepted. Much of the aim of this group was to take people from the nearby town to areas of pristine jungle in the Vumba to show them why they needed to enact conservation practices, they wanted to highlight how removing invasive plants can help re-establish forest biodiversity, not just plant life but bird life too. Interestingly enough while on this walk, I saw multiple species of endemic birds, ferns, and even chameleons but not a single angraecum chaemanthus. While after the hike, at the only coffee shop in the area for 10 kilometres, old semi abandoned fruit trees were covered in them. I counted up to nine different species of orchids on a single plum tree by the coffee shop. The fruit trees become a novel ecosystem for a group of plants that normally are precariously placed in proximity to extinction. Blurring the lines of what can and cannot be considered nature within the context of orchids. The ambiguity that surrounds orchid habitats and creating legislature means conservation in the Vumba falls into a liminal space. Where to save some species means the necessary destruction of other species. When I asked Sally and her group what they do to the invasive plants they clear the emphatic answer was burn it as firewood. This was seen as a more ethical replacement than indigenous wood that was being chopped down. However with this wood the orchids go with it into the fire.

The interactions one has with orchids in general is an interesting thing, as for white middle class Zimbabweans, orchids are something to own, grow and display. And through colonialism and racial ideas of power when talking to members of the orchid society this is seen as the only correct means of engaging with the plants. Negating and ignoring forms of indigenous knowledge practices that surround the plants too. Within Zimbabwe this idea of collection and ownership of orchids has led to ground orchids being systematically dug up and sold at roadsides by black Zimbabweans for a white consumer market. I remember pulling up to a traffic light in December on a visit back to my family and seeing bunches of the bright pink *eulophia cuculata* in buckets in the sun with a hand painted sign of two dollars next to it. These plants once abundant in the outskirts of Harare now have to be found further afield.

While reading the *Zimbabwe Parks and Wildlife Act* (2014), I attempted to understand to what degree people can show care towards plants, but the rules were self referential to the extent that one seemed to need extensive prior knowledge to properly understand the document<sup>11</sup>. This

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<sup>11</sup> Contained is an excerpt from the *Zimbabwe Parks and Wildlife Act*, 2014:140

*Control of picking of specially protected indigenous plants (1) Subject to subsections (2), (3) and (4), no person shall pick any specially protected indigenous plant except in terms of a permit issued*

means that showing care for the plants is left to the individual. Even which orchids are protected, it becomes ambiguous and plants could be exploited. The *Zimbabwe Parks and Wildlife Act* (2014) states that “All species of epiphytic (or lithophytic) orchids” are protected while terrestrial orchids are not covered by these same protections (*Zimbabwe Parks and Wildlife Act*, 2014:149). This leaves room for ambiguity as, if an orchid growing on a tree were to fall on the ground and continue to grow, people could claim it as terrestrial.

The exclusion of terrestrial orchids, however, might be due to local knowledge practices. In much of Zambia and Malawi, eating ground orchid tubers has become a staple dietary item, and it is not too extreme to assume that in parts of Zimbabwe this practice happens as it occurs in its two neighbour states. Flour called chikanda is made from ground-up tubers (Hinsley et al., 2018:435). While I struggled to find any information on this in Zimbabwe, it could happen, and these rules might be written in such a way to preserve a cultural heritage.

With many showy orchids, flagship status drives protective measures; something that is rare but iconic is more likely to have more stringent protection measures than something that is nondescript (Challender et al., 2019:200). This creates a dynamic system for protection as the more desirable an orchid is, the higher the level its protection, which drives up its desirability. A counter to this would be *Angraecum chamaenthus*. These plants become invisible entities, as they are not at risk of over collection because of their anonymity. However, they also receive no specialized protection because of the lack of desire to collect them. The plants survive because of their adaptability to new connections.

One such example of the adaptability to new connections is how they thrive in altered more than human landscapes. One such being the Vumba Botanical Gardens. It is a fascinating space within the cloud forest area of the Vumba highlands with manicured lawns and an section of

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*in terms of section fifty-one. (2) Subsection (1) shall not apply to the picking of any specially protected indigenous plant in any area which may be specified opposite the name of such plant in the second column of the Seventh Schedule. (3) An owner or occupier of land or a person acting under his authority may cut or gather the flower of a specially protected indigenous plant on the land for use in the home of such owner or occupier. (4) An owner or occupier of land or a person acting under his authority may pick a specially protected indigenous plant on the land which is— (a) needed for cultivation, forestry operations, the erection of a building or structure, the construction of a fireguard, road or airport or other development, or the extraction of sand, stone, gravel or other materials; or (b) used for the cultivation of such specially protected indigenous plants. (5) Any person, who contravenes subsection (1) shall be guilty of an offence and liable to a fine not exceeding level six or to imprisonment for a period not exceeding one year or to both such fine and such imprisonment*

indigenous forest. The last time I went however there were teams of people, perhaps around 20 people, going into the indigenous wooded area and removing swathes of invasive ginger bush. The ginger bush had been brought to the gardens and planted there as an ornamental herb. The piles of the plants that had been pulled up covered half the front lawns and spilled into the carpark. On the exit to the carpark on the right, in another introduced tree, were hundreds of *Angraecum chamaeanthus*. They seemed to cover every twig. Here however indigenous orchids were well known as on the advertising there was a sign to come and see rare orchids, birds, ferns and the enigmatic samango monkey. The orchids were a draw but the larger showier species were pointed out to me, while the ones I had come to see were totally ignored.

