



Plant Thinking: Enlivening Knowing through Drawing in-the-field

Fiona Harrisson, School of Architecture and Urban Design,
RMIT University, 3759, Australia fiona.harrisson@rmit.edu.au

Abstract

'Plant Thinking' (Madre, 2013) invites a reimagining of the vegetal world through a plant-centric rather than a human-centric lens. This paper reflects on the development of a Post Graduate elective in the landscape architecture program at RMIT University, titled 'Plant Thinking: in time and place' which invites students to behold plants as living dynamic beings through drawing in-the-field. In addition to doing detailed drawings, both above and below ground, students read and reflected on philosophical texts which invited a reimagining of human and plant other-than-human relations. The texts invited students to reflect how they behold plants in their own lives and how they engage with plants in landscape architectural projects. This relational approach to learning was informed by my own practice-research where the action of drawing was a way to develop my own relational attunement. This informed how I invite students into their bodily knowing as a relational process with landscape. This paper offers a relational approach to learning-with plants through drawing to demonstrate a broader pedagogy in higher education which foregrounds learning through direct experiential context with the living world

Keywords: Relational knowing; participatory observation; drawing in the field; landscape architecture education.

1. Introduction

Michael Marder, philosopher, offers 'plant-thinking' to foreground encounters with plants through a plant-centric perspective. Approaching plants in this way requires one to put aside a human-centric perspective by approaching plants not through what they can do for us but to consider plants on their own terms, '*Are we perhaps in a better position to encounter the plants themselves... when we do not know what to do with them, are reluctant to interfere with their complex workings, and simply contemplate them as they grow?*' (Marder, 2013, p. 4). Marder admits this is a speculative action and might not be possible but suggests the aspiration to conceive of the possibility of plant subjectivity itself has agency. In Marder's words:

"the eventful encounter with plants whereby we find ourselves in the greatest proximity to them without negating their otherness cannot come to pass unless we entertain

the hypothesis that vegetal life is coextensive with a distinct subjectivity with which we might engage, and which engages with us more frequently than we imagine" (Marder, 2013, p. 8).

In the discipline of landscape architecture plants are a core material of practice. It is essential to understand how plants grow in different conditions. In practice and education, there is a tendency to treat plants objects to be used in service of a design project, much like other landscape materials such as concrete and gravel.

In response to Marder, I initiated an elective in the Master of Landscape Architecture program at RMIT University to invite students to observe plants through spending time with them. Students spent drawing detailed close-up drawings of plants. The act of drawing was a way to extend the time of observation. The title of the elective 'Plant Thinking: in time and place', inspired by

the title of Madre's book, invited students to behold the vegetal world on its own terms. Plants were observed in-the-field and drawn in time and over time. By drawing in-the-field students became attuned to the relational dynamics of plants and to understand how they are inextricably responsive to each other and to their environment. The participatory observational methods undertaken admitted both the observation of plants and the act of observation itself as the 'subject' of study.

The ambition of the elective course was to learn about plants and to instigate a broader ecological consciousness through participatory ways of knowing through the lens of plants. Relational ways of knowing are intrinsic to Traditional cultures along with mutuality between plant-human relations (Wall Kimmerer, 2020, Cumpston, Fletcher, Head, 2022) and while this tradition was acknowledged, the elective rested on thinkers working at the edges of the Western intellectual tradition. This is the intellectual heritage, my ancestors brought with them when they arrived some three generations ago and that has wrought such ecological destructions. It is, I believe, the Western ways that need to be reworked and expanded to meet the ecological challenges of this time. Below I outline the participatory

Entwining knowing and participatory ways

Freya Mathews (2023), along with other eco-philosophers, suggest the ecological crisis is a consequence of ways of knowing that separate the human being from a living world; *"The source of our modern mistake might be traceable not merely to our metaphysics, which is to say, our theories about the nature of reality, but to our epistemology, our way of knowing and thinking about the world"* (p 46). Mathews proposes relational participatory modes of practice to instigate engagement with a living world. These ways proceed by working with the whole rather than dissected thinking into smaller and smaller parts.

Like Mathews, Jeremy Naydler (1996), a philosopher of science, connects the ecological crisis happening 'out-there' with ways of knowing - *'The issue is not simply the degradation of nature, but the degradation of our awareness of nature'* (pp. 16-7). Naydler points to Goethean

methods of observation, a particular participatory approach to knowing, which he argues *'enriches rather than impoverishes human experience of nature'* (Naydler 1996, p. 19). Goethe's method is relational and situates human knowing in a continuum with the living world (Naydler, 1996). This participatory method involves engaging one's body, including one's outer senses (particularly one's eyes) and inner senses (intuition and imagination) as a receptive practice of observation. Observation must be undertaken over time as one's capacity to 'see' unfolds. The observer must be in the presence of the thing being observed (rather than separate from it). Participation approached in this way reorients the relationship between subject and object, researcher and researched, as knowledge arises in the 'space between'.

Understanding emerges through a process of attending to a phenomenon rather than approaching a phenomenon with a precept, theory or fixed idea. Goethe developed this method of observation in the 19th century as an alternative to positivist methods of observation which separated the observer from the observed. Goethe's method was based on a belief that the human being is the most exact scientific instrument because we ourselves come from nature (Naydler, 1996). This method has since been described as a precursor to what was later called phenomenology and is being explored as a way of science called wholistic or contemplative science. It takes time and requires a particular and often unfamiliar approach. Goethe's method provided a relational pedagogy informing the 'Plant thinking' elective.

Drawing was undertaken as a process which built over time, while students were in-the-field -field. The drawing developed as the students' capacity to 'see' developed. Plants were understood as inextricably part of relational communities, rather than as individual specimens. Students were asked to observe and to draw how plants grow in relation to other plants and in relation to their surroundings both above and below ground. In addition to observing plants, students were asked to also observe the ways they observed and how the way they saw changed over time. This reflexive process enfolded the observation with the subject of observation.

In tandem with developing a practice of drawing, students read and discussed philosophical texts which identified moments in their own practice when they saw plants differently, along with time-based methods for observation. The readings provided a perspective on plants as sentient and intelligent and highly attuned to their environment. Each author offered a subtle shift in perspective which also suggested a lot can be learnt about being human from plants. All readings invited a reimagining of plants by questioning whether human intelligence is above other-than-human intelligences.

In this paper I explain the relational pedagogy underpinning the development of the elective. I begin by describing the relational participatory methods explored through my own research practice, which involved spending time observing landscape learning to see and then imagining what was underground. I go on to describe the elective, the method and learning sequence, the sites of observation and the outcomes. Finally, I reflect on why I believe relational methods undertaken in-the-field can enliven knowing through a focus on plants in the discipline of landscape architecture.

Participatory drawing (registers of time)

A living world requires a *living* mode of observation. Bortoft (2012), a philosopher of science, describes this process as participatory which engages one's human capacities in the act of observation - *'the lived body is the sensing body and as such it is the organ through which we can encounter the sentience of nature'* (Bortoft, 2012, p. 49). This reciprocity between the observer and the observed is also described as *'dynamic thinking'* (Bortoft, 1985, 1996, 2012) which admits the observer as part of the observation in the process of generating knowledge which arises *'between'* the observer and the observed. The observer is as much a part of the observation as the thing observed. Knowledge is understood to arise *'between'* rather than residing with an individual person. This kind of knowledge has been described as *'fourth person'* knowing (Scharmer and Pomeroy, 2024).

I explored these participatory approaches to observation through my own research practice with landscape. This

began with undertaking a Goethean method of observation through a durational practice of drawing. I spent extended amounts of time outside and engaged drawing as a way of registering change over time. While drawing, my eyes and hands worked in concert. I came to experience what Goethe describes as *'the hands want to see, the eyes want to caress'* (Goethe in Pallasmaa 2005, p. 14). My capacity to *'see'* changed over time through my eyes and my hands.

One of the subjects of observation was the changing horizons and skies of Mount Sugar Loaf, part of the Great Dividing Range, which was also where I lived. I had always loved living with this view of the mountain and skies and wanted to spend time really taking it in. I decided to make a drawing every day for the period of one month. Over time, my capacity to *'see'* light, colour and shape as dynamic and continually changing deepened. By drawing the sky, I experienced it as a phenomenon that is continually changing, forming and reforming. I also experimented with Goethe's method, which Bortoft describes as follows:

'Goethe made the distinction between the kind of thinking which begins with the finished product, the object, and the dynamical thinking, which looks, instead at the coming-into-being of that object' (Bortoft as cited by Scharmer 1999, p. 1). Every living thing changes moment by moment, in different forms and timeframes. Through the practice of drawing, I registered the continuous change on the page. Each mark on the page was an interpretation or translation of what I saw in front of me. Each drawing became a register of time.