These issues are further complicated as *Angraecum chamaeanthus* occupies a space that is deemed expendable, and efforts are being made to clear the space back to indigenous forest. Novel ecosystems and the new ways that ecosystems generate new assemblages are not recognized as valid representations of a healthy ecosystem. Benefits that may arise from these spaces can be overlooked and a focus on the negative ecological impact is often utilized when engaging these spaces. As such, the removal of these spaces and a movement back to “pure nature” is often seen as a method of care that should be promoted (Cielemęcka, 2020:64). The *Angraecum chamaeanthus*'s habitat is at risk from the regulations put in place to protect them. These regulations state orchids are not allowed to be removed from their habitats, however, with a movement back to “pure nature”, the removal of the introduced tree is promoted. In this instance, the tree as a whole is not seen as an orchid habitat but rather the individual log it grows on. The tree can be chopped down, but the orchid cannot be removed from the log. This highlights the cognitive disconnection that is generated between orchids and their habitats where orchids are seen as objects distinct from their ecosystems.

This tension can lead to forms of conservation becoming renegade, as orchids will be removed from logs that have been chopped down for firewood and placed in private collections or hopefully moved into locations that are not at risk of firewood logging. These acts of care are illegal as the orchid is seen to be removed from its habitat and so would attract hefty penalties, such as jail time (*Zimbabwe Parks and Wildlife Act, 2014:48*).

This form of renegade care is compounded as, when reading the document outlining the rules to be followed regarding conservation, there is scattered information and the language becomes inaccessible, often referencing fine limits without indicating where these fine limits should be accessed. This could lead to confusion or exploitation of the rules. Orchids are mentioned

briefly in the list of protected plants, but the main source of protection stems from CITES which is used often as the standard practice of conservation, despite CITES focusing on trade. Any care or interest shown towards the plants becomes a form of renegade care as how one can interact with the plants comes on the back of rules that seemingly contradict each other.

The way the language is structured around plant protection arguably stems from a lack of focus as there is much detail on rhinoceros conservation and poaching (*Zimbabwe Parks and Wildlife Act*, 2014: section IX; Challender et al., 2019:200). As such orchids gain little exposure in terms of institutional conservation efforts. Many of the main conservation efforts come from private individuals. One resource for care could be Zimflora (<https://www.zimbabweflora.co.zw/index.php>). This is a website for plant identification run by a few experts and volunteers. This is the composite work of private individuals aimed at providing accessibility and information about the flora of Zimbabwe that can be used as a store of knowledge for conservation. Indeed, this website is one of the few places that has photographs of many plants. One of the most widely circulated images of *Angraecum chamaeanthus* is from this website (Image 6). This image is used on global orchid identification websites and parallels between this image and a specimen from a herbarium could be made. This singular image becomes a representative of the *Angraecum chamaeanthus*.

The use of images could be seen as a source of care in the 21<sup>st</sup> century as the plants do not need to be removed from their habitats. Images have become the least controversial means of care as images are non-invasive, however, with advancements in technology, GPS tracking is a contentious topic as rare plants' locations can easily be tracked. *Angraecum chamaeanthus* is relatively common as a plant but there are very few images of it, so people would fail to see it if they did not know where to look. This recognition of the species is an integral part of care if we are to apply Wolfe's ideas on deep ecology which is the recognition of biodiversity. Through photography, people are shown the world around them; through visualizing the world, they can hopefully understand it better. Photography becomes a way to interact with the plant, monitor it and in some way keep a little piece of it without actually disturbing the plant.

By contrast, however, images of *Disa uniflora* abound. It contrasts with *Angraecum chamaeanthus* as for the *Disa uniflora*, images are one of the main forms of care that the plants receive. Amateur orchid enthusiasts and societies alike will hike to see the orchids in flower, year after year. The photos that people collect of the plants become an archive of population density, with each photograph detailing the number of flowers or the quality of the plants,

whether there was enough water, or whether the plants had been trampled. These images then inform if measures of protection should be taken. Photography and documentation become practices of care. Indeed, the idea of a photograph denotes the idea of something being special and worth looking at. These photographs are spread widely across social media sites, such as Instagram, and people's images become part of a wide collective and collaborative archive. This act of documenting and witnessing is used extensively within the Cape Floristic Region as orchid pages abound on websites dedicated to documenting Cape flora. This, however, is not replicated in the same way to indigenous orchids in Zimbabwe.