Through the action of drawing, the act of looking was slowed down. This involved spending time in landscape and setting up different *'frames'* through which to observe and draw over extended periods of time. Through the process of drawing I spent time in landscape in the presence of a phenomena. My attention was active. I saw change happen and recorded the change through my eyes and hands working in concert, within the frame of the page. Through this process I developed my capacity to observe through focussed attention over extended pe-

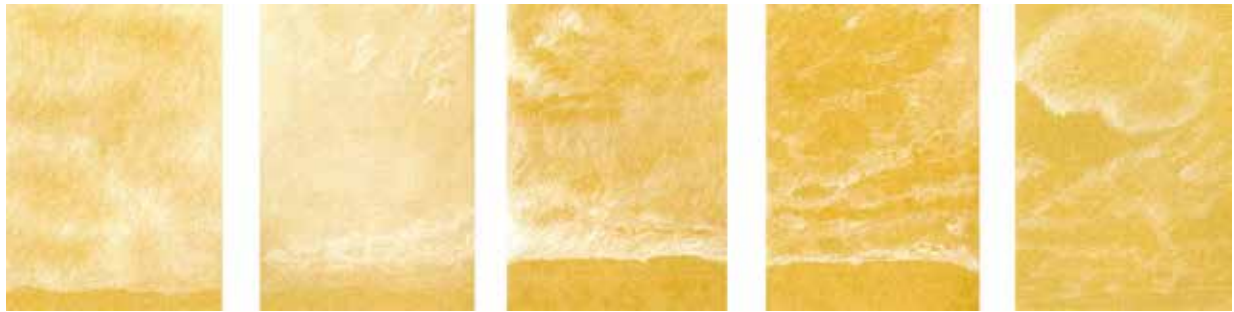


Figure 1. Sky Earth: Horizons, 5 of a series of 30 white pencil on brown paper drawings. Source: Fiona Harrison

riods of time. The outputs of these techniques recorded change and revealed landscape as dynamic. As a consequence of dedicating time, I became attuned to the qualities of light and the spans of time over which changes occurred.

The Plant Thinking elective was a translation of these practices into a pedagogy for students of Landscape Architecture to learn about plants through spending time with them.

Pedagogy for relational knowing (above and below)

Based upon my own participatory practices, I designed encounters for others including the 'Plant Thinking: in time and place' elective. The elective was predominantly run in-the-field so students could observe and draw the ways in which plants grow in two different sites with different conditions.

The elective focused on two places in Melbourne, almost 15 kilometers apart; an inner city nineteenth century park called Fitzroy Gardens and a remnant forest called Gresswell Forest. These places were considered 'parallel' sites because they were of the same geology, similar aspect and ecological vegetation class, also known as EVC but

were very different. Both places would once have been similar but, because of their different proximities to the centre and initial site of settlement they had different histories which shaped what the places had become including the soil and communities of plants growing there. Fitzroy Gardens was a lush established inner city urban park which had been cultivated and irrigated since early settlement to establish the predilection for European plants and trees of that time. Gresswell Forest, on the other hand, contained indigenous plants and is close to a vestige of the landscape prior to colonisation. It was not cultivated over time but was fenced to keep dogs from the surrounding suburbs out. The earth is much drier and less fertile than Fitzroy Gardens and the vegetation is more olive in colour and lets more light in rather than the heavy dark green tree canopies in Fitzroy gardens. While Gresswell Forest is less lush than Fitzroy Gardens, it contains much more biodiversity, although this is not obvious at first. Gresswell Forest was a way to show students what the landscape of Fitzroy Gardens might have once been prior to settlement. We studied Fitzroy Gardens first, a landscape that many students were familiar with and then studied Gresswell Forest, a less familiar landscape, which allowed students to go back in time.



Figure 2. Students drawing in-the-field; Fitzroy Gardens on the left-hand side. Gresswall Forest on the right-hand side. Source: Fiona Harrison

As an elective the students chose to enrol. As part of the advertising students were invited to bring an openness of mind about doing things in a different way, a curiosity about the living world and a willingness to spend time outdoors in landscape.

The pedagogy included four entwining threads; reading philosophical texts, developing a time-based practice of observational drawing, drawing in-the-field in two parallel places, and working together as a group to produce a collective outcome. Each of these threads is outlined below:

1. Reading and reflecting on texts

The students were invited into a reimagining human and other-than-human relations and relational methods through close readings of philosophical and methodological texts. The readings invited the students to reconsider plants as dynamic subjects in their own right, rather than

as objects for use. The readings included 'The Botany of Desire' by popular writer Michael Pollen who, while gardening, saw a bee pollinated plants in his garden, suddenly had a thought – what if human beings are also actually servants of plants just like bees. Perhaps popular plants such as tulips and tobacco deliberately exploited human sensibilities to propagate themselves across the globe? (Pollen, 2002).

We also read the writing of a forester (Wohlbien, 2015) who observed the way trees support other trees in the forest. The wood-wide-web, as it's come to be known, was uncovered by the research of Suzane Simard (2021), forest researcher who demonstrated that trees in forests grow in communities, providing mutual support and sharing resources across species underground through mycorrhizal. Conversing with these texts opened ways for students to behold plants in a different light recentering a more-than-human-centred perspective.

The readings also included 'Thinking Like a Plant' (2013) by Craig Holdrege, an educator in sustainability, who advances a Goethean approach to participatory methods. As Holdrege (2013) contends, due to their relative immobility, plants are an example of a site responsive, dynamic and relational organism. He says, *'..as a creature of place, the plant is not mobile in the sense that an animal is, it is dynamic, connected, resilient, and in its ever-changing life, always in relation to the world into which it grows'* (Holdrege, 2013, p. 1). Holdrege describes Goethean approaches to observation as an alternative to 'object or material thinking' which he argues is at the root of contemporary thinking and is the basis for our unsustainable relations (Holdrege, 2013). Plants offer a way of thinking from which to learn.

Students reflected on the ways the readings opened up their understanding of plants as interconnected communities and this understanding was reflected in their drawings.

2. Time-based practices of drawing

In the elective drawing was undertaken over time as a process of inquiry. Through the action of drawing students developed their capacity to both see and to draw. Their developing capacity to see was evident in their drawings. This approach to drawing is distinct from undertaking drawing as an output or representation which is a common approach to drawing in the discipline of landscape architecture.



Figure 3. These student drawing of the same plant at different times of the day.
Source: Shuvra Das (Permission granted)

To begin the method of drawing, students observed and drew close-up focusing on one specific plant and later zoomed out observe a larger community of plants. Initially multiple drawings of the same plant were undertaken at different times of the day. This process took time and patience, returning repeatedly, to observe and to draw the selected plant. Through drawing multiple drawings of the same thing, the changes over time are revealed. Although sometimes the differences in time are only be registered through looking at the drawings later rather than at the time. The students were asked to note the time and date in the drawing.

The drawing above reveals the painstaking observation and drawing undertaken over two days. On first inspection the drawings look mostly the same, however closer inspection reveal the shifts in lights over time.

A number of students reflected later that the time-based drawing task was transformative in their capacity see how qualities change over time. This capacity was evidenced through their drawings.

Once the method of drawing and observation had been established through students working in a place of their own choosing, we then worked together in-the-field where students undertook 'section' drawings. Unlike a perspective, a section allows things to be drawn in relation to

each other, rather than in proximity to the observer, at a particular scale. A section line is established and everything that intersects with the section line is drawn. If it is a sectional elevation, those things behind the line are also drawn. Each student drew a section of approximately 30-40 meters in lengths which were drawn at 1:20 or 1:50 scale. These sectional drawings allowed students to observe plants and how they grow in relation to each other and in relationship to their environment. Each section drawing had to include the plants above and below ground, including the roots and the soil. Drawing underground shifted the drawing from seeing to imagining how the plants would grow underground in each specific location. The sectional drawings were drawn while in-the-field and were built up over multiple visits.

3. Observing parallel places and thinking in time

Students observed two 'parallel' sites, which allowed them to compare the different ways plants grow in different conditions. As already discussed, the sites included an inner city nineteenth century park called Fitzroy Gardens and a remnant forest called Gresswell Forest. Observations were guided by the following questions: what are the observable differences between the vegetation (colour, density of foliage, diversity of plants)? What enables these plants to grow in this place (soil, water, light)? The comparison between each place revealed the way site conditions allow different plants to grow.