While it may seem that the *Angraecum chamaeanthus* is shown little care compared to *Disa uniflora*, the space it occupies is one that people inadvertently crafted for it. In this case the act of care is not in the planting of the fruit orchard but rather in the recognition that the fruit orchard now provides a platform for the plants to thrive within (Marris, 2018). *Angraecum chamaeanthus* has become so prolific on introduced guava trees it has been given the name 'guava baby'. Perhaps this highlights how well it has adapted to the man-made landscape. It has moved into abandoned fruit orchards as the orchards create the perfect environment for the plant to thrive. Humans inadvertently created the plants ideal space and worked to make the plant happy in its new home (Tsing, 2018).

These two case studies, while seemingly different, revolve around two orchids that exist in complex shifting ecosystems. CITES arguably focuses on conservation and trade restrictions with the view that the world is comprised of "pure nature" (Cielemęcka, 2020:64). In fact, many ecosystems on earth have become some form of hybrid system due to human agency. Even "pure nature" that is placed in juxtaposition to culture as something untamable and wild is still controlled and dictated by human agents (Cielemęcka, 2020:64). The national parks that are seen as wild spaces are ones that are delineated by humans and so are wild because humans have deemed they need to be so. They are regimented and structured with rules of conduct as much as any suburb.

These two orchids occupy spaces that have been heavily influenced by human control. *Disa uniflora* lives in what is often perceived as the 'wild' or 'pure' habitat of a nature reserve and national park; however, due to the effects of invasive and introduced species, this space has also become something hybrid (Hobbs, Higgs, & Hall, 2013:5), while the *Angraecum chamaeanthus* has reclaimed former farmland and used human endeavors to its benefit, becoming an active member of a novel ecosystem. These ideas of delineation follow Hobbs,

Higgs, and Hall's notion of what a novel ecosystem is, where their work, "identifies a gradation in level of change, with moderately changed systems forming a hybrid state and more extensively changed systems forming a novel state" (Hobbs, Higgs, & Hall, 2013:4).

Both these spaces are hybrid ecosystems that change frequently because of their interactions with the Anthropos (Cielemecka, 2020:64). The *Disa uniflora* still exists in its original configuration and where it grows and its role in the ecosystem has remained largely unchanged, however *Angraecum chamaeanthus*' role in the ecosystem has changed as it has colonized an entirely new space (Hobbs, Higgs, & Hall, 2013:5).

An increasing number of management-focused studies invoke the novel ecosystem concept in arguing that the removal of alien species from certain ecosystems is impractical or impossible and that a mind shift in management is needed (Hobbs, Higgs, & Hall, 2013:5). These studies generally call for more pragmatic approaches to management whereby goals are defined in terms of ecosystem functions and services, and not on the basis of native/alien species composition (Hobbs, Higgs, & Hall, 2013:5). *Angraecum chamaeanthus* calls for this system of environmental management, as to remove the fruit orchards in pursuit of rehabilitating the landscape to a state of "pure nature" would destroy a complex ecosystem web.

*Angraecum chamaeanthus* is not the only orchid that benefited from the fruit orchard; to get to the clearing of fruit trees I had to walk through a stretch of less than 100 meters of primary forest that had not been cleared. In this space one would be likely to see one or possibly two different orchid species while one planted plum tree hosted seven different species of orchids. This is far higher than the background level one could expect on a tree of similar size in primary forest. However, this prejudice for orchids on my part fails to recognize the other systems of connections that have been lost with the planting of the fruit trees. The orchard can be seen as an ideal terraformed orchid habitat that has new processes taking place within them. On the other hand, for the orchard to exist, the original forest must have been cleared previously.

The *Disa*, by comparison, requires primary habitats that are relatively unchanged to flourish. The *Disa uniflora* becomes a beacon of wild nature and an icon, while *Angraecum chamaeanthus* is a weedy plant that has taken refuge in abandoned fruit plantations. The *Disa* requires a relatively unaltered landscape to perform its ecosystem roles while *Angraecum chamaeanthus* has acutely terraformed its own ecosystem. As such, invasive species relationships are viewed differently when considering these plants' conservation.

*Disa uniflora*



Image 8. Croukamp, B. 2023. *Disa uniflora* in flower on table mountain. Digital photograph.

The Western Cape has some of the most diverse orchid proliferations in all of South Africa, with a focus of this differentiation within the Cape fynbos biome (Brooks et al.). Fynbos is a vegetation type in the Cape Floral Region (CFR), at the southern tip of Africa. Portions of the CFR are recognised as a ‘serial’ World Heritage site and acclaimed by UNESCO as the world’s ‘hottest hot spot’ for plant species richness and endemism (Moran & Hoffmann, 2012:139).

The *Disa uniflora*, like most other plants, has evolved to fit into this landscape and their form (shape, colour, growth habits) are a direct result of the geological processes that inform the landscape around them. Professor Lesley Green, in her work *Rock, Water, Life* (2020), highlights how the city of Cape Town came to be because of the springs that erupt from Table Mountain, and it is these springs that the *Disa uniflora*, too, requires. Its continued existence is dependent on water as it grows along the banks of rivers and seepage zones along the mountain complex.

The main springs that the disa grow in are as well-known seemingly as the orchids themselves. In January masses of people trek up skeleton gorge, turn left just before the dam and find the disa flowering en-mass along the stream bed. Every year that I have gone there is an almost obligatory conversation one has with fellow hikers about the state of the flowering of the disa uniflora. Every person that one meets on the way in early January notices the plants, they may not know what they are but the plants are a marvel to behold. Orchid people travel from all over the city, up the mountain to look at the plants and this prompts many of the multiple passers-by to also stop and take notice. There is a rickety wooden bridge that covers the stream and this becomes a stopping point while hiking. When one stops to look and there are clearly worn paths through the fynbos on either side of the stream and these are often filled with tourists and local Capetonians alike taking photos of the orchids. Sitting in their environment, one notices how the disa as a spectacle has become a means to aid in their protection. The area is kept clean as so many people walk past and take photographs for social media that people remove litter and detritus from the plant to take the perfect photograph. Every year I go up and see the plants and every year there are throngs of tourists that one overtakes and then get overtaken by on the near vertical descent of skeleton gorge.

If one carries on a bit further along the path, and traveling towards the table top of table mountain, one will find another habitat of a different orchid. This orchid has a smaller distribution, and is subsequently much more rare than the disa uniflora but has not achieved icon status in quite the same way. That being disa longicornu. This diminutive disa is bright blue and only grows along a single cliff face on the table mountain complex. Despite, or maybe because of, its proximity to disa uniflora, nearly no one knows about it. I realised this is because its exact location is a closely guarded secret.

The first time I went to see it I went with members of the western cape orchid society. The excitement surrounding this orchid was nearly palpable on the day we went. Because of the

steepness of the ravine that it lives up traveling to see it was no mean feat. The walk up in January heat lefty us all swearing and sweating profusely, the red *disa uniflora* was spotted, and while there was excitement about it, not much was said about the flower. By the time *Disa longicornu* was spotted there was a sense of relief that can only be described as post orgasmic. The plants had survived another season. But upon being showed the location the members had to assure each other that they would not disclose the location to people, even photographs of the plant on the cliff face as a whole were discouraged as it was thought that this would give away too much information about the plant. *Disa uniflora* is enjoyed in a different way, its ease of growth means that it grows in multiple rivers within the mountain complex and its floriferousness means that when it flowers it is enjoyed for its total display and one is awed by the vibrancy and magnitude with which it flowers. The rivers it grows in are seemingly placed under a lens of scrutiny by hundreds of onlookers and this keeps it protected. This lens acts as a barrier of protection, like a jewel in a museum on display, while *disa longicornu*, because of its complete rarity it seems is kept in the vaults to protect its location.

The *disa* is left to be enjoyed on the mountain and one can witness it in all its multispecies connections, however once down the mountain in Kirstenbosch Botanical Gardens, the start point to the ascent onto the mountain, the gift shop often has *disa uniflora* seedlings for sale. It promotes people to grow the plants and often the plants are hybrids, funky and fantastic combinations of the plants just witnessed on the mountain top itself. These seedlings come with a little care package in sterile conditions that allow one to grow the plant without having to remove it from the wild, and brings nature into the home , making it more accesable.

These seedlings for sale however are not without their controversy. Many of the plants are said to be grown from wild collected plants. There are rumours from members within the cape orchid society describing how areas of the plants were stripped to allow for the genetic diversity and security of numbers for these plants cultivation. This however is a rumour that seems to circulate throughout the orchid collectors of cape town every couple of months with the names and numbers of stripped species getting more and more fantastical each time. With tales of springs that once used to be covered in plants now being stripped and drained entirely.

The continued existence of the springs is paramount to the continuation of *Disa uniflora*. As such, water security that affects the city is also a threat that could affect the *Disa uniflora*. It has been stated in Slingsby and Botha (2018) that invasive plants such as pine trees present a major threat to this water security. For Slingsby and Botha (2018), removal of invasive plants

“would reduce the risk of extreme wildfires, reduce erosion and improve dry-season flows, while protecting our unique biodiversity (and tourism), and securing the many benefits that nature has to offer.” Their solution to the risk of water loss that invasive species pose is to “start with clearing invasions and plantations on the land the City owns around Wemmershoek and Steenbras” (Slingsby & Botha, 2018). Invasive species within fynbos pose a large risk to water security, in addition to this, invasive species pose a large fire risk, so a management solution to invasive species in the Western Cape would include removal of the invasive trees.