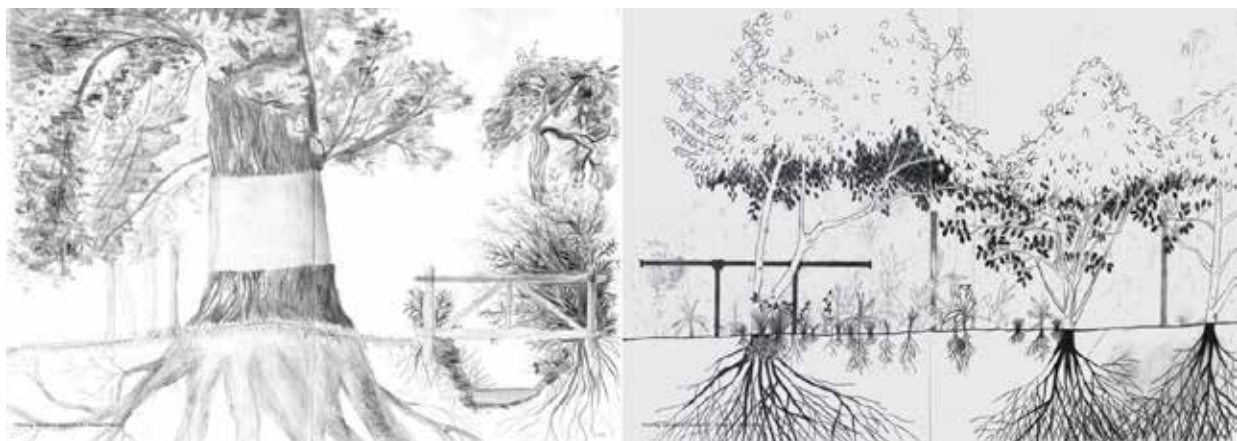


Figure 3. Fitzroy Gardens section drawings. Source: Hazel Francis (LHS) Stephanie Presser (RHS): (Permission granted)

As discussed above, in the first half of the semester we studied Fitzroy Gardens, a garden that was already familiar to the students. In the second half of semester we studied Gresswell Forest, which was unfamiliar to many students. The study focussed on a small watercourse in both Fitzroy Gardens and Gresswell Forest to provide a comparison. Pairs of students worked together to draw one half of a section line which extended perpendicularly from the centre of the water course, thus drawing a longer section of 80 or so meters. Below is a drawing of an example of students working in pairs drawing a continuation of the same section in Fitzroy gardens. Although the ground line continues across the pages, they reveal how each student sees and draws the same thing differently.

Each pair of students drew a different section along the length of the water course, so cumulatively the changes along the length of the creek was revealed. All drawings were drawn in monochrome (black, white and grey), which focussed the drawing on texture, form and density.

In the second half of the semester, we shifted our focus from Fitzroy Gardens, an exotic garden to Gresswell Forest, an Indigenous forest. In this shift of context, the elective focussed more on developing an understanding of the underground and how roots grow in relation to their surroundings. We undertook a day long field trip which began at Fitzroy Gardens and then we travelled to

Gresswell Forest together. I invited landscape architect, gardener and plants-man, Alistair Kirkpatrick, to join the class as he was party to conversations about the development of the elective and suggested Gresswell Forest as the 'parallel' site. While on the field trip he reviewed the students' drawings focussing specifically on the roots while we were on-site and invited the students to see the sites through the perspective of the roots. He also guided the visit to Gresswell Forest highlighting evidence of the management techniques such as control burns, revealed insights into plants and why they grew in certain positions in relation to soil moisture, light and in relation to other plants. These insights were deliberately introduced after students had already drawn roots based on their observation above ground and imagining how they would grow below ground. Kirkpatrick's insights allowed students to imagine roots based on careful on-site information.

The drawings below, reveal a more complex understanding of a plant's roots in Gresswell Forest than their previous drawings undertaken in Fitzroy Gardens, as seen above. In Fitzroy gardens the tree roots were drawn symmetrically in relation to the tree above. Whereas the drawing of the roots in Gresswell Forest reveal an understanding of how roots grow in relation to soil and water in their surrounds.