Introduced species’ roles in the ecosystem and how the fynbos has adapted to their presence is often overlooked. The plants removal is seen as the end goal, however, the multiple connections that they generate have not been adequately understood. This is a commonly used way of returning sites back to nature, by returning to a state of nature that existed before the disturbance. “A common goal in ecosystem management is to maintain native populations and traditional functions by removing the species, disturbances and conditions that lead to degradation” (Hulvey et al., cited in Hobbs, Higgs & Hall 2013:157). This idea of returning to something that existed before the disturbances created by these introduced species negates how the landscape has already changed to include the species. Novel ecosystems, or hybrid landscapes, force people to reconceptualise what nature has become through these disturbances (Hulvey et al., cited in Hobbs, Higgs & Hall 2013:157). In the Western Cape, these spaces are seen as feral and are thought of as things to be managed.

When walking across the table mountain complex one is made sharply aware of human interaction in maintaining this ecosystem as further up the mountain from disa kloof there is an aqueduct that is made to channel water down the mountain into one of the rivers that supplies a dam. The aqueduct has become home to many hundreds if not thousands of disa uniflora plants, and so while the plants themselves are indigenous they are only able to exist within the space in such a proliferation due to human intervention. The landscape however is not considered novel. The status of the orchid as an emblem growing in the altered landscape seems to justify the alterations of the landscape. However if one was to attempt to remove the infrastructure and truly return to nature, the orchid would lose an essential part of its habitat. These spaces are well known to hikers and orchid enthusiast alike who explore the area to observe the orchid.



Image 9. Croukamp, B. 2023. *Disa uniflora* in flower in the man made aqueduct. Digital photograph.

## Tools for facilitating care

Images of *Disa uniflora* both in cultivation and in the wild are everywhere online: orchid hobbyists and nature lovers alike recognise it as something native, rare and therefore special. Images of *Disa uniflora* are used to denote the richness and diversity of the fynbos, in addition to being the visual mascot of many institutions within the Western Cape.

This, however, is not to say that all *Angraecum* as a species are not photography worthy, as there are certain members, such as *Angraecum Sesquipedale*, (Darwin's comet orchid) that have their own level of icon status. This is another incredibly well-known orchid, because it is large, showy and connected to the father of evolution, Charles Darwin. Indeed, the orchid itself was instrumental in the formulation of ideas around evolution and was written about extensively by Darwin.

Within South Africa, a well-known *Angraecum* is *stella-africa* which comes from one of two known populations, one in Zimbabwe and one in South Africa. This species is available for sale in South Africa but the means by which it has been collected have fallen under scrutiny. There are limited photographs of this orchid and its location has been kept secret within the Zimbabwean population to protect the plant. Finding *Angraecum stella-africa* at all was a matter of sheer luck.

On the other hand, finding a *Disa uniflora* on Table Mountain is surprisingly easy if one knows where to look. I spoke with members of the Cape Orchid Society who make regular trips up the various mountain sites to see the orchid when in bloom. These visits are often extremely well documented and contribute to the plant's visibility. These trips can be considered an act of care, as the amateur orchid enthusiast monitors plant levels from year to year, with some keeping photographic journals of the plants in flower throughout the seasons.

These plants' location is well known by the members of the Society but external to this insular group, finding the plants can often be a matter of luck. Image 1 is of an orange-flowered form that grows on the Helderburg at a particularly precipitous seepage zone where water flowing out of the rock has carved a sheer ravine into the side of the mountain. This orchid is relatively safe from poaching because of its location. Orchids are so entwined with the Western Cape's

identity that even people that are not affiliated with orchid societies have become aware of the rare and endemic orchids of the Western Cape. One trail running club organised runs to see certain plants that were in flower. This club's emphasis was on the trail run but the orchid became the focus or reason for the run. These groups bring awareness and visibility to the plants highlighting the awareness of biodiversity in the Cape Floristic Region.

By contrast, however, when approaching the Zimbabwe Orchid Society, the question of why I was curious about *Angraecum chamaenthus* when there are so many more interesting species was asked frequently. The people who know about indigenous orchids in Zimbabwe closely guard their locations and information.

Like many things in Zimbabwe, the strict rules that have been put in place contrast with the ability to enforce them. A member of the Zimbabwe Orchid Society was interrogated by the Parks And Wildlife Commission because they attempted to dissuade people using firewood that had species of *Aerangis* growing on them. People recognise that orchids are valuable but fail to recognise orchids when they are present. *Aerangis* plants are widespread but still protected in Zimbabwe legislation as they are epiphytic and people drawing attention to them causes suspicion. The contrast here highlights how the same acts of care (namely identifying and documenting plants) differ from space to space.

I witnessed first-hand the disparity of difference in care when I travelled to the area where *Angraecum chamaenthus* grows and saw piles of firewood lined up to heat the boiler that was to provide my shower with hot water. The firewood had orchids growing from many of the most prominent branches. They had been crushed by other logs in the piling process and the axe that had chopped the tree had severed the roots leaving just a stump of what was once an orchid clinging to this branch about to be burned. This pile of firewood was of an introduced tree and the act of removing it was encouraged; however, the removal of orchids from the logs is illegal and so to save the plants from the pyre would become an act of renegade care that goes against the rules of conservation in Zimbabwe.

Hopefully, these stories act as a way of engaging with the plant that highlights its need for care for *Angraecum chamaenthus* despite being wide spread. The fruit orchard is spared being chopped down for firewood because of the fruit which can be sold. In addition, the trees form part of a colonial archive. While walking in the space I spoke to someone who claimed they had grown up in the area and told me the story of the land. They had seen the land transform

from forest to orchard and now into something new. The trees, I was told, grow on land claimed by white settlers and then reclaimed in the farm reclamation actions that happened at the turn of the 21<sup>st</sup> century. The reclaimed land, however, was given out as presidential gifts to ministers or high ranking officials who had little knowledge or interest in running a fruit orchard and the space became abandoned. The orchard was then bought off the government official by wealthy foreign investors who intended to return the space back into a natural forest and a birding sanctuary.

In this time of reclamation, orchids found their niche on some of the few habitable trees in the area and managed to reclaim their space, but their continued existence there requires some form of care. This may look like leaving parts of the orchard intact to allow for the biodiversity to continue, while banning logging in surrounding primary bush would allow for trees to regrow. This space is an example of the “Plantationcene,” that, according to Donna Haraway is:

the name for processes for making wealth through radical simplification, rooted in global transportations of peoples, plants, animals and microbes and in slavery, colonialism, heteronormative familialism, racism and other forced systems of production and reproduction, all of which made the great accelerations of the Capitalocene possible. (Haraway cited in Braidotti & Hljalova, 2018:180)

Wealth has been generated and lost through this orchard and often at the expense of local people: a narrative often played out on the African continent. The land is stripped and grows and stripped again in aims of wealth generation. Plantations such as fruit orchards in Zimbabwe are a direct result of colonial extraction and the multiple ways in which this orchard now interacts, not only with the space but the people around, has metamorphosed. The landscape was simplified into a plantation, stripping the land of biodiversity. In this way though it was seen as profitable and therefore of use, now that the land is no longer being utilised for a purpose it is seen as useless land. Its value correlates to resource extractability rather than an interaction that sees it as valuable in its own right. The space transforms and as it does so its value fluctuates.

The continued transformation of the space means that *Angraecum chamaenthus* has to adapt quickly to ever changing environs and this arguably puts the plant at risk. In opposition, the *Disa uniflora* is at risk of over collection while its habitat remains relatively stable. Unfortunately, unlike the *Disa*, the *Angraecum chamaenthus* does not have the safety blanket

of being in cultivation to protect it from destruction in its natural habitat. This natural habitat is a “chthonic monster” that intermingles with exotic and indigenous and its tentacular webs blur the boundary between indigenous forest and man-made plantation (Haraway cited in Braidotti & Hlavajova, 2018:181). These spaces are the vestiges of destruction, as the natural forest was cleared to make way for the plantation, so the space lost much of its natural world-making processes. However, life is continuously shifting and changing, manifesting new and unusual connections.

## The care shown

CITES legislature is promoted as a global authority on conservation, and many of the guidelines promoted within CITES global legislature becomes adopted at the local level. This creates tension as CITES prohibits species being removed from their habitats, but in the same vein, much of the legislation promotes a return to “pure nature” (Challender et al., 2019:200). CITES does not always recognise how many species have created new ways of being that depend on introduced species. The management systems in place in Zimbabwe, like many spaces, mirror those of international laws with CITES being a major influence in the ways in which conservation is thought (Zelenko, 2007). These laws prohibit orchids being removed or traded, however, lack of education on Zimbabwean orchids means that species are being lost through misinformation. These laws seemingly contradict each other with regards to *Angraecum chamaeanthus*.

The main problem is that the guava tree on which the guava baby proliferates has become an invasive pest that outcompetes indigenous flora in the ecosystem. This provides potential new habitats for one specific entity, the guava baby, while destroying ecosystems for other species. The *Angraecum chamaeanthus* proliferates in these spaces that have become spaces of toxic slow disturbances. They have made new niches for themselves as their typical spaces are unmade, and they weave through human interactions and exist despite and because of human actions. Saving the orchid by leaving the trees it relies on places the rest of the ecosystem at risk. The trees in this way are viewed negatively and become objects that need to be controlled and restrained, however, their presence is an indicator of previous utility.