Figure 4. Gresswell Forest section drawings Source: Stephanie Presser (LHS) and Hazel Francis (RHS) (Permission granted)

The following review of the above drawings was provided by Alistair:

'What a striking drawing! The lateral arrangement of roots is fantastic and expressing them as a void in the soil profile is really strong. You have made bold choices by using abstraction in your drawing but not at the cost of detail in the A horizon of the soil.' Kirpatrick, A (personal communication May 2023)

'This is a powerful drawing the shows very detailed and careful observation of the above ground conditions which seamlessly transitions into the below ground conditions. The complexity of the roots systems shows a shift in thinking and the use of foreground, middle ground and background through shading is strong. The soil horizons could be more articulated in the drawing.' Kirpatrick, A (personal communication May 2023)

The students also created colour swabs to show the difference in colour in the different places. This task was set up so that students focussed specifically on colour as its own thing. This was done to avoid students defaulting to generic colours - green for plants, blue for water - when the thing they were drawing was nothing like the colour they have drawn. This habit has become more common with digital drawing.

With the above colour palette, the student created colours testing different media (pencil, water colour, crayon) and using multiple colours rather than creating flat singular colours, which is closer to the phenomenon of colour is in the living world. This colour pallet revealed student's capacity to really 'see' colours of the landscape.



Figure 5. Colour pallet from Gresswell Forest. Source: Bridie Storton (Permission granted)

4. Inter-dependent ways of working

The pedagogy deliberately reflected the approach being taken to plants – understanding plants as interdependent relational beings. The course was set up to foster independence and inter-dependence between the students. We began by discussing the readings together as a group. Then the student began working individually. This was followed by making the sectional drawings in pairs. Each pair of students drew different section lines to reveal a larger whole within each site. The pairing of students provided a companion for students to discuss their ideas and to think through how they set up their drawings. So although each student drew their own section individually, both students had to work together to agree where on the page the section line would sit, so the section continued across both pages and read as a continuous section (see section drawings above). At the end of the semester all of the sectional drawings were compiled, as a booklet and exhibition, to reveal a larger study for each place. The collective compilation of the larger study through the students' work required the entire class to work together. Every student mattered because if one drawing was missing it would undermine the whole study because the whole relied on the inclusion of every part. The booklet that resulted was powerful, which the students seemed to feel proud of. The extent to which students were aware that this interdependent way of working reflected the way they also observed plants, as inter dependent communities, is less clear as there was no mention of it in any of students' final reflections.

The cumulation of the work as a collected whole occurred at the end of semester when students are pressed by many deadlines in other courses.

Overall, the outcomes of the student work revealed an increasing capacity to 'see' the landscape that was in front of them, to imagine how roots grow in relation to the surrounding conditions and to work together to compile their work as a collective whole.

The concluding section will discuss how the elective could inform approaches to design in the discipline of landscape architecture.

Glimpses into other-than-human perspectives

In this concluding section I reflect on my ambitions for the elective including in the context of landscape architecture.

A primary ambition for the elective was to wake students up to the living world around them and to deepen their way of 'seeing' plants - as living dynamic things which are inextricably responsive to place. Spending time drawing in-the-field was a key vehicle through students' capacity to 'see' plants. A number of classes were undertaken on-site, so all of the students spent a few hours measuring and drawing their sections. Some students returned to site to continue their drawings in the presence of the plants and other students didn't. Nonetheless, there was an apparent shift within the class in the way of drawing from Fitzroy Gardens to Gresswell Forest, especially underground, which suggests there was a deeper appreciation of the way plants grow in response to their environments.

A secondary ambition for the elective was to enliven an appreciation of plants for students in the discipline of landscape architecture. The participatory method took time and deliberately put aside the need to 'use' plants in a project. This allowed a deeper dive into the method, which unfolded across the whole of the semester moving between the two different sites Fitzroy Gardens and Gresswell Forest. Even though students didn't apply their learning about plants to a design project students learnt principle which could be built on in other courses or in practice. Through comparing and contrasting two different sites, students appreciated the site specificity of plants for different site conditions. This understanding of plants is crucial when selecting plants to use in design projects. In addition to learning about plants, many students also remarked on the significance of the learning method – spending time on site and drawing in-the-field - and that this method could be transferred to other sites. They noted that the course taught a process for undertaking a site visit which extended beyond what that had previous done on a site visit, which often involve taking photos and then use these as an ongoing reference for a digital drawing of a site. The participatory drawing methods in-

cluding measuring, observational drawing and returning to site again and again are methods that are transferable to other sites. I'm aware the methods went on to inform some of the students' approach in their future capstone projects.