A dichotomy of this would be an orchid that exists externally to human interaction. While *Disa uniflora* has been discussed at large in this respect there are other species of orchids in the guava baby family that exist in much the same way. One such example would be *Angraecum stella-africa*, one of Zimbabwe’s rarest orchid species with only a handful of individuals known in location. These specimens are known about but the exact location is kept hidden from the general public. This contrasts highly with the *Disa uniflora*’s well known locations. One aim of this is to protect the orchid from illegal collectors, as with many newly discovered showy species, the flashier the flowers, the more likely the plant is to be collected out of its environment, such as *Phragmipedium kovochii* for example. However, because the location is

so secret it could be argued that the trees, (*Brachyestegia* woodland) are at risk from being destroyed. Through gate keeping the plant's location and because of its status as endangered, it is not allowed to be removed from Zimbabwe and sent to a space that would have the facilities and infrastructure to artificially propagate it. Thankfully, *Angraecum stella-africa* is also found in South Africa and so has entered into private collection due to the efforts of private businesses using their star power for gain. Indeed, a Google search will highlight that *Angraecum stella Africa* is more readily available than *Disa uniflora*, although *Disa uniflora* is for sale from certain nurseries within the Western Cape.

*Disa uniflora*'s locations are shared widely, and much of the wild population that remains exists in spaces that are just out of human reach while those within reach are often picked. The care practices for *Disa uniflora* and other orchids in the Western Cape revolve around visibility. As people regularly view the orchids there is some protection, and the fact that the plants are so visible arguably contributes to their protection. *Disa uniflora* makes an emblematic member of the Cape fynbos biome, which as a biome is highly endemic, as it occurs only in the Mediterranean weather region of the Western Cape (Moran & Hoffmann 2012:139). As such, the biome as a whole has much higher levels of protection and recognition than that of Zimbabwe which predominantly consists of miombo woodland. Miombo extends through much of sub-Saharan Africa from roughly Angola to Tanzania.<sup>12</sup> As it covers such an expansive range compared to the Cape floristic biome, it has little focus and interest in biodiversity preservation because of the quantity and stability of the biome.

Fynbos has proved to be remarkably susceptible to invasions by alien tree species which have exacerbated the degradation and losses induced by human activities, and which also disrupt and reduce water supplies. In the fynbos biome, water security is a major component in the clearing of introduced forest and as stated the *Disa uniflora* is tied to water presence so if the trees are being cleared for water security reasons, then the *Disa uniflora* will benefit too. Invasive plants "have a major negative impact on South Africa's limited water resources and it has been shown that invasive alien plants use about 6.7% of the water runoff of the entire country, in excess of that which would have been used by the native vegetation" (Moran & Hoffmann 2012:141).

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<sup>12</sup> <https://en.wikipedia.org/wiki/Miombo>

Thus, besides protecting biodiversity and ecosystem functioning, removal of alien trees enhances water availability and provides other economic benefits. It is also linked to a bill that stipulates the people are entitled to water and invasive trees pose a threat to that accessibility as they take up a lot of water.

Removal of invasive trees then becomes an integral part of the fynbos management system. The *Disa uniflora* depends on space management and removal of invasive species that would pose a threat to their water security. By comparison, the *Angraecum chamaeanthus* would be at a disadvantage because of how it has started to build connections with the introduced trees around it.

## Conclusion

Through the *Anthropocene*, the earth has seen a shift through human intervention, and even the wildest spaces have been touched by this intervention. Table Mountain, which is seen as a wild space in the heart of the city, is touched by introduced species, many of which raise concerns for water security. These moments of disturbance have been enacted by humans through the belief that nature is expendable and exploitable and humans change the landscape as they see fit. Orchids, however, manage to maintain their position in these altered landscapes and some new species even reclaim the anthropogenic landscape (Cielemęcka, 2020:64). However, these reclaimed landscapes become complex spaces; what was there previously was destroyed in order for them to exist. These reclaimed landscapes have biological processes starting up again but are often not recognized as valid landscapes (Marris 2009: 451). These places are seen as sacrificial as they are no longer useful as nature because they have been changed by man, but they are not useful or productive anthropogenic spaces and so become something liminal and in-between but recognised by neither. As such there is a drive to return to a “pure nature” by destroying these novel ecosystems (Cielemęcka, 2020:66).

“Pure nature” has become a fantasy of pre-human intervention, and as an ecological movement it aims to direct us toward a world that existed previously. It is a mythical land uninterrupted by human action that becomes aspirational for ecologists (Hobbs, Higgs, & Hall, 2013:5). New ways of being and new landscapes are often disregarded and the movement back to “pure nature” can be detrimental to the species that have managed to eke out an existence in the novel ecosystems (Marris 2009: 451). The *Angraecum chamaeanthus* is a victim of this drive back to “pure nature” but its relationship to conservation techniques have been complicated by the very rules put in place to protect it. The rules of what is an orchid habitat become ambiguous as all the agents that make the orchids habitat are treated as individuals that exist separately from each other, to the point that in some instances it is of the tree that makes the orchids habitat but rather the log the orchid grows on. These rules are based around global rules such as CITES and arose from a need for protection based off years of colonial exploitation. Hopefully this examination through, history, collection and reaction generates a better understanding of the question of how an orchid’s status affects its levels of care and what this care can become through exploitation and environmental management.

Orchid's colonial exploitation has led to the formulation of a modern imaginings of what an orchid is. Orchids are thought to occupy spaces in "pure nature" and become a representative of an Edenic time before humans (Hobbs, Higgs, & Hall, 2013:5). Our ideas of orchids in these spaces then can be surprised: we don't expect to see orchids inhabiting hybrid Frankenstein landscapes (Tsing et al., 2018). However, their connection to tropical jungles and colonial imaginings through art and literature have generated persistent conceptualisations of the dangerous and sexy orchid. We often assume orchids are these mystical 'otherworldly' objects in need of constant care and attention. While that is true for many commercial orchids, others persevere in every landscape. They become weedy, as with the case of *Angraecum chamaenanthus*, or they become beacons of identity such as the *Disa uniflora*. The spaces these two orchids occupy influence their public reception as much as their physical status.

These orchids exist in complex webs within their ecosystems and the unravelling of these webs could mean loss for more than just the orchid (Van Dooren, 2014:13). Their extinction would affect the multiple partners that are connected to them, as orchids make up multiple agents of their landscapes. For *Disa uniflora*, the mountain complex itself is an integral aspect of the plants existence as it would not be able to survive without the perennial fresh springs that come off the mountain.

To be confronted with the damage caused to orchids is unsettling, and hopefully this thesis has elucidated ideas on how to "stay with the trouble" (Haraway cited in Tsing et al., 2017:G2). In sitting with the trouble, accepting the reality of the situation and bearing witness, I have attempted to show how orchids are lively members of their ecosystems rather than static botanical objects. Through discussing stores of the orchids and how people in their different situations show care, hopefully a discussion can be formulated around human impact, and awareness can be brought about of the technological, political and cultural power people have exerted on landscapes in different contexts.

Through the objectification rose abjectification of the jungle. The land orchids came from came to be seen as a violent and foreign place, the antithesis to the British way of being, and orchids came to represent something foreign, dangerous and alluring (Vanni, 2012:175). Literature and art constructed these imaginaries of the orchid which still contribute to our understanding of them today. Images have come to define our interactions with orchids: the *Disa* has endless photographs, taken by amateurs and experts alike, that generate an online archive which can aid in understanding and population density. Conversely, the *Anagraecum chamaenanthus*

becomes defined by a single image which has become so widely circulated that the image starts to become a simulacrum for a type specimen.

These means of interaction through the medium of photography are a far cry from the Victorian methods of over collection. The search for species that lead to pieces of landscape being stripped and burned has left a mark into the 21<sup>st</sup> century with some species still struggling to recover (Anghelescu et al., 2020:528). While online images become a means for interaction, there is still a drive to collect wild specimens as collectors feel that these are of superior quality in the horticultural trade (Anghelescu et al., 2020:528). Plants that are showy or new are particularly at risk. Plants such as *Phragmipedium kovachii* were discovered and stripped from their locality within a matter of months (Anghelescu et al., 2020:528). Collecting of wild plants is often done illicitly and indeed in some spaces in the *Disa*'s range, plants can only be seen growing out of arm's reach because those grown within reach have been poached by zealous collectors.

This over collection through commodification then led to the formation of regulatory bodies such as CITES which acts to promote biodiversity preservation through the restrictions of trade. These restrictions, however, are often thought of in broad spectrum systems and fail to recognise individual needs of particular species. These rules are often institutionalised at the local level such as in Zimbabwe which models its protective legislature on CITES (Challender et al., 2019:200). This creates a dichotomy as local traditions and relationships to the environment are not recognised by CITES, and it is up to the individual country to facilitate (Challender et al., 2019:200). Often, there is a lack of education of what orchids are, however, there is an awareness that they need to be protected and to try to protect them they need to be highlighted and discussed in the same way as other species that CITES protects (Challender et al., 2019:200).

Through working with CITES and generating the understanding of what an orchid is, hopefully systems of care can be put in place that would allow for the greatest benefit of biodiversity preservation. Care for orchids is often enacted in personal ways. The digital archive presents a means to monitor population levels and forms part of the main systems of care that are placed on orchids, while lively stories and bearing witness can further expose orchids to a wider audience, bringing awareness of the plants and the care they would need to survive the Anthropocene.

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