It would be helpful to extend the research and to interview some of the students at future point in time in their studies to understand extent to which the students' learning in the elective did go on to inform their practice of design, designing with plants and engaging with site more broadly.

Conclusion

'Plant Thinking: in time and place', a Post Graduate elective situated in a landscape architecture program, explored the vegetal world through a plant-centric lens. Drawing in-the-field situated student in relationship with plants as subject and to learn about plants as living beings exquisitely attuned to their environment. The participatory drawing methods enabled students' to 'see' plants on their own terms. And a method that could be transferred to other sites. The focus on two 'parallel' sites allowed a comparison for how different plants grow in different conditions, while at the same time seeing a place through time. As Madre suggests, by considering plants for their own sake and slowing things down allowed a moment of pause within which there could be a beginning to reimagine human and other-than-relations. Even if that moment was only fleeting, it is something that could be returned to another time.

Acknowledgements: Thanks to Judith Rogers for reading and reviewing this paper. Thanks to the students who undertook the elective, especially Shuvra Das, Hazel Francis, Stephanie Presser and Bridie Storton. Thanks to Alistair Kirkpatrick and Ros Rymer, who assisted me in thinking through the development of this elective. Thanks to Judith Rogers for reading and reviewing this paper. Thanks to Alistair Kirkpatrick and Ros Rymer, who assisted me in thinking through the development of this elective.

Conflict of Interests and ethics: The author declares no conflict of interest. Permissions have been granted by authors of drawings.

References:

- Bortoft, H (1996) *The Wholeness of Nature; Goethe's Way of Science*, Floris Books, Edinburgh
- Bortoft, H (1985) 'Counterfeit and authentic wholes: Finding a means for dwelling in Nature' in (eds) Seamon, D and Mugerauer, R *Dwelling, Place and Environment: Towards a phenomenology of person and World* Springer, New York
- Bortoft H (2012) *Taking Appearances Seriously: The Dynamic Way of Seeing in Goethe and European Thought*, Floris Books, Edinburgh
- Cumpston, Z, Fletcher, MS, Head, L (2022) *Plants: Past, Present, Future*, Thames and Hudson, Cromorne
- Goethe, J W (2009) *The Metamorphosis of Plants* MIT Press, Cambridge (original 1790)
- Goethe, J W (1792) 'The Experiment as Mediator of Object and Subject' in *Context*, Fall 2010 pp.19-23 (translation by Craig Holdrege) (No DOI listed)
- Holdrege, C (2013) *Thinking Like a Plant*, Lindisfarne Books, Massachusetts
- Kimmerer-Wall, R (2020) *Braiding Sweet Grass*, Penguin Books
- Mathews, F (2023) *Tao of Civilisation: A Letter to China*, Anthem Press, London
- Marder, M (2013) *Plant Thinking; A Philosophy of vegetal Life*, Columbia University, New York
- Naydler, J (1996) *Goethe on Science: an anthology of Goethe's Scientific Writings*, Floris Books, Edinburgh
- Pallasmaa, J (2005) *The Eyes of the Skin: Architecture and the Senses* Wiley Academic, Sussex
- Pollen, M (2001) *The Botany of Desire*, Bloomsbury, London, Berlin, New York, Sydney
- Scharmer, O (1999) 'Conversation with Henri Bortoft: Imagination Becomes an Organ of Perception', July 14th July 1999, London, accessed 02 July 2024 (<https://www.u-school.org/transformation-dialogues#dialogues-on-leadership>)
- Scharmer, O and Pomeroy, E (2024) 'Fourth Person: The Knowing of the Field' in *JASC*, Vol 4, Issue 01 accessed 20 August 2024 <https://doi.org/10.47061/jasc.v4i1.7909>.
- Seamon, D and Zajonc, A (1998) 'Goethe, Nature and Phenomenology' in (ed) Seamon D *Goethe's Way of Science: A Phenomenology of Nature* the University of New York Press, New York
- Simard, S (2022) *Finding the Mother Tree*, Penguin Books Random House, London
- Wohlleben, P (2015) *The Hidden Life of Trees*, Black Inc, Melbourne